



United Nations
Educational, Scientific and
Cultural Organization

UNEVOC

International Centre
for Technical and Vocational
Education and Training



Delivering TVET through Quality Apprenticeships

Report of the UNESCO-UNEVOC
virtual conference

15 to 26 June 2015

Moderated by Alessandra Molz

Published by
UNESCO-UNEVOC International Centre for
Technical and Vocational Education and Training
UN Campus
Platz der Vereinten Nationen 1
53113 Bonn
Germany
Tel: [+49] 228 815 0100
Fax: [+49] 228 815 0199
www.unevoc.unesco.org
unevoc@unesco.org

Photo used in Cover Design
Creative Commons © Flickr/ Asian Development Bank

Layout and Graphics by
Aldrich Mejia

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The author is responsible for the choice and the presentation of the facts contained in this publication and for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit the Organization.

ISBN 978-92-95071-71-1

© UNESCO 2015

All rights reserved

Table of contents

| | |
|--|----|
| Foreword | 5 |
| Introduction | 6 |
| Objectives and scope | 8 |
| Objectives | 8 |
| Scope | 8 |
| Summary of the discussions | 10 |
| Introductions and participants' fields of interest | 10 |
| Topic 1: Definition of apprenticeship and how to put "quality" in apprenticeship | 12 |
| Topic 2 Innovations and alternative forms of apprenticeship | 19 |
| Topic 3: Financing of apprenticeship | 26 |
| Topic 4: Anticipation and identification of skills needs for apprenticeships | 27 |
| Topic 5: Involving the industry | 27 |
| Topic 6: Curriculum development for apprenticeship | 30 |
| Topic 7: Non-completion of apprenticeship training, drop-out and attrition | 31 |
| Topic 8: Documenting work experience and recognition of prior learning | 31 |
| Topic 9: Social image and attractiveness of apprenticeship | 31 |
| Topic 10: In-company training and trainers | 32 |
| Topic 11: Architecture and success-factors of apprenticeship | 33 |
| Topic 12: Further research areas: participants' proposals | 35 |
| Conclusions | 36 |
| Recommendations | 36 |
| Participation | 38 |
| About the moderator | 45 |
| Annex | 46 |

Foreword

UNESCO's draft Revised Recommendation Concerning Technical and Vocational Education and Training highlights the importance of work-based learning, calling on Member States to, amongst other things, foster and facilitate quality apprenticeships. Indeed, in today's socio-economic climate, characterized by youth unemployment and skill mismatches, efforts are made to introduce and improve apprenticeship schemes to expand the quality of TVET. Importantly, at UNESCO-UNEVOC we consider apprenticeships in the larger context of work-based learning and therefore see all discussions related to challenges in this context. One such discussion focuses on what should be understood by quality apprenticeships, the topic of this virtual conference.

There is a tendency among countries to look towards nations with a long apprenticeship tradition when developing or improving their apprenticeship systems. Although the sharing of experiences should always be encouraged, it should not be forgotten that apprenticeship systems need to respond to different countries' socio-economic realities and that there is therefore no one-size-fits-all. Instead we should focus on identifying common features which can serve as guiding principles and be adapted to different national contexts.

To further the discussion and increase our understanding of apprenticeship systems, UNESCO-UNEVOC organized a virtual conference from 15 to 26 June 2015 on the UNEVOC e-forum. Moderated

by Alessandra Molz, a researcher in the area of skills development and workplace learning, this virtual conference explored the characteristics of modern and formal quality apprenticeships. The virtual conference also examined the challenges found in formal and informal apprenticeship systems, and analysed the conditions needed to promote quality apprenticeships.

The virtual conference was attended by 229 experts and practitioners from 70 countries. The high level of participant engagement across all twelve discussion topics reflected the interest of experts, researchers and practitioners across the globe in apprenticeships systems.

This virtual conference was the eleventh in a series of moderator-driven discussions introduced by UNESCO-UNEVOC in 2011. Conducted on the UNEVOC e-Forum – a global online community of over 4,000 members – and guided by an expert, these discussions provide a platform for sharing of experiences, expertise and feedback and wish to inspire people to take further action. We would like to thank Alessandra Molz for sharing her expertise on apprenticeships with the wider TVET community, which we hope will drive the discussion forwards and will contribute to more quality apprenticeships in the future. We would also like to extend our sincere gratitude to all participants who took the time to share their experiences on the topic and contributed to the development of this report.

Shyamal Majumdar
Head of UNESCO-UNEVOC International Centre

Introduction



CreativeCommons©Flickr/UNDP

The global youth employment crisis has brought apprenticeship back on the international policy agenda. In the face of large cohorts of unemployed youth and mismatches in skills and qualification levels, many countries wish to explore and introduce apprenticeship as a way to tackle youth unemployment and reduce future labour-market imbalances. In other countries "informal" and "traditional" apprenticeships exist and great efforts are being made to upgrade and formalize these apprenticeship schemes to increase the availability of quality training for youth.

Apprenticeship is defined as a:

... unique form of vocational education, combining on-the-job learning and school-based training, for specifically defined competencies and work processes. It is regulated by law and based on written employment contract with a compensatory payment, and

standard social protection scheme. A formal assessment and a recognized certification come at the end of a clearly identified duration.¹

Apprenticeships are different from traineeships, internships or similar arrangements. Apprenticeship is a form of workplace learning, but not all forms of workplace learning are apprenticeships. Apprenticeship means a systematic acquisition of complete skills sets at the workplace, for a full occupation. Apprentices can be considered as "employees" who learn while they work at the company. This learning experience is usually supported with complementary school-based training and, upon successful completion, certified with a valid certification.

¹ "Key elements of quality apprenticeships", ILO / G20 Task Force on Employment, September 2012, http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_218209.pdf

Modern and formalized apprenticeships aim at providing quality training opportunities under good working conditions and bear a high potential of a systematic win-win situation for the apprentices, the training companies and the TVET system as a whole. The notion of quality in apprenticeships has recently been introduced by the ILO² and is widely supported by UNESCO³ and other multi- and bi-lateral partners involved in the G20 Group on Human Resource Development⁴. It includes aspects such as:

- Quality of work and training conditions: The respect of labour rights and safety standards at the training company, apprentices are covered by a social protection scheme and receive a salary or allowance.
- Quality of training standards and contents: the training programme responds to the needs of the labour market and young people learn the full skillset required for an occupation.
- Quality in terms of a nationally recognized certification that allows the graduate apprentice to access a job in the training occupation all across the country.
- Quality in terms of a win-win situation for all stakeholders: i) training companies benefit from an additional workforce and can use apprenticeship as a recruitment strategy; ii) apprentices become proficient in an occupation, earn a salary, receive a valid certificate and acquire work experience; iii) training schools benefit from closer ties with the labour market; iv) the society and the economy at large benefit from a productive workforce, more balanced labour markets and higher youth employment.

According to a recent study by the ILO⁵, in order to build up and maintain quality in apprenticeship, four main elements need to be in place, namely: i) social dialogue between the government, employers' representatives and the

trade unions, to define any matters concerning the apprenticeship system, ii) clear roles and responsibilities among all actors at all levels, iii) financing mechanisms that facilitate cost sharing between the stakeholders and guarantee the availability of financial support and iv) legislation to provide a structure and a framework for stakeholders to operate well at all levels.

Generally, it is recognized that countries with well-established apprenticeship systems tend to enjoy lower ratios of youth unemployment⁶. Some of them are considered economies with quality skilled labour leading to high productivity and an elevated innovation capacity.

Well-designed apprenticeship schemes can play a vital role in:

- smoothing school-to-work transitions by providing relevant work experience in a real labour-market environment while learning a trade;
- equipping youth with the skills needed by the companies;
- being an effective training methodology for transferring complex skills sets, including for high-technology occupations;
- combining work and training opportunities, linked with a salary or allowance;
- enabling companies to better cater for immediate and future staff needs; and
- making TVET systems more responsive to skills shortages and skills mismatch.

The G20 "Training Strategy for strong, sustained and balanced growth" developed in 2010 drew attention to the importance of apprenticeships. At a G20 meeting in 2012 in Guadalajara, Mexico, labour and employment ministers concluded that countries should foster the:

*...sharing of experience in the design and implementation of apprenticeship programmes and explore ways to identify common principles across the G20 countries by facilitating a dialogue...*⁷

2 "Key elements of quality apprenticeships", ILO / G20 Task Force on Employment, September 2012, http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_218209.pdf

3 Final Report containing a draft text of the Recommendation concerning Technical and Vocational Education and Training (points 30, 31, 32), UNESCO 2015, <http://unesdoc.unesco.org/images/0023/002325/232598e.pdf>

4 OECD Note on Quality Apprenticeships for the G20 Task Force on Employment (2012): <http://www.oecd.org/els/emp/OECD%20Apprenticeship%20Note%2026%20Sept.pdf>

5 "Overview of apprenticeship systems and issues" ILO contribution to the G20 Task Force on Employment, Hillary Steedman, ILO 2012, http://www.ilo.org/wcmsp5/groups/public/ed_emp/ifp_skills/documents/genericdocument/wcms_190188.pdf

6 Overcoming the work-inexperience gap through quality apprenticeships – the ILO's contribution Michael Axmann, Christine Hofmann; ILO 2013

7 ILO 2011. A Skilled Workforce for Strong, Sustainable and Balanced Growth. http://www.ilo.org/skills/pubs/WCMS_151966/lang--en/index.htm

Countries with more recently established apprenticeship schemes and countries wishing to upgrade informal systems or to introduce apprenticeship are increasingly looking towards other nations with a long tradition in apprenticeship to learn from their experiences. It should be noted that "exporting" a system from one country to another has often failed. Apprenticeship systems need to respond to the different socio-economic realities of each country. However, all apprenticeship systems follow common features which can serve as guiding principles and be adapted to different national contexts.

Exploring these common features and sharing international experiences and lessons learnt can serve as an inspiration for experts who would like to learn more about the topic, particularly for policy makers and practitioners wishing to introduce or enhance existing apprenticeship schemes.



CreativeCommons® Flickr/Richard Kenworthy

Objectives and scope

Objectives

The general objective of the two-week virtual conference on "Delivering TVET through Quality Apprenticeships" was to increase participants' understanding of apprenticeship training, in particular formal quality apprenticeship schemes. The conference stimulated a knowledge-sharing process between participants on the key factors needed for effective quality apprenticeships. Likewise, it represented a forum where participants could share their questions, fields of interest, research and personal, institutional and national experiences.

In terms of specific objectives, by the end of this e-conference participants had:

- deepened their understanding of apprenticeship, in particular the characteristics of modern and formal quality apprenticeship;
- examined the challenges to be found within formal and informal apprenticeship systems in different countries;
- analysed the conditions needed for promoting quality apprenticeships; and
- identified remaining open questions and research gaps.

The conference took place from 15 to 26 June 2015. A total of 229 experts and practitioners from 70 countries took part in the online conference, with 62% male and 38% female participants.

Scope

During the introduction round at the beginning of the conference, participants were asked to share their fields of interest and their main questions related to apprenticeships. Based on the ideas expressed by the participants during the online discussion and the issues identified in the background paper, twelve main discussion topics were identified for the virtual conference:

- Topic 1: Definition of apprenticeship and how to put "quality" in apprenticeship
- Topic 2 Innovations and alternative forms of apprenticeship
- Topic 3: Financing apprenticeship



CreativeCommons®-Flickr/Ness Kerton

- Topic 4: Anticipation and identification of skills needs for apprenticeships
- Topic 5: Involving the industry
- Topic 6: Curriculum development for apprenticeship
- Topic 7: Non-completion of apprenticeship training, drop-out and attrition
- Topic 8: Documenting work experience and recognition of prior learning
- Topic 9: Social image and attractiveness of apprenticeship
- Topic 10: In-company training and trainers
- Topic 11: Architecture and success factors of apprenticeship
- Topic 12: Further research areas

The moderator would like to thank the participants of the virtual conference for their active participation and for generously sharing their insights, experiences, ideas, opinions and innovations. This report summarizes the main findings of the discussions and of participants' contributions. It also shares promising practices that emerged during the virtual conference. It concludes with a series of research questions and proposals shared by participants, as well as some of the most frequent challenges with apprenticeship expressed by participants. The report concludes with a series of recommendations on how to increase the understanding of apprenticeship and support the implementation of successful experiences.

Summary of the discussions

The background note to the virtual conference provided participants with a definition of apprenticeship and the benefits of apprenticeship training. In particular, the concept of "Quality Apprenticeships" was introduced which is currently being promoted by the International Labour Organization⁸, UNESCO⁹ and other international institutions¹⁰.

During the discussions it became clear that all participants were aware of the benefits of apprenticeship. An important aspect of the conference were the differences between "formal" apprenticeship systems, which are regulated by law, and "informal" and "traditional" apprenticeship schemes which can be found in the informal economy of many developing countries and often co-exist with formal apprenticeship practices in large companies. In spite of these differences, there were a lot of common problems and issues to be found across all countries and world regions.

As mentioned previously, discussions evolved around twelve thematic topics. In spite of some interconnections between different topics, generally the discussion topics were very clearly distinct from one another. Therefore, this report is organized along the lines of the twelve discussion threads, preceded by a summary of the introduction round. The intensity of discussions and number of contributions varied between different topics; this is reflected in the summary of discussions. The introduction round and the first two discussion topics sparked the most participation and the most variety of comments. Therefore, more emphasis will be on these discussions. Also for the following discussions, the more popular topics will be more elaborated in this report than others.

8 "Key elements of quality apprenticeships", ILO / G20 Task Force on Employment, September 2012, http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_218209.pdf

9 Final Report containing a draft text of the Recommendation concerning Technical and Vocational Education and Training (points 30, 31, 32), UNESCO 2015, <http://unesdoc.unesco.org/images/0023/002325/232598e.pdf>

10 OECD Note on Quality Apprenticeships for the G20 Task Force on Employment (2012): <http://www.oecd.org/els/emp/OECD%20Apprenticeship%20Note%2026%20Sept.pdf>



Introductions and participants' fields of interest

Participants were invited to introduce themselves and to share a particular field of interest or research in the area of apprenticeship or to pose a question they might have on apprenticeship schemes. An impressive variety of topics was brought up and the following expectations and areas of interest and concern received the most postings:

- **General exchange of ideas and experiences:** Many were interested in learning about current trends in apprenticeship, the experiences of others and especially how apprenticeship schemes were set up in other countries.
- **Quality aspects of apprenticeships, including traditional and informal apprenticeship:** Participants demonstrated interest in the concept of "quality apprenticeships" which was introduced in the background note.

A particular concern was how to raise the quality and how to upgrade traditional and informal apprenticeships in Africa and in Asia. While recognizing the importance of traditional and informal apprenticeships in skills acquisition, many participants were interested in finding out how to restructure such forms of apprenticeship and increase the "quality" for master-craftspersons and for apprentices. They were also interested in knowing how linkages can be created with the formal (training) sector and how to implement effective accreditation and recognition of prior learning, leading to certification. Also, a question was raised of how to best capitalize on successful experiences and turn them into policy and legal frameworks.

- **Innovative forms and alternative settings for apprenticeship:** Participants showed a

particular interest in sharing and learning about innovative approaches and alternative forms of apprenticeship. These included a range of different aspects, such as:

- Research on learning processes and professional identities or tapping into indigenous knowledge of rural artisans to learn more about skills transfers;
- Apprenticeship for different qualification levels: school-based apprenticeship, lower-secondary, higher-secondary, post-secondary and university. The suitability of apprenticeship for occupations related to the economic and financial sector, such as accountancy or banking, in particular in the high-skilled sector were recurrent issues.
- New places and forms of apprenticeships: Information and Communication Technologies to deliver apprenticeship training with the help of "virtual spaces"; reaching out into rural areas (e.g. using apprenticeship for ensuring food and nutrition security) and "blended" forms of apprenticeship, integrating school presence into the company-training.

Following these comments, a complete thematic discussion thread was dedicated to innovative practices and can be found further below under Topic 2.

- **Architecture of apprenticeship and institutional aspects:** A large number of participants showed interest in how to start and implement apprenticeship schemes, how to expand existing schemes and how to create effective governance and coordination mechanisms with different actors and institutions. In particular, participants were concerned with how apprenticeship schemes can be applied in a developing context with weak institutions, and how effective links can be created between existing formal school/institution-based learning and the industry.

Furthermore, concrete "building blocks" of apprenticeship were frequently mentioned as areas of interest: what structural and contextual factors shape apprenticeship systems, the frameworks and system dynamics, legal framework, assessment, recognition and accreditation and certification of professional competences, including prior and informally acquired learning.

In addition to these thematic clusters, participants showed increased interest in the following areas:

- Skills mismatches and the identification of skills needs;
- The social image of apprenticeship and how to make it more attractive to learners, employers, parents and policy makers. Also, the role of career guidance was mentioned in this context;
- Increasing employability and the chances of youth on the labour market through apprenticeship;
- Effective practices on how to motivate industry and the private sector to participate in apprenticeship training;
- Professional development of teachers, instructors, and workplace trainers and supervisors;
- Curriculum development for apprenticeship;
- Funding and financing arrangements in apprenticeship;
- Preventing attrition and conditions for apprentices to complete and flourish;
- Tools and methods for the documentation of learning, documenting work experience.

Following the contributions by participants received during the first days of the conference, the conference programme was structured mainly along these areas of interest. A full list of the fields of interest, research and the questions by participants can be found in the Annex to this report.



CreativeCommons© Flickr/Australia Pacific College

Topic 1: Definition of apprenticeship and how to put “quality” in apprenticeship

The discussion started with the moderator providing a definition of apprenticeship and by defining the idea of “quality” in apprenticeship.

The discussion that followed developed along different lines:

- The definition of apprenticeship: what is considered apprenticeship in different countries?
- The quality aspects of apprenticeship. This discussion further divided itself into two more discussions:
 - Informal and traditional apprenticeship and the lack of quality found in these forms of apprenticeship;
 - Quality in formal apprenticeship;
- One participant re-named the e-mail subject to “Definition and relevance of apprenticeship”.

Definition of apprenticeship

Participants widely recognized the benefits of apprenticeship in terms of the proficiency of skilling that can be achieved, the effectiveness of apprenticeship as a learning methodology, the potential to reach out to a large amount of young people as well as the value of the work experience that apprentices gather during their training, which allows them to enter the world of work once they graduate. One participant described apprenticeship as an opportunity to get a “foot in the door for future employment”.

Among the contributions received, there was also an agreement on the main characteristics of modern quality apprenticeship. As to the notion of *relevance* of apprenticeship, it was recognized that apprenticeship training, be it formal or informal, company-based or in alternation with school training, can produce high-quality outcomes. Moreover, it has the potential to generate “economies of scale” for a training system in effectively reaching out to a large number of youth in need of skills training, while reducing costs. Purely school-based TVET would not be able to reach similar amounts of youth with the same

budgets. In addition, it generates relevant work practice and expertise among the graduates.

“Let me tell you a personal experience: Once, I was in charge for a rural carpenter training Centre on a remote outpost of a catholic mission in RD Congo and proud to have started the first carpentry training Centre in the whole region. Many months the training went smoothly and then, one evening, a group of craftsmen came along and wanted to talk with me. They came from the villages 20 km around. We sat down and took some nice palm wine which they brought with them. They explained that they provide since many years apprenticeship in carpentry to young boys in their villages and that they themselves as masters would like to receive training. I then asked them how many apprentices they trained in their life. The calculated number was by far higher than my training centre could deliver in ten years. The old craftsmen told me, that many of these traditional apprentices couldn't read and write, but they found income and employment.

That evening I learned a lot for my life.”

However, the assumption that apprenticeship should necessarily include school-based training was challenged by some participants. They referred to well-functioning apprenticeship experiences, often traditional apprenticeships, which have for many generations fuelled the development of societies, including the generation of impressive architecture and artworks, without complementary school training.

One participant from the Philippines pointed out that in her country, two forms of apprenticeship co-existed: “dual training” with a complementarity between workplace- and school-training (70-30% ratio) and the “Apprenticeship Programme” which took place purely in the company.

With reference to Asia and Africa, in particular West Africa, informal and traditional apprenticeships were discussed. One participant pointed to the relevance of traditional apprenticeship which was prevalent in Europe until the 18th century. These forms of apprenticeship usually did not include complementary school-based training. Yet, these traditional systems were – and in many societies still are – the foundation for creating elaborated trades and crafts.

Based on participants' contributions, a series of different types of apprenticeship practices can be distinguished and summarized as follows:

- **Traditional apprenticeship**, which relies on informal, oral agreements and is bound to strong traditional rules and kinship, particularly in rural areas. These forms of apprenticeship do not include school-based training. Apprenticeship occupations in traditional apprenticeship are sometimes subject to a strict gender division.
- **Informal apprenticeship**, which is also based on informal agreements and takes place in informal companies. Sometimes, the businesses are organized into guilds that act in the interest

particularly for youth from low-income groups. Usually, this form of apprenticeship is not complemented by school-based training. Some participants proposed complementary training in formal training institutions as a way to increase the quality of informal training. The moderator pointed out that such practices already exist in some African countries, in particular in French speaking West Africa.

- **Formal company-based apprenticeship**, as mentioned by the participant from the Philippines, which is regulated by law but takes place only in companies.



CreativeCommons, Flickr/Mads Phil

of their members. In other cases (particularly in the low-income segments of the informal economy) master-craftpersons might lack quality skills training themselves and only pass on a limited quality and scope of skills to their apprentices. For many youth, this is the only way to get some skills training,

- **Formal dual apprenticeship** which complies with the criteria of the background note and explained earlier by the moderator. It consists of an alternation between company-based and school-based training. Usually, a larger amount of time is spent in company-based learning. This form of apprenticeship is regulated by law.

In some countries, e.g. Austria, Denmark, Germany or Switzerland, dual apprenticeship is the dominant way of delivering TVET, meaning that a large number of occupations can only be learned through apprenticeship and there is no school-based alternative. In other countries, e.g. the UK or France, dual apprenticeship is an alternative to TVET-school-based training. In many countries where young people have a choice, school-only-based TVET is often regarded as "more academic" and thus enjoys a higher social status, while apprenticeship is considered to be an "inferior" form of learning and as an option for youth with low academic achievements at school.

- **Formal "pre-independence" apprenticeships** that were set up by the colonial powers and ceased to exist after independence, when newly established independent states introduced school-based forms of TVET training. The example of Zambia was given where apprenticeship was part of the colonial rule. After de-colonization and in connection with a series of problems of the pre-independence apprenticeship system, this form of apprenticeship was closed down and replaced by formal, school-based TVET.
- **"Nominal" formal dual apprenticeship**, which mostly only exists on paper (e.g. through an apprenticeship legislation) but is not applied in the country, due to a lack of industry participation, incentives, institutions, adequate environment, etc.
- **School-based TVET with gradual inclusion of apprenticeship-practices**, which is starting to develop in the form of a "training contract" with the apprentice, rather than an employment contract. Such a contract is supported by legislation and it includes an alternation between school- and workplace training.

"Quality" in apprenticeships

On the notion of quality, the discussion turned quickly to the quality deficits to be found in traditional and informal forms of apprenticeship. Participants described a multitude of quality-related aspects that needed improvement, such as:

- exploitative working conditions: low salaries or no salaries at all, long working hours, lack of social protection;

- unsafe working conditions, lack of occupational safety and health, leading to serious work accidents and disabilities;
- lack of quality skills training, which is often due to a low level of technical skilling and pedagogical skills on behalf of the master-craftsperson or training supervisor in the company;
- low social status: traditional and informal apprenticeship are often seen as a "last chance" for underprivileged populations without financial means or coming from marginalized groups;
- lack of regulatory mechanisms such as legislation and its implementation,

"I started out as an apprentice with my father who was a Water Resources Technician. We are on the threshold of change with the concept of Quality Apprenticeship as it will deliver better workforce if well managed, appropriated and monitored. Apprenticeship comes in different shapes and sizes in different countries of the world. In Nigeria, there are several types of it.

I learnt long ago about the importance of certification through apprenticeship. My dad trained young people, encouraged them to take recognized national certification (trade test) based on what they have learnt. With this piece of document they could show to any employer that they are proficient in what they claim. The trade test certificate was issued by a particular ministry. I think it will be worthwhile to find out how the certification process has developed over the years. This will greatly help the implementation of Quality Apprenticeship in Nigeria."

This analysis was complemented with proposals by participants on how to address these problems. Suggestions concentrated on finding ways of integrating informal apprenticeships into formal TVET provision and regulating the apprenticeship arrangements. The fact that informal apprenticeship is deeply rooted in some societies could be used as an important "stepping stone" and a basis to build upon to develop a quality apprenticeship system.

One way to achieve this was by providing complementary school-based training in formal TVET institutions, thereby increasing the overall quality of informal apprentices. Also the master-craftspersons should benefit from complementary

training. Recognition of prior learning, formal assessments and an official certification should be part of the process to allow graduates of informal apprenticeship an official recognition of their skills, as well as to create pathways for them into further education opportunities.

The topic of legislation came up several times. There was agreement that a legal framework needed to be created to provide a basis for formalization efforts. Legislation should entitle informal apprentices to attend formal training and guarantee them the access to social protection.

Adequate funding mechanisms were needed, particularly if formal TVET institutions were to provide additional training for informal apprentices. Scholarships to support apprentices from low-income groups were also suggested.

One interesting approach was brought into the discussion: Master craftsmen were often organized in guilds, associations or unions based

on trades/crafts or industries. Supporting these traditional structures, assisting them to organize and better providing them with services could be a way to engage them in increasing the quality and upgrading traditional and informal apprenticeships to the advantage of the apprentices.

The moderator suggested that participants consult a toolkit and guide on "Upgrading informal apprenticeships"¹¹, which provided orientation and lessons learnt on the strategies proposed by participants. In addition, strategies to improve the occupational safety and health at the training companies could raise the quality of the work environment at the companies. In addition, companies might benefit from access to microfinance, entrepreneurship training, access to better equipment, raw materials and other work inputs.

11 Upgrading informal apprenticeship: a resource guide for Africa; International Labour Office, Skills and Employability Department. Geneva: ILO, 2012 http://www.ilo.org/wcmsp5/groups/public/africa/roaddis_ababa/documents/publication/wcms_171393.pdf



Creative Commons © Flickr/Thompson River University

Given the large number of Nigerians participating in the virtual conference and their overall concern with the quality problems of their informal apprenticeship training, one participant made a call to their fellow Nigerians to meet in person and start working together on a possible legislation and ways to include the government, trade unions and industry representatives.

Quality aspects were also raised in relation to formal apprenticeship systems (in both, developed and developing countries). Participants from different countries and with different formal apprenticeship systems pointed out the following issues:

- Lack of participation and commitment on behalf of the industry leads to low quality of an apprenticeship scheme. One of the reasons mentioned was that industry was not given the space to adequately participate in the development of the apprenticeship scheme, particularly in system design, steering, the definition of training standards and curriculum design. In some cases, industries are given a "pro forma" role with participation in some functional areas (e.g. curriculum development) but no real decision-making power. However, only a shared control over the system is able to spark a "true" motivation on behalf of the employers.
- Quality apprenticeships need a quality industry environment, including adequate equipment and well-trained staff with the technical and pedagogical qualifications to supervise and train apprentices.
- The quality of skills training depends on the relevance of the curricula and training standards to the labour market. If the skills demands of the industry are not taken into account in the school curricula without quality training standards, the apprentices are not trained according to the requirements of the labour market. Some participants mentioned Industry Skills Councils as an opportunity to ensure relevant training standards. Other suggested that local industries should sit on advisory boards for Career Technical Education Programmes and participate in curriculum development.
- Participants also reported quality deficits in TVET schools providing the school-based part of the training. These include obsolete facilities and equipment, and inadequate and out-dated skills among college instructors.





- Furthermore, incoherent certification mechanisms lead to a lack of quality certification (e.g. when certificates are only valid at provincial level, but not at national level), thereby limiting graduates' employability.
- In addition, well-functioning institutions are needed to assure quality in apprenticeships: e.g. apprenticeships should be administered by institutions that have a stake in the training and know the industry demands. An example was given where the administration by NGOs lead to ineffective apprenticeship training. Accreditation procedures for training companies were proposed in order to guarantee a good training environment. Some participants argued for a holistic support system for apprenticeship or for national regulatory bodies.
- Some participants also mentioned that quality deficits can be linked to the apprentices themselves. Firstly, low educational levels of prospective apprentices pose a problem. Apprenticeship occupations in the industry often require higher secondary schooling levels, sometimes even university levels. Many do not have the necessary general knowledge to understand the concepts and theory needed for the occupation. Remedial education needs to be provided up-front to bring the students up to adequate schooling levels needed for learning specific occupations.

One participant reported from her own experience, stating that the quality of apprenticeship did not only depend on the teaching and coaching skills of the trainer or supervisor, but also on the apprentices

themselves and most importantly on their attitudes, work ethics and commitment to learning the profession. Attitudes are often outside the control of the teacher, instructor, supervisor or training. Negative work ethics were frequently reinforced by a low socio-cultural image of apprenticeship, which sometimes prevailed even among youth who would academically not qualify to enter apprenticeship. Another participant reported that the lack of job prospects, e.g. in the context of an economic downturn, could have an important negative influence on apprentices' attitudes.

- Gender issues were also mentioned in this context. Young women are often unaware of apprenticeship opportunities and exclude it as a training opportunity. In addition, occupational choice for women is limited, as in many countries apprenticeships are centred around traditional trades and crafts that are unappealing to young women.
- The duration of apprenticeship was also regarded as a factor influencing the quality of the training. When apprenticeships are too short, both the apprentice and the training company suffer. Successful apprenticeship training should qualify the apprentices to perform the selected occupation with all its challenges. Therefore, formal as well as informal apprenticeships usually last two to three years. This duration is necessary for the apprentice to acquire the full skillset for the job. It is also necessary for the employers to have a "return on investment" of the money and time they dedicate to the apprentice .



CreativeCommons® Flickr/National Assembly for Wales

- Quality deficits were also related to a lack of adequate overall funding for apprenticeship, particularly by government, but also by the private sector. However, one participant warned not to think about money too soon – first an enabling environment and adequate support structures need to be identified. In addition, sponsoring wages and providing too many financial incentives to companies could prove to be counterproductive.
- Lastly, a lack of awareness and understanding at the political level was identified as a root cause of quality issues in apprenticeships. Policies were often designed only by the government which does not understand the needs of the economy. One participant gave the example of school curricula which laid too much emphasis on academic subjects and too little on the knowledge and skills that would give students a background to prepare them for the labour market and the needs of the industry.

On another note, governments might often try to coax the industry with financial incentives into taking apprentices or force companies to train by law. Instead they should be creating the conditions for industries to see apprenticeship as an investment.

Overall, governments might not fully understand the benefits of apprenticeship and not be fully committed to promoting apprenticeship at the policy level and engage in a holistic policy support.

Topic 2 Innovations and alternative forms of apprenticeship

During the initial presentation round, many participants reported to work on innovative approaches or asked about alternative and innovative forms of apprenticeship. Consequently, the second discussion topic was dedicated to encouraging participants to share alternative and innovative approaches, to elaborate on their ideas or to share the motivation behind their questions or provide answers. Below, the accounts of the participants are summarized:

Apprenticeship in rural areas to increase food and nutrition security

The participant's question was "how to ensure rural food and nutrition security and how innovations can make a difference". She shared two observations:

1. In most African countries higher education has rapidly expanded, including to the rural areas and smaller towns, but this development is not met with strategies to create jobs for these new graduates. The educated but unemployed are more vulnerable to various issues including migration and radicalization: So how can we develop innovative approaches to create rural employment?
2. In rural areas, climate change is impacting agricultural and livestock productivity, creating recurrent food crises and emergencies. How can we help communities to be more resilient to such factors through innovation and training?

Reactions to these two questions highlighted several crucial issues. One aspect was "bi-sociation": bringing two separate things together in an innovative way. In rural areas, this could be done by not only offering apprenticeship in the production and processing of rural resources, but using apprenticeship for the logistics needed to distribute and transport these resources, thereby creating better opportunities to market rural products and developing the human resources to do so. The other aspect was the use of information and communication technologies to reach into rural areas.



The use of information, communication and mobile technology in apprenticeship

Two participants asked about the use of ICT and mobile technologies in apprenticeship. Such technologies have a great potential for reaching rural and isolated areas. On-the-job training in villages can be complemented with learning in a "virtual classroom", using conventional media (radio, TV, video, DVD), as well as interactive learning and even tutoring through mobile applications, tablets, internet, video-conferencing, among others.

At the Brazilian SENAC (National Training Service for the Commercial Sector), school training is supported by distance learning, mainly provided through online training. Apprentices can access SENAC's virtual environment or use other computer-based resources through computers made available for them at the training companies. This particularly helps apprentices who live in places that are located far from the training schools.

Another participant remarked that there are often simple solutions to add value to TVET via mobile learning. Such solutions were often reasonably easy to include in the existing training offer. However, to be provided in a sustainable way, they demand a long term commitment on behalf of the training institution. An example was provided of an English listening comprehension course over mobile phones for young rural women in Bangladesh, which served to increase their job prospects.

In this sense, several links were shared to serve as inspiration:

- The Mobile Learning Week, UNESCO Paris in 2015: <http://www.unesco.org/new/en/mlw>
- eLearning Africa Addis Ababa May2015: http://www.elearningafrica.com/programme_programme.php
- The UNESCO declaration on "ICT and post-2015 education" (including TVET): <http://unesdoc.unesco.org/images/0023/002333/233352E.pdf>



Creative Commons © Flickr/Asian Development Bank

Apprenticeship for the rehabilitation of disadvantaged youth

One participant shared some experiences on how apprenticeship can be used as a therapeutic tool for the reintegration of vulnerable youth such as street children, refugees, war-affected youth including child soldiers and other youth affected by hardship and traumatic experiences. As a response, many development organizations and NGOs tend to create their own specialized TVET Centres for the rehabilitation of this special target group. This has some disadvantages: It takes years to plan and build up a training centre, the expenses and overhead costs are high, the children or youth remain somehow isolated and the number of possible trades is limited. At this point, reintegration into the society does not happen and can only be achieved in a meaningful way after finishing the school-based TVET training. In addition, these youth face problems in finding employment after finishing TVET school.

A promising approach to help this target group is the use of company-based apprenticeships. There are a number of advantages: Reintegration works much better because training takes place in a normal life environment. The costs per head are lower compared to school-based training solutions. In addition, apprenticeship schemes offer more flexibility in the choice of trades to learn, which responds better to the talents and competencies of the youth taking part in such schemes. Also, it is possible to start the training immediately without much delay, even in fragile and war-affected countries. To put such a scheme into practice, it is important that involved social workers have regular contact to the apprentices and support them during their training. An apprenticeship agreement has to be established with the training company and social support and monitoring needs to be incorporated.

Two examples were shared by the participant:

- In Ghana, "Catholic Action for Street Children" has been using this approach for many years. Former street children follow apprenticeships in informal or formal microbusiness. The organization follows up with social workers and provides additional training and the programme is funded by a sponsorship scheme. More information: <http://www.streetchildrenresources.org/wp-content/uploads/2013/02/the-ghanaian-street-child.pdf> (page 59ff).



- In Cameroon, Caritas Douala runs a successful rehabilitation programme for poor youth and organizes company-based apprenticeship training for them. Social workers accompany the apprentices throughout the whole training process. A German Foundation and the Catholic Agency "Misereor" have supported the programme for many years: <http://www.helder-camara-stiftung.de/misereor-stiftung-projekte/misereor-stiftung-kamerun.html>

Such an approach is likely to be more successful and promising than school-based solutions and is closer to the objective of reintegration. School-based concepts only make sense if apprenticeship training cannot be realized (e.g. in the case of refugee camps) or if vulnerable children or youth need to live in a protected social environment or compound.

Using apprenticeship at university level

A question was raised about the applicability of apprenticeship at university level, especially in the field of economics. It was stated that, while universities think that they are highly engaged with industry, industry often considers that the opposite is true – namely that university graduates do not have the skills needed in practice. Partnerships between industry and universities might therefore be a way to make university education more responsive of what is needed from graduates in the labour market.

Many European countries are currently introducing university apprenticeships, e.g. in Germany their numbers are rapidly increasing, including in occupations related to economics, accountancy, sales and financial services. Companies seem to be keen on dual training at university level. Skills mismatches and lack of work experience are among the top causes for youth unemployment, in particular for large cohorts of university graduates. University-level apprenticeship might be a way to channel young people who want to go to university into sectors and occupations where there is a demand in the economy. At the same time, they acquire relevant work experience during their university studies.

Another example was provided from India about a newly introduced university-level apprenticeship for graduate students in Radiology Physics in the medical health care sector. While the students learn basic knowledge about radiology and its related techniques in the medical field, they receive

practical training under the supervision of medical doctors (radiologists) at various radiology and diagnostic centres, where they get knowledge of image processing, dose calculations, data analysis and diagnosis location and learn how to perform CT Scans, MRI, Sonography, X-ray mammography, etc. Since such equipment is costly, the practical training benefits the students by getting to know the equipment and use them effectively at the workplace. The curriculum is designed as per the exact requirements of radiology centres and radiation technologist in collaboration with the team of medical doctors (radiologists).

Skills transfers in indigenous knowledge systems and resulting lessons for apprenticeship

In the area of traditional apprenticeship, one participant shared his experiences on introducing innovations and learning from traditional apprenticeship in rural Zambia. The motivation



CreativeCommons© Flickr/Mark (mke1963)

behind these experiences was an interest in the acquisition of indigenous knowledge systems (IKS) and in comparing and contrasting IKS with formal knowledge and skills. In societies like Zambia, two knowledge systems (IKS and Eurocentric knowledge) co-exist, sometimes complementing each other and sometimes creating tensions in the lives of people.

The participant reported that in the early 1990s he headed a modern TVET institution in rural Zambia and wanted to create a bridge and a "third space" between IKS and the formal (Eurocentric) TVET system. TVET students of his centre were supposed to serve as apprentices under village master craftsmen to learn about traditional technologies and then develop "third-space" technologies appropriate for rural applications.

One initiative took place in the area of traditional pottery by introducing modern methods of firing or treating the products in kilns, linking traditional potters and modern experts. Similar arrangements were planned for linking traditional blacksmith technologies with modern metal work. This initiative aimed at preserving and enhancing rural technologies and at contributing to rural development. For a number of reasons, the initiative did not work out as expected:

- Different concepts of time and work: village experts had no specific work schedules and were often not present at the times the students were supposed to be trained.
- Occupational gender segregation: by tradition, female students were not allowed to learn the blacksmith's trade and likewise male students were not allowed near the women's pottery workstations. Reducing this segregation proved to be impossible.

The participant concluded by stating that there was a need to collect much information about the sociology of TVET and pedagogy of skills transfer in rural settings in order for IKS to meaningfully contribute to the discourse and practice of traditional apprenticeship.

Identity transformation and the process of "becoming" a professional

One participant presented her research on looking at apprenticeship from a psychological point of view: how apprenticeship training stimulates a process of transformation in the identity of young people. In this sense, apprenticeship as way for young people to acquire a new self-awareness, while at the same time being "initiated" into the world of adulthood. The motivation behind this research is to find out what elements of apprenticeship training contribute to young people or novices gain expertise in a trade and "become" tradespeople by acquiring an occupational identity. This was analysed through a longitudinal case study of baking apprentices and by looking at apprenticeship as a process of "occupational identity transformation" which encompasses the different phases of "belonging" and "becoming" as a pre-condition for "being", e.g. "belonging" to a workplace, "becoming" a baker and then "being" a baker. In addition, related research was shared that dealt with the questions on how to support and sustain apprentices' entry into work, on apprentices' perspectives on how they "learn a trade", and the use of technology (videos in particular) to assist learning trades. Literature shared by the participant can be found in the bibliography.

"The apprenticeship journey is, often due to apprentices' positioning in the work hierarchy, challenging. In my studies of apprentices in New Zealand, the majority of apprentices had strong 'vocational imagination' that is, they were motivated by wanting to become 'something' – not just be a 'bum' but to attain a 'good' job', financial security and status in society. When the work apprentices are tasked with does not seem to lead to helping them learn how to become 'something', (e.g. sweep and clean up etc. for too long into the apprenticeship) they dis-engage. If the apprentice's 'vocational imagination' is strong, they try to find another workplace to restart their apprenticeship or resort to full-time vocational education (for which they need to pay fees).

So, there is a need for both the apprentice to be intrinsically motivated and the workplace to be supportive and provide the curriculum to prepare the apprentice for entry and conferment into the trade."

Apprenticeships “blended” with other forms of workplace learning

An alternative approach to apprenticeship was presented, which the participant called a “blended” form between apprenticeship and industry attachment. He argued that, for many modern TVET occupations, the classic model of apprenticeship was inadequate. Many modern occupations, particularly in the technical fields, require considerable theoretic background knowledge to perform complex tasks on the job. Many “grey-collar” workers (technicians) need to have knowledge and perform tasks that were exclusive to white-collar workers several decades ago. A simple learning-by-doing method for apprenticeship is insufficient. There is a need for specifically trained in-company trainers, supervisors with adequate teaching, training, coaching and mentoring skills. However, this is not the case in the majority of workplaces.

The participant presented an approach used at his own institute (the High Institute of Energy, Kuwait), which he considers to be a mixture between apprenticeship and industry attachment. Apprentices are given a theoretical foundation and most of the technical skills needed for their future occupation at school. They are then sent to a workplace for their apprenticeship. At the workplace every group of apprentices is assigned to a coach or a mentor from the workplace as well as to a full-time supervisor from school. The school-supervisor accompanies the apprentices during their work and, in coordination with the

workplace-mentor, plans and supervises the training and daily activities of the apprentice.

In addition, the supervisors support the apprentices by strengthening their theoretical foundation, introducing them to new equipment and complementing any knowledge that is not sufficiently covered by the school curriculum. They also discuss the daily, weekly and the “end-of-training” reports with each apprentice. By doing this, they interact with the apprentices and “steer” their performance in a pedagogic and didactic way, support them in case of any problems and grade the apprentices’ performance.

The participant explained that the advantages of this approach lie in a more systematic and focused form of an apprenticeship. Possible knowledge gaps on behalf of the master craftspersons can be complemented more easily. At the same time, school supervisors can update their knowledge on the current practice in the industry. The disadvantages of this “blend” is that it is expensive, as it needs extra full-time school staff. It also demands good coordination between the workplace coach and the school supervisor.

The Kuwaiti experience was complemented by a reaction from New Zealand where many apprentices attend night classes, usually once a week, to receive complementary theoretical training in their trade. In some trades, this system is supplemented by deploying “roving” tutors who visit apprentices once a month, to provide workplace support and to ensure that



the apprentice is learning the practical aspects of the trade effectively. They also provide informal support for the workplace "coaches" who are assigned to the apprentices, to help them become better workplace-based trainers. The roving tutors also support apprentices in collecting evidence of skills attainment. This arrangement presents an opportunity to assist apprentices in better linking theory to practice and to improve the "reflective" learning aspects of apprenticeship. It was also put in place to increase the completion rates of apprentices, which was reached to some extent.

These experiences contrast with other apprenticeship systems where this type of didactic supervision and follow-up is being organized within the company. In many countries, the apprentice has two reference persons in the training company: i) a "trainer" (sometimes also several trainers at different work stations) who shows the apprentices the specific tasks; ii) a "supervisor" who is responsible for setting up and managing the overall training plan. The supervisor makes sure the apprentice is properly induced to all activities, and measures the learning progress, detects learning gaps and provides overall orientation and guidance to the apprentice. Both the trainer and the supervisor are company staff. In many countries, the supervisor needs to take courses and pass exams in the area of youth psychology, didactic, labour law and occupational safety and health before he or she is allowed to supervise apprentices. In small companies, the master-craftsperson might act as a supervisor and a trainer at the same time.

Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs)

An experience from Nigeria was shared on the introduction of Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) through public-private partnerships. This experience aimed at exploring new perspectives in TVET, widening access, creating closer ties between training institutions and industries and a better involvement of the private sector in the training and retraining of the nation's workforce.

They are industry-led private training institutions that offer vocational, technical, technology or professional education and training at post-basic and tertiary levels to secondary school leavers. It seems that they offer institution-based training with a strong emphasis on practical training with ample opportunities for innovative workplace experience, thereby providing a linkage between education, technology, innovation and the labour market.



Creative Commons® Flickr/UNIDO



CreativeCommons® Flickr/USAID

Topic 3: Financing of apprenticeship

On the topic of financing of apprenticeship there was a broad agreement among participants that governments should commit funding to apprenticeship systems. Financing could be seen as a way to avoid over-academization, steer more young people into learning a trade or becoming a technician and to provide incentives for companies to train. Also, apprenticeship was a relatively cost-effective way to provide training for young people and to increase the coverage of TVET in a country.

It was also commonly accepted that companies should co-finance apprenticeship. However, different opinions and experiences were exchanged as to how this should look in practice. Several participants advocated for a compulsory levy system and an experience from Namibia was shared where a new levy system had been applied which

was also being used to finance apprenticeship. In Spain, companies were reimbursed for different categories of expenses incurred by apprentices. The case of Switzerland showed a good example of a favourable cost-benefit relation: training companies were "losing" money during the first year of apprenticeship, in terms of the wages paid versus low productivity of the apprentice. However, during the second and in the third year of apprenticeship, companies were effectively profiting because of the apprentices' increased productivity and contribution to the company.

One participant clearly warned about subsidising apprentice wages as this would create a false demand for apprentices. In such a case, companies might offer apprenticeships not because they wanted to provide for future recruitment needs, but because they were keen on the money received. This lack of "genuine" interest by the companies in training apprentices would also lead to a lower training quality.

Topic 4: Anticipation and identification of skills needs for apprenticeships

The discussion on the anticipation and identification of skills needs for apprenticeship started out with a brief introduction to the topic by the moderator. The terms "quantitative skills mismatch" and "qualitative skills mismatch" were briefly outlined and reference was made to the pros and cons of different types of anticipation methods, such as quantitative modelling, qualitative research and mixed approaches.

To stimulate the discussion, the moderator asked a provocative question: Given the fact that formal apprenticeships are usually based on the skills needs of the companies and that the companies train apprentices in the skills actually used and needed in the industries, is there really a need for skills anticipation in an apprenticeship system?

Generally, there was an agreement that the nature of an apprenticeship system included a sort of self-regulatory mechanism that would match the supply of new labour force to the demand of the companies. As one participant put it in the context of her country, the Philippines: "The skills matching is inherent. The company will not participate if ... (it) does not need the workers."

Most respondents pointed out that there was, however, a need for anticipation for the educational system and the TVET institutions to know where to focus their planning and programme offer in the future. In particular, this was needed in cases of rapidly changing labour-market conditions. Anticipation could also provide useful information for expanding apprenticeship and determining new apprenticeship programmes, especially to newly emerging occupations that were not linked to traditional crafts and trades. Skills anticipation has the potential to provide more sustainability to apprenticeship training and benefit the three main actors involved: the apprentices by providing them with sustainable job opportunities; the companies by enabling them to do a sustainable workforce planning; and the TVET institutions, by giving them inputs for developing pertinent curricula that lead to good labour-market outcomes for the apprentices.

Only one participant objected to the notion of self-regulation through free recruitment by companies. He argued that apprentices should be given the freedom of educational choice without being tied to the preferences of the companies. The availability of apprenticeship opportunities should not be decided by the companies, but be founded on research about skills gaps and "proper planning".

Contributions on concrete methodologies and institutions involved in skills anticipation included a methodological guide¹² from Spain that was shared with the participants and the experience from institutions in Ireland and Germany. In Ireland, the Expert Group on Future Skills Needs (EGFSN)¹³ advises the Irish Government on current and future skills needs of the economy and on other labour market issues that impact on Ireland's enterprises and employment growth. It is complemented by a well-functioning Strategic Labour Market Research Unit in the State Agency for further education. In Germany, the Federal Institute for Vocational Training (BIBB) conducts research on vocational education and training to support the development of the German dual apprenticeship system.

Topic 5: Involving the industry

The question of how to involve the industry in apprenticeship was present in many of the comments made by participants. The initial questions about experiences on "what works" in motivating the industry and in what ways industry participated in participants' countries sparked an interesting discussion. All contributors agreed that active participation and effective influence of the industry on the design of an apprenticeship scheme, and its involvement in the development of curricula and training standards was necessary for motivation. Other ways of raising the motivation of companies included the productivity gains versus the relatively low labour costs that are embedded in apprenticeship. Companies' benefits from apprenticeships are considerable and can be quantified in monetary terms, as studies from Switzerland indicate. Moreover, companies are eager to train apprentices when they understand apprenticeship as a staff planning and recruitment opportunity.

12 "How anticipation of skills professional profiles to future labour market needs? A proposed methodology for the identification and diagnosis of skills anticipation", Rafael Barrio Lapuente <http://www.unevoc.unesco.org/e-forum/Theoretical-foundation-and-methodological-proposal-for-to-identify-and-anticipation-of-future-skills-needs1.pdf>

13 <http://www.skillsireland.ie/>

An example from India was given where companies undertaking large investments in rural areas were obliged to hire local workforce as part of an official Corporate Social Responsibility scheme. Such recruitment was often preceded by an apprenticeship-like on-the-job training to adequately prepare the local workforce for such employment. The fact that companies were able to decide who to recruit represented an important motivational factor, sometimes leading to permanent employment opportunities for the apprentices.

I wish to share one aspects of the project we began at the Centre for Technical Vocational Education, Training and Research (CETVETAR) University of Nigeria Nsukka. The focus of the project was the informal sector which employs a significant number of Nigerians. However this sector of the economy have been without help and its professionals are not availed much opportunities for career advancement.

With fewer and fewer industries open for absorbing students for an industrial work experience, providing for the informal sector would open more job openings for the "Students' Industrial Work Experience Scheme" (SIWES). The "Vocational Enterprise Initiative" (VEI) was established for occupations in the informal and non-formal sectors by organizing retraining programmes for artisans in the areas of agriculture, fashion design, auto mechanics, arts, ICT, building and civil works, and other emerging areas. The occupations covered included:

- 1. Organizing stakeholders, trade associations summit;*
- 2. Developing training modules for training of artisans;*
- 3. Organizing retraining workshop for artisans and leadership training for informal sector trade association leaders;*
- 4. Organizing extension programmes for awareness creation.*
- 5. Organizing training for initial training of staff to sustain and monitor*
- 6. Carrying out research studies on the vocational skills needs in the Vocational Enterprise areas of GSM/electronic repairs, beauty, and poultry production and intervention strategies*

The project took off beautifully well with a lot of enthusiasm on the part of the participants - master craftsmen and by association leaders. We had thought that using them will promote the

project goals and benefits – helping also to address image and attractiveness issues. Unfortunately it was not so. Unionism in Nigeria is second to money-making. They had thought that there were funds from government to share to the leaders of various trades/occupational associations. When it was not so, participation began to dwindle. So the primary purpose of upgrading their leaders who would subsequently help in upgrading others was not fully realized. The extension programme and awareness creation was successful but not enough to sustain any significant improvement in itself.

One important factor in promoting apprenticeship in many developing countries is the industrial structure. Formal enterprises are usually large companies. They may offer apprenticeship opportunities, but these are often limited in numbers and therefore cannot provide sufficient training opportunities for the amount of youth needing skills training. Some voices were raised throughout the conference as to obliging large companies to train a pre-defined number of apprentices, and to obligate them to provide employment guarantees once apprentices finished



their training. However, this practice was doubted by others who pointed out that quality training and a real motivation by the companies could only be stimulated if companies were free to recruit the apprentices they needed and free to choose the ones they regarded to have the best preparation, motivation and personal traits.

Some participants stressed the importance of working with industry associations and helping companies to organize. Two important lessons learnt from Nigeria and Afghanistan were shared.

The low density of large companies and the limited availability of apprenticeship places they are able to offer are contrasted in many countries by the prevalence of the informal economy and the resulting informal apprenticeship arrangements. Informal apprenticeships are often the only way for the vast majority of youth in developing countries to acquire any type of skills. After completing their training, informal employment or setting up an own (informal) company are usually the only labour-market prospects for such youth. As mentioned earlier, informal apprenticeship brings

with it a series of quality problems and, if not properly addressed, they can lead to a perpetuation of low-quality skills training and poverty.

A promising approach on how to break this cycle is to involve informal entrepreneurs in reforming and upgrading the informal system. This was reported from a large-scale technical co-operation project in Afghanistan. The key for motivating the industry was to acknowledge their century-old traditions and identifying, understanding and recognizing its needs.

In addition to the motivating factors, there can also be deterring factors within the companies that can be counter-productive for an effective enterprise involvement. First of all, not all companies might be ready to take in apprentices. They might not have an adequate work environment or the internal organizational capacity that would allow the in-take of a novice to be trained and supervised. Some countries have introduced accreditation and quality control procedures to guarantee a sound training environment at the company. A vital factor for company readiness is to be found in the pedagogical skills of the workplace trainer. Specific training for company staff that supervises and introduces the young person to the occupation was named as a necessary condition to overcome this problem. Another deterrent mentioned was the unwillingness of the company-trainer to pass on their skills and share their expertise and knowledge. This was caused by fear of losing their jobs and being replaced by the apprentices once they became proficient on the job.

As a last factor, the lack of political support might also deter companies from adequately participating in apprenticeship. If companies are going to invest in an apprentice, they need not only to participate in the development of standards and curricula, but governance and leadership of the system needs to be shared with the associations representing the companies. Regarding this particular point, the moderator pointed out that social dialogue is practiced actively in many countries, in particular in those with solid apprenticeship systems. It includes a tripartite dialogue between the government, the employers' organizations and the representatives of a country's trade unions, leading to a shared governance of the apprenticeship system.



Creative Commons® Flickr/Province of British Columbia

"Our GIZ pilot programme in Afghanistan links traditional apprenticeship with the formal TVET system. It started in 2014 and is still in its infancy stage. Among the most important decisions to be made is the establishment of industry-lead processes to attract and better engage the industry.

We started by identifying, understanding and recognizing the local industry. Through studies we found that in Afghanistan there is a well-established and organized Bazaar (labour-market) system with a long history of apprenticeship training, locally called Ostad-Shagerdi system (Ostad = Master and Shagerd = student/apprentice). The Bazaar system is comprised of Guilds and Sector Associations with Provincial and National representatives.

Involving and attracting the industry was a matter of acknowledging their century-old contribution to informal training. This was a wake-up call to the National Umbrella organization and resonated in the provincial offices, sector associations and guilds through a long consultative process. The potential benefits from linking formal and informal training became clear and attractive.

The biggest challenge was to link the two most important players from the public and private sector in this process for positive participation. Two major events were organized to bring them into dialogue. A study trip was arranged and a new apprentice structure formulated, followed by a National Conference to bind their agreements through a Memorandum of Understanding. Leadership was the responsibility of the public and private sector partners and this gave them decision-making powers and reinforced their ownership.

For the first time in Afghanistan, the doors of the formal TVET system are opened for apprentices from the informal sector. There are over 600,000 potential apprentices waiting for enrolment in the formal TVET institutes. During the consultative process the key attractions for the industry were:

- Access to new/modern equipment and technologies
- Acquisition of underpinning knowledge and understanding
- Acquisition of work and key skills (design, science, technology, literacy, numeracy, civic education, health and safety etc.)
- Dual recognition (certification) system – for both career (TVET institutes) and employment (guilds/sector associations)

- Remuneration regulatory mechanism for employers

In conclusion, from our experiences in Afghanistan, there is no quick fix to industry involvement. The worst case would be the introduction of financial incentives, this is totally against our principles. The key is dialogue, dialogue, dialogue for better understanding and cooperation!"

Topic 6: Curriculum development for apprenticeship

The discussion started out with the issues and challenges that participants found in the area of curriculum development – and how school curricula for apprenticeship were different from the curricula for school-only TVET. Contributions received from the Philippines, Brazil and Botswana showed that, in spite of national differences and the geographical distance between those countries, the process of curriculum development followed some common principles:

- All countries use a "reference" or a guiding principle for the development of curricula, which may be training or occupational standards, or professional profiles. These instruments contain the account of the contents, the skills and the desired results in different technical areas that an apprentice has to achieve by the end of the apprenticeship. Following these guidelines, curricula are being shaped.
- The standards are sometimes further divided into competency or unit standards and all three countries apply a competence-based approach for curriculum development.
- These standards are being developed jointly with the industry. In the case of Brazil and Botswana it was reported that the committees involved government representatives, educational experts, industry associations and representatives of employers' organizations and trade unions.

Such provisions would minimize the tensions that often manifest themselves between governments that might prefer academic subjects in the curricula, and the knowledge and technical skills foundations that industry and the companies want to see reflected in the curricula.

From Nigeria it was reported that there was a difference between school curricula for apprenticeship and curricula used in school-only-based training. The latter needed to include far more practical contents while curricula for apprenticeship training needed to ensure a good complementarity to the practical training provided at the companies.

Topic 7: Non-completion of apprenticeship training, drop-out and attrition

Non-completion, drop-outs and attrition were mentioned as problems in developing as well as high-income countries. In developing countries the temptation of making "quick money" before the apprenticeship is finished seems to be an important issue for young people from low-income groups. The lack of understanding of the profession and the lack of regulations for opening a business (e.g. having a certificate proving proficiency in the occupation as a condition to being able to open a business) add to the problem.

Participants related common problems of attrition, disengagement and dropping out to both the apprentice as well as to the company. On the side of the apprentice, a lack of career guidance, vocational "awareness" and personal attitudes could be causing a lack of commitment. The company, on the other hand, might not invest sufficient time and effort in selecting the right apprentice. Also, a lack of pedagogical skills from the company trainer might lead to disengagement by the apprentices.

"One important feature is the transition, interlocking and permeability of educational domains, including apprenticeship training. Let me illustrate this with a personal story. Ages ago I dropped out of school. The best option left for me was to undergo apprenticeship training. Fortunately the educational system in my country was and still is open and allows educational advancements, giving youngsters a second chance. In my case the apprenticeship training was the cornerstone of a professional academic career with practical hands-on experience. But mind you I hate to be called a "drop-out" as many scientists usually would do and I assume that most of my fellow drop-outs may have the same sentiments."

Topic 8: Documenting work experience and recognition of prior learning

A topic mentioned by several participants during the introduction round was the documentation of work experience and the recognition of prior learning. The discussion on the topic itself did not spark a lot of exchange. Two participants and the moderator shared links and methodological guides used for different contexts.



Topic 9: Social image and attractiveness of apprenticeship

A recurrent issue in TVET is the social image attached to it, which is usually considered lower than academic schooling and studies. Apprenticeship is often even more undervalued than mainstream, school-based TVET and seen as a form of vocational training for the "less academically gifted" youth or young people with problems in following school-based training. Among the possible interventions to increase the attractiveness, the following aspects were mentioned:

- Investing in communication and using media to inform the general public about the benefits of apprenticeship. This includes the use of social and other types of media that are attractive to youth to create a positive image of apprenticeship. An example was given of a TV show in Ghana on a competition between apprentices that helped to inspire young people to take up apprenticeship.
- Advocacy and career information are

important factors. Creating a positive image and informing about the opportunities that apprenticeships can offer has to start in general education, but should not stop there. Other important influencers on young people's choices have to be included, parents and educators first. In addition, lobbying needs to be done with policy makers, industries and employers. The benefits of apprenticeship have to be clearly demonstrated, such as the successes achieved by former apprentices and the returns on investments for both the company and the apprentice. This might include re-branding apprenticeship with a new, future-oriented term.

- Increasing the quality of (informal) apprenticeships can in itself be a factor for attracting more young people. This has to start with better equipping and re-skilling the master-craftspersons. Sustainable mechanisms

for career advancement within the crafts and the trades have to be put in place to give added value to the professions, create career paths and ultimately increase the training quality of apprentices. In addition, apprenticeship needs to be linked as directly as possible to the world of work to stimulate the participation of and effective partnerships with the industry, which can also serve as a way to attract more people.

Topic 10: In-company training and trainers

There was a high level of interest throughout the conference in the role of in-company trainers and particularly the importance of their technical and pedagogical skills. There are two vital aspects involved: Firstly, apprentices need guidance, support, supervision and follow-up at the workplace to be effectively trained in



CreativeCommons® Flickr/NAIT

the occupation. Secondly, in-company staff providing this type of support often do not have adequate pedagogical skills. In some cases, even their technical skills might only be moderate or out of date. One participant mentioned that there was a lot of research on school trainers in international literature but very little research on in-company trainers. Contributions by participants from different parts of the world showed some general tendencies:

First of all, in most of the examples provided, there were two persons providing support to the apprentices during the company-based part of the training:

- A person to provide on-site introduction into the workplace and the occupation – a company-based **trainer**, often also called **coach** or **mentor**. This person introduces the apprentice to the different task and skills. Such task may be mainly practical, but there can also be an element of theoretical background knowledge involved in this process.
- A **supervisor** who follows up on the apprentice and monitors the learning progress, collects evidence of the mastery of different skills, supervises the documentation of work evidence and helps with the overall programming of company-based learning. In addition, the supervisor might provide additional theoretical background knowledge and even some extra practical training linked to the learning at the company. The supervisor plans the training programme for the apprentices together with the in-company trainer. Often this person is also in contact with the teachers and instructors at the TVET school.

Countries followed different ways of organizing this kind of support. In all cases, the in-company trainer belonged to the company and was a professional in the occupation that the apprentice was being trained in. In some cases, a specific level of proficiency on the job was required. It was widely reported that the success of the apprentice depended highly on the trainer's commitment and competences. Not only were the technical competencies of the trainer decisive for the quality of training, but – most importantly – the pedagogical-didactic skills. The latter were often missing and could lead to attrition and disengagement of the apprentice.

The assignment of the supervisor differs between countries. In some cases, the supervisors are coming from inside the company, and in other cases they are school staff that rotate through the training companies to follow-up on each apprentices' progress. In addition, pedagogical and technical skills were needed on the part of the supervisor to be able to assess learning progress, learning gaps, problems at the workplace, and to provide individualized support to each apprentice. Supervisors coming from the training schools incur additional staff cost or additional workload for existing school instructors and teachers. Some countries organize this type of support only during the school vacations.

In contrast, other countries reported that the supervisor is a company staff member who is assigned to take on the role of supervisor. In many countries, in-company trainers and supervisors have to follow preparation courses on pedagogy and sometimes even present certificates before they are allowed to train and supervise apprentices. In addition, in some cases a regular update of these skills or frequent workshops and meetings have to be attended to keep their skills updated.

Topic 11: Architecture and success-factors of apprenticeship

During the first presentation round, participants showed great interest in setting up an apprenticeship system and an adequate "architecture" of apprenticeship schemes. Using the imagery of "architecture", participants were encouraged to share what, according to their experiences and opinions, were the "building blocks" and the success factors for an effective apprenticeship scheme.

As a first element, participants mentioned the involvement of the **right stakeholders** and the creation of **consensus and commitment (C&C)** among them. If this consensus is lacking, there is a danger that the apprenticeship schemes will only exist on paper. Therefore, it was recommended to:

- look for strong partners in the business world, in the public sector and the society;
- create a common understanding or vision and common objectives;
- clarify interests and possible roles of the different stakeholders;

- agree on mutual commitments and contributions by each stakeholder; and
- gradually develop mutual trust and a consensus among the partners.

After promoting consensus and commitment, policy guidelines can be developed and first **structures** can be built up. A training design should be **experimented and adjusted** before rushing into drafting a binding legislation.

Effective knowledge transfer needs to be ensured. Quality in training needs to start with the master-craftspersons, in-company trainers and supervisors, as well as the teachers and instructors at school. If necessary, their skills need to be upgraded and updated so that they are able to provide an adequate instruction that responds to the needs of the labour market. In addition, a culture of knowledge transfer needs to be fostered. Craftspersons should be willing to pass on their knowledge and expertise to the next generation without reluctance or fear of giving too much away.

Career guidance was mentioned as another building block, to ensure that young people can reflect better on their occupational choices. This could contribute to a more balanced distribution of young people across the qualification levels within the occupations that are needed on the labour market, in order to avoid ending up with large cohorts of unemployed university graduates on the one hand and a lack of qualified technicians on the other.

The final feature that was considered to be crucial for the success of an apprenticeship system was **permeability**: the interlocking between different parts of the educational and training system, allowing for learners' transition between different types of training and guaranteeing them direct access, bridges and connections into higher education and professional development opportunities. This way, it could be avoided that apprenticeship was a "dead end" without prospects for further professional development. By guaranteeing access into multiple continuous training opportunities, including academic education, apprenticeship could become an attractive foundation for young people to construct their career.

"Before Zambia's independence in 1964 and up till 1969, apprenticeship training was a major mode of technical skills acquisition in the mining industry and related sectors. The key elements of quality apprenticeship were in place. However, this mode of training delivery was de-emphasized in 1969, among others because of the following reasons:

- *The coming of specialization of industries meant that an apprentice would only be exposed to the part of his trade in which the employer was specialized;*
- *Because of racial discrimination, apprentices did not have social contact with their masters outside their work. All the artisans were Europeans, making it impractical for the Zambian apprentices to interact with them freely;*
- *After independence, there was a massive exodus of European artisans. Apprentices could no longer easily secure masters from whom to learn the trade. The few remaining artisans were too busy for training apprentices;*
- *Apprenticeship training was considered an ineffective and inefficient way of training an artisan: It trained too few artisans and it was discovered that in a period of 60 months, an apprentice received a maximum of 23 months of effective training.*
- *The entry requirements to the apprenticeship scheme were too rigid and not considered appropriate to the Zambian situation.*

In the early 1990s the formal sector shrunk by about 4% and funding to TVET became inadequate and erratic. There were too few formal sector industries capable of supporting meaningful apprenticeship. It was felt by policy makers that, as a result of these and other reasons, it was best to minimize apprenticeship and maximize college-based pre-employment training.

In hindsight, the policy should have promoted both modes of training without de-emphasizing apprenticeship training in spite of these challenges. Admittedly, running an apprenticeship scheme when colleges are ill-funded and ill-equipped and industry has too few training places and too few competent and willing master-craftspersons, can be a daunting task. But then it is always prudent not to throw away the baby with the bath water."

Topic 12: Further research areas: participants' proposals

For the last discussion topic of the conference, participants were asked to suggest further areas of research to better understand, manage and upgrade apprenticeship systems. The following research areas were proposed:

- What type of apprenticeship could contribute effectively to employment creation in rural Africa and thereby contribute to reducing migration?
- How to create linkages and relate qualifications frameworks (generic competences) and apprenticeship outcomes?
- What are valid and reliable instruments for assessing the effectiveness of apprenticeship?
- Deepening understanding by conducting comparative analyses of company-based training processes, the role of the in-company trainers and their qualifications?
- A systematic approach for large-scale implementation of Recognition of Prior Learning (RPL) for in-company instructors/supervisors in order to ensure consistent quality in the delivery of training.
- Best practices for the introduction of modern teaching methodology at institutional training providers (vocational schools, etc.).
- A cost-benefit analysis which takes into account the expenses of the company during apprenticeship training and the benefits gained from the productivity of well-trained staff. This study should differentiate between different levels of TVET qualifications, as well as between different apprenticeship durations, e.g. from 1 to 4 years to complete the qualification.
- Research on how to better include Information and Communication Technologies and new social demands in the curricula: what, when and where to teach, and how to teach these skills.



CreativeCommons® Flickr/ILO

Conclusions

The richness of the discussions of this virtual conference in all twelve different discussion topics confirmed the interest in and commitment of experts, researchers and practitioners across the globe to apprenticeships. The benefits of apprenticeship training were widely recognized among participants.

It became clear along the course of this conference that apprenticeships, in particular formalized quality apprenticeships, are multi-stakeholder systems that require adequate arrangements, consensus and commitment from a series of different actors and institutions. Apprenticeship systems operate within the wider context of a country's cultural traditions, norms, socio-economic conditions and the aspirations of individuals. All of this takes place within a complex framework of policies, laws and regulations. Countries striving to set up, upgrade or improve an apprenticeship system need to be aware that arrangements should respect and be adapted to the individual characteristics of their country and society.

There were a series of promising innovative approaches and ideas to further develop apprenticeships and create "variations" to the "classic" dual system. The common aim of these innovations was to effectively reach out to different groups of learners and communities, to provide high-level skills training for the economy while at the same time being inclusive and ensuring that learners stay on board.

The "divide" between formal systems and informal apprenticeship became obvious, sometimes even within a country. Informal and traditional apprenticeship schemes may have a lot of problems of quality, but they have an enormous potential to effectively skill young generations in a cost-effective manner. In the wake of youth employment crises, migration and even radicalization in many societies, this potential needs to be tapped into and further developed. The example of Afghanistan presented an effective and culturally sensible approach on how to make use of an existing system and to create benefits for the master-craftspersons, the apprentices and the society as a whole.

Quality issues persist also in modern and formal apprenticeship systems. Constant changes on

the labour market will always demand systems to adapt and to be reformed. Keeping in mind the notion of quality apprenticeships can be a "leitmotiv" around which to conceive, adapt and re-adapt apprenticeship systems and safeguard the mutual benefits for apprentices, training companies and society as a whole.



Recommendations

Given the complexity of the discussions and the amount of points raised by participants, a large amount of recommendations on further research and support come to mind. A prioritization of topics should look at the complete spectrum of apprenticeship experiences and identify the most salient issues.

On the one hand, there is the enormous potential of using apprenticeship to expand TVET-training to underserved communities and youth cohorts. These groups can be reached by expanding formal apprenticeship systems, e.g. through the inclusion of formal medium-sized and small companies jointly with efforts to upgrade and formalize informal and traditional apprenticeship schemes. The main recommendation would be to document successful experiences in bridging informal apprenticeship and formal TVET provision and complement company-based informal apprenticeship with formal TVET. This should also include an analysis of the benefits for the micro, small and medium-sized companies who train apprentices. Upgrading informal apprenticeship can have positive effects on the growth of these enterprises and lead to a further sustainability of

apprenticeship training. The potential of investing in neglected and underserved areas and the related effects on livelihoods, employment and income opportunities need to be documented. This way, development effects can be analysed and capitalized on and concrete examples can be given to countries wishing to follow a similar strategy.

On the other hand, the "high end" of apprenticeship deserves to be explored as well. As one participant put it: apprenticeships are increasingly used to train technicians in "grey collar" jobs for complex tasks which demand high-level skills and background knowledge. There seemed to be an underlying doubt among many participants that apprenticeship could be used for training in non-traditional and newly emerging occupations demanding advanced education and skill sets. Yet, other participants reported on having successfully introduced apprenticeship for such occupations. It would be worthwhile to explore under what conditions high-level skills training, including at university level, can be successfully arranged in an apprenticeship setting.

In this sense, it might also be worthwhile looking at opportunities to address large cohorts of unemployed youth with university degrees with re-training opportunities through apprenticeships. The youth employment crisis of the last years revealed a lack of adequate educational planning that resulted in qualitative and quantitative skills mismatches. Too many young people with university degrees found, and still find themselves, unemployed. This phenomenon can be found in developing as well as in developed countries. It is evident that university education is not necessarily a guarantee for employment security and job stability. An assessment of the opportunities of retraining unemployed university graduates through apprenticeship for technical occupations that demand higher skills levels could provide affected countries with important evidence to take steps towards establishing apprenticeship opportunities to address this segment of youth.

A fourth area for research and analysis could be the "variations" and innovations of apprenticeship schemes. Analysing new models and settings, including a "third" training space in the virtual world – besides the traditional training spaces of the company and the TVET school – can provide high- and low-income countries alike with inspiration to improve the quality of learning.

Throughout the discussions, the importance of the quality of training staff became evident: the school teachers and instructors on the one hand and the supervisors and trainers at the companies on the other, who need to be well-equipped to fulfil their respective roles. There are a series of successful examples on how to build the skills particularly of in-company trainers and supervisors. A compendium of good practice could be of great help for those countries seeking to further develop this aspect of their apprenticeship systems.

Participants suggested undertaking further research and producing a methodological guide for assessing the effects, benefits and impact of apprenticeship. This is a complex task, particularly when it comes to quantifying indirect costs and benefits in monetary terms. A series of different approaches exist with variations on how to calculate the cost-benefit relation in apprenticeships, involving complex formulas and different variables. It might be helpful to provide an orientation among the different approaches, their advantages and disadvantages and identifying simple methodologies that might be used for assessing the principal variables in a cost-benefit analysis.

Participation

Overview

Number of participants: 228
 Number of countries from which
 participants came: 70

Network Members: 27 (18%)
 Male: 81
 Female: 72

List of Participants

| Name | Institution | Country |
|-----------------------------------|--|-----------------------------|
| Name | Institution | Country |
| | University of Nigeria, Nsukka | Nigeria |
| A Ariyasuthan | | Sri Lanka |
| Abdoulie Jallow | GIZ , Kabul | Afghanistan |
| Abdul Sami Sadozai | GIZ-TVET, Kabul | Afghanistan |
| Abdulsamad Yahya Humaidan | Southern Illinois university Carbondale, Carbondale | United States of America |
| Adedeji Rebecca Adewunmi | Yaba College of Technology, Lagos | Nigeria |
| Adnan Mubarak | GIZ, Islamabad | Pakistan |
| Agboeze Modesta Nwanezeobi | University of Nigeria, Nsukka | Nigeria |
| AHM Bazlur Rahman | Bangladesh NGOs Network for Radio and Communication, Dhaka | Bangladesh |
| Ajay Mohan Goel | Wadhvani Foundation, New Delhi | India |
| Aldrich Mejia | UNESCO-UNEVOC | Germany |
| Alessandra Molz | Freelance Consultant and Researcher, Lepizig | Germany |
| Alex Masardo | University of Bath, Bath | United Kingdom |
| Alioune Badara Diallo | Kobe University | Japan |
| Alix Wurdak | UNESCO-UNEVOC | Germany |
| Alvaro Ramirez | ILO, San Jose | Costa Rica |
| Amina Idris | National Board for Technical Education, Kaduna | Nigeria |
| Ana Mendes e Land | UNED (Spain) | United States of America |
| Andrea Bateman | | Australia |
| Andreas Dernbach | Freelance Consultant, Kassel | Germany |
| Andrew Paterson | JET Education Services, Johannesburg | South Africa |
| Andy Phillips | SA Power networks, Adelaide | Australia |
| Anita Sharma | GIZ India, New Delhi | India |
| Antonia Enudi Okuolu | Ministry of Poverty Alleviation , Asaba | Nigeria |
| Ariete Terezinha Bueno Murbach | Senac PR, Curitiba | Brazil |
| Armando Gallegos Martinez | CONALEP, Metepec | Mexico |
| Aron Edward Gongora | Stann Creek ITVET | Belize |
| Artur Gomes de Oliveira | Sergipe Federal Institute od Education, Science and Technology, Aracaju | Brazil |

| Name | Institution | Country |
|------------------------------|---|----------------------------------|
| Ayelodieni Olatunbosun David | Government Technical College Ikorodo Lagos Nigeria, Ikorodu | Nigeria |
| Ayub Khan Shinwari | GIZ, Kabul | Afghanistan |
| Azizullah Salehi | GIZ/TVET, Kabul | Afghanistan |
| Beatrice Dupoux | | France |
| Benalleg Hamza | Alison, Boumerdes | Algeria |
| Bertillon Hamilton | TVET School, Kingstown | Saint Vincent and the Grenadines |
| Biplab Bikash Paulchoudhury | Sunamgonj Technical School and College, Sunamgonj | Bangladesh |
| Bonnie Johnston | BC Institute of Technology, Vancouver | Canada |
| Brian Azzopardi | Malta College of Arts, Science and Technology (MCAST), Paola | Malta |
| Caleb Fagade | Shield Creations Ltd, Lagos | Nigeria |
| Carol tapsell | CNA-Qatar, Doha | Qatar |
| Céline Henzelin | EPFL, Lausanne | Switzerland |
| Christine Hofmann | ILO, Geneva | Switzerland |
| Clara Chapman | Awka | Nigeria |
| Conliffe Green | University of The West Indies , Nassau | Bahamas |
| Cornelius Motsisi | Botswana Training Authority, Gaborone | Botswana |
| Dagmar Winzier | BIBB, Bonn | Germany |
| Daniela Reimann | Karlsruhe Institute of Technology KIT, Institute of Vocational and General Educa, Karlsruhe | Germany |
| Darrell Cox | Thiess Pty Ltd, Brisbane | Australia |
| Dawn M. Snyder | Dawn Snyder Associates, Dublin | United States of America |
| Deborah Asikeit | Skills Initiative Uganda , Kampala | Uganda |
| Deenish Maharaj | National Training Agency, Cgaguanas | Trinidad and Tobago |
| Deepa Anilkumar | EVHSS, Adoor | India |
| Deepa Santosh | PSSCIVE ,Bhopal, Bhopal | India |
| Delroy Glen Castillo | Stann Creek ITVET, Belize | Belize |
| Dennis Oviatt | College of the North Atlantic - Qatar, Doha | Qatar |
| Deogki Kim | | Republic of Korea |
| Diana Ann Ireland | Stann Creek ITVET | Belize |
| Dietmar Hanzen | GIZ, Windhoek | Namibia |
| Donald Glasspole Henry | HEART Trust/NTA, Westmoreland | Jamaica |
| Dorothy Akaelu | Yaba College of Technology, Lagos | Nigeria |
| Ebrima A. Njie | Gambia Technical Training Institute, Banjul | Gambia |
| Edem Agbe | Participatory Development Associates, Accra | Ghana |
| Edlena Adams | Ministry of Education, Kingstown | Saint Vincent and the Grenadines |
| Edwin Giebelen | | Brazil |
| Elfrida Dakoru | Yaba College of Technology Lagos, lagos | Nigeria |
| Elona Daci | | Albania |

| Name | Institution | Country |
|-----------------------------------|--|---------------------------|
| Elphege Joseph | National Training Agency Trinidad and Tobago | Trinidad and Tobago |
| Emmanuel Bamfo-Agyei | Cape Coast Polytechnic, Cape Coast | Ghana |
| Emmanuel C. Osinem | University of Nigeria, Nsukka | Nigeria |
| Emmanuel Godoy | Stann Creek ITVET, Dangriga | Belize |
| Enet Mukurazita | Young Africa, Harare | Zimbabwe |
| Ernel Neal | SCITVET, Belize | Belize |
| Ewald Gold | | Germany |
| Fernando Vargas Zuñiga | CINTERFOR, Montevideo | Uruguay |
| Frank Millward | University of Newcastle, Newcastle | Australia |
| Frank Paul Baumann | Kosovo Chamber of Commerce, Pristina | Serbia |
| Gabriel Konayuma | Ministry of Science Technology & Vocational Training, Lusaka | Zambia |
| Garfield Johnson | | Jamaica |
| Georgios Kostakis | CEDEFOP | Greece |
| Ghulam Mustafa | | Pakistan |
| Godfrey B.C. Kafere | Lilongwe Technical College, Lilongwe | Malawi |
| Gunter Diewald | Ministry of Education and Science, Tbilisi | Georgia |
| Hadi Rezghi Shirsavar | I.A. university, GARMSAR | Iran, Islamic Republic of |
| Hamza El Mounhi | | Morocco |
| Hamzaoui Mustapha | CNEPD, Ouargla | Algeria |
| HanbyulLee | | Republic of Korea |
| Hanna Gos | | Germany |
| Hans Krönner | 12205 Berlin | Germany |
| Hari Pada Das | International Labour Organisation, Dhaka | Bangladesh |
| Hassan Mansoori | | Iran, Islamic Republic of |
| Helen Cristina Araújo de Oliveira | FAETEC, Rio de Janeiro | Brazil |
| Helena Renfrew Knight | Scintilla Associates, St Ives | United Kingdom |
| Hélène Guiol | UNESCO, Paris | France |
| Henry Lopez | Stann Creek ITVET, Dangriga | Belize |
| Ibrahim A. AlZkeri | Technical and Vocational Training Corporation (TVTC) , Riyadh | Saudi Arabia |
| Inke Hase | GFA Consulting Group GmbH, Hamburg | Germany |
| Ishola Patience | Yaba College of Technology | Nigeria |
| Issam Abi Nader | Higher Industrial Technical Institute, Dekwaneh - Technical City | Lebanon |
| Jahangir Alam | Technical Teachers Training College, Dhaka | Bangladesh |
| Janardhanan Ganga Thulasi | National Institute of Technical Teachers Training and Research, Chennai, Chennai | India |
| Janis McKeag-Richardson | Albena Lake Hodge Comprehensive School, The Valley | Anguilla |
| Jayvie B. Gacutan | Technical Education and Skills Development Authority, Taguig | Philippines |
| Jean Hautier | UNESCO-UNEVOC, Bonn | Germany |
| Jeyachandrn | Geneva Global Inc. Ethiopia, Addis Ababa | Ethiopia |

| Name | Institution | Country |
|--------------------------------------|--|--------------------------|
| Jo Hargreaves | | Australia |
| John Mahalela | NSYSU, Kaohsiung City | Taiwan |
| John Momoh | The Federal Polytechnic, Ado-Ekiti, Ado-Ekiti, Ekiti State, Nigeria | Nigeria |
| John Okewole | Yaba College of Technology, Yaba Lagos | Nigeria |
| John Vella | Malta College of Arts, Science and Technology, Naxxar | Malta |
| Jorge Raúl Fernández | Escuela Educación Técnica 294, Rosaio | Argentina |
| Josee-Anne La Rue | International Labour Organisation, Beirut | Lebanon |
| Joseph K. Amankrah | Camara Skills Training Network, Toronto | Canada |
| Joseph Karani Kataka | Thika Technical Training Institute, Thika | Kenya |
| Joseph Mukuni | Virgina Tech, Blacksburg | United States of America |
| Josette Darmania | MCAST, Paola | Malta |
| Joshua Ike | University of Nigeria, Nsukka | Nigeria |
| Josie Wesby | Stann Creek ITVET | Belize |
| Joy Payoyo Agustin | TESDA , Taguig City | Philippines |
| Julia Becker | GIZ | Germany |
| Kamran Niazi | | Pakistan |
| Karma Dorji | TVET Professional Services Division, Thimpju | Bhutan |
| Katerina Ananiadou | UNESCO-UNEVOC | Germany |
| Kennedy Inegbenoise | Ambrose Alli University, Ekpoma | Nigeria |
| Kenneth Barrientos | UNESCO-UNEVOC | Germany |
| Kerreen Wilson | Kingston | Jamaica |
| Kertney L. Thompson | St. Kitts-Nevis TVET Secretariat, Bassetterre | Saint Kitts and Nevis |
| Khaled Grayaa | The National Higher Engineering School of Tunis, Tunis | Tunisia |
| Khondkar Abdullah Mahmud | Dhaka Polytechnic Institute, Dhaka | Bangladesh |
| Kira Clarke | University of Melbourne | Australia |
| Kirak Ryu | Korea Research Institute for Vocational Education and Training, Sejong | Republic of Korea |
| Larbi BELLARBI | ENSET, Rabat | Morocco |
| Lisa Freiburg | University of Amsterdam | Netherlands |
| Lukasz Marc | | United Kingdom |
| MA Ka-lun, Kelvin | Integrated Vocational Development Centre, Vocational Training Council, Hong Kong | China |
| Marcello Williams | Stann Creek ITVET | Belize |
| Maria Eliane Franco Monteiro Azevedo | Serviço Nacional de Aprendizagem Industrial - SENAI, Brasília | Brazil |
| Maria Susan P Dela Rama | TESDA | Philippines |
| Mark Trelfa | SCITVET, N/A | Belize |
| Marta Makhoul | ILO, Geneva | Switzerland |
| Matheus Tuutaleni Halleluya Hango | Valombola Vocational Training Centre, Ongwediva | Namibia |
| Max Ehlers | UNESCO-UNEVOC International Centre, Bonn | Germany |

| Name | Institution | Country |
|------------------------------------|--|-----------------------------|
| Mbrarga Mbrarga Tobie Camille | Lycée Technique de Nkolbisson, Yaoundé | Cameroon |
| Mehdi Esmacili | | Iran, Islamic Republic of |
| Menghestab Haile | World Food Programme, Cairo | Egypt |
| Mervi Jansson | Omnia, Espoo | Finland |
| Michael Edione N. Gayona | TESDA, TAGUIG | Philippines |
| Michael Shumate | Virginia Tech, Blacksburg | United States of America |
| Michelle Byusa | | Switzerland |
| Mogwera Sengalo | Botswana Qualifications Authority, Gaborone | Botswana |
| Mohamad Hisyam Mohd. Hashim | | Malaysia |
| Mohammad Ben Salamah | The High Institute of Energy, Kuwait | Kuwait |
| Mohammad Maksodor Rahaman | Directorate of Technical Education, Dhaka | Bangladesh |
| Mohammed Mahbubul Kabir | BRAC, Dhaka | Bangladesh |
| Mominul Ahsan | Centre of Excellence for Leather Skill Bangladesh Limited (COEL), Dhaka | Bangladesh |
| Muddassir Ahmed | KTDMC, Karachi | Pakistan |
| Nadia Maria Vassallo | MCAST, Paola | Malta |
| Nancy Ann George | Self Employed, Kingston | Jamaica |
| Napal Chandra Karmaker | NSDC-Secretariat, Dhaka | Bangladesh |
| Navid Sabet | UNESCO-UNEVOC | Germany |
| Nay Myo Tun | Technical Promotion Training Center, Kyaukse | Myanmar |
| Nirmalya Nath | Central Staff Training & Research Institute (DGET), Kolkata | India |
| Noah Noah Jean Crépin | Lycée Technique de Nkolbisson, Yaoundé | Cameroon |
| Norhayati Binti Yahaya | Centre for Instructor and Advanced Skills Training, Sham Alam | Malaysia |
| Odéssia Fernanda Gomes de Assis | University of Fortaleza, Fortaleza | Brazil |
| Ogundele Israel Oludayo | Yaba College Of Technology, Lagos | Nigeria |
| Ohanu Ifeanyi Benedict | University of Nigeria, Nsukka | Nigeria |
| Olarewaju Clement | Yaba College of Technology, Lagos State | Nigeria |
| Olatidoye Olawale Paul | yaba college of Technology, lagos | Nigeria |
| Olawale Opeyemi Olaitan | University of Nigeria, Nsukka | Nigeria |

| Name | Institution | Country |
|---|--|----------------------------------|
| Olga Ostrovskaya | Saint-Petersburg State Economic University , St. Petersburg | Russian Federation |
| Omar a Husein | College of the North Atlantic - Qatar, Doha | Qatar |
| Osung Okon | Centre for Marine, Oil and Gas Technology, Oron | Nigeria |
| Owono Amougou Olivier | Lycée Technique de Nkolbisson, Yaoundé | Cameroon |
| Passant Sobhi | | Egypt |
| Patrick O'Reilly | Southern Cross Catholic Vocational College, Burwood, NSW | Australia |
| Paul Comyn | ILO | Australia |
| Pearlene Jones | Stann Creek ITVET | Belize |
| Pearlette Primus Hannaway | Barrouallie Technical Institute, Kingstown | Saint Vincent and the Grenadines |
| Pédré-Boucard Marie-Florianne | Chom\Actif | France |
| Peter | Divine Act Charitable Trust, Ibadan | Nigeria |
| Phanxay CHANTHAVONG | National University of Laos, Vientiane Capital | Lao People's Democratic Republic |
| Pierre Marie Gbaguidi | Dakar | Senegal |
| Pradeep Kumar | Maulana Azad National Urdu University, Moradabad | India |
| Rafael Barrio Lapuente | Public Administration, Barcelona | Spain |
| Rajendra Shrikrishna Khairnar | S.R.T.M. University, Nanded | India |
| Ramon Mangion | Malta College of Arts, Science and Technology, Paola | Malta |
| Randa Hilal | OPTIMUM for Consultancy & Training, Ramallah | Palestine |
| Rani Domah | Attitude Hospitality Management Ltd, Calebasses | Mauritius |
| Raul da Franca Leal de Carvalho Guerreiro | | Germany |
| Rebecca C. Vergara | TESDA, Taguig, Manila | Philippines |
| Redilyn Agub | TESDA, Marikina City | Philippines |
| René Vermeulen | MDF training and consultancy , Utrecht | Netherlands |
| Reynaldo B. Lorenzo | Technical Education Skills and Development Authority, Taguig | Philippines |
| Rhonda Young | ITVET Stann Creek, Dangriga | Belize |
| Roberta Gatt | MCAST, Paola | Malta |

| Name | Institution | Country |
|-----------------------|---|----------------------------------|
| Rónán Haughey | The Rónán Haughey Development Partnership, Sligo | Ireland |
| Rosaleen Courtney | Bath College, Radstock | United Kingdom |
| Sabeel Hussain | Fauji Fertilizer bin qasim limited, islamabad | Pakistan |
| Sadeq Moradzadeh | | Iran, Islamic Republic of |
| Samuel Thompson | COTVET, Ghana, Accra | Ghana |
| Sandra Poirier | Middle Tennessee State University, Murfreesboro, Tennessee, USA | United States of America |
| Sayphin Louanghohne | Vocational Education Development Institute, Vientiane | Lao People's Democratic Republic |
| Selena Chan | Christchurch Polytechnic Institute of Technology, Christchurch | New Zealand |
| Serajul Islam | International Labour Organization, Dhaka | Bangladesh |
| Shah Alam Majumder | Dhaka Polytechnic Institute, Dhaka | Bangladesh |
| Simon Madugu Yalams | University of Technology Jamaica, Kingston | Jamaica |
| Sonia Ana Leszczynski | Universidade Tecnologica Federal do Paraná - UTFPR, Curitiba | Brazil |
| Stephen Quirk | The Frontline Group (International), Melbourne | Australia |
| Stian H Thoresen | Curtin University, Perth | Australia |
| Sulaeman Deni Ramdani | Yogyakarta State University, yogyakarta | Indonesia |
| Syed Asif Munir | Benazir Income Support Programme Pakistan(BISP), Islamabad | Pakistan |
| Sylvia Hammond | Portal Publishing & UCT, Cape Town | South Africa |
| Sylvino Ical | Stann Creek ITVET | Belize |
| Tahsinah Ahmed | BRAC, Dhaka | Bangladesh |
| Therese Camilleri | Malta College of Arts Science and Technology , Malta | Malta |
| Thomas Gerhards | Freelance Consultant | Germany |
| Tim Loblaw | University of Nottingham, Calgary | Canada |
| Tricia Gilkes | Ministry of Education, Port of Spain | Trinidad and Tobago |
| Uta Roth | UNESCO-UNEVOC | Germany |
| V.F. Doherty | Yaba College of Technology, Lagos Nigeria | Nigeria |
| Valentina Giroto | Plan International UK | United Kingdom |

| Name | Institution | Country |
|--------------------|--|---------------------------|
| Vifansi Tiazoh | Technical High School, YAOUNDE | Cameroon |
| Volker Wedekind | University of the Witwatersrand, Johannesburg | South Africa |
| Warju | The State University of Surabaya, Surabaya | Indonesia |
| Wonny Itman | TESDA Taguig, Taguig | Philippines |
| Yasumaro Haruta | | Japan |
| YP Chawla | Joint Electricity Regulatory Commission for Goa & UTs, Gurgaon | India |
| Zainun Misbah | Ministry of Education and Culture, Jakarta | Indonesia |
| Zara Bakhtiarisafa | | Iran, Islamic Republic of |

About the moderator



The virtual conference was facilitated by Ms Alessandra Molz, a researcher and freelance consultant in the area of skills development, in particular apprenticeship systems and social inclusion.

Alessandra has extensive international work experience in the area of skills development, employment and labour-market policies all over the world.

She has worked particularly with the ILO and the International Training Centre of the ILO, where she designed and managed the ILO "Academy on Skills Development" from 2011 to 2013. In addition, she gathered further work experience with Cedefop and UNDP.

Annex

Bibliography

Selected publications and web links

Anticipation of skills needs

Cedefop 2012. *Analysing skill mismatch* (several resources)

ETF n.d. *Several resources on anticipation of skills needs.*

International comparison

European Commission 2012. *Apprenticeship supply in the Member States of the European Union. Luxembourg: Publications Office of the European Union*

International Labour Office/World Bank 2013. *Towards a model apprenticeship framework: a comparative analysis of national apprenticeship systems.* New Delhi: ILO

IOE-BIAC 2013. *Scaling up apprenticeships.* G20 follow up initiative

Steedman, H. 2012. *Overview of apprenticeship systems and issues.* ILO contribution to the G20 Task Force on Employment. Geneva: ILO 2012

Informal apprenticeship

ILO 2012. *Informal Apprenticeship in the Micro and Small Enterprises (MSEs). Alternative approach in Egypt.* Geneva: ILO.

ILO 2012. *Upgrading informal apprenticeship: a resource guide for Africa.* Geneva: ILO.

ILO 2011. *Upgrading Informal Apprenticeship Systems.* Skills for Employment Policy Brief. Geneva: ILO.

Schwartz, N.D. 2013. *Where Factory Apprenticeship Is Latest Model From Germany.* New York Times, 30 November 2013.

Financing (cost/benefit)

Beicht, U. et al. 2005. *Costs and benefits of in-company vocational training.* In: BWP Special Edition. Bonn: BIBB.

Canadian Apprenticeship Forum 2006. *Apprenticeship – Building a skilled workforce for a strong bottom line. Return on Apprenticeship training investment for employers – a study of 15 trades.* Ottawa: Canadian Apprenticeship Forum.

European Commission 2013. *The effectiveness and costs-benefits of apprenticeships: Results of the quantitative analysis.* S.I: European Commission.

Gambyn, L. et al. 2010. *Recouping the costs of apprenticeship training: employer case study evidence from England.* In: Empirical Research in Vocational Education and Training, Vol. 2(2), 2010, 127–146.

Lerman, R. 2014. *Do firms benefit from apprenticeship investments? Why spending on occupational skills can yield economic returns to employers.* Bonn: Institute for the Study of Labor (IZA).

Lerman, R.I. et al. 2013. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective.* Washington, DC: Urban Institute.

McIntosh, S. 2007. *A Cost-Benefit Analysis of Apprenticeships and Other Vocational Qualifications.* Research Report 834. Sheffield: Sheffield University Management School.

Mohrenweiser, J. and T. Zwick. 2009. *Why do firms train apprentices? The net cost puzzle reconsidered.* In: Labour Economics, Volume 16, Issue 6, December 2009, pages 631–637.

Muehleemann, S. and S.C. Wolter 2014. *Return on investment of apprenticeship systems for enterprises: Evidence from cost-benefit analyses.* Bonn: IZA.

Muehleemann, S. et al. 2009. *The financing of apprenticeship training in the light of labor market regulations.* In: Labour Economics, Volume 17, Issue 5, October 2010, pages 799–809.

Rauner, F. et al. 2009. *Costs, Benefits and Quality of Apprenticeships – A Regional Case Study*. In: UNESCO-UNEVOC 2009. *Rediscovering Apprenticeship*. Dordrecht: Springer.

Governance, system architecture and social partners

Axmann, M. and C. Hofmann 2013. *Apprenticeship Systems – what do we know?* Geneva: ILO.

Axmann, M. and C. Hofmann 2013. *Overcoming the work-inexperience gap through quality apprenticeships – the ILO's contribution*. Geneva: International Labour Organization.

Billett, S. (Ed.) 2010. *Learning through practice: Models, traditions, orientations and approaches*. Dordrecht: Springer.

Billett, S. and S. Choy 2013. "Learning through work: emerging perspectives and new challenges". *Journal of Workplace Learning*, 25(4), pp. 264 – 276.

CEDEFOP 2014. *Developing Apprenticeships, Briefing Note*. Thessaloniki: CEDEFOP.

Centre de Formation universitaire en Apprentissage – Université d'évry Val d'Essonne 2006. *Guide de l'Apprentissage*. Évry: CFA-EVE.

Deitmer, L. et al. (Eds.) 2013. *The Architecture of Innovative Apprenticeship*. Dordrecht: Springer.

European Trade Union Confederation 2013. *Towards a European quality framework for apprenticeships and work-based learning*. Brussels: ETUC.

European Training Foundation 2014. *Work-based learning: a hand-book for policy makers and social partners in ETF partner countries*. Torino: ETF.

Harteis, C. et al. 2014. *Discourses on Professional Learning: On the Boundary between Learning and Working*. Dordrecht: Springer.

ILO 2012. *Key elements of quality apprenticeships*. Geneva: International Labour Organization.

International Labour Organization, International Bank for Reconstruction and Development and World Bank 2013. *Towards a Model Apprenticeship Framework. A Comparative Analysis of National Apprenticeship Systems*. Geneva: ILO.

International Network on Innovative Apprenticeship 2012. *An Architecture for Modern Apprenticeships: Standards for Structure, Organisation and Governance*. Bremen: INAP.

L'apprenti 2015. *Le financement de l'apprentissage*. S.l.: L'apprenti.

UNESCO 2015. *Final Report containing a draft text of the Recommendation concerning Technical and Vocational Education and Training*. CL/4109, Paris, 10 April 2015.

UNESCO 2004. *Normative Instruments concerning technical education and training*. Paris: UNESCO.

How apprentices learn

Chan, S. 2014. *Crafting an occupational identity: Learning the precepts of craftsmanship through apprenticeship*. In: *Vocations and Learning: Studies in vocational and professional education*, 7(3), pp. 313-330.

Chan, S. et al. 2014. *Student Development of E-Workbooks: A Case for Situated-Technology Enhanced Learning (STEL) Using Net Tablets*. In D. McConatha et al. (Eds.) 2014. *Mobile Pedagogy: Perspectives on Teaching and Learning*, pp. 20 – 40. Hershey: IGI Global.

Chan, S. 2013. *Learning through apprenticeship: belonging to the workplace, becoming and being*. In: *Vocations and Learning: Studies in vocational and professional education*. 6(3), pp. 367-383.

Chan, S. 2013. *Learning a trade: Becoming a trades person through apprenticeship*. Wellington: Ako Aotearoa.

Chan, S. 2011. *Belonging to a workplace, becoming and being: First year apprentices' experiences in the workplace*. Wellington: Ako Aotearoa.

Chan S. 2011. *Becoming a baker: Using mobile phones to compile eportfolios*. In: Pachler, N. et al. (Eds.) 2011. *Work-based mobile learning: concepts and cases: A handbook for academics and practitioners*, pp. 91- 115. Oxford: Peter Lang.

ICT and mobile learning

eLearning Africa, *10th International Conference on ICT for Development, Education and Training*. Addis Ababa, 20 to 22 May 2015.

UNESCO 2015. *Mobile Learning Week*. Paris, 23 to 27 February 2015.

UNESCO 2015. *Qingdao Declaration. International Conference on ICT and Post-2015 Education*. Qingdao City, 23 to 25 May 2015.

Quality in apprenticeship

ILO 2012. *Key elements of quality apprenticeships*. Geneva: International Labour Organization.

International Trade Union Confederation 2015. *Quality Apprenticeships – What are trade unions doing? 2nd G20 Conference on 'Promoting Quality Apprenticeships'*. Antalya, 25 February 2015.

OECD 2012. *OECD Note on Quality Apprenticeships for the G20 Task Force on Employment*. Paris: OECD Publishing.

Diverse topics

Barrio Lapuente, R. n.d. How anticipation of skills professional profiles to future labour market needs? A proposed methodology for the identification and diagnosis of skills anticipation.

Bowman, K. et al. 2003. *Recognition of prior learning in the vocational education and training sector*. Adelaide: NCVET.

Clark, D. 2000. *How Transferable is German Apprenticeship Training?* Bonn: Institute for the Study of Labour.

Commonwealth of Australia 2011. *Apprenticeships for the 21st Century Expert Panel Paper*. Canberra: Department of Education and Training.

Lerman, R. 2013. *Skill Development in Middle Level Occupations: The Role of Apprenticeship Training*. IZA Policy Paper, 61, pp. 1-33. Bonn: Institute for the Study of Labour.

Mühlemann, S. et al. 2006. *A Structural Model of Demand for Apprentices*. Bonn: Institute for the Study of Labour.

Office for Standards in Education, Children's Services and Skills 2014. *Developing high-level skills in upholstery and soft furnishings – Wendy Shorter Interiors: A good practice case study*. London: OFSTED.

Picchio, M. and S. Staffolani 2013. *Does Apprenticeship Improve Job Opportunities? A Regression Discontinuity Approach*. Bonn: Institute for the Study of Labour.

UNESCO-UNVEOC 2015. *TVETipedia glossary*. Bonn: UNESCO-UNEVOC.

Country cases (including links suggested by the participants)

Africa

Catholic Action for Street Children 2002. *The Ghanaian Street Child*. Accra: Catholic Action for Street Children.

Child Rights international Network. Ghana: apprenticeship for street children. <http://www.stretchildrenresources.org/resources/catholic-action-for-street-children-cas-presents-the-ghanaian-street-child/ILO> 2010. *Study on the reintegration of children formerly associated with armed forces and groups through informal apprenticeship*. Geneva: ILO.

Misereor 2015. *Bildung und Einkommen für arme Jugendliche. Projekt zur bedarfsorientierten beruflichen Bildung in Douala/Kamerun*. Douala: Misereor.

Monk, C. et al. 2008. *Does Doing an Apprenticeship Pay Off? Evidence from Ghana*. CSAE WPS/2008-08.

UNESCO Dakar 2014. Film: Recognition of skills acquired in the non-formal sector in Senegal. (video file)

Youth Employment Network – West Africa 2008. *Good practice from West Africa: Building the case for business collaboration on youth employment*. Dakar: Youth Employment Network.

Arab States

ILO 2014. *Upgrading Apprenticeships: route to Decent Work in Jordan*. (video file)

Asia and the Pacific

Australian Government 2015.
[Australian Apprenticeships](#).

Careers NZ 2015. [New Zealand Apprenticeships](#).

Edge Foundation 2014. [Industry Training and Apprenticeships in New Zealand](#).
London: Edge Foundation.

Group Training Australia 2011. [The four pillars model for Australian Apprenticeships Support Services. A New paradigm to drive higher completion rates](#). Sydney: Group Training Australia.

ILO 2013. [Learning and earning: overcoming low education through skill development](#). Geneva: ILO.

International Labour Organization, International Bank for Reconstruction and Development and World Bank 2013. [Possible futures for the Indian apprenticeship system. Options paper for India](#). New Delhi: ILO.

ILO 2010. Effectiveness, Efficiency and Impact of Indonesia's Apprenticeship Programme. Jakarta: ILO.

(India) Advocate Khoj n.d. Apprentices Act no. 52 of 1961

Indian National Informatics Centre Himachal Pradesh n.d. Apprenticeship Rules

Indian Ministry of Law and Justice 2014. [Apprenticeship Act Amendment of 2014](#).
New Delhi: Ministry of Law and Justice.

Industry Skills Councils 2015. [Apprenticeship training standards and certification](#). (Australia)

NCVER 2011. [Overview over the Australian Apprenticeship and Traineeship system](#). Adelaide: NCVER.

Risler, M. and Z. Zhiqun 2014. [Apprenticeship and Small and Medium-sized Enterprises: The China Case](#). Chiangmai: Regional Association for Vocational Teacher Education in Asia.

Rothboeck, S. 2014. [Using Benefit Cost Calculations to Assess Returns from Apprenticeship Investment in India](#). ILO Asia-Pacific Working Paper Series. Geneva: International Labour Organization Publishing.

Tertiary Education Commission 2015. [New Zealand Apprenticeships](#).

Europe and North America

Aring, M. 2014. [Innovations in quality apprenticeships for high-skilled manufacturing jobs in the United States at BMW, Siemens, Volkswagen](#). Geneva: ILO.

Cedefop 2015. [Thematic focus on 'Apprenticeships and work-based learning structured programmes'](#). Thessaloniki: Cedefop.

Cedefop 2012. [Denmark. VET in Europe: country report](#). Thessaloniki: Cedefop.

Cedefop 2012. [France. VET in Europe: country report](#). Thessaloniki: Cedefop.

Cedefop 2012. [Germany. VET in Europe: country report](#). Thessaloniki: Cedefop.

Euler, D. 2013. [Germany's dual vocational training system: a model for other countries?](#) Gütersloh: Bertelsmann Stiftung.

European Commission 2014. [Focus on Apprenticeships](#). EU Skills Panorama 2014 analytical highlight. S.I.: ICF GHK and Cedefop.

Expertisecentrum Beroepsonderwijs (ecbo) 2014. [Apprenticeship-type schemes and structured work-based learning programmes: The Netherlands](#). Thessaloniki: Cedefop.

Fersterer, J. et al. 2004. [Returns to Apprenticeship Training in Austria: Evidence from Failed Firms](#). Bonn: IZA.

German Federal Institute for Vocational Training 2015. About the institute. Bonn: BIBB.

Ireland Expert Group on Future Skills Needs 2015. [Website](#). Dublin: EGFSN.

Institut für Bildungsforschung der Wirtschaft (IBW). 2014. [Apprenticeship-type schemes and structured work-based learning programmes: Austria](#). Thessaloniki: Cedefop.

Minic, B. 2014. [Innovative Apprenticeship and Internship Models in the IT Sector in the United States](#). Geneva: ILO.

Schaack, K. 2008. [Why Do German Companies Invest in Apprenticeships? The "Dual System" Revisited.](#) Berlin and Bonn: Klaus Schwarz Verlag and UNESCO-UNEVOC.

Sharpe, A. and J. Gibson. 2005. [The Apprenticeship System in Canada: Trends and Issues.](#) CSLS Research Report 2005-04. Ottawa: Centre for the Study of Living Standards.

Tansel, A. and K. Ogawa. 2004. [The Effects of Apprenticeship Training Scheme on Employment Probability in Turkey.](#) Bonn: IZA.

Latin America and the Caribbean

Ministério do Trabalho e Emprego 2013. Manual da Aprendizagem O que é preciso saber para contratar o aprendiz. Brasília: Ministério do Trabalho e Emprego. (Brazilian "apprenticeship manual", summarizing all related laws.)

Fields of Interest or questions raised by participants during the introduction round

(One field = one participant)

| | | | | |
|---|--|--|---|---|
| <ul style="list-style-type: none"> Learn about current trends in apprenticeship | <ul style="list-style-type: none"> Starting an apprenticeship scheme | <ul style="list-style-type: none"> Embracing the possibilities of the 21st Century. | <ul style="list-style-type: none"> How to bring apprenticeship into rural and neglected areas | <ul style="list-style-type: none"> How to reduce youth unemployment |
| <ul style="list-style-type: none"> Curriculum development for apprentice training | <ul style="list-style-type: none"> Role of apprenticeships in education, especially in developing countries. | <ul style="list-style-type: none"> Learning about other countries' strategies. | <ul style="list-style-type: none"> Applying and expanding initial apprenticeship experiences | <ul style="list-style-type: none"> The use of ICT use in TVET Quality apprenticeship programme. |
| <ul style="list-style-type: none"> The development of soft skills and cognitive abilities of apprentices. | <ul style="list-style-type: none"> How do other organizations develop and implement their (apprenticeship) curriculum | <ul style="list-style-type: none"> Exploring how apprentices learn: the ways apprentices learn how to do, think, feel and become. | <ul style="list-style-type: none"> Skills mismatch Virtual learning Teacher training and updating | <ul style="list-style-type: none"> How to apply apprenticeships in developing countries. Funding |
| <ul style="list-style-type: none"> Formalization of informal apprenticeship, its restructuring and certification by the government | <ul style="list-style-type: none"> The role of apprenticeships in promoting skills development in a developing nation | <ul style="list-style-type: none"> Designing of a new legal framework for apprenticeship Learning from other participants. | <ul style="list-style-type: none"> Looking for new knowledge, e.g. new systems and approaches in the area of TVET | <ul style="list-style-type: none"> Does (foreign) language competence contribute to effective learning and labour market success of apprentices |
| <ul style="list-style-type: none"> How can apprenticeship be applied for university studies? Can it be used for occupations in economics? | <ul style="list-style-type: none"> How to promote quality apprenticeship system in the face poorer weak industrial base in developing economies | <ul style="list-style-type: none"> Alternative forms of apprenticeships. For instance, a blend between apprenticeship and an industrial attachment. | <ul style="list-style-type: none"> Financing of Apprenticeship: responsibilities and funding possibilities by international agencies | <ul style="list-style-type: none"> Quality assurance in apprenticeship Encouraging apprentices in the informal sector to participate in formal education |
| <ul style="list-style-type: none"> Inputs for the revision of a law on apprenticeship Learning from how apprenticeship is implemented in the other countries. | <ul style="list-style-type: none"> What constitutes a quality apprenticeship? How to improve apprentices' and trainees' prospects for completion and flourishing? | <ul style="list-style-type: none"> Apprenticeship for high capital intensive & high technology sectors like the power sector and Green Energy. Skills Gaps | <ul style="list-style-type: none"> New types of apprenticeship models taking place exclusively in companies. Tools and methods for the documentation of learning. Workplace mentor training. | <ul style="list-style-type: none"> How to establish apprenticeships modalities between existing Technical courses and the industry Gaining new knowledge |
| <ul style="list-style-type: none"> How to develop apprenticeship schemes for occupations in advanced technology Exchange of ideas and experiences | <ul style="list-style-type: none"> How to cope with a large informal economy How to ensure that successful approaches don't get lost and can be converted into law or national policies. | <ul style="list-style-type: none"> Different models of apprenticeships at the secondary level. Apprenticeships for females working in childcare services, culinary arts and hospitality, and textiles manufacturing. | <ul style="list-style-type: none"> Exploring professional development in TVET, using a political economy approach. How do structural and contextual factors shape apprenticeship systems in the countries of the participants | <ul style="list-style-type: none"> Increasingly academic secondary education pushed by the government while business has different needs. How to reconcile these two different tendencies/ developments |

| | | | | |
|---|---|---|--|--|
| <ul style="list-style-type: none"> • Accreditation and Certification • Documenting work experience • Forward mobility. • How to establish an apprenticeship system | <ul style="list-style-type: none"> • Informal apprenticeship • Implementing apprenticeship at different levels (secondary, post-secondary, higher) • Adjusting national TVET governance to fully suit the partnership requirements of apprenticeship | <ul style="list-style-type: none"> • How to successfully implement apprenticeship schemes • Finding a "formula" or to raise the buy-in of businesses and motivate them to accept apprenticeships. | <ul style="list-style-type: none"> • Architecture, frameworks, complexity and system dynamics in the education sector • Math modelling to run cause root analysis, prospective, predictive and forecast analysis. • Explore new approaches | <ul style="list-style-type: none"> • Informal economy: • Maintaining quality takes huge effort, • Accreditation and certification • Introduce programmes for higher level skills • Setting up a Trainee Tracking System • Ensuring Decent Work |
| <ul style="list-style-type: none"> • Collaboration with the industrial sector • How to set up TVET and apprenticeship centers without industrial contribution • How to make TVET a positive and attractive career option • Sensitising parents about TVET education. | <ul style="list-style-type: none"> • Reduce unemployment in Africa, particularly rural areas • Ensure food and nutrition security through apprenticeship and reduce the need to migrate • Mechanisms to create jobs or employability. • Use of E Learning and mobile technologies. | <ul style="list-style-type: none"> • Literature and studies about the introduction and implementation of apprenticeships or other WBL practices at the lower secondary level. • Information or feedback on effective practices and structures to engage the industry and other work organizations in collaboration with colleges and school | <ul style="list-style-type: none"> • Current trends in apprenticeship • Interface between village apprenticeships and indigenous knowledge systems: What lessons can be learnt from the modes of knowledge and skills transfers in the area of the creation of cultural artefacts outside formal TVET systems? | <ul style="list-style-type: none"> • Identification and diagnosis of Skills needs in the labour market • Evaluation, recognition and accreditation of professional competences • Acquiring qualifications by means of work experience or other non-formal and informal ways of learning |
| <ul style="list-style-type: none"> • Labour market demand and supply, • Employability, • Advocacy and leadership for sustainability • How can leaders address advocate for TVET and present apprenticeships in a way that makes them attractive and valuable to the learner, employer and policy maker alike? • What is another word for or expression to describe an apprenticeship? Can it be defined as the convergence of skills and sustainability? | <ul style="list-style-type: none"> • How to effectively integrate part-time apprenticeships with school attendance and the completion of secondary school (Australian School-Based Apprenticeships); • How young apprentices balance dual learner/ worker identities; • The role of career education in informing young people about 'good' occupational choice, including apprenticeship • The points of risk of attrition from apprenticeships. | <ul style="list-style-type: none"> • Traditional or Informal apprenticeship: • How to increase the quality of skills and the qualifications of the master craftspersons and thereby increase the overall quality of the skills transmitted to the apprentices, who are often from marginalized groups? • How to upgrade traditional or informal apprenticeships and make them more effective through cooperation with TVET institutions? | | |



United Nations
Educational, Scientific and
Cultural Organization

UNEVOC

International Centre
for Technical and Vocational
Education and Training



UNESCO-UNEVOC International Centre for
Technical and Vocational Education and Training
UN Campus
Platz der Vereinten Nationen 1
53113 Bonn
Germany
Tel: [+49] 228 815 0100
Fax: [+49] 228 815 0199
www.unevoc.unesco.org
unevoc@unesco.org

Photo used in Cover Design
Flicker © Ravi Surulikamu

ISBN 978-92-95071-79-7
© UNESCO 2015
All rights reserved