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ASWAN UNIVERSITY

ICT and VET

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Introduction

- Recent years have seen an explosion in the use of information and communications technologies (ICTs).
- ICTs have come to play an increasingly important role in multiple aspects of our lives.
- ICTs are starting to have an important impact on education and training.
- Now ICTs need to provide more widespread access to good quality Vocational Education and Training (VET).

Introduction, Cont.

- Technology can make it easier to deliver TVET to more people.
- More than 80% of the youth population are now online.
- Students can use their own digital devices to access courses through the internet.
- Skills for technology-oriented jobs are also best acquired in a high-tech learning environment.
- However, many challenges remain for countries without reliable electricity, computers and internet connectivity, and where teachers are unable to use technology in their teaching.

Use of ICT in VET

- The increased use of ICT in VET has been made within the framework of the project “Information and Communication Technologies in Technical and Vocational Education and Training (TVET)” launched by the UNESCO Institute for Information Technologies in Education in 2002.

Use of ICT in VET, Cont.

Some of the aspects of using ICT in VET:

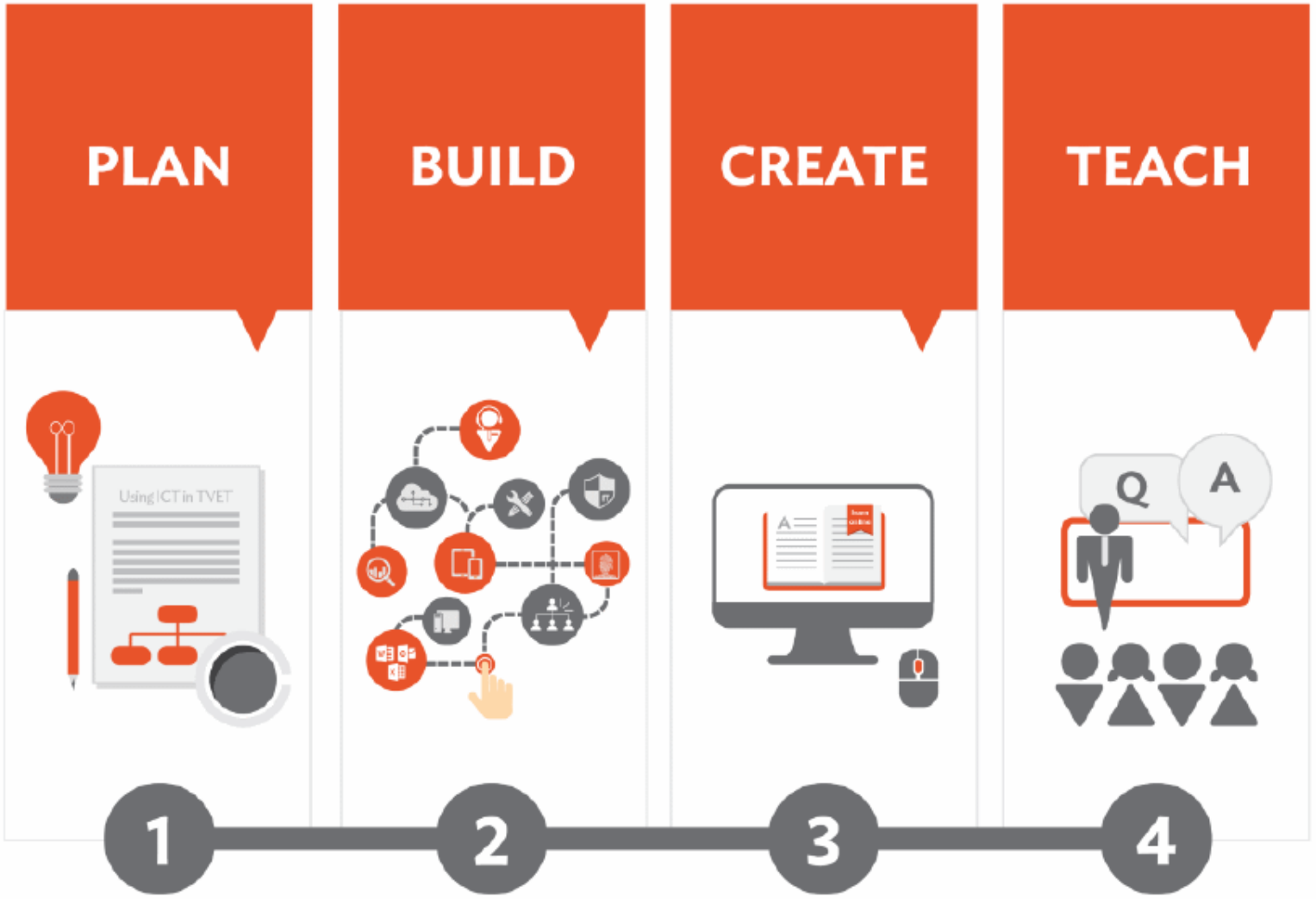
- Teaching Practical Skills Using ICT
- Using ICT for Workplace Training
- Using ICT for Study-at-Home VET Programs
- Using ICT for Assessing Teaching and Learning
- Using ICT for Informal Skills Development
- Using ICT for Prior Learning Assessment and Recognition
- Using ICT for Virtual Internship

Use of ICT in VET, Cont.

Some of the topics of using ICT for program support in VET:

- Using ICT for Administrative Purposes
- Using ICT for Career Education and Guidance in VET
- Using ICT to provide Labour Market information in VET
- Using ICT for Placement of VET Graduates
- Using ICT for the Control of Technical Systems
- Using ICT for Information Search
- Using ICT for Communication Purposes
- Using ICT for VET curriculum Design and Development

Four Steps to Take in Integrating ICTs in TVET



What You Need to Do

1. TVET policy
2. The learning content to be communicated and the resources available.
3. The number of qualified teachers with ICT skills.
4. The availability of existing learning materials.
5. The cost and time required to create good-quality, ICT-based courses.
6. The assessment methods and tools available.
7. The provision of support for students using distance and open learning.

What You Need to Do, Cont.

7. The development of strategies to encourage female students to engage with ICT-enabled learning.
8. Guidance for teachers on how technology can be used in the context of their curriculum to achieve learning objectives.
9. Strategies for off-grid communities and learners lacking access to digital devices.
10. The potential of massive open online courses for meeting some of the requirements of sector-specific, large-scale, effective training

Use of ICT for VET curriculum Design and Development

- Good vocational education curricula are designed using a system approach including various systematic processes, such as:

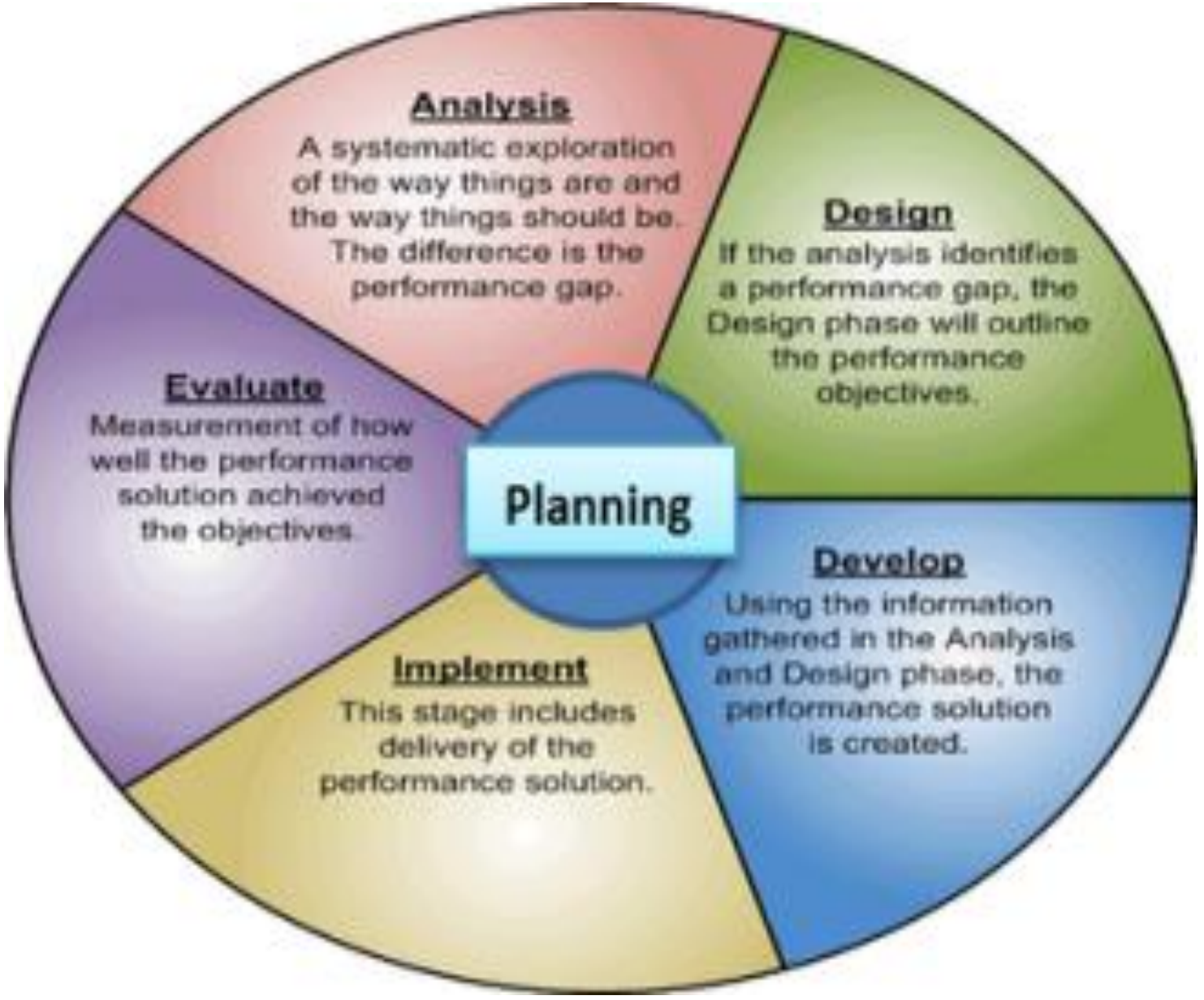
1. job analysis,
2. task analysis,
3. curriculum design and development, and
4. instructional system design and development.

- These are very complex, time-consuming.

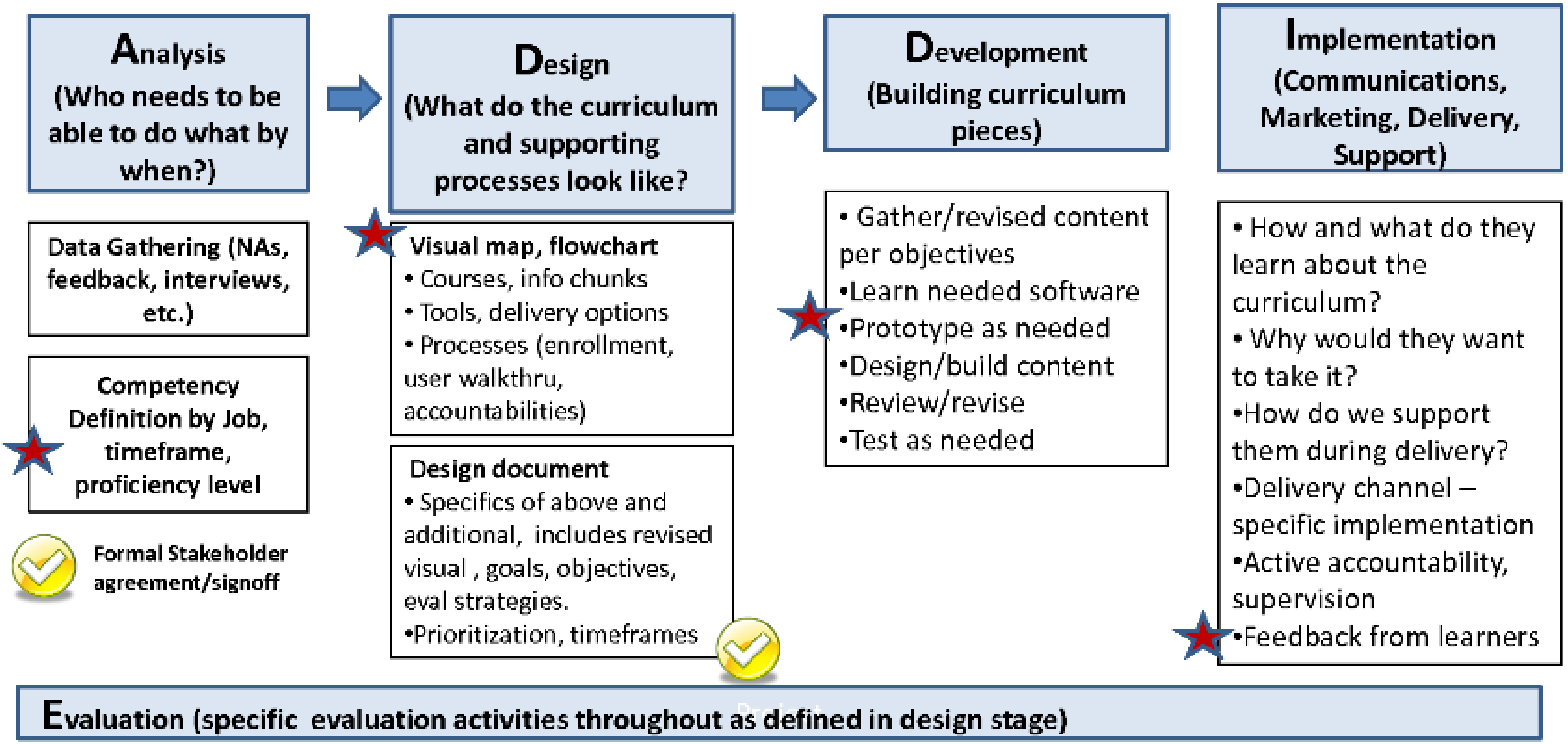
The PADDIE Model of VET Curriculum Design

- The curriculum of a professional learning profile is not a simple document to prepare.
- This process requires time work environments and tools, as well as significant financial costs.
- One of the methodological trends found wide spread in developing model curricula is the PADDIE model.
- This model runs on six main stages and processes, which give him the name: Planning – Analysis – Design – Development – Implementation – Evaluation.

Stages of the PADDIE model



Curriculum development process with PADDIE model



How to Use ICT in Phases of VET Curriculum Development

- Specialists of VET curriculum design and development, can use the advantages offered by ICT in all phases of the curriculum development process.
- At the ***planning stage***, experts can use the tools and facilities that provide technology to:

1. Scheduled needs for human resources
2. Scheduled needs for material resources
3. Scheduled needs for financial resources.

How to Use ICT in Phases of VET Curriculum Development, Cont.

- Use of ICT in the ***analysis phase*** is crucial, especially for Occupational or Job Analysis.
- There is a strong demand on VET for enhancing job related skills.
- If the purpose of a VET curriculum is to improve the job performance, it is then important to use the job requirements as a basis for programmed design and development.

How to Use ICT in Phases of VET Curriculum Development, Cont.

- ***Worldwide Instructional Design System (WIDS)*** offers educators a set of tools to facilitate curriculum design and development.
- It provides a consistent framework for the design of course and program outlines, learning, syllabi, and assessments.
- This software stores learning outcomes, related assessments, occupational analyses, and program design information.
- WIDS is currently being used to design and develop VET programs in the US and many other countries.

How to Use ICT in Phases of VET Curriculum Development, Cont.

- ***Designer's Edge*** is an instructional design tool that provides pre-authoring tools and wizards that guide instructors through the instructional design process, from the analysis stage to the evaluation stage.
- It uses a Windows™-based graphical user interface (GUI).
- The design steps are based on the standard instructional system design model of Analyze, Design, Develop, Implement, and Evaluate.
- Designer's Edge provides 12 sequential design steps.

Common Types ICTs for Teaching and Learning

- There are a variety of different technologies that can be used in TVET.

1. Audio-Cassette Tapes
2. Radio
3. Videotapes
4. CD-ROM and DVD
5. Internet/Web-Based Training
6. Web-Based Training (WBT) Programmes
7. Audioconferencing
8. Audiographics
9. Interactive Television
10. Videoconferencing

Open and Distance Learning (ODL) in TVET

- ODL can be used in TVET to empower people such as the disabled, women, and the unemployed.
- ODL can also allow greater participation in TVET after work hours for those who can’t afford to take time off from their jobs.
- ODL in the field of vocational training may be done through residential schools, home experiment kits or collaboration with the workplace.

The Use of ICTs in TVET in Some Countries

Africa

- The African Virtual University (AVU) uses satellite technology, the Internet, phone lines and e-mail to link AVU centres across Africa to a studio classroom to provide learners with real-time interaction with the instructor.
- Tutors at the AVU centres provide support to students and facilitate two-way communication with the studio classroom instructor.
- AVU centres have successfully trained thousands of students as technicians, engineers, managers, and scientists in more than 15 African countries

The Use of ICTs in TVET in Some Countries, Cont.

Arab States

- UNESCO Regional Office for Education in the Arab States identified the types of ICTs commonly used in TVET in the Arab States in workshops and laboratories and for learning.
- ICT-mediated learning include: Multimedia Authoring Systems, Computer-Based Learning, Computer-Based Training, Open Learning/Teaching Courseware, Application courseware, Training Courseware, Electronic Mail, Videotext, Automated Libraries, Databases and Databanks, Multimedia, Word processing, Spreadsheet, Desktop Publishing.

The Use of ICTs in TVET in Some Countries, Cont.

Europe

- The European Centre for the Development of Vocational Training keeps vocational education and training stakeholders in Europe informed of the present and future trends in VET using an interactive web site, newsletter, journal, seminars and workshops.
- The Centre sustains links between policy makers, organizations, and practitioners across Europe and provides information and advice to help them make informed choices about vocational training policy.

The Use of ICTs in TVET in Some Countries, Cont.

United States

- In the US, the community colleges are the largest providers of TVET.
- The community colleges have been quick to embrace ICT-mediated learning.
- Recent statistics indicated that 87% of the colleges have the necessary infrastructure for satellite videoconferencing, 60% were equipped for two-way video conferencing.

Issues Regarding the Use of ICTs in TVET

1. **Infrastructure**: Appropriate infrastructure must be available to ensure equity of access and proper delivery of content.
2. **Administration**: The system must provide adequate resources and support for technology integration.
3. **Learning**: ICTs must be used to enhance teaching and learning.
4. **Teaching**: Teachers need to be adequately prepared for using ICTs to teach and facilitate student's learning.
5. **Content Development**: Content development can be costly and time consuming. Developing and keeping high quality instructional products up-to-date is a major challenge for TVET.

Barriers to the Integration of ICTs in TVET

1. **Content and Curriculum:** the unavailability of relevant, well-designed instructional content.
2. **Appropriateness and Efficacy:** distance education is not an appropriate method for delivering vocational and technical skills.
3. **Quality and Branding of Distance and E-learning:** courses must be accredited by educational authorities in order for e-learning to become a method of course delivery and to gain learners' confidence.

Barriers to the Integration of ICTs in TVET, Cont.

4. **Stakeholder Resistance:** The shift to technology-based learning may represent a threat to job lost for some stakeholders, thus resulting in resistance to embrace the innovation.
5. **Institutional Barriers:** Lack of equipment and support, Difficulties in scheduling, Lack of adequate resources, High cost of programme development.
6. **Student Barriers:** Cost of equipment and access to technology, Motivation, Lack of immediate feedback form instructors, Lack of adequate support and services

Barriers to the Integration of ICTs in TVET, Cont.

7. **Lack of Appropriate Software.**
8. **Copyright ICT-mediated Learning Materials:** The main goals of copyright systems are to ensure that the creators of a work are credited and compensated for their effort and to encourage creation and innovation.

Quality Standard for E-Learning in TVET

1. Consistency with institutional mission,
2. Curricular integrity,
3. Resources,
4. Faculty support,
5. Student support,
6. Student outcomes and programme evaluation, and
7. Certification and accreditation.

Thank you very much for your listening