CODING TRAINING WITH AVIATION TECHNOLOGIES

Interview Methodology

Co-funded by the European Union

Content

Introduction

This document is prepared to help guide consortium members of the “Coding Trainings with Aviation Technologies” project to undertake the “Basic principles and educational information set of coding training with unmanned aerial vehicles” interviews as part of Work Package 2 (WP2). The guide is structured into 6 major sections excluding this introduction: general details, timeline, interview procedure, questions (one-on-one interviews), Consent of data privacy, templates for summarizing the results (one-on-one interviews).

1 General details

1.1 Proposal Requirements

According to the requirements specified in the project proposal, WP2 includes the collection of at least 20 qualitative interviews (one-on-one). FINE is required to design individual interview surveys and provide a template to summarize the results of each interview. These will be distributed to partners who will conduct survey research with educators, teachers, industry and technology representatives in Slovakia, Turkey, Italy, Croatia, Portugal and Serbia. These surveys aim to conduct a qualitative analysis aimed at identifying the most effective strategies for integrating coding technology into teaching processes. It also aims to gain an in-depth understanding by identifying best practices on how educators can integrate coding technology into teaching practice.

1.1.1 Target group

The interview will target educators, teachers in the field of vocational education and representatives from the fields of UAV technology and industry. These target groups should provide experience and basic knowledge in the field of coding technology, specified for level 5 in the European Qualifications Framework (EQF). EQF level 5 represents qualification at secondary education level, which includes participants' ability to understand and apply complex coding concepts. In addition, this target group needs to know best practices for the use of coding technologies in vocational training or other applications (sectors such as aerospace, software or information technology).

Aksu Aircraft Maintenance Technology Vocational and Technical Anatolian High School (TR), Istituto Tecnico Commerciale"G.P. Chironi" (IT), Vazduhoplovna academija (RS) and Stredna odborna skola Pruske 294 (SK) will enrich this with various stakeholder communication networks in the industry, technology and education sectors.

Educators in this project are defined as:

- VET interview candidates, educators or teachers may be, but are not required to be, part of your organization. It is also possible to reach out to your network to find suitable candidates in coding technology.
- Educators who teach in the field of coding technology.
- Educators experienced in incorporating ICT technology into education with various

pedagogical approaches and digital tools.

- Educators can report their experiences on how to access information about coding technology.
- Partners will try to target as much diversity in interview candidates as possible to capture different perspectives on the topic. However, since the backgrounds of the partners are so different, a definitive sample design is not required other than the mandatory requirements mentioned above.

1.2 Aim & Content of the Interviews

The main purpose of these interviews is to understand the current practices, approaches and experiences of educators and industry professionals; The aim is to delve deeper into the perspectives of professionals who provide training and employment on the use of unmanned aerial vehicle technologies, especially in coding training in vocational education, and to identify potential obstacles, opportunities and best practices in this field.

The main prominent questions of the interviews are:

- What methods or approaches are available in your training regarding the use of unmanned aerial vehicle technologies in coding training in vocational training and to what extent do you adopt practices in this regard?
- What are the biggest challenges or obstacles you have encountered in your education process and what strategies do you adopt to overcome these obstacles?
- What are the best practices you have encountered when teaching coding education in vocational education and what is the impact of these practices on student success?

1.2.1 Interview Strategy

Structured qualitative interviews (one-on-one; recorded)

Each session is planned to last approximately 45 minutes.

In order to ensure diversity among the participants, it is aimed to interview individuals with different profiles and expertise (educators from vocational education and representatives providing employment in the sector).

To ensure comparability of the resulting data, each interview is based on the same basic questions.

1.2.2 Translations

The interview guidelines will be made accessible in English. If the partners would like to do the interviews in a different language, they are asked to translate the documents by themselves. The interview results must be delivered in English.

1.3 Timeline

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
	M1	M2	M3	M4	M5	M6	M7	M8
A1) Define the conceptual framework and methodology.								
A2) Data collection and analysis.								
A3) Creation of the information set document.								

Time / Deadline	Steps in the Process
07/01/2024	Interview guidelines are presented at the meeting
11/01/2024	Feedback for the interview guideline
1501/2024	Final guidelines are distributed in the project team
16/01/2024 – 28/02/2024	Identify target group; contact your target group; conduct interviews (min. 20 interviews per partner)
01/03/2024	Deadline for handing in the interview summaries
01/03 – 01/05/2024	Analysis of interview summaries / questionnaire results
31/05/2024	Finished analysis of interviews

2 Interview Procedure

This chapter contains important steps and guidelines to consider and implement when planning, conducting, and evaluating the results of one-on-one interviews, surveys, and focus groups. At this stage, it is aimed to ensure that data collection processes comply with ethical standards, prioritizing the privacy and security of the participants.

In the subsection, how to conduct interviews and surveys, the process of selecting participants, the design of interview questions, the use of data collection tools and the methods to be used to evaluate the results will be discussed in detail. This will create an important framework for the management and quality of the primary data collection process.

2.1 Before the Interview

- Before conducting the interview three main activities are undertaken:
- locating the interviewee, getting their willingness (i.e., informed consent, see Appendix 3), and preparing for the interview.

2.1.1 Locating the interviewee

Before setting up the interview, suitable interview candidates need to be identified. Therefore, please follow the details of the target group to select interviewees. In this regard the following tips are provided:

- Start from your own network to identify suitable candidates:

- Stakeholder communication network in the aviation, coding, information technologies and vocational training sectors.
- In the second step, search for 'contacts' (e.g. snowball method) until you have identified a sufficient number of candidates.
- If necessary, conduct an online search to find suitable candidates in your area.
- Be prepared to interact with at least more than four interviewers.

2.1.2 Setting up the interview

The following tips are suggested:

- Before you contact the potential interviewee, do some background search with an emphasis on their work related to the interview questions. This would help you make a compelling case why you chose them as an ideal candidate for the interview.
- In your first contact with the expert, being either by e-mail or phone, introduce yourself and the objective of the project. Ask also for the chance to conduct a short interview, making sure enough time is available (approx. 45 min). To increase response rate**, it might be helpful to mention that this represents a possibility for the expert to have his name associated to an EU-level project.**
- To increase the response rate, it may be useful to note that this represents the possibility of associating the expert's name with an EU-level project.
- Lastly, please consider that in these trying times of Corona, we would prefer that you conduct your interviews via Skype, Zoom, Microsoft Teams or any other technology that allows for video telephony. It is still important to see your interviewee face-to-face. Please check beforehand that the technology works (i.e., your microphone, your webcam) and that you have the contact details of your interviewee.

2.1.3 Preparing for the interview

Once the interviewee agrees to participate in the interview, set the interview date, time, as well as the specific location (i.e., whether it will be a Skype, a Zoom or a Teams call for instance). Of course, this should be done at the convenience of the participant. If possible, the day and time should not be one in which the participant will feel fatigued or rushed. The location in which you and your interviewee are conducting the interview should be free of noisy distractions, one that permits relative privacy to talk, and one that makes the participant feel comfortable and secure.

As the interview date gets closer, send out a kind reminder by email or telephone.

In case the participant specifically asks for it, provide a list of general topics to be covered during the interview. This could potentially be included with the email you sent out for interview consent form (see consent form) that will be sent out to the interviewee beforehand. However, with regard to the one-on-one interview, the participant should not be able to prepare detailed answers beforehand. Hence, do not provide your interview guideline.

Available time during interviews is most often limited, so every question asked should serve

some purpose toward the research.

Prepare an audio recording device with the appropriate accessories. Usually, the typical video conferencing tools provide an option of recording. If you use other technical devices, make sure to record it in a different way. Smartphone apps are useful here (note: if you are using your smartphone to conduct the interview, get an additional device to record the interview). However, make sure that the audio is securely stored on your device.

In addition, also bring a notepad and a pen to take notes during the interview. This may enable you to follow up on relevant topics the participant stated and provide an additional data source, next to the audio file.

Be well versed about the main topic of investigation as well the guiding questions of the interview provided.

Lastly, for online interviews, please pay attention to the following additional tips:

- Use technologies that both you and the interviewee is familiar with. Some common examples include Skype, Zoom and Microsoft Teams.
- In case of new application software is suggested by the interviewee familiarise yourself beforehand.
- Decide how you want to present yourself. Just as in a face-to-face live interview, the background, your attire, and style all convey messages.
- Carefully review questions or interview guide so you can minimise the need to look down at notes. In case of video interview, this will allow you to make the best “virtual eye contact” possible. Remember to look at the camera, too!
- Discuss options and parameters for the participant’s web camera. Is it acceptable for the participant to turn the camera off and use audio only?
- Check audio, video, recording and other relevant features you intend to use. You may want to set up an external voice recorder as a backup to ensure audio capture.

2.2 During the interview

Prepare the interview site (i.e., Skype/Zoom/etc. And your webcam, microphone, your place etc.) well in advance. This will help mitigate the impact of inadvertent events, should they arise and gives you the ability to prepare yourself and not feel rushed.

Thank the interviewee for his/her participation and ask for their willingness to be audio recorded. Explain that the recording will only be used for the intended purposes of the project and that the information will be kept confidential. (This is also included in the consent form that will be sent to the interviewee before the interview).

Begin the interview by asking some relevant background information before diving deep into the core of the interview. Use the questions in section one of the interview guide to get an overview of the candidate’s professional background and relation to teaching innovation management.

Conduct the interview with an attitude of courtesy and respect as it helps to establish a feeling

of comfort and equity.

Act as a sympathetic and empathetic listener, someone who does not pass judgment on what the participant says, but one who provides a forum for a voice to be heard.

Attune yourself to the nuances of voice and body language to discern whether participants are being truthful with their responses — not to challenge them directly, but to steer the course of your questioning to get at honest perceptions, opinions, feelings, and value systems (thus, it is important to try for video telephony to see the participant).

Even if the interviewee agrees to be audio recorded, do not forget to take brief notes of interesting issues, key words or phrases. You can also use these brief notes to probe further or follow-up. For instance, "Tell me some more about _____.").

Avoid inserting your own extended commentary whenever possible; talk little and listen more.

Conclude the interview by thanking the participant.

2.3 After the interview

After the interview is concluded back up the voice recording into the project's Microsoft Teams space "Work package 2" under "Interview Recordings". If possible, try to immediately listen to the recording and try to provide answers to the questions that you asked right away while your memory is still fresh. In addition, immediately create memos/notes of relevant aspects that were mentioned during the interview while your memory is still fresh.

While the interviews should generally be conducted and transcribed in English, it is also possible to conduct them in other languages. However, in such cases the responses that you provide for the questions you asked must still be in English. For such purposes, applications such as DeepL (https://www.deepl.com/en/translator) or Google translate (https://translate.google.com/) can be used.

To collect the interview results in a standardized format, please use the template for summarizing interview results and upload the finished summary to the teams folder "Summarised Interview Results"

3 Structured qualitative interviews - Questions

After having welcomed the candidate to the meeting and thanked him/her for taking part, the recording must be started.

Next, the interviewer shortly introduces the project, its aim and the overall structure of the interview.

Furthermore, the interviewer should clarify some terms upfront to make sure that the candidate shares the same understanding:

"We are pleased to invite you for a series of structured qualitative interviews within the scope of our project, AVICO - Coding training with Aviation Technologies. The project focuses on

coding training equipped with technology specific to unmanned aerial vehicle technologies and project-based collaborative teaching method, as well as vocational training gains for student groups (14-18 years old) in vocational education. In this context, we aim to contribute to innovation by developing innovative methods in vocational education and to support students to be more easily employed after graduation by providing them with the necessary skills regarding future technologies.

This conversation will help us understand your expertise, experiences and valuable insights. Your knowledge is of great importance for us to achieve AVICO's goals. "Our questions will allow us to conduct an in-depth analysis of your opinions and suggestions about the project."

Section	Guiding questions (Coding skills in vocational education, unmanned aerial vehicle technologies, employment)
PART I: INTRODUCTORY QUESTIONS	
1.Background	• Can you tell us a little about your expertise and experience with coding skills or drone technologies? • What do you think the contributions of coding and technology-oriented approaches in vocational education can be to the sector?
2. The relationship between coding training and unmanned aerial vehicle technologies	• What advantages do you think combining coding skills and unmanned aerial vehicle technologies in vocational education can provide students? • What are your thoughts on what impact combining coding skills with drone technologies could have on vocational training and employment of graduates?
PART II: CODING TRAINING IN VOCATIONAL TRAINING	
3.Coding	• If you provide coding training within the scope of vocational education, how are these trainings designed and what skills do you aim to provide to students? • How do coding skills affect the employability of graduating individuals?
PART III: ACCEPTANCE OF UNMANN AERIAL VEHICLE TECHNOLOGIES IN CODING TRAINING	
4. Integration of Unmanned Aerial Vehicles Technologies into Coding Education	• How do you evaluate UAV technologies as a tool for teaching coding to students? • What coding skills could UAVs offer students potential advantages in learning?
5. Adoption of UAVs and Challenges in Coding	• What factors do you see as supporting the integration of UAVs into coding education?

Education	• What might be the biggest challenges in integrating UAV technologies into coding education?
PART IV: CODING SKILLS AND EMPLOYMENT	
6. Best Practices	• What do you know about workplace demands for coding skills right now? • How much do you think companies need students trained in this field? • What do you think about the contributions of individuals with these skills to companies' innovation processes and technology development? • How can the combination of drone technologies and coding skills provide a competitive advantage in business?
PART V: TEACHING CODING SKILLS	
7. Purposes and methods of teaching	• What are your learning goals for students who want to acquire coding skills? What teaching tools do you use to achieve these goals? • How do you evaluate the role of unmanned aerial vehicle technologies in coding education? How do hands-on experiences in this field strengthen students' technical skills? • How do you think students who gain coding skills are prepared for employment opportunities in the field of unmanned aerial vehicle technologies? • What theories or methods are your lessons based on? How do you apply these theories and methods?
8. Improvements	• What improvements and innovations do you consider in teaching coding? What changes would you recommend to make to help students learn more effectively and keep up with technology?

4 Structured questionnaire/Survey - Email

4.1 E-Mail template

Subject: *Coding training and project-based teaching specific to unmanned aerial vehicle technologies in vocational education.*

Dear TITLE, FIRST NAME, SECOND NAME

You are invited to participate in qualitative research to be carried out within the scope of the "Coding training with Aviation Technologies (AVICO)" project funded by the European

Cooperation partnerships program in Vocational Training (insert website link).

The purpose of vocational education is to provide individuals with the necessary skills.

They are the knowledge, skills and application competencies required by a particular profession in line with the goals of society and the demands of the business environment.

In other words, it is the education that people must have in order to have the necessary qualifications to take part in a certain professional life as a producer.

Based on these contexts, the AVICO project:

In addition to vocational training gains for student groups (14-18 years old) in vocational education; Coding training, equipped with technology specific to unmanned aerial vehicle technologies and project-based collaborative teaching methods, will contribute to innovation by developing innovative methods in vocational education. In addition, it will contribute to providing students with the necessary skills regarding future technologies and making it easier for them to be employed after graduation.

Unmanned aerial vehicles are vehicles designed for special purposes, capable of taking off and landing from any location, and having remote-controlled, semi-automatic or fully automatic flight capabilities. As with many technological developments, the development of unmanned aerial vehicles for military purposes has begun. After the 1950s, unmanned aerial vehicles began to be used for civilian purposes, and with the development of remote sensing, photogrammetry and especially robotic technologies in UAVs, today many professional fields and business fields (agriculture) have begun to develop. , archaeology, security, urban planning, disaster management, entertainment, etc.) are used.

Since this survey is qualitative in nature, it will take approximately 45 minutes to complete. All responses will remain anonymous.

In case of questions, feel free to contact me. I am happy to help.

Thank you in advance! We very much value your participation and are looking forward to receiving your answers.

Kind regards,

NAME

Consent of Data Privacy

Purpose

Members of target groups will been invited to participate in the interview to be held within the scope of the "Coding training with Aviation Technologies (AVICO)" project funded by the European Cooperation partnerships program in Vocational Training. In addition to the vocational training of students, AVICO wants to contribute to innovation in vocational education by implementing coding training and project-based teaching specific to unmanned aerial vehicle technologies.

The place of coding education, which has gained importance in recent years, in European education policies will be examined and innovative educational tools and applications will be developed for the use of Unmanned Aerial Vehicles in teaching coding in vocational education.

The main purpose of this interview is to learn more about the prerequisites and current barriers to adapting drone technologies to coding teaching.

Specifically, it aims to understand:

1. *The relationship between coding education and drone technologies and the barriers that currently exist,*
2. *Teaching methods currently in use to simplify the delivery of instructional content,*
3. *To successfully evaluate the Integration of Drones Technologies into Coding Education required knowledge,*
4. *Best Practices.*

Collected Information

WP2 will initially produce a general status report on digital competences and coding-software skills, focusing on the example of the aviation sector and the ICT training of VET students. This report will consist of data analysis from all partners and country reports on local situations.

The studies and activities to be carried out in this work package will contribute to the development of digital skills and create the conceptual framework for the AVICO project to achieve its general purpose in line with the determined project methodology.

Basic principles of coding training with unmanned aerial vehicles and activities to be carried out to develop the educational information set.

1. *Development of information research and desk research tools,*
2. *Data collection and analysis studies,*
3. *The use of unmanned aerial vehicles in coding training, preparation of an information package on the necessity of digital skills and competencies for competitiveness.*

This phase will be carried out at European level and at the level of partner countries. This will create the framework for an inclusive toolkit across Europe. Information will be collected in two ways:

- *Through desk-based literature review (both national and European)*
- *Through a needs analysis aimed at identifying the needs of target groups.*

The material developed will provide examples of good practice of digital skills and knowledge and help identify possible development paths for students/educators.

The material will be published online and in an English print version as part of the AVICO platform (WP4).

Procedure

Your participation as an interviewer in this project is completely optional. There is no explicit or implicit coercion regarding participation. It will take approximately 45 minutes. You allow the researcher(s) to take notes during the interview. You also consent to audiotape recording of the session and subsequent dialogue. If you do not want the interview and dialogue to be recorded, you have the full right to withdraw from participation. You have the right not to answer questions. If you feel uncomfortable in any way during the session, you have the right to withdraw from the session and request deletion of the data collected before withdrawal. Please note that there are no right or wrong answers to the questions.

Confidentiality

Researchers in the project consortium will analyze the data, but your answers will remain confidential and your names will not appear in any reports. The data collected will be used solely for the purposes of this project.

Contact

If you have any questions or concerns regarding this study, please contact:

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FİNE Consulting
Kocaeli, TURKEY

I understand this information and agree to participate fully under the conditions stated above.

*Signature:*_____*Name and Surname:*_____