




Volume · Number · 2022

Revue internationale de l'éducation
**International Review
of Education**

Journal of Lifelong Learning

 Springer



“Pedagogical transformation” of apprenticeships through a competence-based approach in the Benin crafts sector

Adéyèmi Rubain Bankolé¹ · Guy Sourou Nouatin¹ · Esaïe Gandonou²

© UNESCO Institute for Lifelong Learning and Springer Nature B.V. 2023

Abstract

This article examines the pedagogical transformation generated by dual apprenticeship training and its impact on the Benin crafts sector. Dual training combines vocational education at training centres with on-the-job training in workshops during the week. Graduates of this programme receive a certificate of professional qualification (*Certificat de Qualification Professionnelle* – CQP). For this qualitative research, the authors visited 7 training centres and 39 workshops to make direct observations. Using a life-history approach, they conducted formal and informal interviews with craftspeople and semi-structured interviews with CQP graduates, non-CQP graduates, professional association personnel, training centre staff and CQP trainers. This research was carried out in Parakou, the most important city in central and northern Benin. In total, 96 individuals were interviewed, using purposive selection to pick actors from professional associations, convenience sampling with non-CQP graduates and snowball sampling to reach other participants. The study is underpinned by social change theory, with an emphasis on the factors and agents of change. The research findings indicate that dual training has a favourable impact on skills development, competency transfer and job performance in the crafts sector. CQP graduates benefit from both theoretical knowledge and practical expertise gained during their training. Those who succeed in finding a job or even setting up their own workshop contribute to building a competence-based approach to apprenticeships and stand out in the competitive labour market. Craftspeople who are unable to stand out in the labour market face employment insecurity. The majority of the CQP graduates interviewed had developed high self-esteem and were proud of their valuable knowledge and their ability to deliver high-quality services to satisfied clients. This also affected their relationship with older generations of craftspeople in terms of contradictions in the execution of specific tasks in occupations.

Keywords Pedagogical transformation · Dual training · Apprenticeship · Competence-based approach · Labour market competition · Benin

Extended author information available on the last page of the article

Résumé

« Transformation pédagogique » du système d'apprentissage à travers une approche par compétence dans le secteur de l'artisanat au Bénin – Cet article examine les transformations pédagogiques générées par la mise en œuvre d'une formation par apprentissage de type dual et leur impact sur le secteur artisanal au Bénin. Cette formation duale consiste à combiner la formation professionnelle offerte dans des centres et la formation initiale en ateliers de maîtres artisans en cours de la semaine. Les bénéficiaires de ce programme reçoivent un diplôme dénommé Certificat de Qualification Professionnelle (CQP). Pour conduire cette recherche qualitative, les auteurs ont effectué des visites sur 7 centres de formation et sur 39 ateliers de maîtres artisans pour des observations directes. En utilisant la technique du récit de vie au moyen des entretiens libres avec maîtres artisans, les auteurs ont également interviewé des diplômés CQP, des apprentis non-CQP, des responsables d'associations d'artisans et de centres de formation, et des formateurs grâce à des entretiens semi-structurés. La recherche a été réalisée à Parakou, la plus grande ville des régions du Centre et Nord Bénin. Au total, 96 personnes ont été prises en compte, utilisant l'échantillonnage par choix raisonné pour sélectionner les responsables d'associations, l'échantillonnage par convenance pour les diplômés non-CQP et la boule de neige pour retrouver les autres participants. La recherche s'appuie sur la théorie du changement social, portant sur les facteurs et agents du changement pour interpréter les résultats. Les résultats montrent que cette formation duale a un impact positif sur le développement des compétences de métiers, leur transfert et le rendement au travail. Les diplômés CQP jouissent des connaissances théoriques et des compétences pratiques obtenues durant la formation. Ceux qui ont réussi à travailler ou à installer leurs propres ateliers, contribuent à l'amélioration des dispositifs d'apprentissage avec l'utilisation de l'approche par compétence. De même, ces diplômés CQP arrivent à tirer leur épingle du jeu sur un marché du travail compétitif. Les artisans qui n'arrivent pas à s'en sortir sur le marché du travail se retrouvent dans une insécurité d'emploi. La plupart des diplômés CQP développe un fort potentiel d'estime de soi et leur fierté quant à leurs connaissances et capacités à fournir de meilleure qualité de services aux clients. Une telle situation a affecté toutefois, leurs relations avec les anciens maîtres artisans en termes de contradictions sur l'exécution des tâches spécifiques à leurs métiers.

Introduction

Background

Rosie Scholl (2014) used the concept of “pedagogical transformation” to study the impact of training teachers to teach philosophy on the teachers’ pedagogy in a small Australian primary school. In our own research, presented here, we use this concept to assess the impact of *dual training* introduced into apprenticeships in the Benin crafts sector two decades ago. Dual training combines theoretical lessons in vocational schools with practical on-the-job training. Our findings reveal that this dual

training is included in the government’s reforms with the objective of improving both learning processes and working conditions of the craftspeople in Benin.

Many West African countries have implemented apprenticeship reforms during the past two decades. Dual technical vocational education and training (dual TVET) is a very successful model practised in the educational systems of Switzerland, Austria and Germany, which has been replicated in many developing nations. With the assistance of donor organisations, the Republic of Benin adopted dual TVET for traditional apprenticeships in order to increase skills learning in the crafts industry. Michael Gessler (2019) provides one definition of an apprenticeship as “a job that includes training” (Gessler 2019, p. 35, citing Varetto 2017, p. 26); hence, employment logic (work-based learning) and education logic (school-based learning) are the initial characteristics of this notion (Gessler 2019). Another characteristic of an apprenticeship is formality, which depicts its progression from informal, semi-formal to formal learning (ibid.). In most West African nations, apprenticeships involve a process of occupational skills learning that consists of on-the-job training in a workshop/workplace/company/production unit, with interactive connections between master craftspeople and apprentices (Walther 2008). Since apprentices engage in workshop production, it can be argued that the purpose of apprenticeships is to teach young people skills to facilitate their transition into the labour market. Most apprentices in African nations are school dropouts or young people with no prior education and come from disadvantaged backgrounds (ILO 2012a).

Traditional apprenticeships in West Africa

Richard Walther (2008) distinguished two types of apprenticeships in West Africa: the Sahel apprenticeship and the costal one. The Sahel apprenticeship refers to training in Central Sahel countries such as Burkina Faso, Mali and Niger, while the costal apprenticeship refers to training in Benin, Togo and Senegal. The difference between the two is that apprenticeships in costal nations include a commercial relationship between master and apprentices, and a graduation event. The Sahel apprenticeship sometimes only amounts to short-term training.

In Benin, traditional apprenticeships have been sponsored for several years by master craftspeople through local associations, with additional funding by apprentices and their parents. Therefore, public institutions are not involved. In traditional apprenticeships, the master artisan is the only person in charge of regulating skills learning in his or her workshop, and they recruit their apprentices through their social capital (i.e. their existing network). The master suggests some basic criteria for an apprentice’s enrolment in an apprenticeship, which might include a box of equipment relevant to the craft and money for the entrance ceremony.¹ In addition, the apprentice’s parents pay an apprenticeship fee to the master. The duration of the apprenticeship is not specified, because the skills acquisition is dependent on the individual

¹ The entrance ceremony for new apprentices consists of the master craftspeople’s blessing of her/his new apprentices to pray that they have a good training journey which they will complete with success. The ceremony usually includes some water and sweet drink or honey to symbolise peace and conviviality throughout the duration of the training.

apprentice's learning capacity. There is also no set age for entering an apprenticeship scheme in Benin. In terms of teaching style, the apprentices learn by imitation instead of being taught through a formal pedagogical approach (Davodoun 2011a). The master artisan is the one who decides when an apprentice's training is completed and organises a graduation ceremony (described below) to release the apprentice into the labour market (*ibid.*).

Many studies have been conducted to demonstrate the advantages of traditional apprenticeships in West Africa. The efficiency of traditional apprenticeships is connected to their practical orientation (Sonnenberg 2012). In her literature review on apprenticeships in Ghana and Senegal, Krystyna Sonnenberg suggests that official accreditation might increase the credibility of apprenticeships (*ibid.*). Furthermore, the International Labour Organization states that apprenticeships are "embedded in rules and regulations" (ILO 2012b, p. 9) which are shared among professionals. Hence, taking these rules and regulations into account can be an important success factor in the apprenticeship reforms being undertaken by many governments in West Africa. Despite many excellent aspects of West African apprenticeship systems, several flaws have been identified. Walther found skills learning in the West African countries of Benin, Mali, Togo and Senegal to be unstructured (Walther 2008). Furthermore, skills transfer is mostly dependent on labour market availability and the master artisan who is in charge of deciding when an apprenticeship has reached its point of completion. Apprentices are trained using techniques that are passed down from generation to generation, a practice which potentially leads to training apprentices with skills gaps. Furthermore, apprenticeships are carried out in the context of an economic relationship between the master artisan and the trainee, and training completion is validated by a release ceremony organised by the master. According to Comlan Cyr Davodoun (2011a), the overall expense of this event, including the payment of a gift in cash and/or in-kind to the master, is too expensive for many trainees. As elaborated by ILO, for this ceremony,

master craftspersons from the neighbourhood are invited, apprentices or their parents are expected to cover the cost, master craftspersons would often receive a gift from the apprentice, and the apprentice is inducted into the final "secrets" of the trade (ILO 2012b, p. 58).

According to Walther (2007), traditional apprenticeships play a significant role in the generation of employment for young people in Africa. The practice of engaging in apprenticeships has increased in sub-Saharan Africa in line with the expansion of the informal economy (Teal 2016). The majority of the small and domestic businesses in this category provide compensated domestic services (Benjamin and Mbaye 2012).

Apprenticeship reforms in West Africa

Many West African countries have implemented changes to certify and formalise the apprenticeship system beyond the recognition, validation and accreditation (RVA) of non-formal and informal learning. Launched officially in 2005, the Benin apprenticeship reform sought, first and foremost, to elevate technical vocational education and

training (TVET) to the second-highest priority in education after basic schooling.² This relates to encouraging equity in education, which is supported by the fourth Sustainable Development Goal (SDG 4) in the 2030 Agenda of the United Nations, which aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” by 2030 (UN 2016, p. 19)

Second, the Benin apprenticeship reform aimed to validate informal learning by including apprenticeships in the formal TVET accreditation system (MCE 2006). Apprenticeship programmes have been certified by the Decree on the State recognition of professional, technical and general skills acquired through apprenticeship or the practice of a qualifying professional activity or trade (MCE 2005), creating (i) an upgraded traditional apprenticeship leading to a certificate of occupational qualification (*Certificat de Qualification aux Métiers* – CQM) and (ii) a standard dual training leading to a certificate of professional qualification (*Certificat de Qualification professionnelle* – CQP). The dual training or CQP programme is based on Swiss-style dual TVET. The CQP curriculum comprises one day of soft and hard skills training at accredited vocational training centres and the remainder of the week involves practical training in masters’ workshops (Davoudoun 2011b). The CQM programme (upgraded traditional apprenticeship) is a national test for apprentices who have completed their traditional apprenticeship. Both programmes result in formal public certification.

Most West African nations implemented apprenticeship reforms between 1980 and 1990, aiming to improve informal skills learning by promoting a broad use of vocational skills development and formal certificates. The establishment of dual apprenticeships is the most popular public policy initiative. With the technical and financial backing of international donors, Benin and Togo ran their pilot phase of dual apprenticeships around the same time period: 1991 in Togo and 1993 in Benin (Walther 2008). In Mali and Burkina-Faso, dual training was implemented in 1989 and 1996 respectively, and in Senegal in 2000 (Kehl et al. 2018). In Côte d’Ivoire, it was implemented in 2012 with World Bank backing, to train young people affected by the civil war (World Bank 2021).

Actors involved in apprenticeship reforms in West Africa

From 1993 to 1998, the Hanns Seidel Foundation³ financed the implementation of dual apprenticeships in Benin, inspired by the European dual systems which combine vocational school and on-the-job training. Benin dual apprenticeships similarly involve lessons in accredited training centres and hands-on training in artisans’ workshops, most of which operate in the informal sector. In addition, public institutions,

² Children in Benin enter primary school (which lasts 6 years) when they are six years old, and later progress to lower (4 years) and upper (3 years) secondary school. Basic education is compulsory up to the age of 15, and includes primary school, lower secondary school, adult education and apprenticeships (Adekou 2019, pp. 13–14). Enrolment in public primary schools in Benin is free for both girls and boys. Students who pursue their primary education in private schools pay school fees. In February 2023, the government made a fee exemption for female students enrolled in secondary education.

³ The Hanns Seidel Foundation is a non-profit political research organisation based in Germany. For more information, visit <https://westafrica.hss.de/benin/> [accessed 20 July 2023].

in collaboration with the training centres, tried to adapt dual training to the context of rural and difficult-to-access areas by gathering apprentices in the training centres for two weeks of intensive vocational education and training, saving them arduous weekly trips to the training centre.

A study conducted to assess the effects of this pilot experience found that skills learning improved (Walther 2008). As a result, the Benin government turned to donors for further technical and financial assistance. In 2002, Swisscontact, a foundation dedicated to the implementation of international development projects,⁴ was asked to provide its expertise to support the government in implementing its apprenticeship reform. Swisscontact launched dual apprenticeship training in 2003 with financial support from the Danish Development agency, the Swiss Development Cooperation, the World Bank, the French Development Agency and others (Davodoun 2011b).

With the cooperation of professional associations, skills development projects in the craft vocations have been carried out using a competence-based approach. Meanwhile, implementation of this dual apprenticeship has been extended from a few selected crafts to other occupations in Benin. According to a comparative analysis made by Davodoun (2015), the upgraded traditional apprenticeship (CQM programme) and this dual apprenticeship (CQP programme) are complementary.

Gauthier O. C. Atindehou (2013) highlights the actors engaged in the delivery of this dual training in Benin, as well as the funding, which is mostly supported by foreign donors' aid. Elsewhere, we have pointed out that the allocation of roles between the public and private sectors in the execution of this dual training is ineffective (Bankolé et al. 2019). According to the findings of this research, public institutions play a major role in the governance and management of this dual training. Also in an earlier article (Nouatin 2021), the author assessed the level of engagement of professional associations in the implementation of dual apprenticeship training in Benin. According to his conclusion, while the private sector is heavily involved in implementation and plays a moderate part in the curriculum design phase, it has little engagement in the programme during the evaluation phase (ibid.). Moïse Emmanuel David-Gnahoui and Madoué Florentine Akouété-Hounsinou (2015) conducted an assessment study of this dual training in Benin. Their findings revealed inconsistencies in its execution, and the financial challenge. Edouard Yokossi (2016) studied the development of skills learning using a competence-based approach in Benin. He demonstrates how vocational skills were created using the Developing a Curriculum (DACUM) method (ibid.). In a recent article (Bankolé and Nouatin 2020), the first two authors of the present article have outlined in broad terms the discrepancies between the concept of Benin's dual apprenticeships as they were conceptualised, and how they are implemented in practice. Furthermore, they found that this dual system has boosted apprentices' social cognitive capacities (ibid.).

According to the available literature, however, there does not seem to be any research yet which provides insight into the qualitative impact of dual apprenticeships in West African countries' crafts sector. Therefore, the purpose of this article is to examine the pedagogical transformation of apprenticeships and the crafts sector using the competence-based approach of dual apprenticeships.

⁴ For more information, visit <https://www.swisscontact.org/en/countries/benin> [accessed 20 July 2023].

Following the above introduction and literature review on dual apprenticeships in West Africa, the next section describes the methodology we used to carry out our study. In the section after that, we create a theoretical framework for the analysis of our research findings. This is followed by a discussion of our findings on how the concept of dual apprenticeships has influenced workshop training and how it contributes to increasing the prestige of human capital in the crafts sector. After analysis and summary of our main research findings, we conclude our article with recommendations for the government of Benin and ideas for further research.

Method of data collection and analysis

To investigate how dual training has altered Benin's crafts industry through a competence-based approach, we opted for a qualitative approach. The research was conducted by an international research team, involving the three authors of this article as well as two research groups of ETH Zürich (i.e. the Chair of Education Systems [CES] and the NADEL Center for Development and Cooperation). The principal investigator in Benin (the third author of this article) set up a collaboration between the National confederation of artisans (*Confédération Nationale des Artisans du Bénin*) and the Department of TVET (*Direction de l'Enseignement Technique et de la Formation Professionnelle – DETFP*), who granted ethics approval. We obtained our respondents' consent to participate in our study, making sure to protect their identities by anonymising their names underneath the sample statements quoted below. Regarding photo documentation, we obtained verbal approval from artisans before taking photos during our visits. The craftspeople were happy to participate in our research since it contributes to increasing appreciation of their occupations and their valuable goods and services for their community. We collected data in two cities: in Parakou, in the centre of the Republic of Benin (roughly 400 km from Cotonou) and in Cotonou, the economic capital of southern Benin.

The first technique we employed was direct observation, which was accomplished through our visits to seven vocational training centres and thirty-nine workshops. Some of the crafts being taught there were sewing, hairdressing, motorcycle mechanics and carpentry. Our inspections consisted of collecting empirical data and comparing the workshops' and the training centres' implementation of dual training. The aim of this comparison was to find out from CQP and non-CQP graduates whether they experienced different variations of workshop management.

The second technique we utilised was the life-history approach, which included casual interviews with 19 CQP master craftspeople, and semi-structured interviews with 48 CQP graduates, 10 non-CQP graduates, 5 professional association personnel, 6 training centre staff, and 8 CQP trainers. In total, 96 individuals participated in the study. Table 1 presents descriptive data of the respondents. There were more women (55.2%, $n=53$) than men (44.8%, $n=43$). One reason for this might be that the proportion of women in occupations such as hairdressing and sewing with several years of dual training was higher among the CQP graduates than that of men. Regarding the age of the participants, our research sample included many young people (aged 15–25) because about 54.2% ($n=52$) of them were apprenticeship graduates (CQP and non-CQP graduates). In Benin, most apprentices have a history of school dropout

Table 1 Characteristics of participants in the study

Variables	Characteristics	<i>n</i>	%
Gender	female	53	55.2
	male	43	44.8
	total	96	100.0
Age range	15–20	29	30.2
	21–25	23	24.0
	26–30	7	7.3
	31–35	4	4.2
	36–40	19	19.8
	41–45	11	11.5
	46–50	3	3.1
	total	96	100.0
Educational attainment	partial primary education	23	24.0
	complete primary education	33	34.4
	lower secondary education	17	17.7
	upper secondary education	13	13.5
	tertiary education	2	2.1
	no prior education	8	8.3
	total	96	100.0
Marital status	single	13	13.5
	married	81	84.4
	widowed	2	2.1
	total	96	100.0
Category of participants	CQP graduates	48	50.0
	CQP master craftspeople	19	19.8
	non-CQP graduates	10	10.4
	professional association staff	5	5.2
	vocational training centre staff	6	6.3
	CQP trainers	8	8.3
	total	96	100.0

Notes: CQP=certificate of professional qualification (*Certificat de Qualification Professionnelle*)

or lack prior education. Therefore, very few of our respondents had completed higher levels of education, and the only ones who had completed tertiary level were two of the heads of the training centres.

Third, we employed a number of sampling techniques to select our participants. We picked the research respondents from the staff of professional associations using purposive sampling; we recruited CQP master craftspeople and CQP graduates through snowball sampling; and we engaged non-CQP graduates using convenience sampling. We obtained all participants' informed written or verbal consent to participate in our study.

Finally, we used content analysis techniques to examine the data.

Theoretical background: social change theory

Transformations are changes over time; therefore the theoretical and conceptual framework we employed in our study focused on the factors and agents of change. We used the social change theory of Guy Rocher (1968) to determine the factors and agents of change in apprenticeships and in the crafts sector (see Fig. 1). Among the

factors of change, we focused on technological and demographic variables, and class conflicts and contradictions. Our aim was to find data items that would allow for the analysis of the pedagogical patterns produced by dual training in apprenticeships and in the crafts sector. Relevant technological variables included the elements of the new framework of apprenticeship skills learning. Demographic change considerations concerned fundamental features for market competition analysis in the crafts industry. Class conflicts and contradictions were relevant for the examination of market competition in the crafts sector.

In terms of *agents of change*, key variables included elites, social movements, and motivation and success needs. We took these into account in our evaluation of (a) the actors' own analyses expressed in their statements; (b) their contribution to apprenticeships; and (c) the transformation of the crafts. Elites are represented in Fig. 1 by the public and commercial entities in charge of dual training management, but also include professional organisation leaders who have a positive influence on the programme. Craftspeople, for example, were included in the curriculum preparation process. The notion of a social movement in terms of stakeholder representation portrays the decisive support of craftspeople associations in the creation of a dual training framework that includes vocational education in centres and on-the-job training in workshops. We use the notion of motivation and success needs to highlight the significance of the CQP participants' motivational factors in achieving their goals.

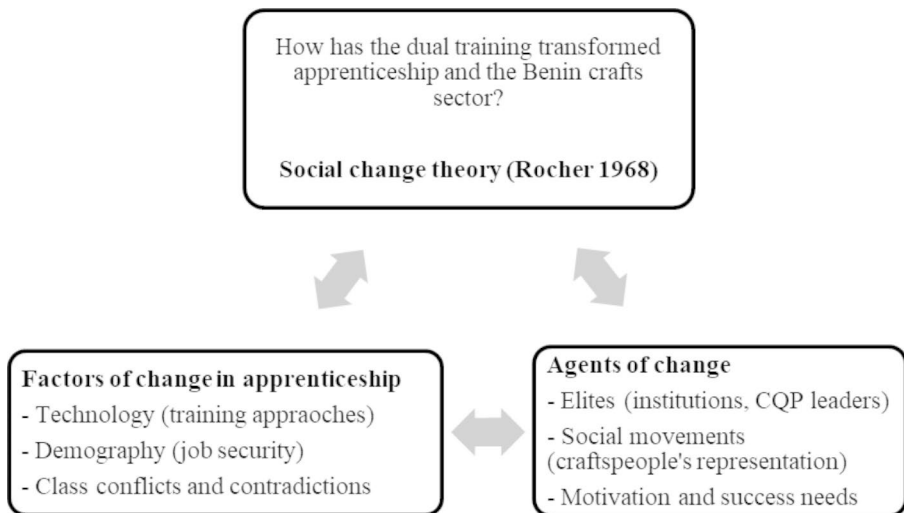


Fig. 1 Theoretical framework of social transformations in the crafts sector

Results

Overview of the dual apprenticeship training implemented in Benin

In the pilot phase (2003–2005) of dual apprenticeship training, an intervention led by Swisscontact was conducted in three occupations, namely motorcycle mechanics, hairdressing and sewing. In 2004, the training programme was extended to air conditioning and refrigeration, and carpentry. This was followed by weaving in 2005, metal construction, masonry, electrical construction and coating in 2006, and photography and car mechanics in 2007. Finally in 2008, dual training was introduced into plumbing apprenticeships. By 2008, Swisscontact had developed dual training in 13 out of 311 craft occupations using the DACUM method (Bankolé and Nouatin 2020; referring to Ferland 2016). The DACUM method is a competence-based approach promoted by the Centre of Education and Training for Employment (CETE) of The Ohio State University in the United States.⁵ The DACUM method is divided into five stages: curriculum analysis, curriculum design, instructional development, training implementation and programme evaluation (Norton 1997). In Benin, Swisscontact collaborated with public institutions such as the Department of Technical Vocational Education and Training (D-TVET), the Fund for the Development of Continuing Vocational Education and Apprenticeship (*Fonds de Développement de la Formation Continue et de l'Apprentissage* – FODEFCA), representative bodies and delegated participants from professional associations to develop curricula.

Dual training consists of combining theoretical teaching and some practical training at the vocational training centres (ideally one day per week) with on-the-job training in master craftspeople's workshops for the rest of the week. It is divided into three levels (beginner, intermediate and advanced) of 32 weeks each. New apprentices must pass an admission exam to meet the criteria for one of the FODEFCA scholarships. The number of scholarships awarded is determined by the amount of money available. In practice, theoretical background and training are often delivered through two-week intense training sessions (rather than one day per week) at vocational training centres. Using latest technologies and a competence based-approach in the training centres, apprentices are trained in soft and practical skills linked to their specific occupations. For on-the job training, the master artisan remains the leader who trains his/her apprentices in the workshop according to the competencies required by DACUM and the labour market.

The apprenticeship fees paid by the apprentices' parents to the master artisan (10%) and training at the training centres subsidised by FODEFCA through a scholarship (90%) constitute the payment of this dual training (Bankolé and Nouatin 2020).

The dual training includes a final examination, and an apprentice's successful performance results in the award of a CQP certificate. Performance evaluation is composed of 40% summative evaluation and 60% in-process evaluation in the training centres. There is no evaluation for the performance under the master artisans' supervision in the workshops. Dual training means new apprenticeship practices. To

⁵ Their dedicated webpage is at <https://cete.osu.edu/?s=DACUM> [accessed 17 July 2023].

highlight CQP graduates' experience of this dual training, we present our research findings below in a number of dedicated subsections.

Refining traditional apprenticeships through a competency based-approach

In traditional apprenticeships, master artisans often employ materials and equipment which have over time become somewhat out of date. The apprentices learn skills by imitation and are mentored by a single master and advanced learners. Our findings reveal that CQP graduates gained extensive expertise in the use of new technologies as well as having benefited from explicit pedagogical strategies during the training provided in the centres.

Dual training has increased the skills learning supplied by traditional apprenticeships in Benin. Vocational training centres use cutting-edge technology in their curriculum materials and equipment. As a result, CQP apprentices receive training using innovative curriculum materials and equipment which many master craftspeople may not yet have in their workshops. This information is supported by the CQP graduates we interviewed:⁶

"I discovered new tools and materials that we have never seen in the workshop. For example, it is the first time I saw and learned to use a curve ruler in sewing. Moreover, every apprentice has access to the curriculum materials for the theory training session. Then, we had theoretical and practical class sessions" (A. M., aged 29, female CQP graduate, pattern making, Parakou, 2020).

"During the training sessions in training centres, we learned that most of the products we use to clean hair are dangerous chemicals ... We were being trained on how to apply the products by wearing protective gloves. I think that many masters ignore the right practice in hairdressing. We also learned how to straighten hair professionally, using a flat iron" (A. B., aged 35, female CQP graduate, hairdressing, Parakou, 2020).

Beyond the accomplishments of the CQP apprentices in terms of having learned to use new technologies professionally, these quotes demonstrate the development of new values and attitudes towards task performance. As a result, the CQP apprentices we spoke to had begun to build additional competences on the job. We found out that master craftspeople have also advised capacity-building training through their professional associations. Instead of engaging in the dual training, FODEFCA therefore assists them in attending capacity-building training. As a result, master artisans are trained on a regular basis depending on their skills requirements. According to a staff member of a professional tailors' association:

"Master craftsmen have requested capacity-building training. To do so, our association (*Association des Professionnels Artisans Habilleurs de Parakou*

⁶ The interviews were conducted mostly in French and in some cases in *Fongbé*, the most widely spoken national language in Benin. They were translated into English for the purposes of this article.

– APAHP) often organises trainings with an individual participation fee that varies from XOF 3,500 [USD 6.30] to XOF 5,000 [USD 9].⁷ We also receive assistance from FODEFCA to attend the training” (A. E., aged 42, male, APAHP staff member, sewing, Parakou, 2020).

It is obvious that many artisans find this training of masters useful for updating their own abilities.

Professional associations in many sectors, such as hairdressing and motorcycle mechanics, now have monthly or weekly meetings to discuss specific employment issues. The meeting of the hairdressing association (*Groupement Mutualiste Epargne et Crédit entraide des Coiffeuse de Parakou* – GMECC) is held on the second Monday of each month. The motorcycle mechanics’ association (*Association des Mécaniciens, Engin à deux Roues Parakou* – ASMEP) meets on Fridays (Fig. 2).

Apart from benefiting master craftspeople in their own right, the pedagogical method they experience during this staff training is also important in the dual apprenticeship training their apprentices receive. The training centres’ teaching approach provides settings which are conducive to interactive instruction. Apprentices at training centres are encouraged to ask trainers comprehension questions several times, while traditional apprentices are not permitted to ask any questions. Apprentices who successfully complete dual training are likely to refresh their masters’ traditional apprenticeship skills, prompting them to instruct their apprentices utilising theory and practice in clear educational approaches. CQP graduates who have themselves already trained apprentices have demonstrated a better training approach which has proved to be more effective. Responding to the question “What distinguishes your training technique from others?” Master craftswoman E. A. said:



Fig. 2 A training session on capacity building for master craftspeople within a professional association in motorcycle mechanics in Parakou
Photo: Authors/R. Bankolé.

⁷At the time of drafting this article, the conversion rate was roughly 1 USD=554 XOF.

“As a CQP alumna, I use a clear training strategy utilising theoretical instructions and practical demonstration. I give them oral explanations on a pattern design, and I show them how to make the basic garment patterns before sewing clothes. They ask many questions and I provide them with responses” (E. A., aged 38, female CQP graduate, pattern making, Parakou, 2020).

Considering this, it is clear that CQP graduates understand the importance of theoretical instruction in apprenticeships. Then, for skills transfer to apprentices, they utilise at least oral explanations and practical examples. CQP graduates who have not yet trained an apprentice have reported better work conditions in the workshop than non-CQP graduates. According to a CQP alumnus in motorcycle maintenance mechanics:

“... First, many clients find that my workshop is neat and tidy. The reason is that we learned how to clean the workshop. Second, I use some materials that the majority of non-CQP graduates do not know how to use. For example, many non-CQP graduates have never repaired a motorcycle flywheel [shown in Fig. 3]” (O. A., aged 31, male CQP graduate, motorcycle maintenance mechanics, Parakou, 2020).

This quote demonstrates that good working conditions include making efforts to keep workplaces clean to facilitate high quality work. This is critical in order to make the company and the services it is able to offer appealing to clients, which can enhance their satisfaction.

CQP graduates also gain business management skills for the benefit of their workshop management. The experience of the first batch of CQP graduates to emerge (in 2003) from the pilot programme highlighted a significant gap in workshop management because the majority of the graduates were extremely young (18–20 years old) and had no experience in that part of the job. As a result, business management was added to the vocational education curriculum offered at the training centres. The business management session consists of learning how to carry out inventory in the

Fig. 3 Motorcycle flywheel
Photo: Authors/R. Bankolé.



workshop on a daily or weekly basis, and to monitor input and output to estimate the advantages of the products or services. One of our respondents described how the inventory is conducted in her workshop:

“We learned some business skills to calculate our benefits from the workshop productivity. The benefit is calculated from inputs and outputs in the workshop. Inputs include raw materials or basic materials we use to produce our services. For example, there are chemical products utilised to clean hair like shampoo and others. Outputs represent the financial value of the service including products, raw materials and basic materials used. Business management helps us to estimate the amount of money we have spent on raw materials and our net profit. It is also helpful for becoming more ambitious in the workshop and planning our expenditure priorities” (A. R., aged 36, female CQP graduate, hairdresser, Parakou, 2020).

The majority of traditional apprenticeship master artisans had no prior experience in workshop management. This is frequently a consequence of a lack of this element in their own professional experience. CQP graduates who have been trained in workshop management will be able to benefit more from this more effectively as they enter the labour market. According to another CQP graduate,

“It is often observed that when young people have a job, they are more interested in earning money to fulfil unnecessary desires. The business management course we received in dual training changed our mind on what is the most important to foster our occupation in early age” (B. S., aged 35, male CQP graduate, motorcycle mechanics, Parakou, 2020).

It is understandable that CQP graduates with work experience in the workshop are able to perform an adequate workshop management.

Transforming competition in the crafts labour market

Due to the predominance of the informal economy, labour market competitiveness is the most difficult obstacle for craftspeople to overcome. Most of the workshops in Benin are small companies and family businesses that manufacture and supply services without official authorisation, even if working without a valid certificate or traditional diploma may be considered illegal. Professionals with formal certificates and conventional diplomas compete with those who lack certification in the crafts labour market. To supervise regulation, the commitment of professional associations with firm control over the labour market is required. A staff member of one professional association expresses this point as follows:

“Today’s challenge in our sector is that many young people are working without finishing their apprenticeship scheme. That demonstrates the discrepancies in the quality of products and thus, in the compensation of the labour ... We don’t have resources to solve this issue. Some of us (master artisans) encourage

the practice of demanding much higher apprenticeship fees from young people who mostly live in disadvantaged backgrounds" (J. A., aged 46, male, staff member of professional craft association, Parakou, 2020).

CQP graduates stand out in the job market. According to this artisan, the labour market competition stems from training concerns, but another master artisan highlighted the significant number of young people enrolled in apprenticeships. One likely reason for this is that dual training is being implemented in only 13 out of 311 occupations. Moreover, due to financial constraints, the government does not run the programme regularly in those 13 occupations, so despite the reform, traditional apprenticeships remain in evidence. According to research findings of Davodoun (2014), there were 800,000 apprentices in traditional apprenticeships at the time of his study. As a result, CQP-graduate craftspeople who deliver the highest quality of production can stand out in a competitive market. The majority of CQP graduates working in their own workshops have demonstrated their capacity to satisfy clients:

"We are often discouraged by the clients who still look for the cheapest services. For example, a dress form can be estimated at XOF 3,000 [USD 5.40]. But the client can cancel his or her order because he/she finds a cheaper price with another artisan who agrees to make the dress form at XOF 1,500 [USD 2.70]. The most important thing is how to convince them of the value of the service. To convince my clients, I offer a 'best quality as possible' service to meet their satisfaction and thereby increase the chance to get loyal clients (A. M., aged 29, female CQP graduate, pattern making, Parakou, 2020).

"You can earn more if you deliver a high-quality product. But when the market is saturated, you must lower the price accordingly in order to make a profit by delivering a high-quality product" (E. A., aged 38, female CQP graduate, sewing, Parakou, 2020).

Both statements of these two CQP graduates in sewing point to the fact that service guarantee and product warranty can provide the strongest competition.

Self-realisation and esteem among craftspeople

Beyond the fact that the CQP graduates find themselves confirmed in their choice to be in a productive situation, the majority of those we observed developed self-esteem through job performance. One of the biggest challenges they met after finishing their apprenticeship scheme was how to set up their own workshops with adequate working conditions. Our research findings reflect CQP graduates' struggle to integrate themselves into the labour market. Therefore, CQP trainees who had been successful in setting up their workshops expressed a sense of pride of having reached their major goal:

"After we graduated from the summative CQP evaluation, the training centre never tracked us to find out whether we succeeded in installing our workshops

to practise what we learned during training. Many of our cohort mates who are working have set up their workshop with their own resources, while others received financial support from their parents and relatives. It was very difficult for me to set up this workshop, but I am very proud of that. The additional challenge for me is how to extend the workshop to get a large or medium-size unit of production that will be a training centre” (P. H., aged 27, female CQP graduate, sewing, Cotonou, 2020).

This CQP graduate expressed her desire for successful integration into the labour market. The quote demonstrates her conviction that she will be able to reach further goals in her career teaching young people in apprenticeships. Compared to traditional apprenticeship graduates, CQP graduates show higher self-esteem. First, they gained many advantages to increase their skills learning by participating in dual training, which is offered utilising a competence-based approach.

“We cannot compare CQP apprentices to others in conventional apprenticeships. The difference can be observed in work performance and in the fabric finishing. The clothes manufactured by CQP graduates are often the best quality. I am proud, as a trainer, to contribute to increasing this high level of enhanced traditional apprenticeships” (L. B., aged 47, male CQP trainer, sewing, Parakou, 2020).

Second, the CQP certificate enables graduates to apply for a recruiting procedure in both the public and private sector, whereas other holders of traditional apprenticeship certificates are not eligible. CQP graduates and trainers are aware of this major opportunity for their profile, as evidenced by the following quotes:

“With the CQP certificate we now have more advantages than others in Benin apprenticeships. We can get contracts with the public as well as private production units. We can also take an army entrance test. We can work abroad, because the CQP certificate is an equivalent of the partial completion of international standards classification of education level 2 (at least grade 8)”⁸ (W. B., aged 24, male CQP graduate, motorcycle repair mechanics, Cotonou, 2020).

“The majority of the labour force motorcycle companies recruit for installing motorcycles is CQP graduates. Among those companies in Benin, we can cite CFAO motor, *Aojue* motor, *Sanya* motor CQP graduates are competent ... professionals of motorcycle mechanics. I can give an example. We ran a competition ... to assemble motorcycles in four hours among three CQP graduates, three CAP⁹ and three DTI.¹⁰ During the period of four hours, the CQP graduates

⁸ The participant is referring to the International Standard Classification of Education (ISCED) (UIS 2012).

⁹ The Certificate of Professional Aptitude or *Certificat d’Aptitude Professionnelle* (CAP) is a certificate that is equivalent to the grade 11 after completing the first cycle of technical high school in Benin.

¹⁰ The Certificate of Higher Secondary Education or *Diplôme de Technicien Industriel* (DTI) is a diploma received after completing the second cycle of technical high school.

assembled the motorcycles. Only one CAP was also able to do the job, but none of the DTI candidates were able to do it” (M. E., aged 52, male CQP trainer and DACUM facilitator, Parakou, 2020).

The last quote illustrates that CQP graduates are able to perform with higher competency than their peers enrolled in a technical high school.

Our findings also demonstrate that the self-esteem of the new generation of artisans (graduates of the CQP programme) has affected their relationship with “old-school” artisans apprenticed under previous schemes. Some CQP apprentices and graduates consider master craftspeople as less qualified because these gained poorer skills during their own on-the-job training. In dual training, apprentices gain instructional skills and more practical competencies than their masters acquired. While working in the workshops with their masters and other trainees, CQP apprentices develop an eagerness to demonstrate their new ability to execute some tasks in the workshop, failing, in the process, to respect their master. Consequently, this situation often generates conflicts between masters and apprentices, and many master craftspeople decided to exclude their CQP apprentices from dual training. We found that throughout dual apprenticeship training, there were some apprentices who did not stay longer in their masters’ workshops due to this issue. However, apprentices were sensitised to obey and respect their master, and another measure to address the problem was the initiation of a capacity-building training package to train more masters in filling their own skills gaps.

Analysis and discussion

As mentioned earlier, our study is underpinned by Rocher’s (1968) social change theory. From that perspective, technological factors, demographic aspects, class conflicts and contradictions combine in the key pedagogical patterns of the transformative effect of dual training on traditional apprenticeships and the crafts sector. In this context, the agents of social change are elites (institutions, CQP leaders), social movements in terms of stakeholder representation (craft associations), and motivation and success needs (see Fig. 1).

Our study led to two primary findings, which we utilised to aggregate the pedagogical changes of apprenticeships using the DACUM method, the competence-based approach used for dual training in Benin. First, our research revealed that CQP graduates gained instructional knowledge and concrete practical competencies through the curriculum materials and cutting-edge technology they utilised during their dual training. We believe that the capacity of CQP graduates to expand their knowledge and hard skills is a technological change factor in apprenticeship. The capacity of CQP trainees to improve working conditions helps to improve traditional apprenticeships. In traditional apprenticeships, the master artisans are responsible for supervising the trainees, whereas in dual apprenticeship schemes the apprentices are trained in interactive training settings with other apprentices and in collaboration with various trainers. CQP graduates have revitalised the traditional approach to explicit training strategies by integrating oral instructions with practical techniques in workshops. As a result, training modifications in traditional apprenticeships might

be observed. Research conducted with the support and technical supervision of Peter Easton discovered in a survey on street children in Nairobi that *Undugu*¹¹ apprentices who were trained in a similar dual training system serve “as a vector or vehicle for progressive technical upgrading of informal sector production” (Easton 2000, p. 3).

Second, the shift to dual training has influenced labour market competition among artisans. For early school dropouts and individuals with no prior schooling, traditional apprenticeships are an essential source of alternative education and training. The saturation of the labour market with traditional apprenticeships exemplifies this demographic transition of the crafts sector. In 2014, the estimated number of apprentices was 800,000, while ordinary secondary education was thought to have about 700,000 pupils, and technical secondary school about 15,000 (Davoudoun 2014; Baba-Moussa 2017). Our research findings suggest that CQP graduates stand out in the labour market competition due to the high quality of their service and output. According to Rocher’s social change theory (Rocher 1968), class conflicts and contradictions influence the interactions and interrelationships in the crafts labour market.

Our findings also revealed that professional associations organise capacity-building training for their members. We believe that this is conducive to employment stability since CQP graduates do well in labour market competition. We suspect that non-graduates suffer from job insecurity as they are unable to stand out in the competitive labour market. This result corroborates the research of Nesma Ali and Boris Najman, who found that in the region of sub-Saharan Africa, “the intensity of competition is higher in capital cities, in cities surrounding the capital and in big cities” because of “the highest level of demand and the largest number and variety of consumers” (Ali and Najman 2016, p. 23). Examples they provide include Jinja (Uganda), Kinshasa (Democratic Republic of the Congo), Nouakchott (Mauritania), Dakar (Senegal) and Maputo (Mozambique). An impact evaluation carried out on dual training in Côte d’Ivoire (Toassa 2017) also demonstrates significant outcomes, albeit low observable effects on apprentices and firms. The report shows that apprentices who graduated from this programme experienced smooth labour market integration and developed strategies to save more money than others. It also found that the contribution of apprentices to firm productivity is significant (*ibid.*).

Elites of social change in this research represent public and private institutions that work together to promote the innovation of dual apprenticeship training, including public institutions personnel and those from professional associations. Elsewhere (Bankolé et al. 2019), we have analysed the roles of CQP stakeholders in the execution of dual training in Benin. Our findings revealed good collaboration between public and private actors in the mobilisation of financial resources and in competency transfer. However, the overall challenge remains a lack of coordination between vocational training centres and workshops. Social movements in terms of stakeholder representation are manifested in the participation of craftspeople’s associations in implementing the dual training schemes by creating private vocational

¹¹ An approximate English translation of the Kiswahili word *undugu* is brotherhood, or “like family”. For more information about the Undugu Society of Kenya (USK), visit <https://undugusociety.org/about-us/> [accessed 21 July 2023].

training centres. In the research we present here, we suggest that motivation and success needs are very significant contributing factors to CQP graduates' self-realisation. Although labour market competition is smoother for CQP graduates than for others, our research findings show that CQP graduates as well as graduates of traditional apprenticeships find transition into the labour market very difficult, and CQP graduates who are successful in setting up their workshop reach an important goal. Furthermore, the majority of them develop high self-esteem because they have gained more valuable knowledge than traditional graduates, and are able to deliver high-quality services to satisfied clients.

Conclusion

This article highlights the pedagogical transformation of apprenticeships and the Benin crafts sector through the implementation of dual training. The implementation of dual training in traditional apprenticeships has led to an increase in apprenticeships and a more regulated apprenticeship scheme. The application of qualitative research methods and social change theory led to three important findings.

First, our research shows that professional crafts have been developed with the Developing a Curriculum (DACUM) method, a competence-based approach. Training is offered based on the pedagogy recommended by DACUM. Graduates from this dual training have gained theoretical knowledge and high-quality practical skills. The transformation in dual training crafts apprenticeships arises from the ability of CQP graduates to apply oral instruction and practical demonstration strategies to improve traditional apprenticeships. The majority of CQP graduates utilise business and management skills they learned to calculate their daily or weekly advantages in workshops. Non-CQP graduates do not acquire such skills in traditional apprenticeships. Aware of these skills gaps and the high-quality job performance of CQP graduates, professional associations offer capacity-building training to their members.

Second, our findings demonstrate that negotiating labour market competition is easier for CQP graduates because they are able to offer high-quality services and products. Most of the CQP graduates we interviewed stood out in labour market competition.

Third, the results of our study reveal that CQP graduates develop self-esteem as they find satisfaction in successful job outcomes. Self-esteem is a significant factor, which can be regarded as an agent of social change because it contributes to a deep understanding of the transformation in the crafts sector.

Based on our research findings we recommended that the government of Benin should extend dual training to further apprenticeship schemes. In addition, it would be desirable for the government to increase the investment in vocational education, especially this particular model of dual apprenticeship. A continuing training programme could be established to increase graduates' skills.

Future research might usefully be carried out to analyse which factors encourage the business sector to participate in financing dual training of young people. Another study could be undertaken to assess the social impact of dual training on the standard of living of CQP graduates.

Acknowledgements We thank the Swiss National Science Foundation (SNSF) and the Swiss Agency for Development and Cooperation (SDC) for financing the LELAM TVET4INCOME project research under which this research was conducted. We are grateful for the input and logistical support of Dr Ursula Renold, Principal Investigator of the LELAM project. We thank the Benin team of the LELAM TVET4INCOME project, especially Dr Esaïe Gandonou for his contribution in improving the article, Dr Guy Sourou Nouatin for his contribution in preparing the manuscript, Dr Sylvain Kpenavoun and Ambroise Houedou for their verbal support. Finally, we thank staff of the head of Department of TVET (DETFP), the Fund for the Development of Continuing Vocational Education and Apprenticeship (FODEFCA), donors' agencies, staff of professional associations, craftspeople and apprentices for their readiness to act as interview partners.

References

- Adekou, R. C. (2019). Education au Bénin: Etat des lieux et rôles des parlementaires et de l'Etat béninois [Education in Benin: Current situation and roles of Beninese parliamentarians and government]. Rapport d'étude [Study report]. Porto-Novu: Assemblée Nationale du Bénin. Retrieved 28 July 2023 from <https://assemblee-nationale.bj/wp-content/uploads/2020/03/rapport-final-etude-prospective-sur-leducation-en-republique-du-benin.pdf>.
- Ali, N., & Najman, B. (2016). Informal competition and productivity in sub-Saharan Africa [online article]. Paris: Euridite Université Paris-Est. Retrieved 12 July 2023 from <https://www.acaweb.org/conference/2017/preliminary/paper/dBYn8yQi>.
- Atindehou, G. O. C. (2013). La formation professionnelle par apprentissage de type dual au Bénin. Le dispositif, les acteurs et le financement: Quel bilan ? [Vocational training by dual apprenticeship in Benin. The system, players and funding: What is the balance?] Mémoire de formation [Training dissertation]. Centre Africain d'Etudes Supérieures en Gestion (CESAG), Dakar.
- Baba-Moussa, A. R. (2017). La prise en compte de la relation entre formation et emploi dans la réforme de l'éducation au Bénin: Contribution à l'élaboration d'un nouveau modèle éducatif [Matching training to employment in educational reform in Benin: Contribution to the development of a new educational model]. *International Review of Education*, 63(5), 631–656. <https://doi.org/10.1007/s11159-017-9659-9>.
- Bankolé, R. A., & Nouatin, G. S. (2020). Dual apprenticeship in Benin: Between theory and practice. *African Educational Research Journal*, 8(1), 46–56. <https://doi.org/10.30918/AERJ.81.19.054>.
- Bankolé, R. A., Nouatin, S. G., & Gandonou, E. (2019). The dual apprenticeship in Benin: Strategic actors and roles. In D. Amouzouvi (Ed.), *Mélanges en l'honneur du Professeur Titulaire Emérite Albert J. NOUHOUAYI* (pp. 537–558). Cotonou: Edition Laboratoire d'Analyse et de Recherche Religion. Espaces et Développement (LARRED).
- Benjamin, N., & Mbaye, A. A. (2012). *The informal sector in francophone Africa: Firm size, productivity and institutions*. World Bank. <https://doi.org/10.1596/978-0-8213-9537-0>.
- David-Gnahoui, M. E., & Akouété-Hounsinou, M. F. (2015). Le financement comme défi à l'efficacité de la formation professionnelle par apprentissage de type dual au Bénin [Financing as a challenge to the effectiveness of dual apprenticeship-based vocational training in Benin]. *Les Cahiers Centre Béninois de la Recherche Scientifique et Technique (CBRST)*, 007, 755–776.
- Davoudou, C. C. (2011a). *L'apprentissage traditionnel dans l'artisanat au Bénin [Traditional apprenticeships in the craft industry in Benin]*. Cotonou: Ruisseaux d'Afrique.
- Davoudou, C. C. (2011b). *L'apprentissage de type dual dans l'artisanat au Bénin [Dual apprenticeship in the craft sector in Benin]*. Cotonou: Ruisseaux d'Afrique.
- Davoudou, C. (2014). L'apprentissage des métiers artisanaux [Apprenticeships in craft trades]. In Conseil national de l'éducation (CNE) (Ed.), *Ateliers thématiques en préparation au deuxième Forum national de l'éducation, vol 2: Choix de communications [Thematic workshops in preparation for the second National Education Forum, vol 2: Selected papers]* (pp. 525–566). Cotonou: Star Editions.
- Davoudou, C. C. (2015). *Certification dans l'apprentissage au Bénin [Apprenticeship certification in Benin]*. Cotonou: Ruisseaux d'Afrique.
- Easton, P. (2000). Reinventing apprenticeship and rites of passage: An entry into the urban economy in sub-Saharan Africa. *IK Notes*, 20, 1–4. Retrieved 12 July 2023 from <https://openknowledge.worldbank.org/server/api/core/bitstreams/b5da9d39-8ccb-5ec6-92d1-8cb9674091b1/content>.

- Ferland, M. (2016). *Audit institutionnel et organisationnel du Fonds de Développement de la formation professionnelle continue et de l'apprentissage (FODEFCA) [Institutional and organisational audit of the Continuing Vocational Training and Apprenticeship Development Fund (FODEFCA)]. Version définitive [final version]*. Cotonou: FODEFCA.
- Gessler, M. (2019). Concepts of apprenticeship: Strengths, weaknesses, and pitfalls. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training* (pp. 677–709). Springer. https://doi.org/10.1007/978-3-319-94532-3_94.
- ILO (International Labour Organization) (2012a). *Informal apprenticeship in the micro and small enterprises (MSEs) alternative approach*. Geneva: ILO. Retrieved 12 July 2023 from https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_213126.pdf.
- ILO (2012b). *Upgrading informal apprenticeship: A resource guide for Africa*. Geneva: ILO. Retrieved 12 July 2023 from https://www.ilo.org/wcmsp5/groups/public/---africa/---ro-abidjan/documents/publication/wcms_171393.pdf.
- Kehl, F., Troxler, R., & Ye-Sawadogo, R. (2018). *Etude de la formation professionnelle duale au Burkina Faso [Study of dual vocational training in Burkina Faso]*. Ouagadougou/Zürich: KEK – CDC Consultants. Retrieved 12 July 2023 from https://www.dcdualvet.org/wp-content/uploads/2018_ADA_KEK_Assessment-FPduale-in-Burkina-Faso_Final-FR.pdf.
- MCE (Ministères en charge de l'éducation/Ministries responsible for Education) (2005). Decret No 2005-117 du 17 mars 2005 portant certification des qualifications professionnelles par apprentissage [Decree No. 2005-117 of 17 March 2005 on the certification of vocational qualifications by apprenticeship]. Cotonou: Government of the Republic of Benin. Retrieved 20 July 2023 from <https://sgg.gouv.bj/doc/decret-2005-117/download>.
- MCE (2006). Plan décennal de développement du secteur de l'éducation du Bénin 2006–2015 [Benin's ten-year education sector development plan 2006–2015]. Cotonou: Ministères en charge de l'éducation (MEPS/ METFP/MESRS/MCSL). Retrieved 12 July 2023 from https://planipolis.iiep.unesco.org/sites/default/files/ressources/benin_pdde_t1_t2_cmef.pdf.
- Norton, R. (1997). *DACUM Handbook* (2nd edn). Columbus, OH: Center on Education and Training for Employment. Retrieved 12 July 2023 from <https://files.eric.ed.gov/fulltext/ED401483.pdf>.
- Nouatin, G. S. (2021). Role of professional associations in Benin dual apprenticeship. *Journal of Education and Research*, 11(1), 77–96. <https://doi.org/10.51474/jer.v11i1.500>.
- Rocher, G. (1968). *Introduction à la sociologie générale [Introduction to general sociology]*. Montréal: Editions Hurtubise H.M.H.
- Scholl, R. (2014). Inside-out pedagogy": Theorising pedagogical transformation through teaching philosophy. *Australian Journal of Teacher Education*, 39(6), 89–106. <https://doi.org/10.14221/ajte.2014v39n6.5>.
- Sonnenberg, K. (2012). Traditional apprenticeship in Ghana and Senegal: Skills development for youth for the informal sector. *Journal of International Cooperation in Education*, 15(2), 93–105. <https://doi.org/10.15027/34856>.
- Teal, F. (2016). Are apprenticeships beneficial in sub-saharan Africa? *IZA World of Labor*, 268, 1–10. <https://doi.org/10.15185/izawol.268>.
- Toassa, C. (2017). *Impact à court et moyen de l'apprentissage dual subventionné: Résultat de l'évaluation d'impact de la composante apprentissage du Projet Emploi Jeunes et Développement des Compétences (PEJEDEC) en Côte d'Ivoire [Short- and medium-term impact of subsidised dual apprenticeship: Results of the impact assessment of the apprenticeship component of the Youth Employment and Skills Development Project (PEJEDEC) in Côte d'Ivoire]*. Abidjan: World Bank. Retrieved 12 July 2023 from <https://documents1.worldbank.org/curated/en/846171505462650591/pdf/119760-Rapport-Apprentissage-VF.pdf>.
- UIS (UNESCO Institute for Statistics) (2012). *International Standard Classification of Education ISCED 2011*. Montreal: UIS. Retrieved 20 July 2023 from <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>.
- UN (2016). *Transforming our world: The 2030 Agenda for Sustainable Development* New York: United Nations. Retrieved 13 July 2023 from <https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.
- Varetto, A. (2017). Apprenticeships: What you need to know. *Nursing Management*, 24(7), 26–27. <https://doi.org/10.7748/nm.24.7.26.s28>.
- Walther, R. (2007). *Vocational training in the informal sector*. Paris: Agence Française de Développement (AFD).

- Walther, R. (2008). *Nouvelles formes d'apprentissage en Afrique de l'Ouest* [New forms of learning in West Africa]. Paris: Agence Française de Développement (AFD). Retrieved 12 July 2023 from <https://www.afd.fr/fr/ressources/nouvelles-formes-dapprentissage-en-afrique-de-louest>.
- World Bank (2021). Implementation completion and results report ... Emergency Youth Employment and Skills Development Project (Côte d'Ivoire). Washington, DC: World Bank, Education Global Practice Africa West and Central Region. Retrieved 20 July 2023 from <https://documents1.worldbank.org/curated/en/695651626689625495/pdf/Cote-dIvoire-Emergency-Youth-Employment-and-Skills-Development-Project.pdf>.
- Yokossi, E. (2016). Méthodologies de construction et d'évaluation dans le domaine de la formation professionnelle: Cas de la méthode DACUM au Bénin [Construction and evaluation methodologies in the field of vocational training: the case of the DACUM method in Benin]. Mémoire de fin d'études [Master's thesis]. Dakar: Centre Africain d'Etudes Supérieures en Gestion (CESAG). Retrieved 12 July 2023 from https://pefop.iiep.unesco.org/fr/system/files/ressources/pef000358_edouardyokossi_memoire_methodologie_construction_evaluation_dans_fp_benin_2016.pdf.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.

Adéyèmi Rubain Bankolé completed his PhD in Sociology of Development at the Doctoral School of Agricultural and Water Sciences of the University of Parakou, Benin in 2021. His research interests lie in the sociology of education, innovation studies, culture and development. He has an advanced Master's degree in sociology of development in (2016) and earned his Master of Arts degree in sociology of education in 2014 at the Faculty of Literature, Humanities and Arts of the University of Abomey-Calavi, Benin. He is currently participating as a research assistant in an international research project which addresses the question, "Under what conditions can Technical Education and Training (TVET) improve the income of youth?" (LELAM TVET4INCOME) in partnership with the University of Parakou, the University of Abomey-Calavi, Kathmandu University School of Education, the University of Costa Rica, the University of Chili, together with the Chairs of Education Systems and Development Economics at ETH Zurich, Switzerland. He also supports Dr Fabien Affo and Dr Guy Sourou Nouatin, both lecturers at the University of Parakou, in their academic and research activities.

Guy Sourou Nouatin Dr Ir., is a Full Professor and senior lecturer at the Department of Agricultural Economics and Rural Sociology of the Faculty of Agronomy of the University of Parakou, Benin. He holds a PhD in communication and innovation studies and farm management advisory services of Humboldt University, Berlin, Germany. He gives lectures on various subjects such as agricultural extension; impact evaluation of development programmes/projects; social sustainability of interventions in agriculture; facilitation, mediation and communication strategies; research methodology in social sciences ... As a full professor, he is also interested in the quality of education and training, especially in curriculum development and capacity-building training. Throughout his career, he has participated in international research in collaboration with researchers from the University of Amsterdam and Wageningen University, Netherlands; KOF and NADEL institutes, ETH Zürich, Zürich, Switzerland. From 2012 to 2015, he held the position of Vice-Chancellor in charge of Inter-university Cooperation, External Relations and Professional Integration of the University of Parakou, Benin. Since January 2022, he heads the Centre of Pedagogical inspection and quality assurance of all departments and institutes of the University of Parakou, Benin.

Esaïe Gandonou PhD, is an Associate Professor and senior lecturer at the Department of Agricultural Economics and Rural Sociology of the Faculty of Agronomy of the University of Abomey-Calavi (Benin). He holds his doctoral degree from the Free University in Amsterdam (Netherlands). He is highly interested in impact evaluation and development projects, measurement and analysis of poverty, agricultural policy analysis, agricultural production economics, agricultural marketing and pricing. He is the coordinator of the Benin team of the LELAM TVET4INCOME project.

Authors and Affiliations

Adéyèmi Rubain Bankolé¹ · Guy Sourou Nouatin¹ · Esaïe Gandonou²

✉ Adéyèmi Rubain Bankolé
rubainbankole@yahoo.fr

Guy Sourou Nouatin
guy.nouatin@fa-up.bj

Esaïe Gandonou
egandonou@yahoo.fr

¹ Faculty of Agronomy, University of Parakou, P.O. Box 123, Parakou, Republic of Benin

² Esaïe Gandonou, Faculty of Agricultural Sciences, University of Abomey-Calavi, P.O. Box 1399, Abomey-Calavi, Republic of Benin