

ICAO TRAINING REPORT

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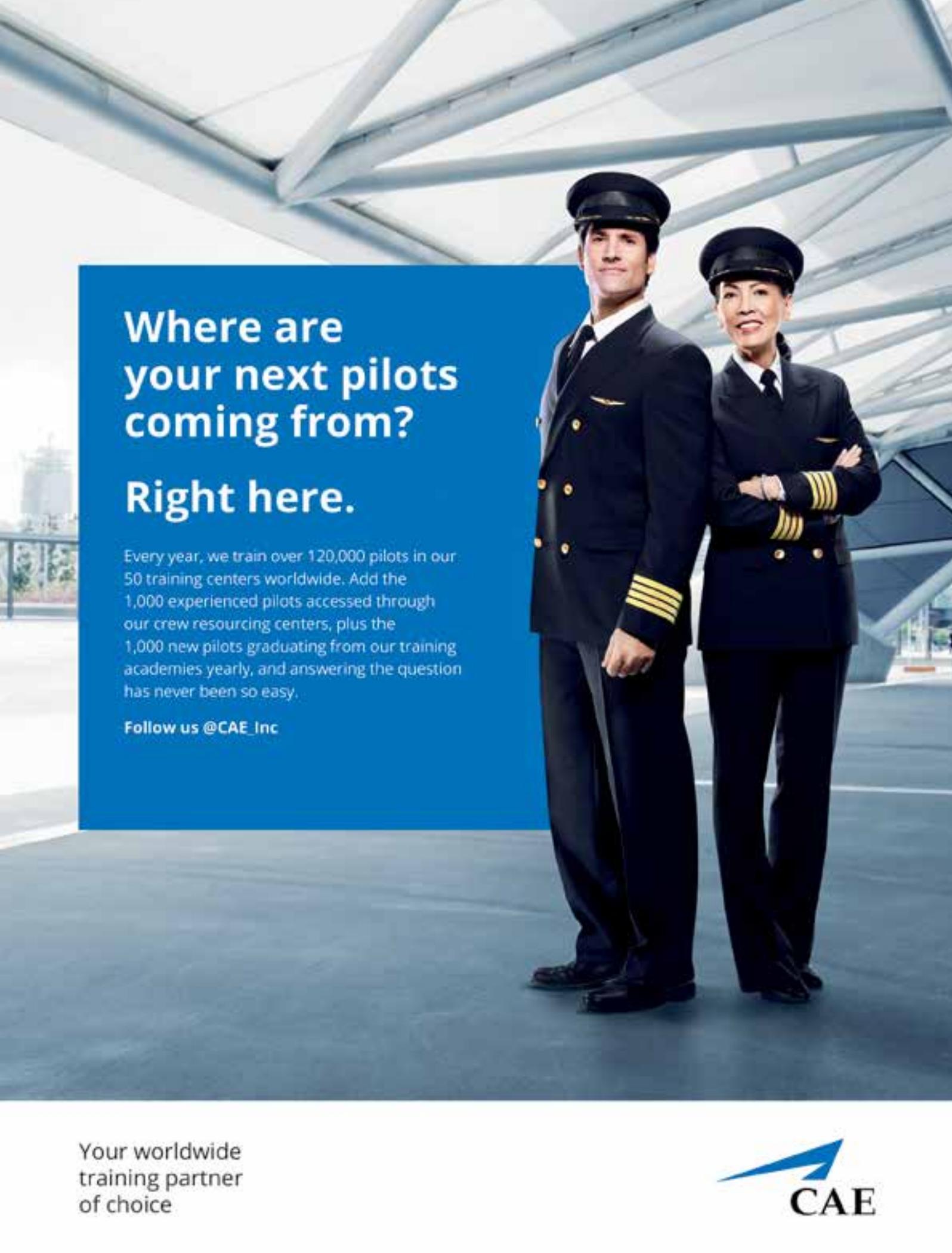
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A man and a woman in dark blue pilot uniforms with gold stripes on the sleeves and caps stand on an airfield tarmac. The man is on the left, looking towards the camera. The woman is on the right, with her arms crossed and a slight smile. The background shows the structural beams of an airport terminal or hangar.

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The ICAO Training Report encourages submissions from interested individuals, organizations and States wishing to share updates, perspectives or analysis related to global civil aviation. For further information on submission deadlines and planned issue topics for future editions of the ICAO Training Report, please contact Allisun Dalzell at unitingaviation@icao.int

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Contents

3

A Message from the Chief of the Global Aviation Training Office

Working together to support the growth of this industry

5

Enhancing Competency-based Training Through a Sociocultural Approach

Singapore Aviation Academy takes a sociocultural approach to enhance their training programmes

ICAO PARTNER BRIEFS

The Cost of Training

The Director of IATA's Training and Development Institute examines the investment and value in developing and delivering quality training

Investing in Airport Training and Succession Planning

Angela Gittens, Director General of Airports Council International, describes how ACI is helping airports around the world to build capacities

10

14

ICAO's Fourth Global Aviation Training Symposium

Highlights from the 2017 event that took place in Addis Ababa

18

23

Becoming a First-class Aviation Training Centre: Incheon Airport Aviation Academy's Journey

Recognized as the world's best airport for 12 consecutive years, Incheon Airport expands their internal training to service a global market

28

Virtual Laboratory Delivers Better Training to Flight Instructors

With research suggesting a teacher's knowledge is irrelevant if they cannot manage student learning, Dr. Kenneth Byrnes studies whether virtual teaching environments improve the fundamentals of instruction

32

Air Traffic Control Training For Millennials - Shifting the Training Paradigm

Kelly de Lambert explains why Airways New Zealand has incorporated gaming-based technologies in their next generation training strategies

34

The Next Generation of Aviation Professionals

Zambia's Air Services Training Institute describes their efforts in meeting future aviation needs

38

ICAO's TRAINAIR PLUS Programme: EASA Shares their Experience

Mary Sindiga illustrates the challenges and benefits the East African School of Aviation has experienced since becoming a TPP Member

42

A Spotlight on the Ethiopian Aviation Academy

The host of the 2017 Global Aviation Training TRAINAIR PLUS Symposium takes a tour of their training centre

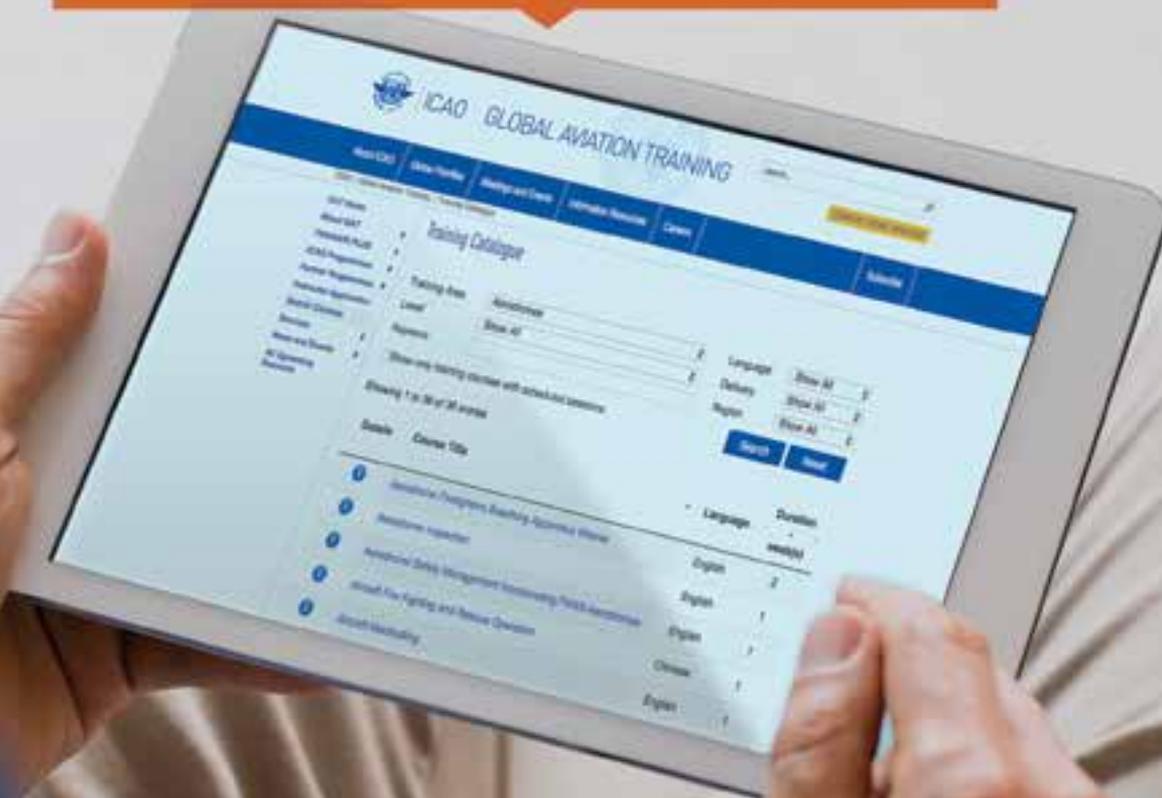


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MESHESHA BELAYNEH

 We know aviation is an essential component of a global society, connecting cultures, providing employment, research and education opportunities. Aviation makes critical contributions to future sustainability and it brings assistance to States in times of need. But the goods and services carried around the globe benefit

our own industry as well, as air transport services deliver the final products of civil aviation industries to their customers.

Providing passenger, freight and mail services – air carriers, business aviation and other commercial operators, purchase a wide range of products and services from airports and air navigation service providers, manufacturing and service industries – who in turn depend on numerous suppliers. They are crucial drivers of economic, social and cultural development worldwide, supporting roughly 58 million jobs globally, and generating more than 2.4 trillion dollars in economic activity.

Because of aviation's cross-cutting nature and multiple links to other economic sectors, the total economic impact of aviation reaches some 3.5 per cent of the world's GDP. In 2014 over 3.3 billion passengers made use of scheduled air services around the world, representing an annual worldwide growth rate of 4.9 per cent over 10 years. Aviation's important role as an engine for economic development was clearly evident during this period, since it directly supported some 8.5 million jobs and fostered world GDP impacts in the area of 700 billion dollars.

Those 8.5 million employees require highly specialized skills and a wide array of complementary competencies to achieve their task in the safest and most efficient conditions. Bringing the required skills, knowledge and attitudes to these employees, to help them effectively perform their jobs, is the result of efficient training. The link between training and the growing contribution of aviation in worldwide economic development becomes obvious. We have a collective responsibility to manage and implement training in the most efficient way to support this growth.

ICAO plays a leading role in coordinating this international effort – so how exactly are we doing this?

- 1 We recognize training organizations that are meeting our requirements in training. This includes those defined in Appendix 2 of Annex 1 on Personnel Licensing, in ICAO Document 9841 (*Manual on the Approval of Training Organizations*), and in Document 9941 (*Training Development Guide – Competency Based Training Development Methodology*). This is carried out through an assessment process as a preamble to being granted a TRAINAIR PLUS Programme (TPP) Membership. ICAO recognizes the compliance of the training organizations that meet our requirements, supporting them with the implementation of identified corrective actions, when there is need for support.
- 2 We set standards for training development and delivery, for the global implementation of competency-based training in civil aviation. We addressed this in Doc. 9941 and in other reference material and courses (i.e. through Training Instructors, Training Developers Course and Training Managers courses).
- 3 We develop and deliver courses that support the smooth and efficient implementation of ICAO's SARPs, and we provide support to Member States so that they can improve their own course development and delivery capacities.
- 4 We have defined "Excellence criteria" and recognize Training Centers of Excellence on the basis of this criteria. These training centres are organizations that have the responsibility of developing and delivering training on-behalf of ICAO.

ICAO may have a leading role in aviation training, but we need to collaborate with States and other leading organizations to achieve our objectives of efficiently training the 8.5 million aviation personnel. I sincerely believe that we should work together to benefit from each other's respective strengths, missions and mandates to adequately train professionals to manage safely and efficiently the worldwide air transport system. ■



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**JASON WONG**

He is the Head of Training Quality and Instructor Development at the Singapore Aviation Academy. He holds a Master's Degree in Training and Development (with Distinction) from Griffith University. Under his supervision, the Singapore Aviation Academy became the first Regional Training Centre of Excellence under the TRAINAIR PLUS Programme.

ENHANCING COMPETENCY-BASED TRAINING THROUGH A SOCIOCULTURAL APPROACH AT THE SINGAPORE AVIATION ACADEMY

✈ To support its 'No Country Left Behind' initiative, ICAO developed the TRAINAIR PLUS Programme (TPP), a programme that uses a Competency-Based Training (CBT) methodology to harmonize and achieve baseline training standards in training development. Since its inception in 2012, 92 members have joined the TPP network, echoing the success of the programme. CBT is used by TPP members to attain and demonstrate skills that meet industry standards.

Among the strengths of CBT are that it emphasizes practice and the consolidation of skills to advance fluencies, and it lessens the cognitive loads placed on information processing. Studies have shown that CBT is effective in developing skills with clear and specific content, such as technical and operational skills. It is, however, less effective in developing the relationship and process-driven skills used in management and knowledge-creation.

CBT should not be used as the sole training methodology. The success of any form of training is likely to be a hybrid of different training methodologies. In an industry where inter-State training of personnel is common, and the safety of air travel depends on the joint-capabilities of all States, the social and cultural aspects of training cannot be understated.

For work that involves autonomous analysis, judgement and decision-making, a more sociocultural approach that takes advantage of the diverse backgrounds, unique knowledge and rich experiences of its participants would be beneficial. This article shares the Singapore Aviation Academy's (SAA) experience in enhancing CBT through a sociocultural approach.

CASE FOR ENHANCING CBT THROUGH A SOCIOCULTURAL APPROACH

Trainees with diverse cultural backgrounds and abilities bring unique knowledge and experiences to the classroom. These attributes, when shared in the social context of the classroom, create learning communities where every learner benefits. This is especially relevant given the complex and changing dynamics of knowledge and skills needed in the aviation industry.

The subjectivity and process-driven traits inherent in the sociocultural theory complement the prescriptive, objective and outcome-driven traits inherent in CBT. Supplementing CBT with applications of the sociocultural theory would be particularly useful when training those who require decision-making and problem-solving skills to handle real-life situational uncertainty.

**MASNIDAH MASNAWI**

She is the Senior Manager of Training Quality and Instructor Development at the Singapore Aviation Academy. She holds a Master of Arts Degree (Psycholinguistics) from the National University of Singapore. An enthusiast of the sociocultural approach, she has been applying sociocultural strategies in her decade-long experience as a trainer.

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He is the Deputy Chairman of the Civil Aviation Medical Board, Civil Aviation Authority of Singapore, and is an Academician of the International Academy of Aviation and Space Medicine (IAASM). He is the Subject-Matter Expert for the IAASM-SAA Postgraduate Certificate in Aviation Medicine for Medical Examiners and Assessors Compliant Training Package.

A key strength of the sociocultural theory is its wide-ranging applicability to training and development. There are many strategies that have their influence in a socially-inclined approach. Examples include cooperative learning, collaborative learning, role playing, guided participation, reciprocal teaching, dynamic assessment, cognitive apprenticeship and peer-assisted learning.

APPLICATIONS OF THE SOCIOCULTURAL THEORY

Four training strategies that have their influences in the sociocultural theory are discussed below:

■ Cooperative Learning

Cooperative learning refers to learning situations where small groups of trainees are encouraged and motivated to cooperate and help one another learn in order to interact, share information, solve problems or complete tasks collectively to achieve conditional rewards or reach common goals. With this strategy there is group and individual accountability.

■ Collaborative Learning

In collaborative learning, trainees learn together by drawing on one another's knowledge and skills, working together to solve a problem or complete a task. The emphasis is on building understanding as a group as members interact. In this approach, the trainees tend to have more autonomy, since the trainer mainly plays the role of a facilitator.

■ Role Playing

Role playing supports learners as they test roles and skills beyond their current abilities and acquire higher levels of competence. Studies have also shown that role playing results in improved memory skills, metacognition, perspective-taking and problem-solving abilities.

■ Guided Participation

In guided participation, support is provided to enable trainees to participate in expert activities in increasingly expert ways. Guidance is provided to trainees to enable a task to be performed successfully and independently by adjusting the assistance to fit the current level of performance, by breaking the task into small parts, directing trainees' attention, and giving general and specific instructions to solve problems. The guidance is then gradually removed as trainees progress towards independence and new ones are introduced to phase in the next stage of learning.

SAA has introduced the applications of the sociocultural theory to complement our courses that are developed using the CBT methodology. The following two case studies highlight this approach.



SAA participants contributing actively in a lesson designed using the CBT methodology, enhanced by applications of the sociocultural theory.

CASE STUDY #1: PERSONNEL LICENSING (PEL) SYSTEM ICAO TRAINING PACKAGE (ITP)

The PEL System ITP aims to equip civil aviation authorities with the competencies to set up and manage an effective PEL system in accordance with Annex 1 to the *Chicago Convention and ICAO Manual of Procedures for Establishment and Management of a State's Personnel Licensing System* (Doc 9379).

Delivered through a blended approach, the course consists of a two-day eLearning lesson that provides participants with the foundation knowledge needed to establish a PEL office, and is followed by five days of classroom training on operational requirements. Since its inception at the end of 2015, 48 participants have attended the PEL ITP. This course won the "highest number of RTCE ITPs delivered" during the recent ICAO TRAINAIR PLUS Global Symposium, attesting to the popularity of the course.

APPLICATIONS OF SOCIOCULTURAL THEORY

Cooperative learning through games

Following the two-day eLearning lesson where participants individually learned the basics of establishing a PEL office, the first activity for the classroom session is a quiz-game. Participants are seated in groups and are allowed to discuss the questions before coming to an agreement on the answers to the questions. Subject areas include the action of personnel licensing, the licensing authority, as well as the regulatory system governing personnel licensing. The group with the highest number of correct answers wins the game.

Incorporating cooperative learning through game-playing has many benefits. Participants have the opportunity to elaborate and discuss one another's answers, building a joint understanding that is greater than what they would have produced individually. Game-playing increases motivation by allowing participants to work together to gain rewards for their groups. The methodology is also a good strategy for breaking the ice and allows trainees to quickly get to know one another, paving the way for participants to interact and work with one another easily for the rest of the course.

Collaborative learning through case studies

The five-day classroom session is anchored on a set of case studies involving a fictitious State Civil Aviation Authority that needs to set up its PEL office. Every case study narrates the challenges faced by the CAA, the resources it has, and the objectives it has to meet. Participants assume the role of PEL Manager in the case studies. They have to identify potential problems and determine the course of action to be taken when they are faced with requests from airlines and maintenance organizations. Requests may pertain to the licensing of flight crew and non-flight crew, conversion of foreign licenses and recognition of medical certificates.

Participants work in groups, drawing on their past experiences, applying what they have learned in the preceding lessons to reach common consensus for their proposed answers. Instead of providing answers, the trainer plays a facilitation role, posing thought-provoking questions to stimulate participants' thinking. When the groups are presenting their responses to the case studies, the class members are encouraged to provide their views. The trainer summarizes the responses and gives his views towards the end of each case study.

Outcomes

When used with mixed-ability groups, both cooperative and collaborative learning methods have proven to be effective in reducing the competency gap that develops over time, between high and low ability participants. Both methods also develop positive impact on interpersonal relationships with participants from different countries and ethnic backgrounds. The motivational level of participants remained high throughout the course. All of this led to better engagement of the participants and the achievement of learning outcomes.

The next run of "Personnel Licensing (PEL) System ICAO Training Package (ITP)" will be conducted at SAA from 23 to 27 October 2017. Interested participants will have to complete PEL System Part One (eLearning) prior to attending this course. This course can also be conducted onsite upon request.

CASE STUDY #2: IAASM-SAA POSTGRADUATE CERTIFICATE IN AVIATION MEDICINE FOR MEDICAL EXAMINERS AND ASSESSORS COMPLIANT TRAINING PACKAGE (CTP) – UNDERGOING ICAO TECHNICAL VALIDATION

This course is intended for physicians who wish to be trained as medical examiners or assessors. Medical examiners and assessors are required to competently apply medical requirements of ICAO Standards and Recommended Practices (SARPs); perform effective examinations, critically evaluate medical documents; and make medical fitness conclusions for ICAO Class 1, 2 and 3 Medical Assessments for applicants presenting with any spectrum of medical conditions. The course syllabus is designed to meet the aviation medicine training guidelines stipulated in the *ICAO Manual of Civil Aviation Medicine* (Doc 8984). In 2016, 23 physicians from 16 States attended this course, which was delivered through blended learning which comprised one-day of eLearning and 10-days classroom training.

APPLICATIONS OF SOCIOCULTURAL THEORY

Guided participation through evolving case studies

Evolving case studies were used extensively to train the participants to assess the flight safety risk associated with various medical conditions. Participants were brought through the process of dealing with applicants with various medical issues. This called for them to analyse issues and make decisions as they accumulated information about each case, thus simulating real-world situations in a clinical setting.

Given a brief about an applicant's medical information, a decision was to be made if the medical conditions posed a risk that was significant enough to impact the applicant's medical fitness. The participants appraised the reports for completeness and relevance, and determined if relevant information was missing. This was shared with the rest of the class. Groups often provided different answers, which pointed to the many ways a case could be viewed. The trainer then revealed new information to progress the scenario, which the participants synthesised with the information they already possessed. If a decision about medical fitness could not be made, the process was repeated until a decision could be made. To guide their learning, the trainer posed questions and highlighted circumstances or parts of the reports that needed attention throughout the process.



A group expressing their opinion during an evolving case study discussion.



Video production of a medical examination encounter in progress.



Participants applauding the winners of the Best Actor awards for the video production exercise.

The guidance provided by the trainer decreased with each case study as the participants acquired greater expertise and confidence in assessing an applicant's aeromedical fitness. Using this strategy, the participants socially co-constructed the approach for a risk-based assessment.

Role Playing

Conducting a medical examination on an applicant is a dynamic and multifaceted process. To appreciate the nature of this process, participants formed groups to produce videos of a proper medical examination encounter with an applicant of a certain persona. The persona helps to contextualize the relevant challenges or issues that should be addressed during the encounter. The approaches that were adopted by the respective groups were co-constructed in the process of writing the script and organizing the sequence of actions within the video. The task compelled all the group members to brainstorm, visualise and flesh out in detail how to demonstrate the competency in their videos.

Producing videos provided additional motivation and realism to the exercise. Participants were also brought through a process of perspective-taking as they crafted the response of the applicant to how the examiner conducted the examination.

Outcomes

Feedback from the participants reflected an appreciation of the course activities which were grounded in sociocultural theory.

The next run of "IAASM-SAA Postgraduate Certificate in Aviation Medicine for Medical Examiners and Assessors Compliant Training Package (CTP)" will be conducted in SAA from 23 October to 3 November 2017. Interested participants will have to complete the eLearning modules prior to attending this course.

CONCLUSION

Feedback indicative of a richer learning experience motivates SAA's efforts to further incorporate sociocultural strategies in the design of SAA courses. Personnel in the civil aviation industry often congregate to learn in common classrooms to build international relationships and learn best practices. The enhancement of CBT through a sociocultural approach will further improve the effectiveness of training and competencies in the civil aviation industry, ensuring that no country is left behind. ■

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THE COST OF TRAINING



GUY BRAZEAU

He is presently Director, IATA Training and IATA Consulting and has more than 40 years of experience in aviation, 30 of which have been at the international level. Over the years, in addition to occupying a number of senior management positions within IATA, Mr. Brazeau has worked as a project director, lecturer and/or consultant in more than 50 countries on airport, airline and civil aviation-related projects. In addition, he was also recently a lecturer of the Airport Management course at one of Canada's most prestigious educational institutions, McGill University.

✈ INTRODUCTION

Before diving into the costs associated with training, we need to consider and address a few overarching training questions:

- What is the purpose of it?
- What are the main dimensions of the training activity?

THE PURPOSE OF TRAINING

We can agree that training is a service offered to organizations, groups and individuals that adds value to the recipient by shaping the knowledge, skills and attitudes both personally and collectively. Training empowers people and organizations allowing them to be more efficient, effective and agile in their daily activities. Training ensures employees, managers and leaders are equipped to sustainably accomplish the organization's mission on a daily basis, while keeping it aligned and moving towards its vision. In the aviation industry, training is crucial for keeping up-to-date with global standards and regulations, particularly those pertaining to safety and security.

Aside from the direct benefits of training in enhancing skills and career development, and aligning staff with respect to the organization's mission, there are other benefits, perhaps not as perceptible, that can be attributed to training. These include:

- helping the business run better
- facilitating the recruitment of high-performing candidates
- promoting job satisfaction
- retaining and motivating skilled and experienced employees
- being essential for knowledge transfer and expertise continuity

TRAINING: A MULTIDIMENSIONAL UNDERTAKING

Once the value of a training activity is examined, we need to examine the different dimensions that can be associated with it.

If we look conceptually at the activities performed by a training provider to develop and deliver quality, relevant and up-to-date training, there are a number of very tangible elements to be considered. The most relevant and significant ones are:

- Training needs assessment
- Design and development of pedagogical material
- Supporting technology and facilities
- Promotional activities and collateral documents
- Faculty and Instructor costs
- Student costs
- Administration
- Continual quality monitoring
- Assessment of the outcomes



First and foremost, the planning process must include an organizational training needs assessment (which is often triggered by disparities in performance). This assessment identifies the gaps between existing and required competencies, and will ascertain whether the gaps can be closed by enhancing competencies and skills through training.

The outcomes of the training needs assessment will also guide the design of the training programme. The learning objectives must be defined, taking into account regulatory requirements, organizational needs and the criteria for evaluating the training outcomes. To ensure value is added, the needs of the organization, teams and individuals must be considered as they relate to the vision and mission of the organization.

Although this is the best practice, not all organizations follow this path. Training planning is often an ad hoc process resulting from specific events like: an individual's request for career development training; new employees awaiting initial training and onboarding; or existing staff seeking re-certification in specific areas. Skipping or rushing through a systematic, carefully planned needs assessment may seem like a cost reduction strategy, but the inefficiencies that it will trigger down the road will quickly exceed the savings made. As a result, the training design, delivery, and outcome will undoubtedly be negatively impacted.

In the area of curriculum development, a sound pedagogical approach with a standardized design and development are key to a training organization's survival. Training standards are established, design and delivery methodologies are approved, and course and exam design templates or blueprints are

developed so the actual curriculum development and revision process can optimally unfold. This is followed by the involvement of the subject matter experts and instructional design specialists (in-house or contracted) who develop the content, align it with the course purpose, target audience, and learning objectives, and then format it to the intended method of delivery.

Regardless of the method of instruction, personnel with training management capabilities are critical to managing the logistics and administration of a course or programme, as well as to adequately assess the physical and technical infrastructure needed to deliver the training to the end user, the learner. On the technical side, a solid content management system (CMS) is required so key stakeholders can access, edit, archive, and retrieve the course material and keep track of versions. Furthermore, a robust learning management system (LMS) is necessary for supporting student registration, performance tracking, faculty enrollment, and other administrative tasks.

THE COST OF TRAINING

We've confirmed the value of training for both the organization and the individual, and looked into the process of designing, developing and delivering training, let us now examine the costs inherent to these.

Evidently, all of the activities constitute costs to the training provider that can add up to very significant amounts.

For example:

- The design and development of training material can be calculated in terms of professional days. In the aviation industry, subject matter experts typically charge a four-figure USD fee per day;

- Supporting technology (LMS, CMS, classroom equipment, projectors, whiteboards, Wi-Fi connection, etc.) can easily reach hundreds of thousands of dollars for the software and hardware alone, excluding the labor costs associated with systems administration, maintenance and support;
- Promotional marketing and awareness activities may call for as much as 5 to 10% of the total training budget;
- Faculty and instructor costs can be estimated in terms of annual salaries when on payroll, or training preparation and delivery days when contractually hired. Here again the four-figure USD fee per delivery day stands;
- Administrative costs can represent up to 15% of the total costs;
- The on-going quality assessment of training activities and the associated updates to the material will add significant amounts to the total training budget; and
- Salary costs and productivity loss must also be accounted for.

The costs to the beneficiary organization that should be budgeted for, are also substantial:

- A training needs assessment ranges upwards from \$50K for a large organization; and
- Student costs, often paid for by the sponsor organization, also reach easily into the hundreds, if not thousands of dollars, for tuition, travel, food and accommodation.

BUDGETING FOR TRAINING

We have shown that training in itself is a multidimensional service with various layers of costs linked to the development, the delivery and the assessment of it. To have quality training, no steps in the above described cycle should be skipped or set aside. To do otherwise might jeopardize the credibility and the relevancy of the training offering.

Training organizations need to properly plan their training activities way ahead of time. In doing so, they need to ensure that they get their fair share of the organization's total budget to properly fund all of the necessary activities.

ARE THERE ALTERNATIVE SOURCES OF FUNDING?

Sponsored or subsidized training is available through some (diminishing) alternative sources of funding:

- Regulators and governments provide funds to ensure the dissemination of new requirements;
- Aircraft and equipment manufacturers provide training and support for new aircraft and equipment;
- Major infrastructure development projects will normally include the cost of training;
- Government-funded national export development corporations, focusing on infrastructure development may include funds for training;
- Crisis disaster relief – where funding is provided by UN or other related agencies;



- Sponsorship may also be available through international financial institutions and regional institutions, such as the Asian Development Bank, the European Commission, the African Development Bank, the Dubai Development Bank, etc., as part of State-driven projects; and
- Finally, ICAO, ACI, and IATA have special funds for developing nations that target specific areas of activity such as safety and security.

This list is not exhaustive, providing a few of the typical substitutes to existing commercial sources of funding.

HOW CAN WE MEASURE THE VALUE OF TRAINING?

A key factor an organization must consider when budgeting an expense is the quantifiable return on investment (ROI), for investing in training. But how can it be quantified and how do we ensure that organizational and training objectives have been met?

The process for evaluating training effectiveness is a substantial cost in itself and trainers have struggled for years with the concept of how to demonstrate this. Many organizations use the Kirkpatrick Model® which focuses on the return on expectations (ROE). Though this is achieved by building a ladder of expected results by identifying the leading indicators, it is not easy to put a monetary value against this.

WHAT IS THE WAY FORWARD?

There is no miracle recipe for continuously changing the way we do business to remain relevant and financially viable. There are true costs associated with developing and delivering quality training and the real value associated with receiving that training needs to be compensated financially, whether directly or indirectly.

A word on quality: the air transport industry has built its reputation by defining and upholding the highest standards in safety and security. These standards are withheld through human, physical and technological processes and systems that come at a cost. Everyone can agree that this cost is an investment which sustains the industry's future. Surely the same could be said about training. As the core performance driver of the industry's human element, training deserves all our attention, its fair share of resource allocation, and a commitment to quality that is equal to what we have invested to make our industry flourish. ■



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SAVE THE DATE

2017 Events on the horizon

| | | |
|-------------------|--|----------------------|
| 9 - 11 Oct. | ICAO Regional Aviation Training and TRAINAIR PLUS Symposium | Astana, Kazakhstan |
| 11 - 13 Oct. | The Second Global Aviation Cooperation Symposium (GACS 2) | Athens, Greece |
| 11 - 13 Oct. | Second ICAO Conference on Aviation and Alternative Fuels (CAAF2) | Mexico City, Mexico |
| 16 - 18 Oct. | ICAO Regional Safety Management Symposium, European and North Atlantic Region | Tallinn, Estonia |
| 24 - 26 Oct. | Thirteenth Symposium and Exhibition on the ICAO Traveller Identification Programme (TRIP) | Montréal, ICAO HQ |
| 30 Oct. - 17 Nov. | ICAO Council 212th Session - Council phase | Montréal, ICAO HQ |
| 20 - 22 Nov. | Second Global Runway Safety Symposium | Lima, Peru |
| 20 - 22 Nov. | ICAO World Aviation Forum - Financing the Development of Aviation Infrastructure | Abuja, Nigeria |
| 20 - 22 Nov. | ICAO ATFM Global Symposium (ATFM2017) | Singapore |
| 27 - 28 Nov. | ICAO Next Generation of Aviation Professionals (NGAP) Global Summit | Montréal, ICAO HQ |
| 28 - 30 Nov. | ICAO TRIP Regional Seminar Jamaica 2017 | Montego Bay, Jamaica |
| 29 - 30 Nov. | Seminar on Green Airports | Montréal, ICAO HQ |
| 4 - 8 Dec. | ICAO Air Services Negotiation Event 2017 | Colombo, Sri Lanka |
| 11 - 15 Dec. | Second Global Air Navigation Industry Symposium (GANIS/2) and First Safety and Air Navigation Implementation Symposium (SANIS/1) | Montréal, ICAO HQ |

* All event dates are subject to change

For more information regarding sponsorships and exhibitions, please contact mcr@icao.int



INVESTING IN AIRPORT TRAINING AND SUCCESSION PLANNING



ANGELA GITTENS

She began her tenure as Director General of Airports Council International (ACI World) in 2008. Formerly airport CEO for Miami and Atlanta and Deputy at San Francisco International Airport. In other previous roles, Gittens served as Vice-President, Airport Business Services for HNTB Corporation, where she led the firm's practice in airport business and strategic planning. As Vice-President at TBI Airport Management, she oversaw the transition to private ownership of London Luton Airport and managed operations contracts at several airports in the US and Canada. Gittens is a Fellow of the Royal Aeronautical Society, and has served on numerous aviation industry boards and committees.

✈ Airports require a range of skills that must be continually evaluated and refreshed, necessitating investment in training and succession planning. The urgency in the aviation business is driven both by the dynamic changes in market conditions as well as the significant growth in global demand; ACI forecasts passenger traffic will increase from 7.6 billion in 2016 to over 14 billion by 2029. The question for airport professionals is: where are we, collectively, going to get the talent to accommodate such growth and how do we get the talent we have to adjust, adapt and anticipate the developments in business imperatives?

Considering this, ACI established a Global Training (GT) service, focussing on continuing education, particularly in safety, security, leadership and management, economics, environmental protection, facilitation and customer service. The service receives strategic direction by the ACI World Board and the ACI Global Training Steering Group (GTSG), made up of representatives of all five ACI Regions (Africa; Asia-Pacific and the Middle East; Europe; Latin America-Caribbean; and, North America). Through monthly GTSG conference calls, GT is able to keep up-to-date on global and regional issues affecting ACI Members, defining the types of education programmes necessary to meet the evolving training needs of ACI Members.

GT also receives valuable feedback from training surveys that are circulated to ACI's six World Standing Committees (Airport IT; Economics; Environment; Facilitation and Services; Safety and Technical; and, Aviation Security) comprised of respective subject matter experts. The information collected from such surveys is supplemented by the input from ACI Faculty and students. In this way, the GT service is able to stay current and anticipate business conditions so that the coursework remains relevant, accessible and of high quality.

ACI has an extensive educational partnership with ICAO, starting with the Airport Management Professional Accreditation Programme (AMPAP), the joint venture started in 2007 that consists of a combination of classroom and distance learning. The six-course curriculum covers all functional areas of the airport business and promotes the highest professional standards; the graduation ceremony is held at the annual World General Assembly in front of the airport industry's CEO's. Students come from all regions, with Asia-Pacific in the lead, consonant with its lead in growth in air service demand. Scholarships are available for students from airports in least developed nations.



A second high-level professional development curriculum is the Airport Executive Leadership Programme (AELP), developed in cooperation with the John Molson School of Business at Concordia University and focuses on developing the leadership and strategic management skills of airport industry leaders. It also provides global, regional and cultural perspectives on airport management.

In fact we just concluded the yearly AELP classroom session in Munich, Germany from 7–12 May 2017. At the session's CEO Forum, participants had the opportunity to hear from Ingrid Cherfils, Director Civil Aviation and Maritime Department, Swedish Transport Agency and current President of the European Civil Aviation Conference; and Peter Cerda, Regional Vice President, International Air Transport Association.

ACI also offers an extensive suite of skills development programmes in specific disciplines, with diploma-level courses, in the classroom, on-line or at the worksite. As well, on request ACI delivers customized courses for specific airports or individuals.

The biggest programme is ACI's Global Safety Network (GSN) Diploma Programme which comprises six specialized courses on airport safety, and is specifically designed to meet the needs of airside operations and safety managers, including developing, implementing and operating effective Safety Management Systems at their airports. Again, the graduates of the Global Safety Network hail from all of the world's regions.

ACI's GT initiatives take a holistic approach and remain flexible to prepare airport management and staff for the ever-changing landscapes in which they operate. In an industry where change is the new constant, ACI is committed to supporting its members and other airport professionals in their pursuit of training and succession planning—necessary ingredients of sustainable growth. ■



TRAINAIR PLUS™

THE COOPERATIVE GLOBAL TRAINING NETWORK

Share and benefit from Standardized Training Packages and industry best practices with ICAO's expanding global base of aviation training centres.

3 Corporate Members 21 Regional Training Centres of Excellence 37 Full Members 21 Associate Members ★ New Status

92 MEMBERS OF THE TRAINAIR PLUS™ PROGRAMME

ICAO's Cooperative Network of Training Centres

CORPORATE MEMBERS (3)

- Concordia University - John Molson School of Business ●
- Federal Aviation Administration Flight Standards Training Division AFS-500 ●
- International Air Transport Association (IATA) ●

NORTH AMERICA CENTRAL AMERICA THE CARIBBEAN (10)

- BARBADOS
The Barbados Civil Aviation Training Centre ● ●
- CANADA
The ASI Institute, A Division of Aviation Strategies International ●
- CUBA
Centro de Adiestramiento de la Aviación (CAA) ●

DOMINICAN REPUBLIC
Academia Superior de Ciencias Aeronáuticas (ASCA) ●

EL SALVADOR
Instituto Centroamericano de Capacitación Aeronáutica (ICCAE) de COCESNA ●

JAMAICA
Civil Aviation Authority Training Institute (CAATI) ●

MEXICO
Centro Internacional de Instrucción de Aeropuertos y Servicios Auxiliares, Ingeniero Roberto Kobeh González ●

TRINIDAD AND TOBAGO
Trinidad and Tobago Civil Aviation Authority Civil Aviation Training Centre ●

UNITED STATES
Federal Aviation Administration (FAA) Academy ●

The Washington Consulting Group (WCG), Inc.
The Technical Training Group ●

SOUTH AMERICA (10)

ARGENTINA
Centro de Instrucción, Perfeccionamiento y Experimentación (CIPE) ●

BOLIVIA
Instituto Nacional de Aviación Civil (INAC) ●

BRAZIL
Centro de Treinamento da Agência Nacional de Aviação Civil (ANAC) ●

COLOMBIA
Centro de Estudios de Ciencias Aeronáuticas - CEA ●

Corporación Educativa Indoamericana (CEI) ●

ECUADOR
Escuela Técnica de Aviación Civil (ETACI) ●

PARAGUAY
Instituto Nacional de Aeronáutica Civil (INAC) ●

PERU
Centro de Instrucción de Aviación Civil (CIAC) de CORPAC ●

URUGUAY
Instituto de Adiestramiento Aeronáutico - DINACIA ●

VENEZUELA
Instituto Universitario de Aeronáutica Civil (IUAC) ●

EUROPE (19)

BELGIUM
Wallonie Aerotraining Network (WAN) ●

FRANCE
CAMAS International ●

Français de Formation des Pompiers d'Aéroport (C2FPA) ●

Ecole Nationale de l'Aviation Civile (ENAC) ●

GERMANY
Aviation Academy International (AAI) ●

Star Wings Aviation Training Centre GmbH ●

92 MEMBERS OF THE TRAINAIR PLUS™ PROGRAMME

ICAO's Cooperative Network of Training Centres

3 Corporate Members 21 Regional Training Centres of Excellence 17 Full Members 31 Associate Members 8 New Status

IRELAND

Dublin International Aviation Training Academy (DIATA) ●

ITALY

ENAV Academy ●

KAZAKHSTAN

Professional Training Center RSE "Kazaeronavigatsia" ●

LUXEMBOURG

EUROCONTROL Institute of Air Navigation Services ●

NETHERLANDS

Joint Aviation Authorities Training Organisation (JAA TO) ●

RUSSIAN FEDERATION

Institute of Air Navigation (IAN) ●

Domodedovo Training LLC ●

SLOVENIA

Adria Airways Flight School ●

SPAIN

Servicios y Estudios para la Navegación Aérea y la Seguridad Aeronáutica (SENASA) ●

SWEDEN

Entry Point North AB Nordic ATS Academy ●

TURKEY

Turkish Aviation Academy ●

UNITED KINGDOM

International Fire Training Centre (IFTC) Serco ●

NATS Training Services ●

AFRICA (15)

BOTSWANA

IAS Aviation Academy ●

CAMEROON

Ecole Régionale de Sécurité Incendie (ERSI) ●

ETHIOPIA

Ethiopian Aviation Academy (EAA) ●

Ethiopian Civil Aviation Training Centre (ECATC) ●

KENYA

East African School of Aviation (EASA) ●

MAURITIUS

Airports of Mauritius Co Ltd. Aviation Training Centre ●

MOROCCO

Académie Internationale Mohamed VI de l'Aviation Civile (AIAC) ●

Loumed Cabin Crew Training Center (LCCTC) ●

NIGER

Ecole Africaine de la Météorologie et de l'Aviation Civile (EAMAC) ●

NIGERIA

Nigerian College of Aviation Technology (NCAT) ●

SENEGAL

Ecole Régionale de la Navigation Aérienne et Management (ERNAM) ●

SOUTH AFRICA

Air Traffic and Navigation Services (ATNS) – Aviation Training Academy ●

SUDAN

Sudan Academy for Aviation Sciences and Technology (SUDAFAST) ●

TANZANIA

Civil Aviation Training Centre (CATC) ●

TUNISIA

Académie Tuniso-Française de Formation en Sécurité de l'Aviation Civile (AFSAC) ●

MIDDLE EAST (11)

EGYPT

Egyptair Training Academy ●

Egyptian Aviation Academy (EAA) ●

IRAN (ISLAMIC REPUBLIC OF) Civil Aviation Technology College (CATC) ●

JORDAN

Queen Noor Civil Aviation Technical College (QNCATC) ●

KUWAIT

Australian College of Kuwait (ACK) ●

LEBANON

Middle East Airlines Training Center ●

QATAR

Qatar Aeronautical College (QAC) ●

SAUDI ARABIA

Saudi Academy of Civil Aviation (SACA) ●

UNITED ARAB EMIRATES

GALANS Training Centre ●

Gulf Center for Aviation Studies (GCAS) ●

YEMEN

Civil Aviation and Meteorology Institute (CAMI) ●

ASIA/PACIFIC (24)

AUSTRALIA

ASSET Aviation International ●

BANGLADESH

Civil Aviation Training Centre (CATC) ●

CHINA

Capital Airports Holding Management Co., Ltd. (CAHM) ●

Civil Aviation University of China (CAUC) ●

INDIA

Airports Authority Rescue and Fire Fighting Services Training Centre ●

Civil Aviation Training College Allahabad ●

Fire Service Training Center (FSTC) ●

GMR Aviation Academy ●

Indian Aviation Academy (IAA) ●

INDONESIA

Air Transportation Human Resources Development Centre (ATHRDC) ●

Indonesia Civil Aviation Institute Sekolah Tinggi Penerbangan Indonesia ●

JAPAN

Aeronautical Safety College (ASC) ●

MALAYSIA

Malaysia Aviation Academy (MAVA) ●

MONGOLIA

Training Centre of the Mongolia Civil Aviation Authority (TCMAAA) ●

NEPAL

Civil Aviation Academy of Nepal (CAAN) ●

NEW ZEALAND

Airways New Zealand Training Centre ●

PAKISTAN

Civil Aviation Training Institute (CATI) ●

PHILIPPINES

Civil Aviation Training Center Civil Aviation Authority ●

REPUBLIC OF KOREA

Civil Aviation Training Centre of Korea Airports Corporation (KAC) ●

Incheon Airport Aviation Academy (IAAA) ●

SINGAPORE

Singapore Aviation Academy (SAA) ●

SRI LANKA

Civil Aviation Training Centre (CATC) ●

Sri Lankan Aviation College ●

THAILAND

Civil Aviation Training Centre (CATC) ●



ICAO'S FOURTH GLOBAL AVIATION TRAINING SYMPOSIUM

ADDRESSING TRAINING CAPACITY GAPS

 ICAO's TRAINAIR PLUS Programme (TPP) brings together a network of 92 training organizations and industry Members from 70 States around the world. One of the key elements of this programme is the networking and exchange mechanism. Exchanging training packages, training courses and instructional staff – success is achieved when all Members use the same approach in course development methodology, and if they all meet and share the quality criteria we have developed.

ICAO conducts standardized assessments to ensure training organizations are meeting these requirements. TPP strives to achieve standardization and uniformity in the scope, depth and quality of the assessments conducted. To ensure all training organizations are assessed in a consistent and objective manner, standardized assessment protocols were developed to guide the assessor and the training organization through the assessment process.

Strengthening and building aviation training capacities is a global priority. We set up coordinated, effective and efficient mechanisms to support human resources development in aviation. We established training and qualification standards and frameworks and we provide skills development guidance to States and the industry.

Earlier this year we recognized the training organizations that have attained various TRAINAIR PLUS milestones at the 4th Global Aviation Training and TRAINAIR PLUS Symposium. The event, which took place from 11-13 April in Addis Ababa, Ethiopia, was hosted by Ethiopian Airlines.

ICAO is strongly committed to providing all Member States with targeted assistance in training and human resources capacity-building, notably through our No Country Left behind initiative, and in Africa especially we recognize the need to help increase training capacity shortages. ■

“Over the next twenty years, projected growth will require many new skilled personnel such as pilots, maintenance engineers and air traffic controllers. The pressing needs for aviation personnel, especially in light of competition for their skills in other high-tech sectors, makes it clear for us that we must address our persisting training capacity gaps sooner than later, to ensure a sustainable skilled workforce for the future of civil aviation.”

- ICAO Secretary General Dr. Fang Liu







ICAO

2017 GLOBAL AVIATION TRAINAIR PLUS SYMPOSIUM PRIZE WINNERS

HIGHEST NUMBER OF VALIDATED STPs

Capital Airports Holdings Management Co., Ltd. (CAHM), China

HIGHEST NUMBER OF TRAINEES ENROLLED IN AN STP

Incheon Airport Aviation Academy (IAAA), Republic of Korea

HIGHEST NUMBER OF IMPORTED STPs

Saudi Academy of Civil Aviation (SACA), Saudi Arabia

HIGHEST NUMBER OF IMPORTED STPs

Instituto Universitario de Aeronáutica Civil (IUAC), Venezuela

HIGHEST NUMBER OF EXPORTED STPs

Sudanese Academy for Aviation Sciences and Technology (SUDAFAST), Sudan

HIGHEST NUMBER OF EXPORTED STPs

CUBA Centro de Adiestramiento de la Aviación (CAA), Cuba

HIGHEST NUMBER OF TRAINED INSTRUCTORS

Nigerian College of Aviation Technology (NCAT), Nigeria

HIGHEST NUMBER OF TRAINED COURSE INSTRUCTORS

Capital Airports Holdings Management Co., Ltd. (CAHM), China

HIGHEST NUMBER OF TRAINED TRAINING MANAGERS

GAL ANS Training Centre, United Arab Emirates

HIGHEST NUMBER OF DELIVERED TRAINING COURSES

Nigerian College of Aviation Technology (NCAT), Nigeria

HIGHEST NUMBER OF DELIVERED RTCE ITPs

Singapore Aviation Academy (SAA), Singapore

HIGHEST NUMBER OF DELIVERED PTPs

John Molson School of Business, Concordia University, Canada

JOHN CHAPMAN PRIZE

Jevgenijs Oborins

In addition to these awards, 20 training organizations obtained recognition as new TRAINAIR PLUS Associate Members, Full Members, or as Regional training Centres of Excellence.

UNITING AVIATION

This year we launched **UnitingAviation.com**, an online, community-driven magazine that brings new aviation partners together and highlights the collaboration of existing ones.



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BECOMING A FIRST-CLASS AVIATION TRAINING CENTRE: INCHEON AIRPORT AVIATION ACADEMY'S JOURNEY



YANG, KI BEOM

He joined the Incheon International Airport Corporation (IIAC) in 1997 and is currently the Executive Director of IIAC and President of IAAA. After studying architectural engineering and interior design, he accumulated experiences in the field of aviation through various global training projects in collaboration with foreign contractors, universities and governments.

✈ The Incheon Airport Aviation Academy (IAAA) was established in 2007 as a channel for improving employee and business capacities at Incheon International Airport Corporation (IIAC). In 2011 we joined the ICAO TRAINAIR PLUS (TPP) Programme to ensure both the quality of our aviation training. In addition to meeting the demand for internal education by strengthening the job competencies of employees with TPP support, we expanded our business overseas by offering global training.

GROWTH THROUGH THE ICAO TRAINAIR PLUS PROGRAMME

Since developing the first Standardized Training Package (STP) training course and becoming an active member of TPP, we have developed five STPs and one ICAO Training Package (ITP). With this standardized training we have conducted 54 courses and trained 550 domestic and trainees from around the world.

Incheon Airport was selected as the world's best airport for 12 consecutive years based on the ASQ Evaluation conducted by Airport Council International (ACI). To share the knowledge, skills and approach that has helped us earn this recognition, we developed the *Airport Customer Service Quality Management* course to train other airport customer service managers.



Airport Environment Course in Guatemala (2017)

We conduct international training courses for foreign trainees in Korea and enhance educational effectiveness and efficiencies by working with leading educational institutions to open training courses overseas.

Last April the EASA of Kenya successfully conducted the ICAO STP course, *Aerodrome Inspection* for 18 aviation personnel from nine African States. Since *Aerodrome Inspection* was developed in 2011, we have delivered it 29 times to more than 290 trainees from 64 States.



Aerodrome Inspection course in Vietnam (2016)

As airport training needs in environment grew in South America, we partnered with the Latin American Civil Aviation Commission (LACAC) to deliver ICAO's STP *Airport Green House Gas Management* in Guatemala free of charge. From nine States, 39 participants have successfully completed the course.

ICAO's STP *Airport Passenger Boarding Bridge (PBB) Operation* course, which was approved in July 2017, was translated into Korean to train the new PBB operators who will work in the new terminal in Incheon Airport. It will also be scheduled as regular training for foreign PBB operation staff.



PBB Operation course (2017)

Through the ICAO TPP Certification Programme, as we strive to ensure our workforces have superior training, we have been able to secure a sustainable quality of courses. Through this effort, we have acquired several ICAO certified instructors: two Training Instructors Course (TIC) instructors; one Training Developers Course (TDC) instructor; one Instructional Systems Design (ISD) Validator; and we plan to continually increase our number of educational experts.

For the ICAO ITP *Aerodrome Safety Management Course incorporating PANS-Aerodrome* that was developed by IAAA, we are conducting it with an overseas expert as an instructor. Through the ICAO Instructor Evaluation Process, an IAAA instructor became ICAO qualified in July; we expect to deliver this course using our own instructors in 2018.

We were recertified in January 2017 as a Regional Training Centre of Excellence (RTCE), and we want to continue to grow in Asia. We are currently developing ITP courses in the area of emergency planning management through collaborations with other overseas educational institutions. Additionally, another ITP is in development discussions in the field of aircraft accident investigations through cooperation with the Republic of Korea's Ministry of Land, Infrastructure and Transport.

The IAAA is proud to have been recognized by ICAO for the "Highest number of owner Standardized Training Package (STP) Implementations"; as the "TRAINAIR PLUS Member who developed the most exported STP to other TRAINAIR PLUS Members" (in 2014 and 2015); and as the training centre with the "Highest Number of Trainees Enrolled in an STP" in April 2017.



USOAP CMA Course (2017)



RTCE Recertification ceremony during the ICAO Symposium (2017)

GROWING TOGETHER THROUGH SHARING AND COOPERATION

The IAAA has been cooperating with the MOLIT and ICAO to deliver complimentary Fellowship Training Programme (FTP) courses to developing States. Since 2011 we have trained more than 800 aviation personnel from 104 countries through 48 training courses. This FTP programme is composed of the ICAO STP courses we developed, efforts that have been a driving force for us to actively participate in ICAO's *No Country Left Behind* campaign.



NGAP Summer Camp

IAAA 2017 Schedule of Complimentary Fellowship Training Courses

| NO | COURSE NAME | DURATION | PARTICIPANTS |
|----|--|---------------------------|--------------|
| 1 | Airport Customer Service Quality Management (ICAO STP) | 10 to 19 May | 20 |
| 2 | Aviation Policy for Executives | 21 to 27 May | 15 |
| 3 | Safety oversight Management and Practical Preparation for ICAO USOAP-CMA | 9 to 16 July | 30 |
| 4 | Aviation Security & Safety (including ICAO STP) | 28 August to 16 September | 18 |
| 5 | Airport Construction & Operation | 4 to 23 September | 18 |
| 6 | Aerodrome CNS Engineering (ICAO STP) | 1 to 10 November | 20 |

REGISTRATION: www.korea-ftp.org



NGAP Summer Camp

SEEKING SUSTAINABLE GROWTH IN GLOBAL AVIATION TRAINING

To manage training courses efficiently, we began working with a Learning Management System (LMS) in 2008 that manages all internal and external IAAA training courses and trainees. The system allows us to track our income and expenses, including payments for instructors, course transactions, etc. Through the LMS, we can carry out comprehensive management of training, as well as analysis on profits and decisions related to HR development expenditures.

Additionally, it is possible to systematically manage educational performances such as cumulative trainee information and satisfaction and self-prediction of future education demands through big data analysis. We can offer customized training courses for specific key customers based on the analysis extracted from the LMS.

IAAA has been effectively running a paperless classroom since 2014 when the tablet PC charging and data transmission facilities were introduced. Courses are carried out with electronic course materials and not a printed textbook. Surveys and course evaluations are also conducted online.

In December 2016, we developed a smartphone application that is tablet compatible for trainees, providing them with information on training courses and the use of IAAA facilities. In addition to the course materials, educational questionnaires and evaluations were also implemented through applications. With this, we have been able to improve administration efficiencies and raise trainee satisfaction.

To diversify our global offerings, IAAA plans to launch an online training course this year by establishing an Online Training Platform (OTP). The OTP will be operated in conjunction with the LMS system so that it is possible for trainees to apply for courses; to pay their course fees; and to manage their own training history. The OTP will start with the development of two online courses in 2017 and will be incorporated with follow-up online courses every year. We hope to offer 50 online courses in 2020.

To maximize the effectiveness of our training courses, we plan to develop various courses using advanced technologies like Virtual Reality (VR) and Augmented Reality (AR). To develop the curriculum to enhance the safety awareness in the moving area of airport, the IAAA will collaborate with external specialists in advanced VR and AR technology. This online course will be available in 2020 using the OTP. ■



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VIRTUAL LABORATORY DELIVERS BETTER TRAINING TO FLIGHT INSTRUCTORS



DR. KENNETH BYRNES

He is an Associate Professor of Aeronautical Science and the Chairman of the Flight Training Department at Embry-Riddle Aeronautical University's Daytona Beach campus. In his current role as Chairman of the Flight Department, Dr. Byrnes is responsible for leading over 1000 flight students, over 140 Certified Flight Instructors, 30 A&P mechanics, and 15 additional support staff members. His academic teaching responsibilities include Instructional Design in Aviation, Aviation Legislation, Private Pilot Knowledge, and Commercial Pilot Knowledge courses.

✈ Certified Flight Instructors (CFIs) are critical to the success of the aviation industry. Their ability to attract, retain, and teach pilots is essential to the future of aviation. However, working as a flight instructor is predominantly used as a transient vocation by low-time pilots to build flight experience so that they can move on to full-time flying positions with an airline.

Since many pilots use the teaching profession as a stepping stone, the flight training industry suffers from inadequate experience, as well as high flight instructor turnover. This issue has been amplified in recent years by the growing pilot shortage.

In addition to the high turnover, many CFIs are not actively employed as instructors, and they do not provide flight instruction on a regular basis. On average 15%, or approximately 15,000, of the 100,000+ Federal Aviation Administration (FAA) certificated instructors, are considered active. As a result, there is a consistent cohort of inexperienced flight instructors that lack the required expertise to facilitate effective learning among pilot trainees.

To combat the high turnover and low experience of instructors, flight training organizations must focus on the quality of flight instruction in order to ensure good customer service to student pilots.

THE NEED FOR TEACHING SKILLS

Becoming an effective flight instructor requires both piloting and teaching skills. Historically, the emphasis of CFI training was focused strictly on content expertise and piloting skills, rather than the development of teaching methods and learning theory.

While these instructors have great content knowledge and flying skills, they may not have the teaching skills required to effectively transfer their knowledge and skills to a student. Research has suggested that the content knowledge of the teacher becomes irrelevant if they cannot appropriately manage student behavior and learning.

According to the FAA, instructors who have an in-depth understanding of how learning occurs, and understand how to apply teaching methods, foster better learning for students. The FAA reasons that "by understanding the teaching and learning processes, instructors will be better qualified to produce pilots who are able to operate safely within the National Airspace System" (FAA, 2014, p. 2).

To ensure instructors have the proper training, the FAA requires them to pass a 50-question knowledge exam on teaching methods known as the Fundamentals of Instruction (FOI). The FOI knowledge exam is the first requirement that a flight instructor applicant must meet. The purpose of



the FOI exam is to test the knowledge that flight instructor applicants have in areas such as human behavior, learner characteristics, and instructional design.

Unfortunately, Erickson (2009) reported that preparation to take this exam requires approximately one hour of study time. As a result, instructor applicant's generally memorize the information to pass the FOI test. Since memorization is the lowest level of learning, the information is not retained and, more importantly, not applied when they begin actively teaching student pilots (FAA, 2014).

DEVELOPING FOCUSED LEARNING

Due to the lack of focus on teaching methods, new instructors have often not developed responses to novel teaching situations or the unstable, ill-structured environment that they encounter in flight training (Wofford, Ellinger, & Watkins, 2013). Wofford et al. (2013) found that novice instructors go through multiple iterations (approximately three) of the informal learning process before they have the ability to develop appropriate responses. As a result, many instructors develop teaching expertise through trial and error.

This gain in expertise comes at the expense of the student, since the student pays the hourly cost of the instructor and aircraft. Henley (1991) found that 81% of CFIs felt that their training to become a CFI was inadequate. In addition, 97% of CFIs agree that instructor training should provide better competencies in teaching methods to provide applicants with a superior understanding of learning and evaluation theory (Henley, 1991). Hence, current instructors have noticed a gap in training. Improvement in initial flight instructor education may improve the teaching skills of novice CFIs.

A VIRTUAL TEACHING LABORATORY

In most cases, the traditional training required to become a CFI focuses on content expertise and piloting skills and does not properly prepare individuals to teach. To address this problem, researchers at Embry-Riddle Aeronautical University, in partnership with Frasca International, developed a teaching laboratory. The purpose of this laboratory is to increase the initial teaching skills of CFIs by using a combination of flight simulation in the classroom and role play to allow the CFI applicant to experience virtual teaching scenarios.

To test this new laboratory, research was conducted to determine if training in a virtual teaching environment improved a CFI applicant's understanding of FOI theory. In addition, the research measured the specific elements of FOI that were improved by training in a virtual teaching environment.

The virtual teaching laboratory was set up in a 30-seat classroom and has three major segments:

1. a mock, one-on-one training environment (set up at the front of the classroom) using a whiteboard and a desk where the CFI applicant (student) provides the knowledge of a lesson to a fellow classmate who is playing the role of a student;
2. a Cessna 172 level 6 Flight Training Device (FTD) where the CFI applicant teaches the student how to apply the knowledge that was delivered in Segment 1; and
3. a mock one-on-one debriefing environment using a whiteboard and a desk where the CFI applicant provides a thorough debriefing to the student on their performance during Segment 2.

The use of this new teaching laboratory has had a tremendous impact on the quality of flight instruction at Embry-Riddle Aeronautical University.

In Segment 2, the audio communication is broadcast to the entire class through speakers in the classroom. Cameras in the FTD broadcast a live feed through a classroom projector to enhance the ability for the rest of the class to observe. The visual scene and the instrumentation of the FTD are repeated to the class through a projector.

This setup allows everyone in the class to observe and evaluate the role-playing group in real time. Each CFI applicant in the class gets the opportunity to (1) teach a lesson, (2) play the role of the student, and (3) observe a teaching/learning activity multiple times.

LABORATORY DYNAMICS

CFI applicants are given 24 hours' notice of the lesson that they must prepare and teach. Various roles are developed for the CFI applicants who must act as the student. Each role is different and is developed using the student attributes, learning styles, defense mechanisms, and error types that are discussed in the Aviation Instructors Handbook that is published by the FAA.

Each role requires a student to play a character that portrays a specific (1) personality type, (2) level on Maslow's hierarchy of needs, (3) level of learning, (4) defense mechanism, (5) learning style, (6) motivation level, (7) type of anxiety, (8) type of error, and (9) type of memory error.

At the beginning of each class, a student in the class is randomly selected to play the role of the student. The CFI applicant is briefed on the role and given a key that explains each of the nine components of the role that they are required to play, including examples on how to play the role. The briefing is completed outside of the course room, by the course instructor.

The CFI applicant who developed the lesson plan delivers the lesson to the individual who was playing the role of the student as the rest of the class observes in real time. Students who are observing the lesson are required to complete a worksheet. The worksheet requires them to identify the specific (1) personality type, (2) level on Maslow's hierarchy of needs, (3) level of learning, (4) defense mechanism, (5) learning style, (6) motivation level, (7) type of anxiety, (8) type of error, and (9) type of memory error of the student.

The worksheet also requires the class to evaluate the instructor's performance in regard to their lesson preparation, organization, communication, teaching methodology, evaluation/assessment

techniques, pre/post briefing, as well as their identification and response to the learner's anxiety, personality, level of learning, learning style, and defense mechanisms.

The worksheet also includes a free-form section where observers are asked to share how they would improve the lesson. The typical duration to complete all three segments is approximately 45 minutes. The remaining 15 minutes of class are used by the classroom instructor to facilitate a guided discussion about the exercise and to compare the observer's worksheet results to the role that the student was playing. Significant time is also spent discussing the CFI applicant's response to the student role and overall performance. The worksheets are used to ensure that observers were actively participating in the exercise.

SIGNIFICANTLY IMPROVED RESULTS

During the initial test of this laboratory, it was discovered that CFI applicants scored more than 8.7% higher on the FOI test than CFI applicants in a traditional CFI course. It was also discovered that they scored approximately 23% higher on the questions that tested their knowledge of anxiety, 11.3% higher on teaching questions, 3.7% higher on learning questions, 3.6% higher on human needs questions, and 3.16% higher on questions relating to defense mechanisms. In addition, the student reported that they gained a great understanding of all FOI topic areas because of the hands-on experience that they acquired as well as the numerous demonstrations that they observed.

The use of this new teaching laboratory has had a tremendous impact on the quality of flight instruction at Embry-Riddle Aeronautical University. The laboratory has improved the expertise of instructional techniques and theory among novice CFIs. As a result, these CFIs have experienced less informal on the job training and they can provide more effective, learner-centered training to their students.

These improvements may result in a reduction of student training time and cost as well as improved customer service. These advances may also lower the student pilot attrition rates, which is currently between 70% and 80% (Aircraft Owners and Pilots Association [AOPA], 2011).

The initial test of the laboratory also confirmed that the largest improvement of FOI knowledge was in the CFI applicant's identification of anxiety in trainees. This is important since the FAA (2008) suggests that anxiety is the most significant psychological factor that affects student training. Furthermore, Lindseth (1994) states that CFIs who appropriately modify their teaching strategy, create deeper learning for students when higher anxiety levels are present in flight. ■

NEW



al172

LEVEL 5 (FAA)
FNPT II (EASA)



al42

LEVEL 5 (FAA)
FNPT II (EASA)



al250

AATD (FAA)
FNPT II (EASA)



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AIR TRAFFIC CONTROL TRAINING FOR MILLENNIALS – SHIFTING THE TRAINING PARADIGM



KELLY DE LAMBERT

As Manager Training Delivery Kelly de Lambert oversees the delivery of all Airways New Zealand's training courses and programmes at its domestic and international campuses. Kelly has twenty five years' experience in a variety of roles within the tertiary education and corporate sectors as a corporate trainer, lecturer, programme manager and academic quality manager.



Recognizing the global skills shortage facing the aviation industry, at Airways we have been on a journey to redefine our training model.

Though traditionally training and learning have been carried out with printed textbooks, in classrooms, or at a distance using the same resources, the way students want to learn has completely transformed. The generation of learners who pass through our training centres have grown up in an 'on demand' world where smart technologies are enabling them to be connected anytime, anywhere. It's what they expect when it comes to learning and study – information at their fingertips, where they need it, when they need it, and how they need it.

Airways is responsible for managing all domestic and international air traffic operating within New Zealand's 30 million square kilometre flight information region – one of the world's largest areas of sovereign airspace.

We have been training our own air traffic controllers (ATCs) since we were founded; today we deliver training services to our international partners throughout the Asia Pacific and the Middle East. It is our global presence, along with millennial trainee demands, that has driven Airways' next generation training strategies. Over the past five years we have been investing in e-learning and further investigating how gaming-based technologies can be incorporated in the learning experience.

TRAINING CHALLENGES

Our e-learning journey began when we went to learners and other ANSPs to pinpoint what their expectations were for their learning and training outcomes.

Not only is there is a growing global shortage of ATCs, but the cost of training is significant. The industry spends around USD480 million on ATC training every year. The message from ANSPs was clear: they want high volume, low risk training options that deliver safe and work-ready graduates. The message from learners was that we needed to change how we do things; we needed to bring training into a paradigm that is familiar to them. They challenged us to review how we design and develop training.

AN E-LEARNING BLUEPRINT

Airways' developed an e-learning blueprint based on four key principles:

1. User engagement to enable learners to create a personalised learning environment.
2. A global community where instructors and learners can collaborate to create a socially connected learning experience.
3. Mobile and available anywhere to enable fast, flexible training at the learners' pace and in their time.
4. A digital eco-system on the cloud that can flex and grow with us.

We started with the Aviation Knowledge Online (AKO) learning experience platform. This was a critical innovation for Airways, opening the way for the Airbooks digital learning platform we released in 2015.



Airbooks is Airways' e-learning platform released in 2015.

We believe Airbooks represents a paradigm shift in the world of e-learning. Airbooks are more than just words – they are interactive resources incorporating video, animations, audio, games and knowledge checks, designed to assist learners with theory based subjects. They bring theory to life.

Airbooks are designed to meet the needs of varying learner styles; the level of interaction learners experience with content within Airbooks helps to embed critical knowledge. Analytics are also available to allow trainers to see how their students are interacting with the material, as well as how well they are doing in knowledge check tests. This allows instructors to identify gaps in understanding and to focus their training sessions so that they can meet individual training needs.

We believe what's fundamental to the success of Airbooks is that it is a learner developed resource. With outside support, we challenged a team of young Airways professionals to create a tool that they would want to use.

Our team of three millennials received coaching on development pedagogy and produced an initial chapter which was then peer reviewed and critiqued by international designers. The feedback received was used to guide revisions before beginning testing with user groups including students, instructors and operational controllers. Once our prototype was ready, it was independently reviewed before being released for worldwide user testing.

While the response from learners was overwhelmingly positive, testing revealed a level of apprehension amongst trainers in how they would integrate it in their existing methods.

Key to overcoming this was to not expect the technology to be adopted overnight. We followed an implementation plan that first allowed Airbooks to be incorporated as a supporting tool, and then into a blended learning model where trainers would be able to see the benefits for themselves.

We have since developed a range of Airbooks that cover the comprehensive ICAO 051 Air Traffic Services Licensing subjects for ab-initio learners.

Students have responded positively by having access to the Airbooks before a course starts. This allows them to preview the content and identify their own training needs before it begins. Discussions with instructors become more personalised since students have been able to identify their own training needs.

We believe there is potential for Airbooks to reduce classroom learning time.

BEYOND AB-INITIOS

Airbooks are evolving. While they were designed with ab-initio learners in mind, we realised their potential has a wider reach. Airbooks are now being used throughout Airways for compliance and induction training to enable faster and more frequent training cycles than what would be possible with face-to-face delivery.

One of the biggest Airbooks success stories has been its use in ATC refresher training.

Airways is advancing with its Performance Based Navigation (PBN) roll-out programme and in 2016 was preparing to roll-out PBN to a further 25 per cent of New Zealand's airspace. Achieving a roll-out of this scale meant delivering a training package to air traffic controllers in a number of locations around the country. We had to ask ourselves how we could deliver this effectively while managing disruption to rosters.

Airbooks PBN 101 provided the necessary background before staff undertook simulator sessions. Having a greater understanding of PBN theory meant ATCs were able to experience a number of complex scenarios in the simulator with a greater level of ease.

Overall, using Airbooks resulted in a 60 per cent time saving in the theory component of the course compared with face-to-face delivery, and all ATCs successfully completed the training required to go live with PBN in the operational environment within three months. This was a significant savings for Airways.

NEXT STEP GAMING TECHNOLOGIES?

Currently unsupervised simulation- and games-based learning is not widely used in the development and training of future air traffic controllers. However, recent studies on the use of simulation and games-based educational tools are gaining momentum and the growing interest in the practise is evidenced in a variety of recent research projects and initiatives. As part of our next generation strategy, we are currently undertaking research to try to understand just how much potential these technologies have for ATC training. ■



The Victoria Falls

MEETING FUTURE AVIATION NEEDS IN ZAMBIA



BILLIEARD C. SHIGALILI

He is the Principal at Zambia Air Services Training Institute. He has many years of experience in the aviation industry as an air traffic controller and training manager.

✈ Regular travelers to Zambia will always marvel about the magnificence of one of the Seven Wonders of the World: the Mighty Victoria Falls. It is indeed one of the most breathtaking sights a traveler will encounter, whether travelling by road or air, the sight is amazing.

Zambia is a landlocked country located in the southern part of Africa, with a population of close to 16 million people. Its capital, Lusaka, 350 kilometers north of the falls, is a city bustling with life and glamour. Though copper mining, tourism and power generation are the country's main economic activities, Zambia is experiencing significant growth in agriculture.

The diversification into the agriculture sector has attracted a number of investors and global interest, which has contributed to an increase in air travel. Over 150,000 passengers fly to various Zambian destinations. This has brought so much goodwill that the government has embarked on the upgrading of the international airport terminals in three cities, Lusaka, Ndola and Livingstone (the tourist capital).

The improvements and changes that Zambia is making to establish itself as a global business hub that links southern Africa to the world, has attracted the aviation industry. Zambia's Air Services Training Institute (ZASTI), which was established in 1969 was, in the mid eighties, designated as a civil aviation training centre for the Southern Africa Development Community (SADC). Our Institute offers a range of aviation courses: aircraft maintenance engineering; aeronautical electronics engineering, flying, air traffic management, meteorology and fire fighting. We pride ourselves in serving the human resource needs of the aviation industry in the country, as well as part of Africa.

In our efforts to improve and meet the challenges of a rapidly growing aviation sector in the Zambian economy, we have to adapt our curriculum to the training needs of the industry. In doing so, important focus has been shifted to introducing the aviation industry to the young generation. ZASTI regularly visits a number of schools to conduct career talks with students from early child learning through all levels of education to inspire their interest in an aviation-related career. This is a deliberate effort to address the impending gap in the industry.

As part of the career presentations, instructors speak to students about the unlimited potential and opportunities they have to pursue careers in the aviation industry that will lead them to a bright future. We tell them about the different career paths in the industry and how they can work towards their new interest. We share slide shows and provide tours of the institute's training facilities, and giving them the opportunity to ask questions and interact with the instructors.

ZASTI is well aware that interests in the industry are built from the foundation of young and fresh minds. The students are invited to take a physical tour of the institute's campus to familiarize themselves with the location of the school, our general outlook and the staff who, in the near future, might help mentor them into successful aviation experts who will be able to contribute to the growth of the country's economy.

Since ZASTI first launched career talks in the schools, over 488 children from approximately 20 different schools have visited the institute to learn about aviation and our operations. Many of them have been amazed. During these site visits the students visit various sections and departments where they are shown different training equipment and aircraft maintenance facilities. Often they get to test aircraft control surfaces and cockpit instruments, communications and navigation equipment. Students are always free to ask questions and make contributions.

Students also visit the computer laboratory and school library where they are given the opportunity to showcase their various computer skills as relates to aviation. An instructor is on hand to explain how to use the equipment. Once the children conclude their tours they are free to take pictures and ask questions about things they saw during the visit.



Young children visiting the training centre

A geography teacher from Kaunda Square Primary school spoke of the experience, *"the children are greatly inspired to see that average people come to train as pilots, engineers, meteorologists, air traffic controllers and firefighting officers. These visits leave a lasting impression on them such that it motivates them to work hard at school and pursue a career in the aviation industry. The children and schools benefit from these tours when children become motivated to do their best in school so that one day that can be like someone they met during the tours. Educational tours are one aspect of the early learning curriculum that should be encouraged by the schools and governments at large"*.



ATM simulator demonstration



Group visit of students visit an aircraft and hangar



When one of the Grade eight students who visited ZASTI was asked about her experience, she spoke of how inspiring and motivating it is for a girl like her to see that it doesn't matter your gender or who you are, but that if you work hard enough, a childhood dream to fly a plane can come to reality, "I can enroll at ZASTI and train to be a pilot. I have seen that there are so many other courses on offer at this institute that I can choose from. Even if I do not get to fly, I can still work at the airport".

A boy from the same school promised to work extra hard in mathematics, science, English and geography so that he can get back to train as a fire fighter because that has always been his passion.

In 2017, aside from the school tours to the institute, ZASTI has sent five instructors to five schools across the country. Students actually take notes as instructors share their experiences in the aviation industry.



ZASTI administration



Students looking at the fire truck

To enrich our career school programme, we encourage public interaction by conducting open day programmes that are free for anyone wishing to attend. ZASTI actively commemorates international celebrations like United Nations Youth Week, Youth Day, World Skills Day and International Civil Aviation Day. This gives us the opportunity to reach as many youth as possible to give them the opportunity to see what actually happens in the aviation industry. Zambia's dream to tap into the potential of our young generation and interest them in the aviation industry, is no longer a far-fetched dream.

We will continue our efforts to contribute to the NGAP programme – with confidence Zambia will be able to launch a new national airline at a new airport, that will fly to new horizons. ■



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Front view of EASA



EASA main reception

ICAO'S TRAINAIR *PLUS* PROGRAMME: EAST AFRICAN SCHOOL OF AVIATION SHARES THEIR EXPERIENCE



MARY K. SINDIGA

She is an ICAO STP Expert Validator and Instructor, ICAO TrainairPlus Training Developers Course and Training Instructors Course. She presently heads the Course Development Unit and is the TPP Focal Point at the East African School of Aviation in Nairobi, Kenya.

BACKGROUND

The East African School of Aviation (EASA), the training Directorate of the Kenya Civil Aviation Authority (KCAA), was founded in 1954 as a training provider for telegraphic and teleprinter operators. Service was expanded in 1960 to train engineering technicians and air traffic controllers. Though in July 1963 the operations of EASA were entrusted to ICAO, in 1969 EASA operations were handed over to the East African Community (EAC), which comprised Kenya, Uganda and Tanzania.

When the East African Community collapsed in 1977, the training school was taken over by Kenya's Ministry of Transport and Communication, the Directorate of Civil Aviation (DCA). In 1982, the modern school was established at the present location in Nairobi, five kilometers from Jomo Kenyatta International Airport.

EASA has been a member of ICAO Trainair since the 1980s. It was approved as an associate TPP Member in 2011 after being assessed for compliance in meeting ICAO requirements. Following the initial TPP on-site assessment, EASA developed the Course Development Unit (CDU) to build course development capacity by aggressively training staff to become course developers. Interestingly, a management decision was made not to allow course developers under the former ICAO Trainair Programme grandfather rights in course development.

This decision later became one of the wisest decisions ever made with regard to training course developers under the TPP. EASA focused on modernizing the training facilities and equipment, improving the ambience of the common areas and training rooms. Examples of these improvements are shown in the accompanying images. Training rooms are of different sizes to cater to not only a varied number of trainees, but to enable versatile sitting arrangements as needed.



3D ATC training simulator



A typical training room at EASA

THE TRAINAIR PLUS ERA

Attaining ICAO TPP Membership in 2011 opened the doors for EASA to host courses and other Harmonized Training Packages (HTPs) from the ICAO library. Training competency development courses, the TRAINAIR PLUS Training Developers Course (TP TDC) and the Training Instructors Course (TIC) are hosted annually by EASA for participants from the region. Other ICAO HTPs are hosted according to EASA needs, or in collaboration with other TPP members.

In 2013, EASA was assessed and approved as a Government Safety Inspector (GSI) authorized training centre. Since then, EASA has hosted the following GSI courses on a regular basis:

- ICAO Government Safety Inspector Personnel Licensing Course (GSI-PEL-18710);
- ICAO Government Safety Inspector Airworthiness – Air Operator and Approved Maintenance Organization Certification (GSI-AIR-18701); and
- ICAO Government Safety Inspector Operations – Air Operator Certification Course (GSI-OPS-18700)

A TPP reassessment in 2014 pointed out specific improvements that were needed. This, in turn, provided EASA management with a basis for planning and strategizing to improve and/or acquire the required facilities and infrastructure. Consequently, the Kenya CAA included the upgrading of EASA facilities in its 2015/2016 financial year budget.

For the ICAO HTPs that are hosted by EASA, the institution has developed internal instructor capacities, so all courses are conducted without having to procure external instructors. To date, EASA has the following instructors:

- Six Government Safety Inspector (GSI) Courses Instructors, two for each of the above mentioned GSI Courses;
- Three TDC Instructors; and
- One TIC Instructor

For the courses conducted in EASA's areas of approval under the ICAO Regional Training Centre of Excellence (RTCE) designation, the training institution has an adequate number of instructors. The instructional staff capacity is reviewed annually against projected training needs to ensure internal availability of qualified instructors or all planned trainings.

For Course development activities, EASA has a total of six ICAO Qualified Course Developers (IQCDS) and three ICAO STP Expert Validators. Therefore, EASA is able to design ICAO Training Packages (IPTs) and Standardized Training Packages (STPs) using internal capacities without sourcing external course developers and validators, and incurring additional costs. To date, the EASA course development team has successfully completed four STPs, with one ITP in the final stage of development.

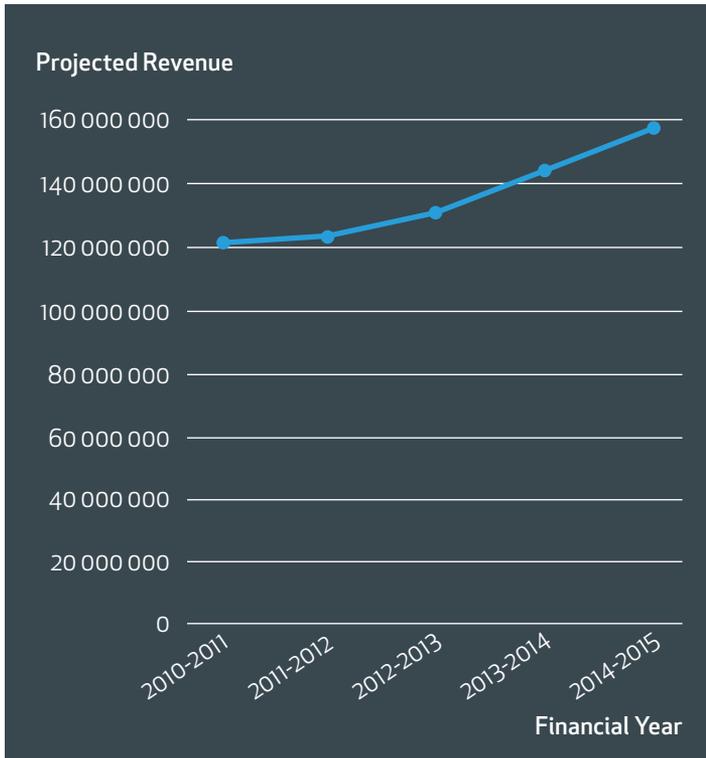
Using the course development capacity, EASA is in the process of standardizing all its courses. Fifteen EASA courses have been designed/standardized and implemented.

The direct benefits of TPP Membership for EASA include:

- A pool of course developers with the ability to design courses as needed, to meet the needs of the aviation industry in Kenya, the region and beyond. This enables EASA to respond to specialized/tailored customer needs on a timely basis;
- Reduction in the cost of hosting ICAO courses since the instructors are locally available. As a result, EASA is able to schedule the various ICAO Courses in a flexible manner;
- A total of 50 Members of KCAA/EASA staff have completed the TDC course. This pool comes in handy as SMEs with course development knowledge whenever the course development team embarks on designing courses in their professional areas; and
- Enhanced training revenue

A detailed look at the revenue journey of EASA over the years provides a clearer picture of its progress under the TPP. In the Kenya Civil Aviation Authority (KCAA) Strategic Plan of 2010/2011-2014/2015, training revenue projections for EASA were as follows:

EASA Revenue Projection 2011-2016 (Kenyan shilling)



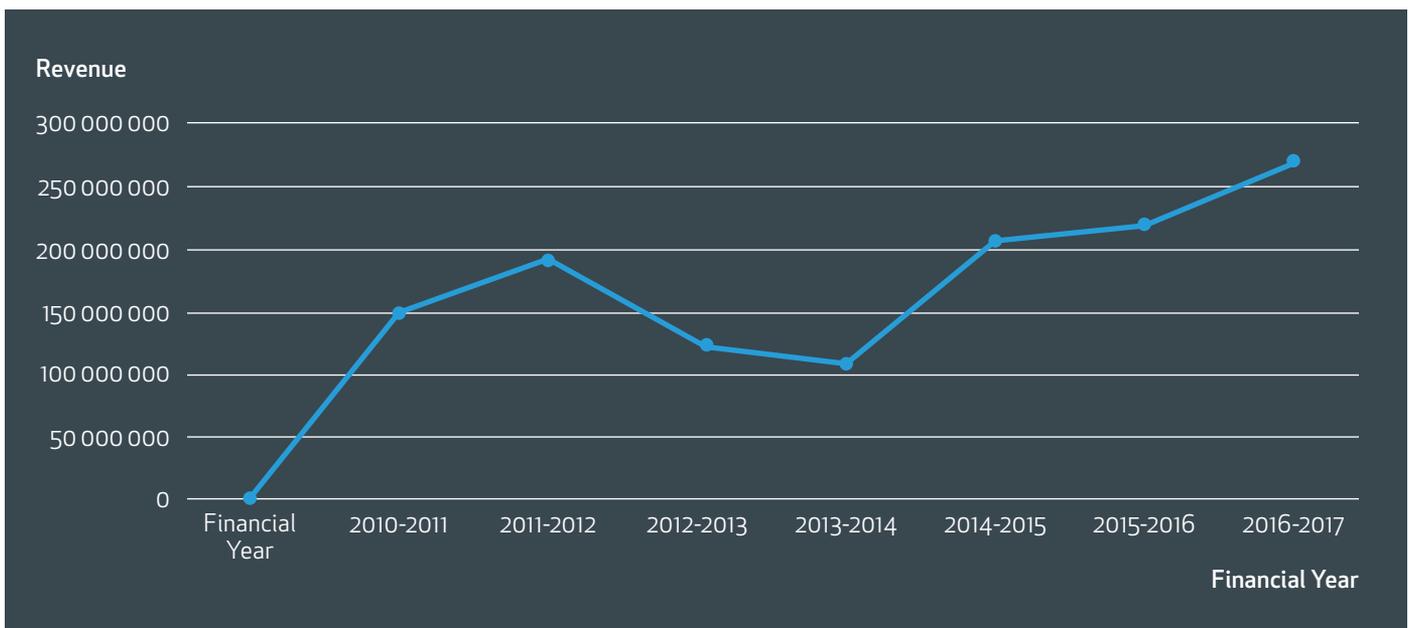
Source: Kenya Civil Aviation Authority (KCAA) Strategic Plan of 2010/2011-2014/2015

Whereas TPP benefits to EASA are obvious, the image beside illustrates that an organization must be cognizant of all the factors that affect revenue in a training organization like EASA.

1. A drop in revenue in the 2012/13 financial year was brought about when a major customer wanted a shift in the packaging of our training offerings and accommodation.
2. 2013/14 –was an election year that led to massive cancellations in course requests. Since at that time EASA had not yet fully developed internal instructor capacity, it was difficult to reschedule the trainings in timely manner. Also, one of EASA's sources of trainees drastically scaled down staff training. The 2013/14 decline in revenue served as a wakeup call for EASA. A research survey was commissioned in the later part of 2013/2014, targeting different States within the AFI region, to find out the reasons for the decline in demand for EASA training offerings.
3. By 2014/15, EASA had not only resolved the issues identified in 2012/13 above, but an investment in instructor and course development capacity enhancements lead to a wider variety of training offerings, higher flexibility in scheduling trainings and ultimately increases revenue.

And this momentum, they intend to maintain. For more information on EASA's training programmes in the areas of Aviation Business Management; Aviation Safety and Security; Air Navigation Services and Maintenance and Curriculum Development, visit their website here: www.easa.ac.ke

Realized Revenue 2010/2011- 2016-2017 (Kenyan shilling)



ART WILLIAMS & HARRY WENDT



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 Art Williams & Harry Wendt Aeronautical Engineering School



A SPOTLIGHT ON THE ETHIOPIAN AVIATION ACADEMY

 One of the seven strategic business units of Ethiopian Airlines Group, Ethiopian Aviation Academy was established in 1957. The Academy has five schools under it: Pilot Training, Aviation Technicians, Inflight Services, Commercial & Ground Services, and the Leadership & Career Development Schools.

Aviation Academy houses two classroom buildings with 50 standard classrooms; six computer based training (CBT) rooms, a library and library rooms, lab classes, instructor offices, briefing rooms and simulator houses. Multiple state-of-art training capabilities/facilities are installed in both buildings.

THE CABIN CREW TRAINING SCHOOL

With more than 57 years' experience, the Ethiopian Cabin Crew Training Centre is renowned for consistently supplying the aviation industry with the highest industry standard cabin crew members.

The world class training centre, which delivers training programmes that are approved by the Ethiopian Civil Aviation Authority, conducts its courses with classroom and practical training that is provided by dedicated and competent instructors. Training is designed to exceed rigorous safety standards while providing the highest standard of customer service.

The goal of the Cabin Crew Training Centre is to attract enthusiastic, aspiring participants from all cultures and focus on creating a quality experience both for the students and the companies that employ them.

This school utilizes modern Cabin Emergency Evacuation Trainer (CEET), motion and static mock ups of both wide- and narrow-body aircraft to train safety and service. Extended door trainers and a standard swimming pool are relevant facilities for the basic and recurrent trainings in the Centre.



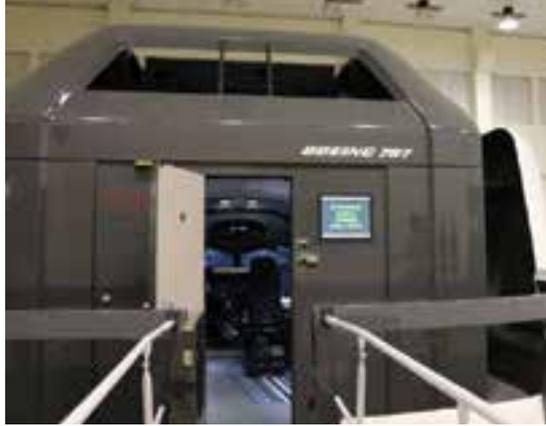
In 2016, a catering wing was added to the Cabin Crew Training School to specialize in short- and long-term catering and aviation catering programmes.

PILOT TRAINING SCHOOL

Commissioned in 1964, the Pilot Training School has made Ethiopian Airlines self-sufficient in meeting its requirements for African and Middle Eastern pilots. This has been accomplished through the engagement of highly qualified and experienced Ethiopian Airlines training staff. Over the last 48 years, the Pilot Training School has trained pilots from 52 countries in Africa, the Middle East, Asia and Europe.

The Pilot Training School currently offers accredited training programmes for *Commercial Pilot License with Instrument and Multi-engine Rating (CPL/IR/ME)* and *Multi-crew Pilot License (MPL)*. The syllabi of both programmes are approved and accredited by the Ethiopian Civil Aviation Authority (ECAA). Up-to-the-minute simulators for B₇₈₇, B₇₇₇, B_{765/757}, B₇₃₇^{NG}, B₇₃₇ and Q₄₀₀ aircraft are also available for type and recurrent trainings.





AIRCRAFT MAINTENANCE TECHNICIAN SCHOOL

Also approved by the Ethiopian Civil Aviation Authority, the Aircraft Maintenance Technician School is a prominent provider of qualified, highly skilled and safety oriented maintenance technicians in Africa and the region.

Established in 1967, the Aviation Maintenance Technician School has specialized in aviation maintenance training for nearly 50 years; consistently offering the highest industry standard maintenance technicians training.

The school offers basic, type and recurrent training programmes with a combination of classroom theory and hands-on practical training. Its competent instructors are dedicated to prepare trainees for ECAA, the FAA and EASA certifications essential for entry-level employment as aircraft technicians.

The school reaches goals far beyond preparing its trainees for certification and licensing as the centre of excellence that creates favorable experience for students and employers alike.

The school is approved by the European Aviation Safety Agency –EASA on B737, B757, B767 B1 and B2 types. Equipped with modern training devices like Boeing Virtual Maintenance Training (VMT) and Airbus Competency Trainer (ACT), the school owns mini-hangars and different workshops for its practical training.

In terms of curriculum and training material development, the academy has a dedicated section, Training Standards and Development, that is responsible in training needs assessments, training design and development. It has also ventured into e-learning courseware development.

The Commercial & Ground Services training was established in 1982 as the School of Marketing and Finance –SOMAF. Since then, the school has been training aviation professionals working in different ground operations activities including sales, passenger reservations and ticketing, airport customer handling, cargo handling, ramp operations, customer service and airline accounting and finance.

Ethiopian Aviation Academy has become the most competitive and leading aviation group in Africa by providing safe, market driven and customer focused passenger and cargo transport, aviation training, flight catering, MRO and ground services by 2025. It is committed to positively contributing to the socio economic development of Ethiopia, and the countries where it operates, by taking corporate social responsibility and providing vital global air connectivity. ■



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