ORGANISATIONAL, MANAGEMENT & COMMUNICATION SKILLS

DIGITAL SKILLS FOR WORKPLACE MENTORS IN CONSTRUCTION SECTOR APPRENTICESHIPS

(CONDAP Project)

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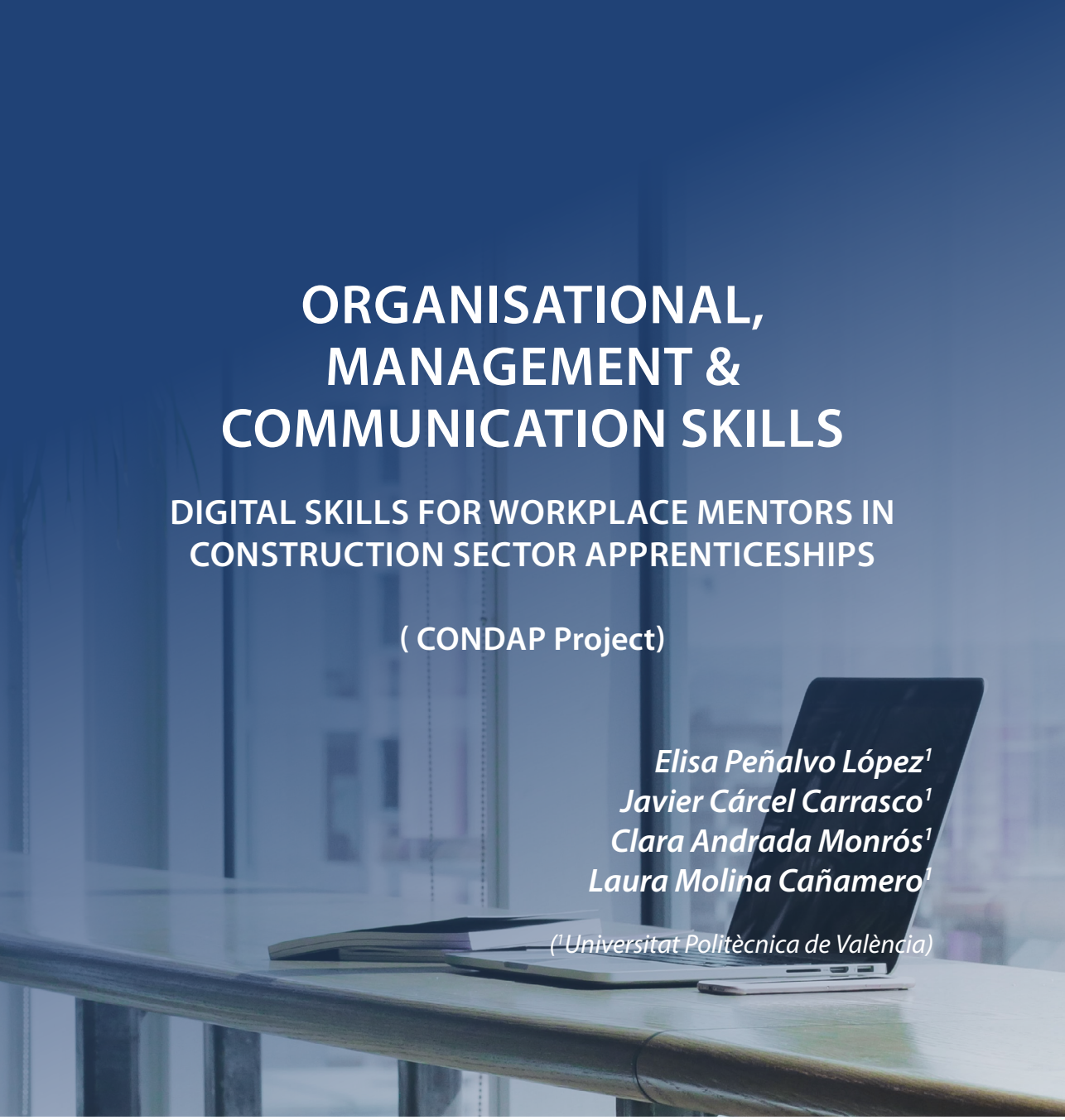

CONDAP

Co-funded by the Erasmus+ Programme of the European Union

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This work has been carried out within the framework of the CONDAP "Digital skills for workplace mentors in construction sector apprenticeships." funded by the European Union as part of the Erasmus+ programme and Key Action 2: Cooperation for innovation and the exchange of good practices (Strategic Partnerships for vocational education and training), Reference Number 2018-1-UK01-KA202-048122.

The realization of this work has been possible thanks to the contributions of all the people who make up the different teams of the CONDAP project (Instructus -UK; Vilniaus statybininku rengimo centras-Lithuania; Universitat Politècnica de València-Spain; EXELIA-Greece; EBC-Belgium), as well as the companies and organizations from which some content of this work has been extracted.

Editorial Área de Innovación y Desarrollo,S.L.

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Primera edición: **abril 2021**

ISBN: **978-84-123661-5-0**

DOI: https://doi.org/10.17993/IngyTec.2021.73

PREFACE

Digital Skills for Workplace Mentors in Construction Sector Apprenticeships (CONDAP Project)

The present is characterised by an unprecedented change, known as the Third Industrial Revolution, where new technologies such as renewable energies or digital tools for management and communication are being shaped and where the future professional development must be focused on, to avoid misalignment between job supply and demand. As far as the construction sector is concerned, we could approach the introduction of new technologies from three different aspects: energy efficiency and sustainable construction, digitalisation and organisational, management and communication skills.

On the one hand, the energy efficiency measures required by the institutions are increasingly demanding. According to the Sustainable Development Goals and the European Targets for 2030, energy efficiency must be increased by 35%, greenhouse gas emissions must be reduced by 40% and a renewable energy rate of 35% must be achieved. The new challenge for the building sector is to further expand knowledge and to integrate modern environmental technologies and to implement such energy efficiency measures in them in order to reduce consumption and to become more sustainable with the environment. Globally, buildings consume more than a third of total end-use energy and cause almost a one fifth of total greenhouse gas emissions. Reducing energy use in buildings is a climate change imperative, but it is also a business opportunity.

On the other hand, the construction industry is also rapidly evolving with digital technologies. Recently, the potential of BIM (Building Information Modelling) systems for the efficient management of construction projects is beginning to be exploited. This is a software able of representing the physical and functional properties of a building in such a way that a knowledge resource is obtained in a common technological environment where information is shared and constitutes a reliable basis for decisions during the project life cycle, from the earliest conception until demolition. This kind of tools allows to save many expenses and to speed up processes, so they will be essential in the imminent future and it is important that the trainees of the present are well acquainted with them.

Finally, the importance of management and communication skills at the organisational level must be emphasised. The way information flows in an organisation, across departments, between management colleagues, trainers and trainees is crucial. It is a complex process that takes a long time to build, maintain and continuously improve. Effective communication can make collaboration productive and mutually beneficial, especially for trainers. The use and implementation of digital technologies for communication, as well as social networks and virtual environments can also offer us efficiently the support needed for good communication and management in the field of construction work.

The CONDAP project aims to support the provision of vocational training for trainers in the construction sector by offering a comprehensive modular course that ensures easy and free access to relevant educational material and tools, thus responding to the needs of VET providers and trainees in the sector. After collecting the opinions of different stakeholders within the building and training sector with different surveys and desk researches, the project partners have developed three different thematic units for this purpose:

- LU1: Energy efficiency and sustainable construction
- LU2: Digitisation in construction
- LU3: Organisational, management & communication skills

This book includes the first teaching unit.

The consortium of this project is integrated by five partners from different countries and with different but complementary profiles in order to address the objectives of the project. The different partners come from the vocational training sector, research and the university world. Specifically, the consortium is composed of the following organisations

* INSTRUCTUS (www.instructus.org)- UK
* Vilniaus statybininku rengimo centras (www.vsrc.lt)- Lithuania
* Universitat Politècnica de València (http://www.upv.es/)- Spain
* EXELIA (www.exelia.gr/en) – Greece
* EBC (http://www.ebc-construction.eu/) – Belgium

This work has been possible thanks to the contributions of all the partners who are part of the CONDAP project, as well as the companies and organisations from which some of the contents of this work have been extracted.

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CHAPTER I:
INTRODUCTION

1.1. PROJECT BACKGROUND

In the initial phase of the project, activities were carried out to identify the priorities and needs of trainers in terms of digital skills within the construction industry. To do this, each partner had to bring together a large group of stakeholders from their region or country including construction companies, vocational training providers, construction workers, industry experts, construction software companies, professional associations, students, new workers, etc.

A research was carried out based on three methods:

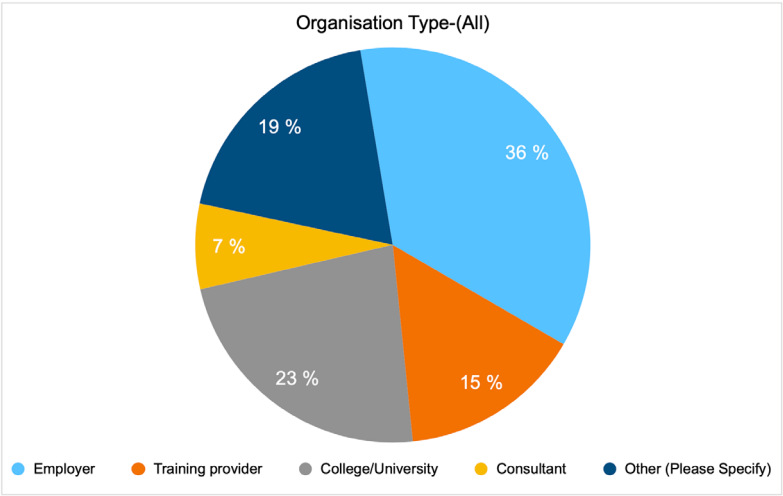
- **Field studies** through online surveys that were distributed among the contacts and stakeholders of each project partner.
- **Semi-structured and individual interviews** with professionals from the construction sector.
- **Office research** carried out by each partner to find out the requirements, needs, technologies, teaching methodologies and new developments in the construction sector and its digital tools.

In the **field studies**, respondents were classified according to the type and size of organisation they belonged to, their job function and their years of experience. The surveys were divided into two parts:

- Part A focused on finding out what the basic digital skills requirements were that building apprentices should have such as handling digital data, searching for information on the Internet, creating documents with office, using electronic media and collaboration, creating websites, using company-specific software, etc.
- Part B aimed to find out the importance given by the surveyors to certain areas within the construction sector such as: digital solutions for sustainable construction and energy efficiency, building information modelling (BIM), virtual and augmented reality, the internet of things, computer aided design, etc. In addition, they were given the opportunity to add those areas not shown that they considered relevant.

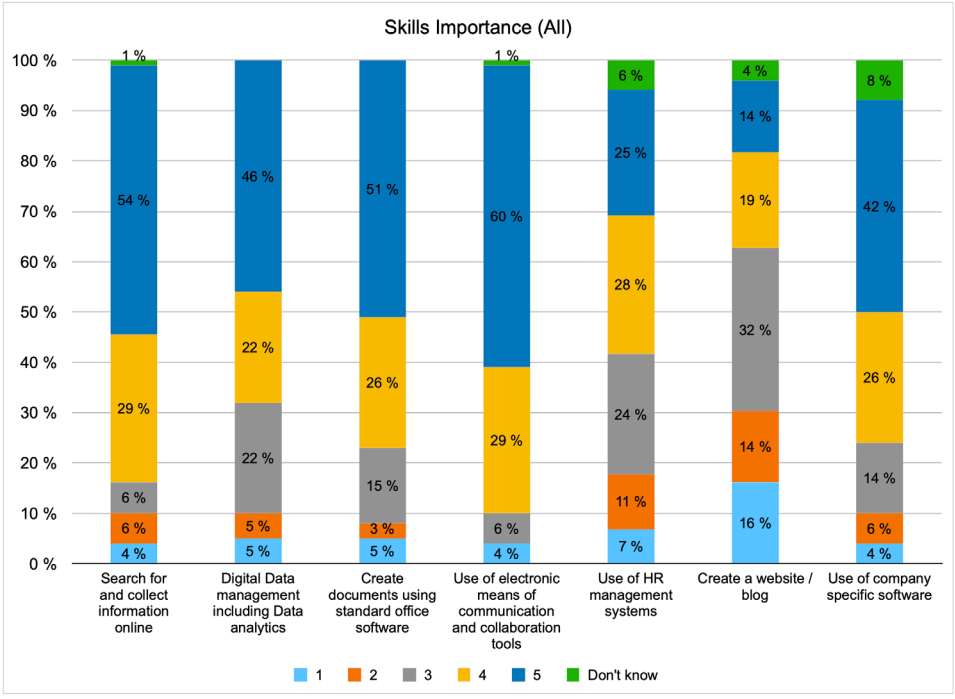
The results of the field studies are shown below:

- Classification of respondents by type of organization



In addition, respondents were almost equally divided in terms of the size of their organisation or company (35% small, 28% medium and 37% large) and 67% of them had more than 10 years experience working in the construction sector.

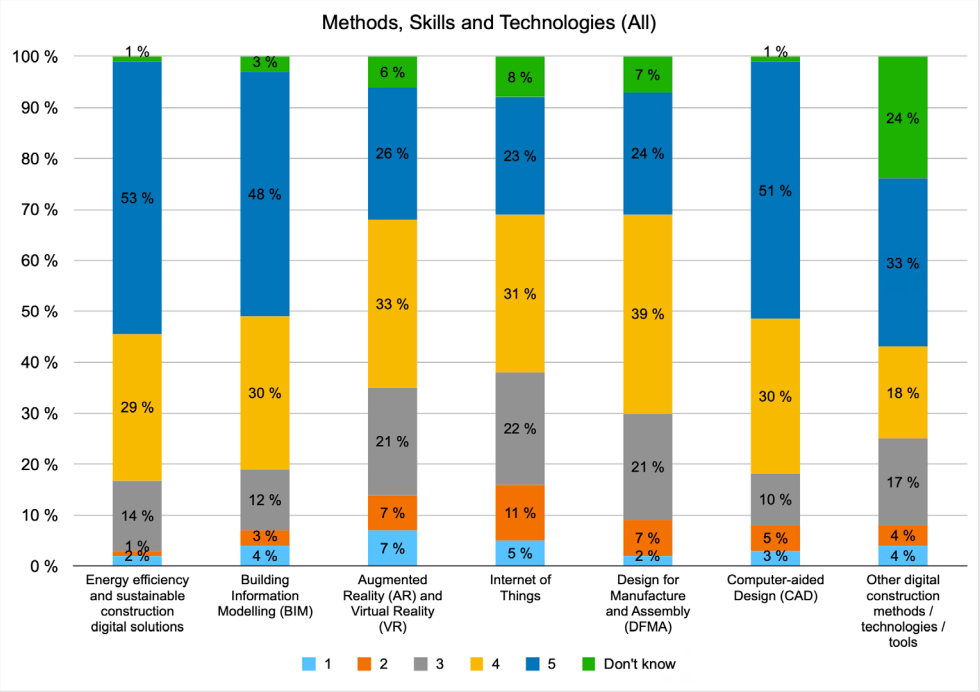
- Results of part A of the survey:



In addition, respondents stressed the importance of using telecommunication applications such as Skype, ZOOM, MS Teams, Mailbox, etc, virtual collaborative environments for online document sharing such as Google Drive or Dropbox and

digital platforms for distance learning such as Webex.

- Results of part B of the survey:



Some of the comments indicated the following additional areas as relevant: artificial intelligence, work safety or the use of drones to avoid working at height.

In conclusion, after analysing the results of the field study, the areas and skills that were most relevant to the respondents were:

- Use of electronic media and digital collaboration tools
- Digital solutions for sustainable construction and energy efficiency
- Building Information Modeling (BIM)
- Computer Aided Design (CAD)
- Search and data collection on the Internet
- Document creation with Office software

The **semi-structured interviews** were conducted to obtain a more in-depth and elaborate view of the skills that are considered most needed by the trainees through a personal interview with one of the stakeholders. In this interview the following questions were asked:

1. What kind of digital skills and tools do you consider important, so that construction managers and apprentice/student coordinators can effectively teach new skills, especially with regard to developments in the construction sector?
2. When you think about the digitisation of the construction sector and digital construction methods, which of the following topics come most to mind?
3. Can you describe the usual/ideal work profile of the training coordinator in construction?
4. What are the main factors that hinder the effectiveness of training schemes in the construction sector, leading to an increase in drop-out rates?
5. Who should be responsible for providing training to trainers of workers and apprentices in the construction sector (Alternative question- What training do you think should be available for coordinators/trainers in the construction industry)?

Regarding the first and second questions, the interviewees highlighted the following skills, tools, methodologies and digital technologies and some of their most relevant aspects:

- Many agreed on the importance of building information modelling (BIM). This is a working method that is defined in the context of the collaborative culture and integrated practice, since it integrates all the agents involved in the building process (architects, engineers, builders, developers, facilities managers, etc.) and establishes a transverse communication flow between them, generating a virtual model that contains all the information related to the building throughout its life cycle, from its initial conception, during its construction and throughout its useful life, until its demolition. The information provided to the BIM model, comes from different types of software, modeling programs, structural calculation, MEP, budgeting software, energy behavior analysis, sensors, etc. The knowledge of all these tools and of the capacity of interoperability between them, is fundamental for the correct implementation of the BIM.
- Some general working software were highlighted, such as:
  - Software for preparing reports or presentations: Word, Excel, PowerPoint, Adobe.
  - Handling of database software: Access, CRM
  - Internal company working tools to communicate and collaborate with the trainees.
- Specific software in areas of:
  - Energy efficiency and certification, sustainable construction, integration

of renewables

- Operations management (lean production), remote manufacturing and numerical control machines (CNC)
- Financial (ACCA) and administrative for the tendering of bids, invoices, tool reports, etc.
- 2D and 3D digital design (SEMA, Revit, AutoCAD, SolidWorks, WikiHouse).
- Work safety
- Circular economy

- Intelligent technologies and automatons
  - Simulation and digital twins to monitor objects or systems and analyse their behaviour in certain situations and improve their effectiveness. An augmented reality and virtual environment tool for simulation is Virtual Reality Headset
  - Smart meters in buildings and the Internet of things
  - Artificial Intelligence
  - Smart Cities
  - Drones to access difficult or dangerous sites, work robots
- Use of the internet for information search, management of websites and blogs and social networks (LinkedIn, Twitter, Facebook), digital marketing.
- Communication tools such as Skype, Messenger, whatsapp, viber.

As for the third question, the qualities and attributes that a trainer should have according to the interviewees are summarized in the following:

- General qualities and attributes:
  - Understanding of the trade and competent use of modern technologies and access to digital training resources and tools.
  - Strengthen the confidence of the new workforce in the industry and convey a sense of reality and effective use of digital tools to address real challenges, such as productivity in industry. Encourage mentors to think differently and beyond their industry, providing a glimpse of what can be achieved using different skill sets and perspectives. Motivation.
  - Practical knowledge of modern building information modelling (BIM) technologies and collaborative approaches to building design and operation; to establish a benchmark and standards for collaborative organisational work. To update the evolution of new technologies in building and to update the knowledge of the trainees.

  - Sufficient human psychology to understand the age groups of workers/ learners and to be able to interact effectively with them.
  - Make greater use of virtual interaction in tutoring and use remote connection tools to increase forms of communication between trainees and trainers.
  - Responsibility, adaptability, management skills, active listening, conflict management and creativity.
  - Continuous support to employees in their training for promotion to other job categories.
  - Knowledge of the apprentice's job requirements and occupational safety.

- Demands:
  - Frequent tutorials and meetings (face-to-face or remote).
  - Planning with a structured agenda and updates.
  - Advice, evaluation, support and follow-up. Discussion forums with other learners
  - Recorded activities
  - Setting goals and challenges Proposing training activities associated with the learner's daily tasks.
  - Ability to tackle problems.
- Training methodology:
  - 6-step working model process in apprentice training (1) Reporting, (2) Planning, (3) Deciding, (4) Behaviour, (5) Monitoring and (6) Evaluation.
  - Student centred design
  - Application of innovative methods and digital tools for training.
  - Adopting the principle of "less is more" for online learning.
  - Continuous improvement of training by offering courses with innovative digital construction methods and tools.
  - Supply of competences according to demand.

The fourth question sets out the hidden factors which, in their absence, could hamper the effectiveness of training schemes in the construction sector and increase drop-out rates:

  - Motivation. Career development or value associated with training.
  - Qualified trainers or coordinators in the company who meet the expectations and motivation of the trainees. Training programme for

trainers and workplace support from the company to train trainers and apprentice coordinators. Increased interest of employees in the company to become trainers.

- Consideration of individual circumstances. Flexibility and willingness of employees to learn new things. Age factor, where the use of technologies is a bit reticent.
- Clear vision. Quality of the training offer. Modern and innovative training methodologies suitable for training in digital skills. Consistency in work systems. Technology that has to be suitable for its purpose. Promoting confidence in technology.
- Coherent framework or infrastructure to facilitate the matching of skills supply and demand. A system that facilitates more competency-based and demand-driven curriculum management.
- Clearly defined skills to be integrated into the workplace. Competence that affects innovation and productivity.
- Understanding the industry segment and the size of the company. The construction industry can be quite segmented with little spare capacity. On the other hand, industry has its particularities where most of the workforce is not office-based. Digital infrastructure in the company.
- Culture of collaboration and improvement.
- Adequate financial flows to respond to current challenges. Sufficient state support for companies that take in apprentices.
- The rights and responsibilities of enterprises providing apprenticeship training should be clearly defined in regulatory acts.
- Communication and collaboration with vocational training centres. Research and development, and investment in innovation. Model of functional training, financing and service provision.
- Identification and addressing of gaps and mismatches in existing skills. Providing clear and coherent information management strategies to help find the information to make timely decisions. Assist in interpreting data to influence decision making.
- Establish the appropriate parameters to eliminate errors due to the human factor. Using the right software to avoid technical problems and duplication of effort in data processing that relies on general measurements.
- Accepting change. On average, it takes about 10 years on average to make the change become an implementable process.
- Gender factor. The construction industry has been predominantly male, and must change. Women can play an important role in BIM technology,

they should be widely encouraged and promoted through events, awards events, conferences, networking opportunities.

Finally, the answers to the last question about what training there should be for coordinators/trainers in the construction industry and who should provide it, are summarised in the following:

- Companies / businesses (in-company training)
  - Own company assisted by individual experts or training centres. Large companies provide these courses themselves, with the help of their human resources departments.
  - Specialised courses for VET coordinators/trainers at state level.
  - Many employers believe that, instead of a formal pedagogical qualification, trainers should know the processes of the industry and the company and be able to explain them to the trainees and instruct them in their tasks. Instructing trainees is no different from instructing any other new employee and is part of the daily practice of many of their employees.
  - In SMEs trainers are mostly self-taught or learn from their colleagues.
  - Encourage trainers to attend short courses or visits provided by companies.
- Vocational training centres:
  - Specialized training centres in construction.
  - Training associations.
  - Company employees are often unable and/or unwilling to train others due to workload, confidentiality issues, risk of possible damage to equipment or fear of possible future competition. The main reason why companies cooperate with VET providers to deliver apprenticeship training is to get the qualified workers they need and the possibility to promote themselves as potential employers.
- Online courses:
  - Short, specific online courses so that trainers have the flexibility to do so.
  - Mass open courses online (MOOCs) and open education resources.
- Initiatives financed by national and European projects:
  - Specific train-the-trainer programmes should be developed to offer short courses for VET teachers with the specific focus on digitisation.
  - Flexibility and prompt reaction in the provision of VET services to changes in the industry is required, including the opportunity to develop new training programmes/modules for high-demand occupations or for new

emerging occupations.

- Courses on pedagogical and psychological aspects are available from national teacher training institutes.

- Professional development:
  - Opportunities for continued professional development.
  - The support of a trainer should also depend on the level of training. For example, EQF level 4 may be advised by a chartered engineer or professional association member who will be able to assess basic skills and competencies.
  - Attendance at training events and seminars.

With regard to desk-based research, this was carried out as a complementary method of gathering information on the digital skills needs of trainers in the workplace and reviewed the availability and content of reports, existing courses and other documents and information sources that each partner could access about:

- Digital skills needed for apprentice trainers and complementary digital skills for construction workers.
- Construction methods, skills and digital technologies
- The role of trainers in the workplace and in the company who participate in the learning, to draw conclusions about the needs of work based learning.
- Existing train-the-trainer courses, focusing on digital skills and construction methods.
- Existing training courses on digital skills and construction methods.
- Skills gaps and deficiencies in the construction sector (also by reviewing information on the management of learning plans)
- Ways in which work-based learning can support the change in skills needed to modernise learning.

The results of the desk research were expected to reveal trends in the construction industry and the need for digital construction knowledge and methods, and therefore to highlight findings on how mentor training can support the change of knowledge needed to apply digital methods and technologies in the context of construction learning.

Each partner contributed evidence from their countries by providing at least 5 sources of information (25 in total from all partners). The answers obtained allowed to know the context in which each country is in the digital field in the construction sector.

The final report analysed the three types of research methods in terms of content and set objectives in relation to the real benefits received. Although the number of responses to the questionnaire is below the target of 150, the rest of the research provides complementary coverage through interviews and desk research. The total of all expected responses was 190, including surveys, interviews and desk-based research, providing good study and information on the courses taken in the different countries and the most developed topics.

With regard to the **field studies**, in particular the answers obtained in the survey, the following graph shows per partner which results were obtained (orange line) compared to the expected ones (blue line). VSRC and the UPV achieved a higher number of responses than the target, therefore obtaining a greater representation of responses from stakeholders and staff associated with the construction.

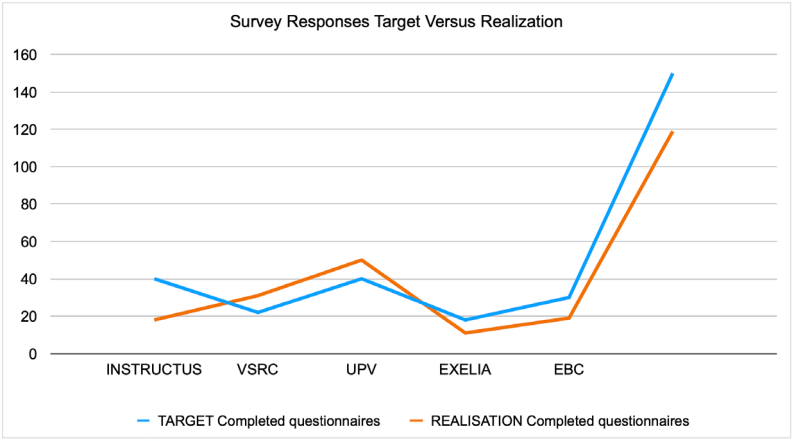


Chart 1. Survey: responses obtained and expected per partner

On the other hand, **semi-structured interviews** are a very effective method of obtaining first-hand information, whose time investment makes it difficult to obtain a large number of them. However, INSTRUCTUS and EBC obtained more responses than the target value, thus counteracting the lack of information with respect to the field studies.

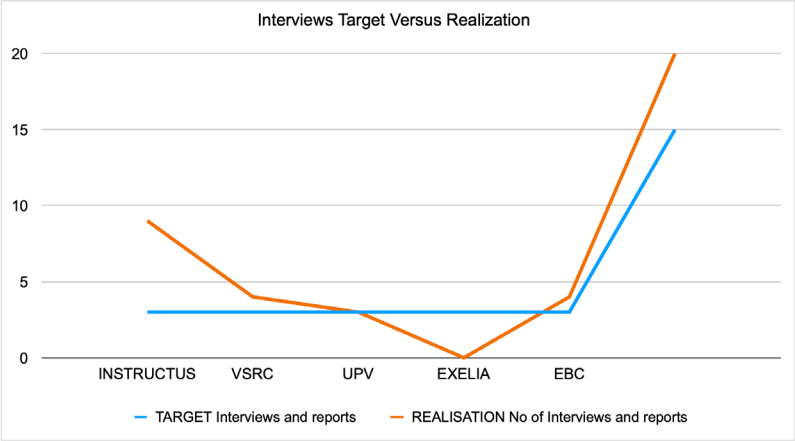


Chart 2. Semi-structured interviews: responses obtained and expected per partner

The last of the methods is **desk research**, through which sufficient information was obtained to complete any data that might be missing from the field studies and semi-structured interviews. We are making known the requirements, needs, technologies, teaching methodologies and new developments in the construction sector and its digital tools in each country. All partners reached the target value and even exceeded the set values. This method had a very good response and usefulness.

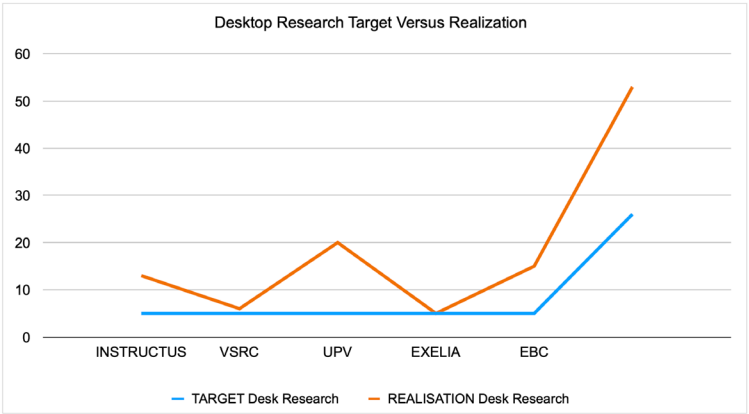


Chart 3. Desk research: responses obtained and expected per partner

In conclusion, the following graph shows the different methods (questionnaires, interviews and reports and desk research) comparing the objective value with the number of responses obtained. As can be seen, the overall number of responses is very high, so the results obtained are well contrasted and there is variety thanks to the response of the different partners.

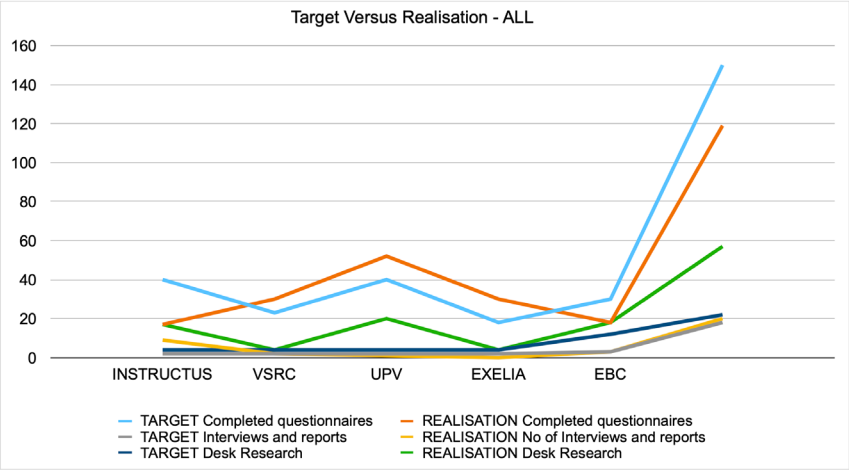


Chart 4. Research methods: answers and target values per partner

As a result of these three types of research conducted by partners in five countries, the following learning objectives were reached which should define the content of the CONDAP course:

- O1. Understand and apply new technologies and software for digital construction
- O2. Share data and construction models using integrated digital systems.
- O3. Develop the skills and knowledge necessary for trainers in the application of digital construction methodologies.
- O4. Develop the skills and knowledge necessary to train students in knowledge management systems and advances in digital technologies.
- O5. To develop the knowledge and understanding to define a customised methodology to support students in their development and improvement in the use of digital tools/technologies.
- O6. Develop immersive learning tools and training in digital construction relevant to your company for use by students.
- O7. Develop methodologies to explore and overcome barriers for the use of digital advances in construction.

Once the research has been completed, the second milestone of the CONDAP project is reached, which aims to define the structure of a curriculum with pedagogical guidelines for trainers and VET providers, in order to train them in digital construction methods. To this end, three activities have been carried out based on the results of the research. The first of these consists of grouping the learning objectives together with the knowledge areas that proved to be the most interesting for the respondents,

extracting from this some learning outcomes that will later form the teaching units of the CONDAP project, which are presented in this compendium.

Firstly, it is important to define the system in which the teaching units will be framed, known as the European Credit Transfer System for Vocational Education and Training (ECVET). This is a common methodological framework that facilitates the recognition and transfer of learning credits from one qualification system to another within the European Education System. ECVET works in partnership with the European Qualifications Framework (EQF) to provide greater transparency in European qualifications, promoting worker and student mobility and facilitating learning. In particular, the implementation of ECVET requires that qualifications are described in terms of learning outcomes; that units are formed from the learning outcomes; and that units are often grouped together to form the basis of qualifications.

The CONDAP project is thus in line with this procedure, respecting the ECVET procedure, defining learning outcomes and forming learning units from these. It is important to clarify that the processes of assessment, validation and recognition must also be agreed between all participants and must respect existing national, regional, sectoral or institutional practices. This initiative makes it easier for European Union (EU) citizens to have their education, skills and knowledge recognised in an EU country other than their own. ECVET complements the European Credit Transfer and Accumulation System (ECTS) by establishing a link between Vocational Education and Training and Higher Education.

According to the ECVET system, a learning or teaching unit is a training element that responds to a set of learning outcomes, defined in terms of knowledge, skills and competences that can be assessed, validated and certified. Through the analysis carried out in the CONDAP project, explained above, learning units based on learning outcomes resulted as shown in the following figure:

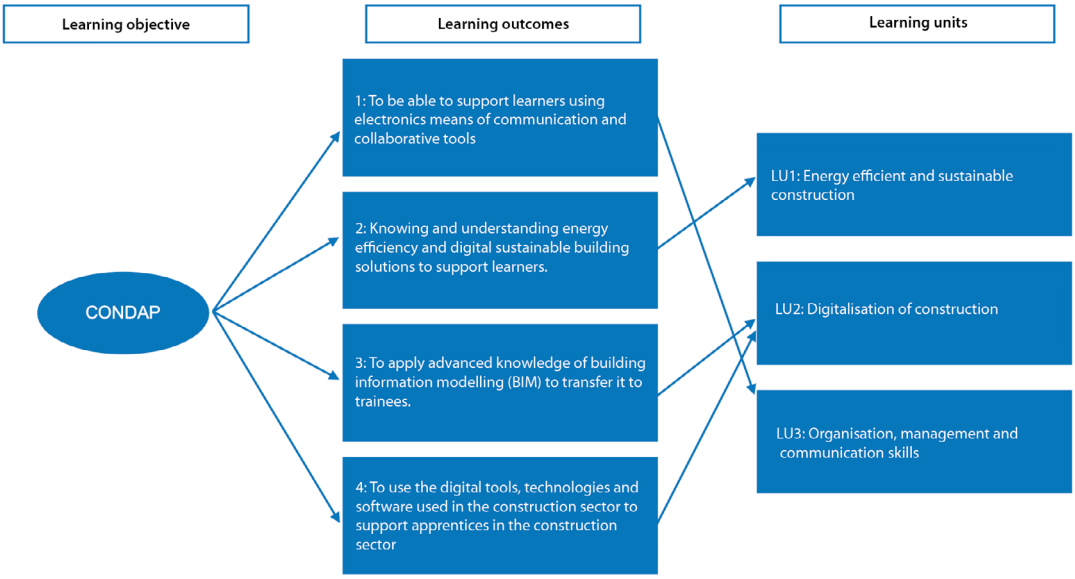


Figure 1. Grouping of learning outcomes CONDAP.

Finally, the teaching units to be carried out in the CONDAP project obtained from the learning outcomes, as illustrated above, are:

- LU 1: **Energy efficient and sustainable construction**; which mainly responds to learning outcome 2: "Knowing and understanding energy efficiency and digital sustainable construction solutions to support learners".
- LU 2: **Digitisation in Construction**; related to learning outcome 3: "Apply advanced knowledge of Building Information Modelling (BIM) to transfer it to trainees" and learning outcome 4: "Use digital tools, technologies and software used in the construction sector to support trainees in the construction sector".
- LU 3: **Organisational, managerial and communication skills**; corresponds to learning outcome 1: "To be able to support learners using electronic communication and collaboration tools".

On the other hand, the teaching units must also meet a number of requirements, suggested by European principles:

- Units of learning outcomes can be completed and assessed independently of other units of learning outcomes.
- They are structured in such a way that relevant learning outcomes can be achieved in a specific time interval. Therefore they should not be too long.
- They include all the learning outcomes necessary to meet the objectives of

the units and are designed to be assessable.

The second activity within the second intellectual output of CONDAP consists of defining the specifications of the teaching units. That is, the scope and essential requirements that the corresponding training programme must meet. The training course material will be developed on the basis of the definition of the course specifications.

The specifications of the learning units are based on the ECVET principles, which indicate that each unit can include the following elements, which will allow the units to be accepted within the ECVET framework.

- EQF qualification level
- Recommended prior knowledge
- Duration of the learning process
- Comparative weighting of learning units
- Allocation of appropriations
- Prerequisites for attending each learning unit
- Training content
- Evaluation methods

The duration of the courses is also specified, according to the accumulated hours in the following categories:

- **Teaching hours:** contact hours between the instructor and the student in the course plan, including conferences, tutorials, seminars, workshops and lab-practice sessions.
- **Self-study hours:** the study of something by oneself without direct supervision or class attendance.
- **On-site hours:** study visits that can be organised jointly or carried out individually.
- **Assessment hours:** the time needed to prepare a piece of work, including time allocated to the exam (if any).

The learning hours of each teaching unit have been assigned according to the results obtained in the analysis of the first intellectual result (O1). The most requested topics were "Energy efficiency and sustainable construction" and "BIM and other digital construction methods". Therefore, each of these topics represents 40% of the course dedication, while learning unit 3 "Organisational, management and communication skills" represents 20% of the weight of the whole course.

Therefore, the CONDAP course involves the following hours for each learning unit:

- **LU 1:** 12 hours of lessons, 3 hours on site, 3 hours of self-study, 2 hours of evaluation.
- **LU 2:** 10 teaching hours, 5 hours on-site, 3 hours self-study, 2 hours evaluation.
- **LU 3:** 5 teaching hours, 2 hours on-site, 2 hours self-study, 1 hour evaluation.

In total the course will include the following learning hours associated with each teaching unit in order to define the duration of the entire course:

- 27 teaching hours, plus 3 hours on site in teaching unit 1 and 7 practical hours required for the practical sessions in units 2 and 3.
- 8 hours of self-learning for the trainees for the teaching materials.
- 5 hours of evaluation.

The course will have a total duration of 50 hours distributed in each teaching unit. It is true that the duration of each teaching unit should not be considered as strictly defined, but as a recommended indicator so that integration with existing vocational training courses can be flexible.

As far as the weighting and the allocation of credits are concerned, as mentioned above, the CONDAP course is based on the ECVET system. ECVET credits are a numerical representation of the overall weight of learning outcomes in a qualification and the relative weight of units in relation to the qualification. In this way, they allow for the framing of assessed skills between partners, trying to facilitate the transfer of learning outcomes from one qualification system to another. It is not intended to replace national qualification systems, but to achieve better comparability and compatibility between them; it facilitates the recognition of training, skills and knowledge among European Union (EU) citizens.

The suggested weighting and allocation of ECVET credits for the CONDAP course, taking into account that 10 hours correspond to 1 credit, is as follows:

- LU 1: 40% corresponds to 2 credits.
- LU 2: 40% corresponds to 2 credits.
- LU 3: 20% corresponds to 1 credit.

The total course is 50 hours long, which means 5 ECTS credits.

Finally, for the evaluation of the teaching units different evaluation methods will be used such as open answer questions, multiple choice questions or case study

analysis.

Below is a brief introduction to Teaching Unit 1, which will be further developed by including all the necessary material to complement the study and its assessment.

LU3: ORGANISATIONAL, MANAGEMENT & COMMUNICATION SKILLS

Each type of business depends largely on how it is structured in terms of organisational culture and strategic drivers. What brings them together is communication. That is why communication skills are essential to every operation and level of management. This unit addresses the basic principles of what communication is, its types and levels, the skills and technologies involved in the context of mentoring.

The way information flows in an organisation is critical, both across departments and between managers, trainers and trainees. It is a complex process that takes a long time to build, maintain and continuously improve. Effective communication can make collaboration productive and mutually beneficial, especially in the case of mentoring. The scope of mentors' responsibilities can differ considerably depending on the type and size of the company.

In a wider scope, mentoring is far more diverse than one-to-one and face-to-face interaction between the mentor and an apprentice. Long gone the days of traditional 'show you how' mentoring. These days it is continuous journey of support, reviews, monitoring and progression that involves a fine balance between mentor's supervision and apprentice's autonomy. The use and implementation of cutting-edge technologies delivers the support the apprentices need with the maximum efficiency.

This train-the-trainer unit aims to equip the mentors with organisational, managerial and technological skills to make today's apprentices become professional experts and leaders of tomorrow. The unit consists of four lessons with theoretical content and practical exercises at the end of each lesson to underpin the knowledge and skills.

Learning outcomes

Learning Unit 3: Organisational, Management & Communication Skills	
Learning outcome 1	To know what communication is about, the different types of communications that exist, the communication skills and the levels of communication.
Learning outcome 2	To understand the advantages and disadvantages of virtual communication, what leadership and organisation is and how it affects communication.
Learning outcome 3	Learning different digital communication technologies, such as Social Media or E-learning.
Learning outcome 4	To know the different forms of collaboration between apprentice and mentor, what are the tools of categorisation of collaboration and the tools of communication.

Summary of the lessons of the learning unit

Lesson 1. Introduction

This lesson introduces you to the concept of communication that varies in its purpose, style and way of delivery. From verbal and non-verbal, formal and informal, written and spoken, communication is the key factor to mentor-apprentice-manager cycle of activities.

Lesson 2. Communication methods in virtual environments

This lesson takes you into the virtual world of conducting communication and managing your groups and teams.

Lesson 3. Digital communication technologies

This lesson presents the context of digital technologies, used for communication, learning opportunities and interaction in social media. The lesson also addresses an important aspect of communication in the virtual environment.

Lesson 4. Collaboration tools and communication platforms

This lesson introduces you into a concept of collaboration. It equips you with toolset for communication and familiarises you with various collaboration platforms. These are categorised into communication tools, resource management tools and workflow tools.

CHAPTER II:

LEARNING UNIT: ORGANISATIONAL, MANAGEMENT & COMMUNICATION SKILLS

WHAT YOU CAN EXPECT TO LEARN FROM THIS UNIT

The unit consists of four lessons with theoretical content and practical exercises at the end of each lesson to underpin the knowledge and skills.

The learning unit is divided into four lessons:

- ✓ Lesson 1. Introduction - This lesson introduces you to the concept of communication that varies in its purpose, style and way of delivery. From verbal and non-verbal, formal and informal, written and spoken, communication is the key factor to mentor-apprentice-manager cycle of activities.
- ✓ Lesson 2. Communication methods in virtual environments - This lesson takes you into the virtual world of conducting communication and managing your groups and teams.
- ✓ Lesson 3. Digital technologies for communication - This lesson introduces you into a context of digital technologies, used for communication, learning opportunities and interaction on social media. The lesson also addresses an important aspect of etiquette of communication in virtual environment.
- ✓ Lesson 4. Collaboration tools and platforms for communication - This lesson introduces you into a concept of collaboration. It equips you with toolset for communication and familiarises you with various collaboration platforms. These are categorised into communication tools, resource management tools and workflow tools.

INDEX

Lesson 1. Introduction

Lesson 2. Communication methods in virtual environments

Lesson 3. Digital technologies for communication

Lesson 4. Collaboration tools and platforms for communication

Appendix A. Examples of Case Studies

LESSON 1

Introduction

LESSON OBJECTIVES

- What communication is
- Types of communication
- Communication skills
- Levels of communication
- Types of organisational culture
- Mentoring process
- Mentoring overview
- Practical exercises

WHAT IS COMMUNICATION?

Process of sharing information, thoughts, and feelings between people through speaking, listening, understanding, writing, or body language.

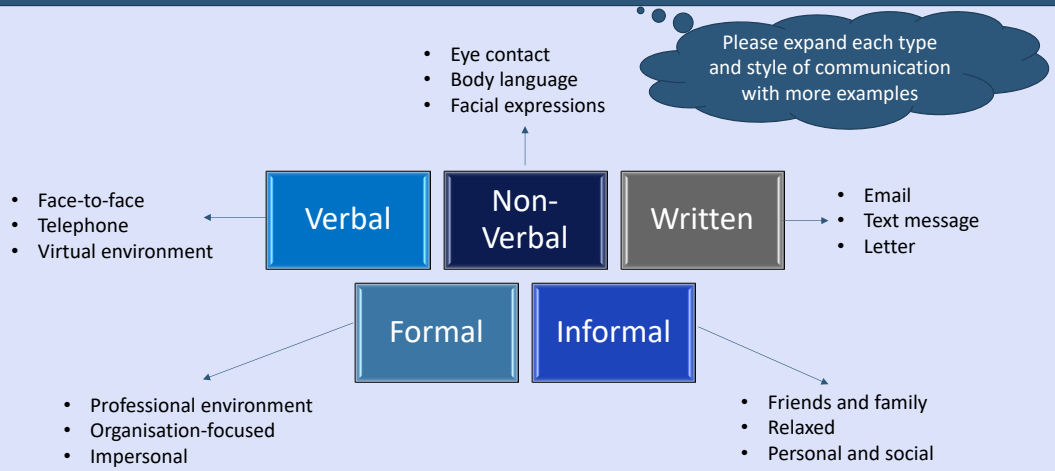
Communication differs in styles and purposes.
It depends on:

- Corporate environments
- Organisational cultures
- Audience
- Hierarchy

Communication channels:

- Innovative technologies, digital tools and platforms
- Traditional ways

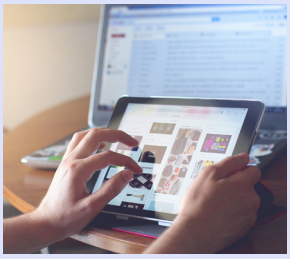
TYPES OF COMMUNICATION



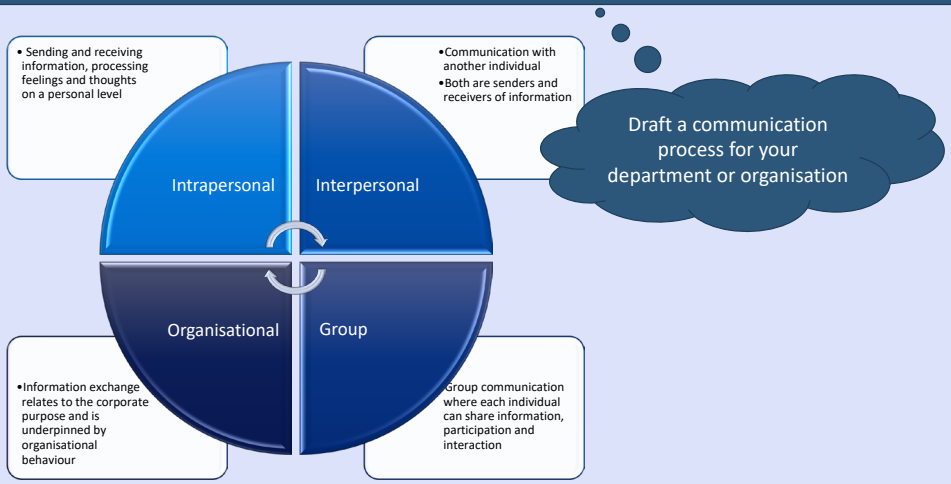
COMMUNICATION SKILLS

- **Non-verbal communication** – eye contact, nod to show understanding, respect personal space
- **Verbal communication** - speak clearly and at a suitable level, using a positive tone and inclusive language
- Ability to listen actively, exchange the ideas and feelings
- Take turns in one-to-one and group discussions
- Discuss, paraphrase the ideas
- Effective questioning - open, closed and probing questions
- Demonstrate interest and understanding

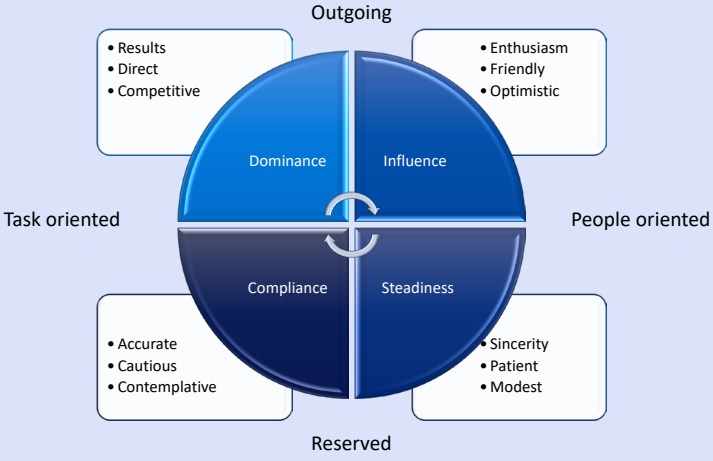
Can you name other important communication skills relevant to your activities?



LEVELS OF COMMUNICATION



TYPES OF ORGANISATIONAL CULTURE

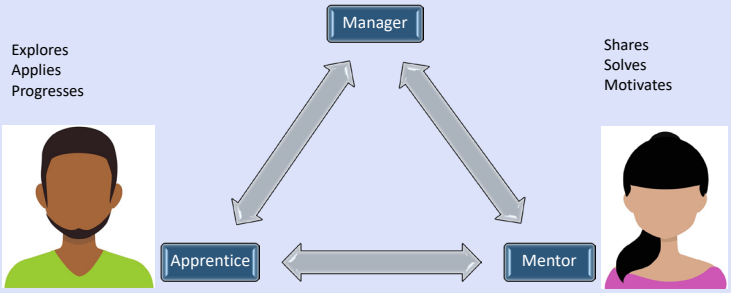


MENTORING PROCESS

Three-way interaction
- Manager – Mentor
- Mentor - Apprentice
- Apprentice - Manager

Supports
Supervises
Monitors

Can you expand more on each relationship's roles and responsibilities?



MENTORING OVERVIEW

Organisational arrangements:
- One-to-one
- One-to-many
- Many-to-many

Matching process:
- Self-matching
- Administrative matching
- Group matching

Training of Mentors:
- Peer mentoring
- Exchange of good practice
- Manager's role in the process

Mentoring scheme:
- Roles and responsibilities
- Facilitation activities
- Communication methods and tools

On-going arrangements:
- Timetables
- Progress logs
- Progression reviews

Evaluation:
- Mentor's feedback
- Apprentice's feedback
- Satisfaction analysis

PRACTICAL EXERCISES

1. Assess the learner's profile in terms of:
   - Prior knowledge and skills
   - Current knowledge and skills
   - Additional requirements
2. Based on the collated details, draft the trainee's personal profile and development plan.
3. Develop an indicative communications calendar with timescales and activities.

LESSON 2

Communication Methods in Virtual Environments

LESSON OBJECTIVES

- Advantages and disadvantages of communication in a virtual environment
- Communication in virtual environment
- Collaboration online
- Leadership and Management
- Communication with Teams and Groups
- Practical exercises

COMMUNICATING IN VIRTUAL ENVIRONMENT

Advantages:

- Saves time and travel - no more delays or being late for meetings!
- Cost-effective
- Instant channels one-to-one or with multiple participants
- Access to hard to reach environments through virtual or augmented reality
- E-learning opportunities
- Increased productivity
- Tracking the activities
- Information exchange

Disadvantages:

- Heavily reliant on connectivity
- Technical faults with tools or software
- Potential miscommunication or misunderstanding
- Feeling of isolation and detachment from the team
- Challenges with work-life balance
- Loss of data
- Potential security issues

In your own words, discuss the differences between virtual and face-to-face communication

COMMUNICATION IN VIRTUAL ENVIRONMENT

Modes of communication:

- In-person
- Phone
- Email
- Video conferencing
- Instant messaging and chat.

Match the tasks at your department or organisation to each of these modes and justify your choices

Communication strategy:

- The right choice of communication medium – in-company platforms versus social media
- Corporate communication policy
- Communication etiquette
- Realistic goals
- Keeping updates on a regular basis
- Scheduling regular meetings
- Electronic diaries, including your own

COLLABORATION ONLINE

Groups

- Independent members
- Guided by a leader
- Individual accountability
- Share organisational purpose
- Goals are defined in general terms
- Connected with same activities, interests or qualities
- Similar job functions
- Individual work products
- Told what to do
- Share information and perspectives
- Individual successes or failures

Virtual Tools, Platforms and Systems

Mentor

- Maintains network of virtual contacts
- Develops working relationships
- Directs and motivates groups or teams
- Follows communication strategy
- Has collaborative mindset

Teams

- Interdependent members
- Leadership roles are shared
- Mutual accountability
- Defined by common goals and team purposes
- All individuals are associated with work related activities
- Specific roles and responsibilities are individually assigned
- Collective work products
- Collective contribution to team objectives
- Collective achievements

LEADERSHIP AND MANAGEMENT

Manager

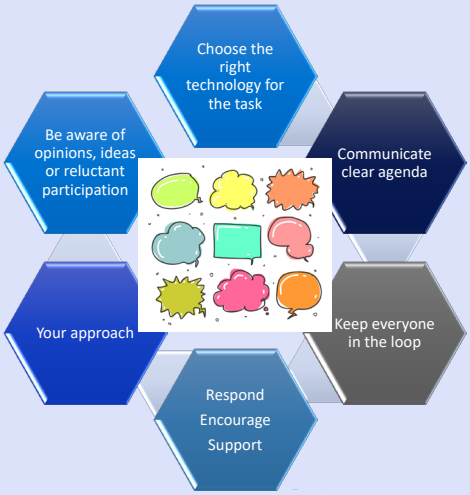
- Promotes stability
- Has subordinates
- Sets short term objectives
- Formal authority
- Control
- Reactive
- Expects results
- Follows existing roads

Leader

- Promotes change
- Has followers
- Facilitates long term vision
- Personal charisma
- Passion
- Proactive
- Encourages achievement
- Takes new roads

COMMUNICATION WITH VIRTUAL TEAMS AND GROUPS

Are you a Leader or a Manager?



Create TWO activities for Group and for Team

Activity 1: Group

Activity 2: Team

PRACTICAL EXERCISES

1. Do you see yourself more as a Manager, a Leader, or a bit of both?
2. For communication with Groups, discuss which approach would be more beneficial – is it Leadership, Management or a combination of both?
3. Please discuss the same approach for communication with Teams.
4. For Team or Group, expand the following indicative activities with relevant tasks:
   - Small group discussion
   - Individual work with case studies, questions, etc.
   - Large group discussion
   - Role play or other tasks
   - Presenting results

LESSON 3

Digital Technologies for Communication

LESSON OBJECTIVES

- Digital Communication Technologies
- Examples of Digital Communication Technologies
- Social Media
- E-Learning
- Etiquette for communication in virtual environment
- Practical exercises

DIGITAL COMMUNICATION TECHNOLOGIES

Advantages:

- Revolutionised and transformed communication
- Wide range of information and knowledge
- Ease of information storage
- Speed and dynamics of information exchange
- Significant reduction of costs
- Style and language
- New ways to learn
- Instant accessibility
- Increased interaction and wider audience inclusion

Disadvantages:

- Misinterpretation and misunderstanding
- Dehumanisation and depersonalisation
- Wrong presentation of yourself or someone
- Frequent distraction
- Loss of emotional emphasis
- Identity theft

Can you expand each list with your opinions on the subject of digital technologies?

DIGITAL COMMUNICATION TECHNOLOGIES

Digital Communication Technologies (DCTs) refer to the electronic tools that enable people to communicate with each other either one-to-one, or as a group. These can be commonly used technologies or internal communication tools.

Briefly describe the functionality of three DCTs of your choice

Examples:

- Intranet – business internal communication and collaboration system for authorised users.
- Text messages and chat – one-to-one and group messaging to keep the teams connected and working together - WhatsApp, Viber, SMS
- Wikis and Internet forums – technologies for sharing, posting information, discussions, questions and answers
- Internal blogs – internal facility for sharing the knowledge and experience
- Video conferencing and webinars – online meetings in real-time format - Skype, MSN, G Talk, GoToMeeting, Zoom, WebEx
- Industry-related apps – systems for budget tracking, project and communication management, CRM – PlanRadar, Viewpoint, Raken, Procore, BIM 360, PlanGrid

SOCIAL MEDIA

Definition:

"Websites and computer programmes that allow people to communicate and share information on the internet using a computer or mobile phone."
Cambridge Dictionary

Which of the social media sites require a sign-up and which can be downloaded?

Purpose:

Personal use
Business and corporate level
Sharing written posts, images, video and audio content
Messenger tool for communication

Examples:

Social networking websites - Facebook, Twitter
Social media sites – YouTube, Flickr
Commercial sites – eBay, Amazon

E-LEARNING

Technologies:

- Gamification
- Augmented Reality (AR)
- Virtual Reality (VR)
- Digital Twins
- Artificial Intelligence

Expand the list of technologies for your role and specialism

Benefits:

- Risk-free, safer working environment
- Interactive content and environment
- Wider collaboration and sharing opportunities
- Instantly accessible
- Flexibility and individual pace that fits diversity of learning styles
- Progress recording, reporting, monitoring, benchmarking
- Blended learning

Design platforms:

Kineo
Articulate Storyline
Whatfix
Gomo Learning
Kahoot
Adobe Captivate

COMMUNICATION ETIQUETTE

Virtual Communication is not the same as face-to-face.
There are important rules and considerations that cannot be ignored.

General:

- Introduce yourself properly
- Be polite, respectful and professional
- Conduct communication in a friendly manner
- Support and encourage
- Stick to the topic
- Use correct language - text abbreviations are not appropriate for a business environment
- Exercise your duty of care – be mindful of cyber bullying, wrong naming and shaming. Take action where required!
- Ethical and legal issues
- Copyright
- Privacy

COMMUNICATION ETIQUETTE

E-mail, messenger, text messages:

- Always read the text before sending it. Predictive texting and auto correction can cause serious issues.
- Email subject title should be concise and meaningful
- If you forward your email, make sure the information that should not be seen by others is removed
- For multiple recipients – consider using BCC (Blind Carbon Copy) to keep privacy of your contacts
- Words in capital letters look like SHOUTING
- Messages maybe subject to interpretation based on the receiver's experience, background and other factors

Social media:

- Account strictly for business purpose
- Public conversations should not include any personal references or information
- Build your virtual network carefully
- Interact with your audience regularly
- Use tagging to attract someone's attention, e.g. as a reminder about outstanding task
- Discourage tagging for wrong purposes

PRACTICAL EXERCISES

These tasks are for cooperation with virtual Groups or Teams.

Using the relevant tool or in-company software:

1. Create a virtual Group or a Team
2. Invite a new participant to join the Group or Team
3. Start a new chat with three people
4. Share a file with someone
5. Give a member 'ownership' role in your team
6. For those who can, have a video call with two people
7. Mention someone in a chat

GAMIFICATION

Back to E-Learning

Gamification refers to application of game related elements to the variety of activities and contexts with aim to solve the problem, develop knowledge, learn new skills and many other purposes.

Game-based solutions:
- Simulated environments
- Game-inspired scenarios

Gamification types:
- Structural gamification
- Content gamification

Purposes:
- Learning something new
- Delivering a meaningful information
- Creating a real world product

Benefits:
- Faster, interactive way to learn
- Prompt sense of achievement
- Instant progress review and feedback

Gamification in corporate environment:
- Serves the business objectives
- Improves productivity
- Increases employee engagement
- Evaluates processes, products and systems
- Equips employees with new skills and knowledge through game-based learning
- Makes working conditions safer
- Reinforces the teamwork and collaboration

AUGMENTED AND VIRTUAL REALITY (AR / VR)

Back to E-Learning

Augmented Reality (AR) is an interactive experience of a real world environment with various digital elements blended into it. These can be visual overlays, sensory projections or colour effects to create an artificial environment.

Examples of AR include:
- Gatwick airport app that helps passengers navigate through the terminals.
- Ikea Place app allows the buyers match the design before the purchase.
- Dulux Visualiser allows you to see the room in the colour of your choice.

Differences between AR and VR

VR replaces the environment.
AR adds something new to it.

Virtual Reality (VR) is an artificial, three dimensional, computer generated environment that has a potential for exploring and interaction. The important element of VR is the user who becomes engaged and immersed into this environment.

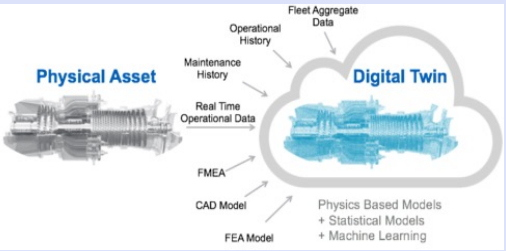
Examples of VR include:
- Toms: Virtual Giving Trip enables buyers experience an opportunity of donating a pair of shoes to a child in need.
- TopShop: Catwalk VR Experience is where users can have a fashion show experience.

DIGITAL TWINS

Back to E-Learning

Digital Twin refers to a digital replica of physical assets (physical twin), processes, people, places, systems and devices that can be used for various purposes.
The digital representation provides both the elements and the dynamics of how an Internet of things device operates and lives throughout its life cycle.

Digital Twins can be very effective, because they can implement many tools. This can impact on many aspects, such as design for manufacture, whole building design, offsite manufacturing.



The use of digital technologies is still quite costly, however, there are long term benefits. Ultimately, the technologies can be very cost effective in terms of saving time and can reduce after project costs.
The ideal concept for the future is about having one common platform which can be customised with various elements.
Example: BMW 3 series that have some many versions, because these are based on a common platform.

ARTIFICIAL INTELLIGENCE (AI)

Back to E-Learning

Artificial Intelligence (AI) is a machine learning that mimics human intelligence. The computer has to learn how to respond to certain actions, so it uses algorithms and historical data to create something called a propensity model.

Examples of AI:

- Siri – a personal assistant offered by Apple in iPhone and iPad. Siri helps users find information, get directions, send messages, make voice calls, open applications and add events to the calendar.
- Tesla - is one of the best automobiles. The car features a lot of accolades, such as self-driving, predictive capabilities, and technological innovation.

Types of AI:

- Artificial Narrow Intelligence (ANI)
- Artificial General Intelligence (AGI)
- Artificial Super Intelligence (ASI)

- Netflix - popular content-on-demand service that uses predictive technology to offer recommendations on the basis of consumers' reaction, interests, choices, and behaviour. The technology examines these activities and recommends films based on your previous liking and other reactions.

LESSON 4

Collaboration Tools and Platforms for Communication

LESSON OBJECTIVES

- What is collaboration?
- Types of Mentor-Apprentice collaboration
- Collaboration tools categorised
- Communication tools in more details
- Resource management tools in more details
- Workflow tools in more details
- Practical exercises

WHAT IS COLLABORATION?

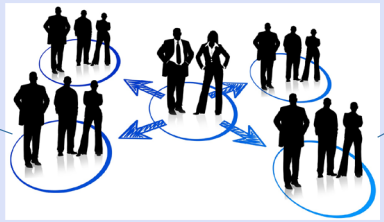
Collaboration is a process of productive working together for the business purposes.

It involves:

- Clearly defined purpose
- Engagement and delegation
- Problem solving
- Negotiation
- Motivation
- Proactive participation
- Mutual recognition
- Reflection
- Knowledge sharing
- Responsibility
- Accountability
- Collaborative effort

Synchronised collaboration
All activities are undertaken at the same time through:

- Video conferencing
- Online meeting
- E-learning activities



Non-synchronised collaboration
Activities are distributed at random timings through:

- Document sharing
- Provision of feedback
- Individual collaborative contributions

MENTOR-APPRENTICE COLLABORATION

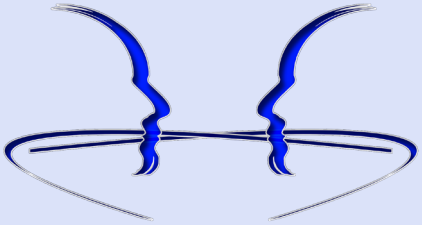
	Mentor-led	Delegated	Apprentice-focused
Apprentice's Role	Apprentices are directed, guided and supervised. They focus on assigned tasks and work together as instructed.	Apprentices can plan their responsibilities, devise solutions and navigate team/group dynamics.	Apprentices can exchange their ideas, structure the project, delegate the roles between each other and work out solutions.
Mentor's Role	Mentor leads the process, plans the supervision and develops the learning process.	Mentor assigns a task or series of tasks, disseminates materials and requests the information.	Mentor provides support and guidance where required or requested.

COLLABORATION TOOLS CATEGORISED

Communication tools – video conferencing, internal communication, written communication through text messages

Resource management tools – task management, calendar management, scheduling tools, strategic planning, project management

Workflow tools – effective delegation, distribution of roles and responsibilities, sharing ideas, structured cooperation



COMMUNICATION TOOLS

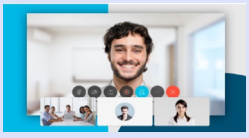
Can you name some of the most popular tools, software and platforms for communication?

GoToMeeting – online conferencing tool that allows participants to schedule synchronised meetings and share screens

Slack – instant messaging, file transfers, message search

Igloo – company intranet with communication tools, forums, calendars, blogs and collaboration facilities

WebEx - team collaboration, webinars and training through personalised video rooms



RESOURCE MANAGEMENT TOOLS

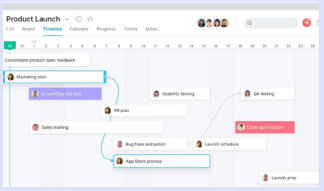
Asana – project management platform. Projects can be divided into stages and tasks can be assigned to different team members

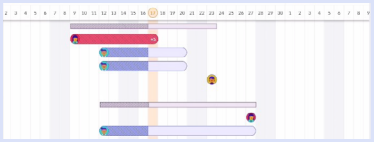
Monday.com – this collaboration tool allows users set objectives and assign tasks

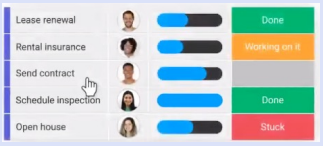
ProofHub – management tool that offers effective collaboration and management functions

Quip – a platform that transforms the way enterprises work together, delivering modern collaboration securely and simply across any device.

Wimi – unified workspaces where users can manage their projects, share files and calendars







WORKFLOW TOOLS

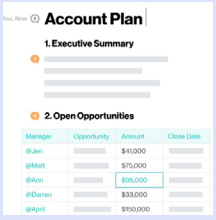
Flowdock – group and private chat platform

Google Docs – writing, editing, collaboration for personal and corporate use

Redbooth – users can plan their workflow and collaborate through variety of functions

Trello – a system of boards, lists and cards that allows users organise their projects

What functionalities would you consider for the choice of your collaboration tool?



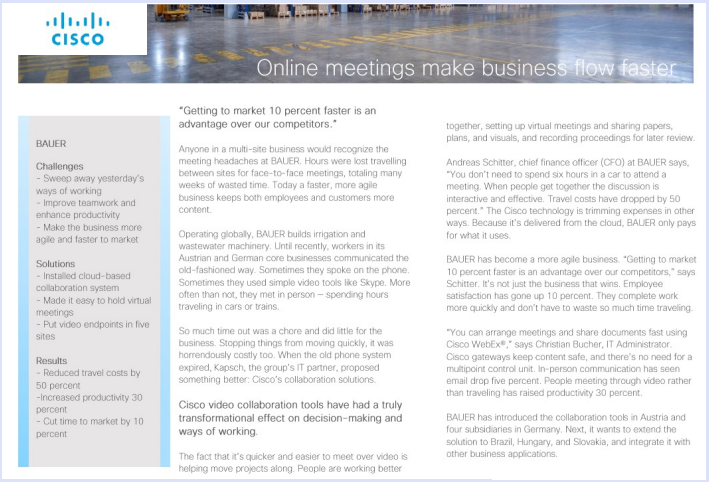
PRACTICAL EXERCISES

1. List other collaboration tools and platforms that you are familiar with.
2. Create a checklist for choosing your ideal collaboration tool or platform.
3. What collaboration features are the most important to your role and business?
4. For a collaboration tool or platform with which you are familiar, discuss its advantages and disadvantages.
5. Discuss in your own words, what do you think helps team members collaborate better together?

APPENDIX A

Examples of Case Studies

CASE STUDY 1



cisco

Online meetings make business flow faster

BAUER

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- Sweep away yesterday's ways of working
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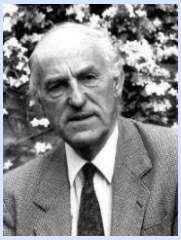
CASE STUDY 3

The Team Roles

There are various categorisations of Team Roles.
This case study is based on BELBIN categorisation.



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CASE STUDY 3 - CONTINUED

Resource Investigator

Uses their inquisitive nature to find ideas to bring back to the team.

Strengths: Outgoing, enthusiastic. Explores opportunities and develops contacts.

Allowable weaknesses: Might be over-optimistic, and can lose interest once the initial enthusiasm has passed.

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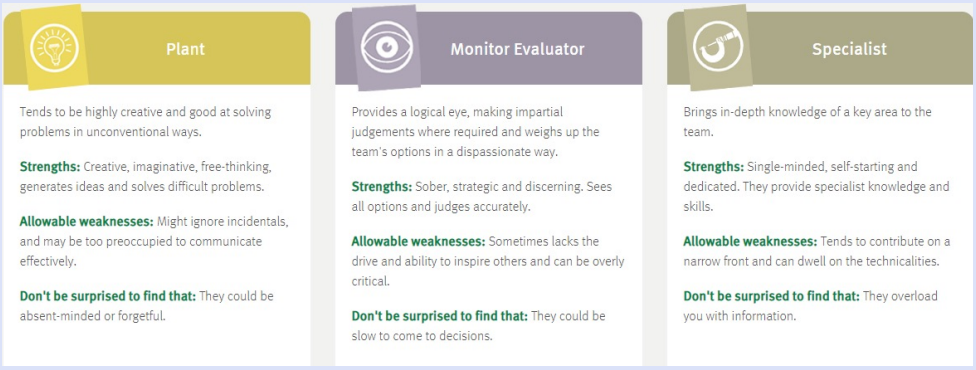

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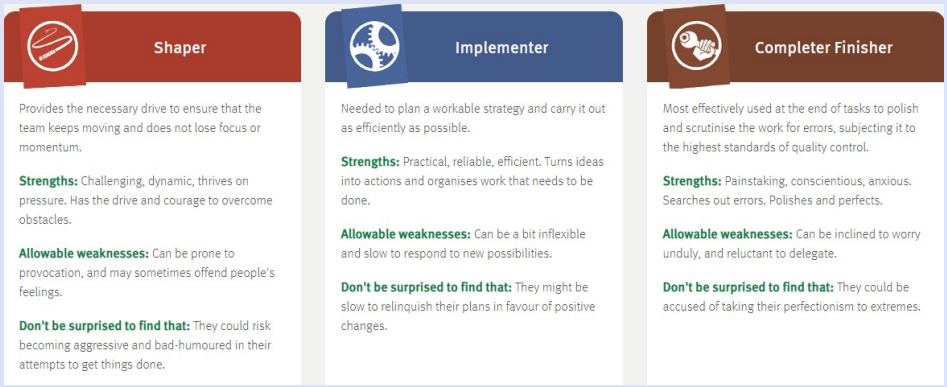

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CHAPTER III:
CASE STUDIES

Co-funded by the Erasmus+ Programme of the European Union
CONDAP
ORGANISATIONAL, MANAGEMENT & COMMUNICATION SKILLS
CONDAP OPEN EDUCATIONAL RESOURCES
CASE STUDIES

CONDAP
Co-funded by the Erasmus+ Programme of the European Union
CASE STUDY 1
Running Meetings Online

CASE STUDY 1 - RUNNING MEETINGS ONLINE

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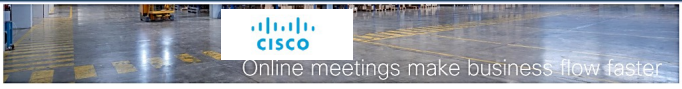

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No doubt that online collaboration cut the costs associated with face-to-face meetings. However, virtual meetings still have certain challenges.

For your organisation please outline the following:

- Problems encountered in running online meetings.
- Suggested solutions for each of these problems.

Please analyse in more details:

- Has there been an improvement in how your online meetings are conducted?
- If yes, please present details how these improvements have been achieved.
- If no, what do you think is causing unproductive meetings?

CASE STUDY 2

Managing Teams Online

CASE STUDY 2 - MANAGING TEAMS ONLINE

Coca-Cola Latin America - a virtual programme to develop organisational capability and capacity for Managing Virtual Teams

Background
In response to a business imperative to minimise cost, avoid duplication and leverage capability, Coca-Cola Latin America began the implantation of a virtual team structure for elements of its commercial products supply technical groups based across Latin America. This was prioritised as a strategic initiative for Coca-Cola. In 2005 a framework and 3 year plan was developed to support the implementation and management of virtual teams across agreed areas of the organisation.

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While the outcomes of the assessments were very positive, there were areas that could be improved on. It was also recognised that the business had never invested in developing its leaders' capability to work in a virtual environment.

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CASE STUDY 2

For your working environment please outline the organisational strategy for team management.

- How does this strategy reflect on virtual team management?
- How are your teams structured?
- What the types of roles are in the virtual teams?
- Which technologies do you utilise for virtual team?

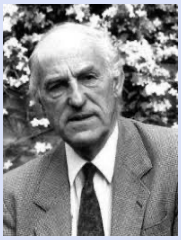
Please describe:

1. Any difficulties encountered in managing teams online and steps taken to resolve these problems.
2. Good practice in online team management.
3. How team members can be motivated remotely.

CASE STUDY 3

Understanding Team Roles

CASE STUDY 3 – UNDERSTANDING TEAM ROLES



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Helps the team to gel, using their versatility to identify the work required and complete it on behalf of the team.

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Needed to focus on the team's objectives, draw out team members and delegate work appropriately.

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Don't be surprised to find that: They might over-delegate, leaving themselves little work to do.

CASE STUDY 3 - CONTINUED

Plant

Tends to be highly creative and good at solving problems in unconventional ways.

Strengths: Creative, imaginative, free-thinking, generates ideas and solves difficult problems.

Allowable weaknesses: Might ignore incidentals, and may be too preoccupied to communicate effectively.

Don't be surprised to find that: They could be absent-minded or forgetful.

Monitor Evaluator

Provides a logical eye, making impartial judgements where required and weighs up the team's options in a dispassionate way.

Strengths: Sober, strategic and discerning. Sees all options and judges accurately.

Allowable weaknesses: Sometimes lacks the drive and ability to inspire others and can be overly critical.

Don't be surprised to find that: They could be slow to come to decisions.

Specialist

Brings in-depth knowledge of a key area to the team.

Strengths: Single-minded, self-starting and dedicated. They provide specialist knowledge and skills.

Allowable weaknesses: Tends to contribute on a narrow front and can dwell on the technicalities.

Don't be surprised to find that: They overload you with information.

CASE STUDY 3 - CONTINUED

Shaper

Provides the necessary drive to ensure that the team keeps moving and does not lose focus or momentum.

Strengths: Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.

Allowable weaknesses: Can be prone to provocation, and may sometimes offend people's feelings.

Don't be surprised to find that: They could risk becoming aggressive and bad-humoured in their attempts to get things done.

Implementer

Needed to plan a workable strategy and carry it out as efficiently as possible.

Strengths: Practical, reliable, efficient. Turns ideas into actions and organises work that needs to be done.

Allowable weaknesses: Can be a bit inflexible and slow to respond to new possibilities.

Don't be surprised to find that: They might be slow to relinquish their plans in favour of positive changes.

Completer Finisher

Most effectively used at the end of tasks to polish and scrutinise the work for errors, subjecting it to the highest standards of quality control.

Strengths: Painstaking, conscientious, anxious. Searches out errors. Polishes and perfects.

Allowable weaknesses: Can be inclined to worry unduly, and reluctant to delegate.

Don't be surprised to find that: They could be accused of taking their perfectionism to extremes.

CASE STUDY 3 – THE TEAM ROLES

Please assess your team according to the nine clusters of behaviour.

- How many types have you got?
- What are they?

1. Please outline your approach in communication to the overall team.
2. Where you believe a different approach is required, please detail what it should be and the relevant cluster affected.

CHAPTER IV:
EXERCISES

4.1. MULTIPLE CHOICE QUESTIONS

These aim to assess a factual knowledge in relation to organisational, management and communication skills for mentors in construction industry.

[1] The process of communication can be briefly identified as:

a. Looking at an object of discussion

b. Acknowledgement of someone's speech

c. Sending and receiving information

[2] Which is an example of verbal communication?

a. Giving someone an opportunity to talk

b. Taking turns in listening and discussion

c. Writing information on a piece of paper

[3] Which of these skills is part of verbal communication?

a. Eye contact

b. Questioning

c. Gestures

[4] Which of the following is a part of non-verbal communication?

a. Facial expression

b. Sign language

c. Communication is impossible without words

[5] Interpersonal communication is carried out through:

a. Group discussions

b. One-to-one discussion

c. Self-reflection

[6] Communication in virtual environment:

a. Depends on the choice of technology and strategy

b. Limited to the group size or team numbers

c. Can fully replace meetings in person

[7] The mentor can be best described as:

a. Someone who provides support and career progression

b. Someone who is paid extra to be a mentor

c. Someone who must be a company director

[8] Which of the following is an example of effective communication in mentoring process?

a. Mentor-to-apprentice chat

b. Mentor-to-mentor discussions

c. Mentor-manager-apprentice interaction

[9] Remote mentoring of virtual teams or groups refers to:

a. Management, literacy and numeracy

b. Management and use of technologies

c. Management and leadership

[10] The main role of a mentor is about:

a. Having a degree in a chosen knowledge area or specialism

b. Providing an expert opinion in response to a query

c. Mutually beneficial relationship and support in the workplace

[11] What is usually expected at the end of mentoring programme?

a. Exchange of contact details

b. Guaranteed pay rise and promotion

c. Review, feedback and evaluation

[12] For communication in virtual environment it is important to:

a. Minimise face-to-face interaction as much as possible

b. Maintain regular interactions to keep track of the progress

c. Perform other tasks while talking to the team to save time

[13] An apprentice has been noticed doing as little work as possible. Which approach will be the most effective?

a. Talk to the apprentice to see if she needs support or training

b. Make the apprentice work additional hours

c. Tell the apprentice that she must speed up

[14] Which of the following is an attribute of the team?

a. Team members have similar job functions

b. Team members have shared accountability

c. Team members share individual successes or failures

[15] A group differs from the team in the following feature:

a. Common goals and objectives

b. Collective work products

c. Sharing organisational purpose

[16] Which of the following describes a virtual meeting?

a. A real-time interaction through internet

b. A conference call with multiple recipients

c. An email discussion about a meeting

[17] When conducting a virtual meeting it is important to:

a. Avoid introducing yourself

b. Be present during the meeting

c. Attach a profile image

[18] Which of the following Digital Communication Technologies (DCTs) are NOT:

a. Commonly used technologies

b. Internal communication tools

c. Limited to the text only mode

[19] Which of the following can be used for the resource management tools?

a. Project management platform

b. Synchronised meetings and video rooms

c. Written communication facilities

[20] Workflow tools are designed for:

a. Video conferencing, webinars and training

b. Collaboration tools for teams

c. Delegation of roles and responsibilities

[21] Non-synchronised collaboration involves:

a. Online conference

b. Document sharing

c. Real-time activities

[22] Which of these skills in NOT about the use of digital technologies?

a. Creating a YouTube channel

b. Sharing a blog post

c. Using library card catalogue

[23] In relation to online communication etiquette, which of the following is a serious offence?

a. Not exercising your duty of care

b. Breach of copyright and privacy

c. Ignoring the professional ethics

[24] Which of the following examples is not appropriate use of social media for business?

a. Using text message abbreviations in posts

b. Long posts or information articles

c. Setting privacy as public to a shared post

[25] Communication tools in business environment are best used for:

a. Expressing your emotions and feelings

b. Video conferencing, learning, communication

c. Sending jokes, funny pictures and banter

4.2. SHORT RESPONSE QUESTIONS

These aim to assess a combination of knowledge, understanding and implementation in relation to organisational, management and communication skills for mentors in construction industry. The responses may be in a form of a few words, charts or bullet points.

Lesson 1. Introduction

[1] What is Communication? Please describe the factors on which communication depends.

Suggested answer:

- *Corporate environments*
- *Organisational cultures*
- *Audience*
- *Hierarchy.*

Any other industry- or company-specific examples are encouraged.

[2] Types of Communication: Please expand each type and style of communication with more examples:

- **Written**
- **Verbal**
- **Non-verbal**
- **Formal**
- **Informal.**

Suggested answer:

The answer will depend on the working environment and professional experience.

[3] Communication Skills: Can you name other important communication skills relevant to your activities?

Suggested answer:

The answer will depend on the working environment and professional experience. You may consider variety of priorities and factors specific to your role and working

environment.

[4] Levels of Communication: Draft a communication process for your department or organisation.

Suggested answer:

- *Organisational chart showing structure of your organisation*
- *The types of organisational charts are:*
  - *Functional Top-Down.*
  - *Divisional Structure.*
  - *Matrix Organisational Chart.*
  - *Flat Organisational Chart.*
- *Relationships between departments and within departments*
- *Levels of subordination and reporting procedures.*

Lesson 2. Communication Methods in Virtual Environments

[5] Communication in Virtual Environment: Match the tasks at your department or organisation to each of these modes and justify your choices:

- **In-person**
- **Phone**
- **Email**
- **Video conferencing**
- **Instant messaging and chat.**

Suggested answer:

The answer will depend on the working environment and professional experience.

Lesson 3. Digital Technologies for Communication

[6] Digital Communication Technologies: Can you expand each list with your opinions on the subject of digital technologies?

Suggested answer:

You are encouraged to include your work experiences and professional sector examples in addition to examples given in course presentation:

Advantages:

- *Revolutionised and transformed communication*
- *Wide range of information and knowledge*
- *Ease of information storage*
- *Speed and dynamics of information exchange*
- *Significant reduction of costs*
- *Style and language*
- *New ways to learn*
- *Instant accessibility*
- *Increased interaction and wider audience inclusion*

Disadvantages:

- *Misinterpretation and misunderstanding*
- *Dehumanisation and depersonalisation*
- *Wrong presentation of yourself or someone*
- *Frequent distraction*
- *Loss of emotional emphasis*
- *Identity theft*

[7] Digital Communication Technologies (DCTs): Briefly describe the functionality of three DCTs of your choice.

Suggested answer:

You are encouraged to include your work experiences and professional sector examples in addition to examples given in course presentation:

- *Intranet – business internal communication and collaboration system for authorised users.*
- *Text messages and chat – one-to-one and group messaging to keep the teams connected and working together - WhatsApp, Viber, SMS*
- *Wikis and Internet forums – technologies for sharing, posting information, discussions, questions and answers*

- *Internal blogs – internal facility for sharing the knowledge and experience*
- *Video conferencing and webinars – online meetings in real-time format - Skype, MSN, G Talk, GoToMeeting, Zoom, WebEx*
- *Industry-related apps – systems for budget tracking, project and communication management, CRM – PlanRadar, Viewpoint, Raken, Procore, BIM 360, PlanGrid*

[8] Social Media: Which of the social media sites require a sign-up and which can be downloaded?

Suggested answer:

Sign-up is required for Facebook and Twitter. YouTube and Amazon can be accessed without it, although a registration will be required for additional functions. In addition to examples given in course presentation, you are encouraged to include your life experiences and professional sector examples.

[9] E-Learning: Expand the list of technologies for your role and specialism.

Suggested answer:

You are encouraged to include your work experiences and professional sector examples in addition to examples given in course presentation:

Technologies:

- *Gamification*
- *Augmented Reality (AR)*
- *Virtual Reality (VR)*
- *Digital Twins*
- *Artificial Intelligence*

Lesson 4. Collaboration Tools and Platforms for Communication

[10] Communication Tools: Can you name some of the most popular tools, software and platforms for communication?

Suggested answer:

You are encouraged to include your work experiences and professional sector examples in addition to examples given in course presentation:

- *GoToMeeting – online conferencing tool that allows participants to schedule synchronised meetings and share screens*
- *Slack – instant messaging, file transfers, message search*
- *Igloo – company intranet with communication tools, forums, calendars, blogs and collaboration facilities*
- *WebEx - team collaboration, webinars and training through personalised video rooms*

[11] Workflow Tools: What functionalities would you consider for the choice of your collaboration tool?

Suggested answer:

You are encouraged to include your work experiences and professional sector examples in addition to examples given in course presentation:

- *Flowdock – group and private chat platform*
- *Google Docs – writing, editing, collaboration for personal and corporate use*
- *Redbooth – users can plan their workflow and collaborate through variety of functions*
- *Trello – a system of boards, lists and cards that allows users organise their projects*

4.3. CATEGORISATION EXERCISES

These consist of thematic blocks that address understanding, application and implementation principles in relation to organisational, management and communication skills for mentors in construction industry. There is no time limit for each block. These exercises can be used as a knowledge recap and practical activities as part of self-study course or could be shared with supervisor / manager for further appraisal.

Block I – What is Communication?

1. In the context of an organisational culture with which you are familiar, please describe how communication will differ across departments, hierarchy of roles and environments (internal and/or external)?

Suggested answer:

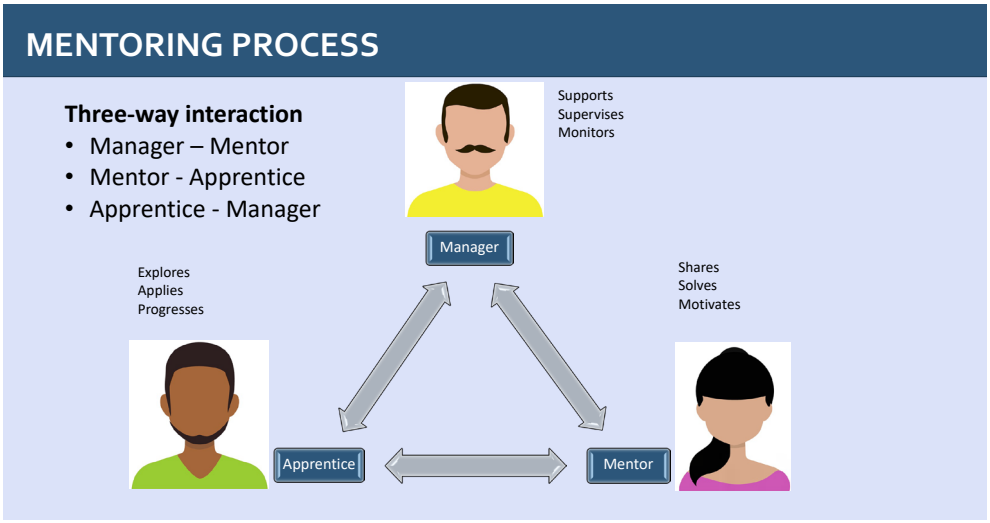
Use the Internet to investigate the subject of organisational culture and the types of cultures. With this information in hand, you will be able expand on the subject of differences of communication within your business or organisation.

You should be able to identify the difference of roles and responsibilities across different departments, additional internal and external factors; variety of influence on the local, regional, national, international levels (if applicable).

2. Communication and interaction in a mentoring process.

Based on the diagram, please expand more on each relationship's roles and responsibilities in your business/organisation.

- **Manager**
- **Mentor**
- **Apprentice**



Questions to address:

- **Who can be a mentor?**
- **Does apprentice's mentor need to be his/her manager? If no, why not.**
- **Who will manage a mentor?**
- **What is the role of a manager in a mentor-apprentice relationship?**
- **Is an apprentice supposed to be in a role inferior to a mentor, or both can be on the same organisational level?**

Suggested answer:

The answer should include a clear understanding of your organisation's mentoring programme and all processes involved. If the mentoring programme is not developed, consider drafting it before attempting this exercise.

You should take into consideration the size of your business – small, medium or large and reflect on how the roles and responsibilities can be distributed and impacted.

Block II – Practical exercises for Mentoring activities

1. Describe how you would assess apprentice's job profile in terms of:

a. current skills

b. previous knowledge

c. further needs.

2. Based on the information collated, draft a personal profile and a brief development plan for an apprentice.

3. Draft an indicative communication schedule with timescales and activities.

Suggested answers:

The answers will depend on the working environment and professional experience. You may consider variety of priorities and factors specific to your role and working environment.

To support these exercises, you may wish to consider the following points:

Apprentice's details:

- *Name/Surname*
- *Company/Department*
- *Role or Job title*
- *Personal statement and summary of professional background with key points and experience*

Areas of experience, which may include industry specific examples and more generic like:

- *Customer service and customer retention*
- *Environmental issues*
- *Human resources and recruitment*
- *Sales and business development*
- *Advertising and PR*
- *Marketing activities and strategies*
- *Web design and search engine optimisation (SEO)*

- *Social media and digital marketing*
- *Information and communication technologies (ICT)*
- *Personal effectiveness and time management*
- *Managing change*
- *Problem solving and decision making*
- *Communication skills.*

Sector experience:

Ask apprentices to list any experiences they have in the areas of your business or business support.

Summary of skills and strengths:

This can be a list of apprentice's skills and strengths which may help in the mentoring relationship.

Summary of weaknesses:

Let apprentices carry out their self-evaluation and use it later as a benchmarking tool for analysis and identification of further needs.

Qualifications and accreditations:

Ask apprentices to summarise their qualifications and accreditations they hold up to date.

Further discussion and actions:

Identifying these key points will help with timescales, communication schedule and activities.

Block III – Collaboration Online

1. Based on the definitions for Groups and Teams collate a list of apprentices and identify their roles, functions, goals, activities, related products, objectives, qualities and other attributes.

2. Will your apprentices form a Team, a Group or both?

3. For Team or Group, expand the following indicative activities with relevant tasks:

a. Small group discussion

b. Individual work with case studies, questions, etc.

c. Large group discussion

d. Role play

e. Presenting results.

4. How would your management style for a Team differ from managing a Group?

5. Using the relevant tool or in-company software:

a. Create a virtual Group or a Team

b. Invite a new participant to join the Group or Team

c. Start a new chat with three people

d. Share a file with someone

e. Give a member 'ownership' role in your team

f. For those who can, have a video call with two people

g. Mention someone in a chat

Suggested answers:

The answers will depend on the working environment and professional experience. You may consider variety of priorities and factors specific to your role and working environment.

6. Communicating in Virtual Environment: In your own words, discuss the differences between virtual and face-to-face communication.

Suggested answer:

The answers will depend on the working environment and professional experience. You may consider variety of priorities and factors specific to your role and working environment.

Block IV – Leadership and Management

1. Do you see yourself more as a Manager, a Leader, or a bit of both? Please justify your answer with examples.

2. For communication with Groups, discuss which approach would be more beneficial – is it Leadership, or Management? Justify your answers.

3. Please discuss the same approach for communication with Teams. Justify your answers.

Suggested answers:

There is no definitive right or wrong answer. The answers will depend on the working environment and professional experience. You may consider variety of priorities and factors specific to your role and working environment. Please refer to the Leadership and Management slide of the course presentation.

Manager	Leader
• Promotes stability	• Promotes change
• Has subordinates	• Has followers
• Sets short term objectives	• Facilitates long term vision
• Formal authority	• Personal charisma
• Control	• Passion
• Reactive	• Proactive
• Expects results	• Encourages achievement
• Follows existing roads	• Takes new roads

Block V – Mentor – Apprentice Collaboration

1. Based on the chart below, please assign the levels of involvement for each apprentice in relation to your role.

	Mentor-led	**Delegated**	**Apprentice-focused**
Apprentice's Role	Apprentices are directed, guided and supervised. They focus on assigned tasks and work together as instructed.	Apprentices can plan their responsibilities, devise solutions and navigate team/group dynamics.	Apprentices can exchange their ideas, structure the project, delegate the roles between each other and work out solutions.
Mentor's Role	Mentor leads the process, plans the supervision and develops the learning process.	Mentor assigns a task or series of tasks, disseminates materials and requests the information.	Mentor provides support and guidance where required or requested.

2. How do you see these levels of involvement changing after:

a. One month

b. Three months

c. Six months

d. One year (if applicable).

3. Please review the forecast of progression against the actual status at each of the stages above. Where there is no progression, what challenges can you see? What actions should be taken?

Block VI – Collaboration Tools and Platforms

1. List other collaboration tools and platforms that you are familiar with.

2. Create a checklist for choosing your ideal collaboration tool or platform.

3. What collaboration features are the most important to your role and business?

4. For a collaboration tool or platform with which you are familiar, discuss its advantages and disadvantages.

5. In your own words, discuss what do you think helps team or group members collaborate better together?

4.4. FREQUENTLY ASKED QUESTIONS

[1] Why is a workplace communication important?

"Workplace communication is the process of exchanging information and ideas, both verbal and non-verbal between one person/group and another person/group within an organization. It includes e-mails, text messages, notes, calls, etc" . Effective communication is critical in getting the job done, as well as building a sense of trust and increasing the productivity of employees. These may have different cultures and backgrounds and can be used to different norms. To unite activities of all employees and restrain from any missed deadline or activity that could affect the company negatively, communication is crucial. Effective workplace communication ensures that all the organizational objectives are achieved. Workplace communication is tremendously important to organizations because it increases productivity and efficiency. Ineffective workplace communication leads to communication gaps between employees, which causes confusion, wastes time, and reduces productivity. Misunderstandings that cause friction between people can be avoided by effective workplace communication. Effective communication, also called open communication, prevents barriers from forming among individuals within companies that might impede progress in striving to reach a common goal. For businesses to function as desired, managers and lower-level employees must be able to interact clearly and effectively with each other through verbal communication and non-verbal communication to achieve specific business goals. Effective communication with clients plays a vital role in development of an organization and success of any business. When communicating, nonverbal communication must also be taken into consideration. How a person delivers a message has a lot of influence on the meaning of this one.

Another important aspect to have effective workplace communication is taking into consideration the different backgrounds of employees. "While diversity enriches the environment, it can also cause communication barriers." Difficulties arise when a co-worker's cultural background leads him or her to think differently than another. It is for this reason that knowing about intercultural communication at work and learning how to treat others without offending them can bring several benefits to the company.

Source: Wikipedia

[2] What is virtual collaboration?

Virtual collaboration is the method of collaboration between virtual team members that is carried out via technology-mediated communication. Virtual collaboration follows the same process as collaboration, but the parties involved communicate exclusively through technological channels. Distributed teams use virtual

collaboration to simulate the information transfer present in face-to-face meetings, communicating virtually through verbal, visual, written, and digital means.

Source: Wikipedia

[3] Why is mentoring important?

Mentoring in the workplace is important, because it provides professional socialisation and personal support in addition to knowledge and skills developed throughout apprentice's career. Good quality of mentoring greatly enhances apprentice's chances for success and future career growth.

[4] What is mentor's role?

The scope of mentor's role depends on the business sector and the working environment. In broad terms, a mentor is a figure of professional experience and trust who guides, supports, sets up objectives, keeps regular reviews of the progress, records achievements. Mentoring is a two-ways process, which is based on mutual respect and is very rewarding.

[5] What delivery styles of mentoring are available?

Mentoring can be very bespoke and flexible and may be offered through a combination of delivery styles. The most common are:

- ***Face-to-face*** *– this is the most common type of mentoring. It is recommended for the first-time meeting to get to know each other and set the objectives.*
- ***Remote*** *– this is a very modern and the cost-effective way of keeping in touch through phone calls, texts, video, calls/conferencing, messaging apps and collaboration platforms. This type of mentoring is very good for established and on-going support and reviews.*
- ***Reverse mentoring*** *– this is when an apprentice becomes a mentor and offers insight to their mentors on generational differences, expectations, communication methods, new trends and other areas of interest. This can be used for a mid-term relationship or at the end to evaluate the mentoring programme.*
- ***Peer mentoring*** *– getting a support from someone who has been a mentor for a longer period of time for sharing experience and good practice.*

[6] What can an apprentice get out of mentoring?

It really depends on the goals, objectives and agreed plan of action. These examples are indicative elements that can be taken into consideration:

Technological updates	***Identification of needs***	***Time management***
Career development	***Problem solving skills***	***Work-Life balance***
Effective communication	***Objectives and sense of direction***	***Expert advice and support***

[7] What can a mentor get out of mentoring?

There might be numerous benefits for a mentor. Here are some examples:

Professional satisfaction	***Helping apprentices achieve their goals***	***Space to reflect on personal development***
Sharing knowledge and experience	***Hands-on practical skills***	***Developing communication skills***
Training skills	***New ideas and technologies***	***Opportunity to raise future leaders***

[8] Which aspects of a mentoring relationship are the most important?

Communication is integral to the mentor-apprentice-relationship, because the ability to communicate effectively is essential to ensure continuity of the process with regular progress reviews and feedback. The collaboration between mentor and apprentice should have a clearly defined purpose and focus. The commitment between mentor and apprentice relies on mutual respect, trust and confidentiality while maintaining a cordial and productive relationship.

[9] How long should a mentoring session last?

It is recommended for the meetings to last about two hours, but it is up to the mentor and apprentice. The frequency of meetings should be at least once a month for the first six months. Mentoring relationships are usually for about a year but can last much longer.

[10] What are the Dos and Don'ts of a mentoring?

Do	*Do not*
Be an exemplary role model for your apprentices	*Do not influence apprentice's professional decisions*
Put your working relationship first	*Do not continue with relationship that is not clear or lacks clarity and objectives*
Encourage apprentices	*Do not act for apprentices*
Ensure the apprentices are not mentored (where possible) by their supervisor or manager	*Do not job shadow*
Consider variety of pathways, review approaches and scenarios	*Do not be overly prescriptive in your methods and approaches*

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