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ICAO NACC Regional Office, Mexico City, Mexico, 22 to 24 November 2022

- Agenda Item 6: Design of conventional courses**
- 6.1 In person vs. virtual modality**
 - 6.2 Regional Training Solutions**

IN PERSON AND VIRTUAL MODALITY OF COURSES BASED ON CONVENTIONAL TEACHING MATERIAL

(Presented by the Rapporteur)

EXECUTIVE SUMMARY	
<p>This working paper presents the need for the design and production of conventional didactic material implemented in various teaching-learning modalities in order to have a common instructional design scheme for the different CATCs.</p>	
Action:	<p>Request to this Working Group:</p> <ul style="list-style-type: none">a) Share experiences applied in instructional design during the pandemic.b) Discuss infrastructure needs for content on a management system in which virtual courses based on conventional material can be collaboratively published. <p>Request to ICAO:</p> <ul style="list-style-type: none">a) Design and deliver training on instructional design in virtual learning environments based on conventional teaching materials.b) Propose the necessary structure of a Content Management System (LMS), where virtual courses based on conventional teaching material can be collaboratively published.
Strategic Objectives:	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Security & Facilitation• Economic Development of Air Transport• Environmental Protection

<i>References:</i>	<ul style="list-style-type: none"> • Procedures for Air Navigation Services - Instruction, ICAO document 9868, third edition, 2020. • Guide for the preparation of training programs - Training methodology by competencies, ICAO document 9941, first edition, 2011. • Training development guide, competency-based training methodology - Guide for the development of online courses, first edition, 2019 •
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1. Introduction

1.1 Most of the Civil Aviation Training Centres (CATCs) develop courses under two methodologies:

- a) Methodology for the design and development of Conventional Courses (CMDC): This methodology is based on parameters for the design, production and implementation of courses established by the course design unit (UDC) of each CATC, based on the ICAO aeronautical instruction document specifications and state aeronautical regulations, training manuals, quality management systems implemented in the CATC and in some cases provisions of education ministries; as well as the contribution that a specialist in the subject or the designated instructor can provide.
- b) Methodology for the analysis, design, production and validation of Standardized Courses (STPs): It is based on the instruction methodology of the International Civil Aviation Organization (ICAO), and allows the development of training material based on competencies. The design is the result of an investigation in the jobs where the performance problem is identified and the knowledge, skills and attitudes necessary for efficient job performance are associated. The reference documentation for the application of this methodology is: The Guide for the Preparation of Instructional Programmes. Doc 9941 AN/478 and the TRAINAIR PLUS Operations Manual Doc 10052.

1.2 It is observed that in the CATCs of the region, the production of conventional courses exceeds the production of courses based on standardized didactic material, this lies in the amount of economic, human and time resources that each methodology demands.

2. Background

2.1 In addition to the definition of the course design methodologies implemented by the different CATCs, it is necessary to highlight that during the quarantine period they faced the challenge of maintaining the vitality of aeronautical instruction and promoting the development of competencies; As well as, the maintenance of these through recurrent instruction, it is to that extent that they implemented mechanisms to make possible the adoption of alternative teaching-learning methods with multimodality options with the condition of maintaining the competency attributes of aeronautical personnel.

2.2 Multimodality in aeronautical training currently represents an effective response to the training needs of civil aviation professionals, who participate in learning processes with technologically enriched environments, where the Internet is a fundamental service.

2.3 The concept of multimodal training system refers to the support of virtual or real channels and platforms, through which the training processes will be developed, therefore it is necessary to define the modalities for the delivery of training, which can be:

a) Face-to-face mode:

- In-person attendance at the CATC: traditional modality for the facilitation of courses, which implies the attendance of the student at the facilities of the instruction centre.
- In Company: Delivery of face-to-face courses in the place requested by the client.

b) Virtual Mode:

- Synchronous E-learning: Virtual learning environment where both the facilitator and the participant are connected at the same time, but in different places, share sessions through teleconference or videoconference management software, didactic materials, and present evaluations through an LMS.
- Asynchronous E-learning: virtual learning environment, where the instructor and the participant connect in different times and spaces. The e-learning course is carried out at a pace adapted to the development of the participant's skills.
- E-learning Self-study: Teaching-learning process where students access training materials based on a computer (CBT) or on the Web (WBT) at a pace adapted to the development of the participant's skills and does not include the intervention of instructors or tutors.
- B-Learning: development of learning processes that combines e-learning (asynchronous meetings) with face-to-face meetings (synchronous).

3. General Description

3.1 During the pandemic, we observed three major challenges for the transition from courses designed to be taught in face-to-face mode to virtual mode through digital means. It should be noted that the three identified challenges are still in force:

- a) The first refers to the lack of access to the Internet and technological devices, taking into account that online instruction is only possible for those who have an Internet connection and access devices.
- b) The second challenge is related to the lack of socio-emotional skills (such as discipline, motivation and time management, among others) and digital skills necessary to adapt to this modality of instruction. Although it is necessary to implement measures that guarantee students access to the Internet and devices, this represents only a first step to facilitate the success of civil aviation professionals in virtual education. The difficulties linked to distance learning, especially in the context of the health crisis, go beyond inequalities in access to resources. The lack of digital skills of the students became evident.
- c) The third challenge is linked to the insufficient adaptation of instructional design methodologies with the andragogic competency approach to the virtual environment, given the lack of approved instruction for aeronautical course developers.

4. Conclusions

4.1 It is required to have an approved methodology for the design of conventional courses that is not equal to the methodology for the development of STPs.

4.2 It is necessary that the course developers of the different CATCs in the region have the necessary training for the instructional design of virtual courses.

4.3 The Managers or Directors of the different CATCs in the region with the support of ICAO, implement a virtual knowledge management platform, in order to publish and share conventional teaching material.