

Developing Vocational Training Curricula Using the DACUM Methodology: Towards Effective Alignment with Labor Market Requirements

تطوير برامج التكوين المهني باستخدام منهجية الديكام: نحو موازنة فعالة لمتطلبات سوق

العمل

Houda SAAD, , houda.saad@univ-oeb.dz.

Fadila AROUDJ, , aroudjfadila@gmail.com.

Laboratory of Ergonomics and Applied Research in Psychology and Educational Sciences, Faculty of Social and Human Sciences, University of Larbi Ben M'hidi - Oum El Bouaghi (Algeria)

Received: 26/04/2025 ; Accepted for reviewing: 22/05/2025 ;

Accepted for publishing: 04/06/2025

Abstract: This research paper examined the possibility of using DACUM methodology to develop vocational training curricula that meet labour market requirements. The analytical descriptive approach and a review of relevant literature showed that the DACUM mechanism-based job description of occupations bridges the gap between vocational training curricula and labour market needs and improves curriculum quality .

Keywords: DACUM methodology; labour market requirements; vocational training curricula

JEL classification code : J40, M53

ملخص: تناول هذا البحث إشكالية بناء وتطوير البرامج التكوينية التي تقدمها مؤسسات التكوين المهني حتى تكون موائمة للمتطلبات المهنية في سوق العمل، من خلال دراسة إمكانية تطبيق منهجية الديكام التي تعتبر أداة قوية ضمن المقاربات الحديثة في بناء وتطوير البرامج والمناهج حسب حاجة السوق وتطوراتها. ولتحقيق هذا الهدف اعتمدنا على المنهج الوصفي التحليلي ومراجعة العديد من الأدبيات المتعلقة بالموضوع، حيث تبين أن اعتماد التوصيف الوظيفي للمهن القائم على آلية الديكام يعمل على سد الفجوة بين برامج التكوين المهني ومتطلبات سوق العمل ويساهم في تحسين البرامج وجودتها.

الكلمات المفتاحية : منهجية الديكام؛ متطلبات سوق العمل؛ برامج التكوين المهني

؛ تصنيف JEL : M53 ، J40

Corresponding author: **Houda SAAD**,

e-mail: houda.saad@univ-oeb.dz

1. Introduction

The world is experiencing significant and swift changes across multiple domains, particularly in the labour market, characterised by rapid technical advancements, the rise of new industries, and the decline of others. These shifts need that educational and training institutions, particularly vocational training centres, be informed about these advancements and adapt their curricula to address the evolving demands of the labour market.

This context underscores the significance of job analysis methodologies and training curriculum design, as these methodologies are vital for identifying the skills and competencies demanded in the labour market and for creating effective vocational training curricula that equip graduates with the essential skills for career success.

DACUM is one of the most effective and comprehensive methodologies in job analysis and training curriculum design. This methodology is based on a philosophy claiming that workers are better able than others to accurately describe the tasks they perform and that each task requires specific information, knowledge, skills, tools, values, and behaviours to be accomplished.

“Developing a curriculum” or DACUM is “a participatory process that relies on the contribution of industry experts to identify the skills and knowledge needed to perform a specific job.” This methodology is not limited to identifying educational content but extends to designing integrated training curricula focusing on practical and applied aspects, which enhances graduates' employment opportunities and employers' satisfaction.

1.2.Research problem:

The quality of vocational training curricula presents a significant challenge for education and training systems in numerous countries, particularly due to the rapid transformations occurring in the labour market and ongoing technological advancements. Many vocational training curricula exhibit a disparity between the skills imparted and those actually demanded by the labour market. This results in diminished employment prospects for graduates and dissatisfaction among employers regarding their performance. Contributing factors include the inability of training curricula to adapt to workplace developments, insufficient employer involvement in curriculum design,

and a lack of effective mechanisms to evaluate labour market needs.

Numerous studies indicate a significant unemployment rate among graduates of vocational training and educational institutions, attributable to the inadequacy of abilities developed throughout their training.

This study examines the disparity between the resources offered to vocational training participants and the demands of the labour market, highlighting the necessity for mechanisms and strategies to reconcile this gap and ensure alignment between vocational training outcomes and labour market requirements.

The DACUM technique, grounded in the examination of activities and competences necessary for certain occupations through the involvement of professional experts, serves as an excellent tool for developing training curricula aligned with the actual demands of the labour market. The DACUM methodology promotes curriculum quality by precisely defining essential skills and knowledge, hence enhancing graduates' employment prospects and employer satisfaction.

This study aims to investigate the feasibility of implementing it in the enhancement of vocational training curriculum by addressing the following question:

To what extent can the DACUM methodology be applied in the development of vocational training curricula as required by the labour market?

The sub-questions deriving from the above are as follows:

1. What are the vocational training curricula? And what are the challenges they face?
2. What is meant by the DACUM mechanism? What is the philosophy on which this methodology is based?
3. How does the DACUM mechanism contribute to the identification of vocational skills?
4. How can vocational training curricula be developed based on the application of the DACUM methodology?

1.3. Research objectives:

1. This study aims to highlight the importance of applying the DACUM methodology in developing vocational training curricula, with a focus on how this methodology contributes to improving the outputs of training curricula and ensuring that

they meet the needs of the labour market.

2. To demonstrate how the DACUM mechanism can contribute to the development of more effective vocational training curricula appropriate to the needs of the labour market
3. To highlight the role of this mechanism in improving the quality of educational outcomes and increasing employment opportunities for graduates.

1.4.Importance of the study:

1. Provide practical recommendations for policymakers in vocational training institutions to make the most of this methodology.
2. The study will also review the challenges that may face the application of this methodology and provide suggestions to improve its effectiveness.
3. Studying the effectiveness of this mechanism in achieving compatibility between the acquired skills and the needs of the labour market.

1.5.Research methodology:

In this research, the descriptive analytical approach was employed by reviewing and analysing the literature and previous studies. This study provides a comprehensive vision on the importance of applying the DACUM methodology in enhancing the quality of vocational training curricula in response to the requirements of the labour market.

1.6.Literature review:

1- DACUM framework in vocational training (Smith et al., 2020):

This research examined the utilisation of the DACUM framework in vocational training programs. The researchers discovered that a systematic methodology for DACUM, encompassing diagnosis, evaluation, and ongoing enhancement, markedly improves the quality of training courses. The research emphasised the necessity of synchronising training goals with labour market demands.

2- Impact of DACUM on skills development (Johnson & Lee, 2019):

The two researchers investigated how to improve the DACUM mechanism for acquiring skills among vocational trainees. Their results indicated that DACUM's iterative feedback loops led to better adaptation of training content to learners' needs, resulting in higher employment rates.

3- DACUM and competency-based training (Martinez, 2021):

The study focused on integrating DACUM into competency-based vocational training. It highlighted that DACUM's focus on continuous evaluation helped identify gaps in training delivery, enabling institutions to effectively improve their curricula.

4- Challenges of applying DACUM (Brown et al., 2018):

Brown et al. examined the challenges of applying DACUM in vocational training systems. They identified issues such as resistance to change, lack of resources, and insufficient experience of trainers as major barriers to successful adoption of DACUM.

Prior research facilitated the analysis of the DACUM mechanism, elucidating its parts, components, and influence on the quality of vocational training curricula by identifying the discrepancies between them and the demands of the labour market. The writers of this research report based their responses to the study's questions on the evaluated literature.

2. Conceptual Framework of the Study

2.1. Concept of vocational training

Vocational training is a process that aims to provide the individual with practical knowledge and skills that increase his performance in practicing a particular profession.

It is also defined as “an organised process aimed at developing the professional competencies of individuals through educational and training curricula designed to meet the needs of the labour market” (Al-Gharbi, 2018, p. 45)

It is further defined as “an educational system that integrates the theoretical and practical aspects, with the aim of preparing individuals to integrate into professional life and achieve adaptation to the

requirements of work” (**Abdullah, 2020, p. 12**)

“Vocational training is an ongoing process aimed at improving the skills and abilities of workers, enabling them to perform their tasks more efficiently and effectively” (**Smith & Brown, 2019, p. 78**)

It “also refers to training curricula that aim to develop individuals' technical and behavioural skills, helping them advance in their career” (**Johnson, 2017, p. 23**)

Through the above definitions, it is concluded that vocational training falls within the educational activities that seek the technical preparation of the trainees in order to qualify them for vocational training, based on specialised curricula that must meet the needs of the labour market.

2.2. Concept of vocational training curricula

Vocational training curricula are defined as educational and training processes aimed at improving individuals' abilities to perform specific professional tasks, focusing on practical and applied aspects” (**Garcia & Martinez, 2017, p. 45**)

They also refer to those curricula that provide specialised training in specific vocational fields, enabling individuals to acquire the technical and behavioural skills necessary to succeed at work.” (**Roberts, 2018, p. 102**)

Al-Khulaifi further defined them as “a set of educational and training plans and activities designed to provide individuals with the necessary skills and knowledge to pursue a particular profession or improve their performance in their field of work” (**Al-Khulaifi, 2019, p. 34**)

They are also defined as “systematic curricula aimed at developing the professional competencies of individuals through practical and theoretical training, with a focus on meeting the needs of the labour market” (**Ali, 2021, p. 56**)

“Vocational training curricula are training systems that combine theoretical education with practical application, with the aim of preparing individuals to engage in specific occupations or improve their career opportunities” (**Taylor & Wilson, 2020, p. 89**)

In general, vocational training curricula refer to a set of organised educational and training activities aimed at preparing individuals to integrate into the labour market or develop their current professional

skills.

2.3.Functions of vocational training curricula:

Vocational training curricula perform an important function because they improve and develop specialised capabilities and competencies in order to enable better performance through the development of vocational skills. The most important objectives of these curricula can be limited to the following points:

1. Preparing individuals for the labour market:

Vocational training aims to prepare individuals and qualify them to integrate into the labour market by providing them with the skills and knowledge necessary to practise specific professions (Al-Khulaifi, 2019, p. 45)

2. Improving professional competencies:

Vocational training develops the competencies of working individuals through specialised training curricula aimed at improving their job performance (Ali, 2021, p. 67)

3. Bridging the gap between education and the labour market:

Vocational training contributes to reducing the gap between academic qualifications and labour market requirements by providing practical training focused on the required skills (Taylo & Wilson, 2020, p. 78)

4. Enhancing employment opportunities:

Vocational training provides individuals with opportunities to improve their skills, increasing their chances of getting jobs or advancing in their career (Roberts, 2018, p. 102)

5. Meeting the needs of the labour market:

Vocational training curricula are created to address the evolving demands of the labour market, facilitating the development of qualified personnel who fulfil the requirements of various economic sectors (Garcia & Martinez, 2017, p. 56)

6. Promoting economic development:

Vocational training contributes to economic development by preparing a skilled workforce capable of supporting economic growth and innovation (Al-Gharbi, 2018, p. 23)

2.4. Characteristics of effective vocational training curricula

Effective vocational training curricula have several characteristics, including:

1. **Relevance:** Curricula should be tailored to the needs of the labour market and the requirements of employers.
2. **Flexibility:** Curricula must be flexible and able to adapt to technological advances and changes in the labour market.
3. **Inclusivity:** Curricula should cover all aspects of the profession, including theoretical and practical ones.
4. **Quality:** Curricula must be of high quality and delivered by qualified trainers.

2.5. Vocational training challenges:

Vocational training faces many challenges, including:

- ✓ The training curriculum are often inadequate in meeting the demands of the evolving labour market, leading to the graduation of persons who lack essential skills and abilities..
- ✓ Rapid ageing of knowledge and skills: The world is witnessing rapid technological advancements, making the knowledge and skills acquired in vocational training obsolete and useless after a short period.
- ✓ Difficulty in reconciling theory and practice: Many trainees have difficulty in applying the theoretical knowledge they acquire in vocational training on the ground in the work environment.

Vocational training curricula face many challenges that may hinder their effectiveness and ability to achieve the desired goals. The following are the main challenges facing these curricula, based on the academic literature:

- ✓ The absence of effective collaboration between educational institutions and the private sector results in a disparity between the skills imparted and those required in the job market (Taylo & Wilson, 2020, p. 89)
- ✓ Vocational education curricula struggle to adapt to the swift

transformations in the labour market, particularly due to technology advancements and the introduction of new professions necessitating specialist skills (**Al-Khulaifi, 2019, p. 56**)

- ✓ Vocational training knows a lack of qualified trainers who possess the practical experience and up-to-date knowledge needed to deliver high-quality training (**Roberts, 2018, p. 112**)
 - ✓ Vocational training still suffers from a negative societal view in some communities, where it is considered a secondary option compared to academic education (**Garcia & Martinez, 2017, p. 67**)
 - ✓ Poor monitoring and evaluation: The lack of effective mechanisms to follow up graduates of vocational training curricula and assess their success in integrating into the labour market is a major challenge (**Al-Gharbi, 2018, p. 34**)
 - ✓ With rapid technological development, vocational training curricula have difficulty updating and providing technological tools for training (**Smith & Brown, 2019, p. 102**)
 - ✓ Insufficient engagement from the commercial sector: The absence of active involvement by the private sector in the formulation and execution of vocational training curricula is a significant difficulty, as this sector is pivotal in identifying the requirements of the labour market (**Johnson, 2017, p. 89**)
- These difficulties necessitate strategic solutions to guarantee the efficacy of vocational training curricula and fulfil their goals in cultivating qualified human resources for the labour market. Consequently, it is essential to develop these curricula in accordance with advancements in the training process and the demands of the labour market. It is essential to ascertain the methods employed in the development and design of vocational training courses.

The formulation of vocational training curricula presents a significant challenge due to the swift transformations occurring in the labour market, where a critical issue is the disparity between the skills offered by the training programs and those genuinely demanded in the labour market. This disparity arises from multiple factors, including the

inadequacy of training curricula to align with technological and professional advancements, and insufficient coordination between training institutions and employers, resulting in graduates who lack the practical competencies required by the economic sector.

2.6. The mechanisms used in building vocational training curricula

Developing vocational training curriculum necessitates the use of precise procedures and methodologies to guarantee their efficacy and alignment with labour market demands. The primary mechanisms employed in the development of vocational training courses are as follows:

Table 1: Main mechanisms used in the construction of vocational training curricula

<i>Operations</i>	<i>Objective</i>	<i>Mechanisms</i>
<i>1. Needs Assessment</i>	<i>Identify gaps between current skills and skills required in the labour market.</i>	<i>- Labour market studies - interviews with employers - surveys - job analysis (DACUM)</i>
<i>2. Program Design</i>	<i>Develop the program structure based on the results of the needs analysis.</i>	<i>- Setting educational goals - Developing content - Choosing teaching methods - Determining the duration of time</i>
<i>3. Curriculum Development</i>	<i>Creating integrated educational content that meets the needs of trainees and the labour market.</i>	<i>- Cooperation with experts - Use of quality standards - Integration of theoretical and practical aspects</i>
<i>4. Implementation</i>	<i>Applying the actual curriculum.</i>	<i>- Training of trainers - Provision of resources - Continuous evaluation</i>
<i>5. Evaluation and Review</i>	<i>Measure curriculum effectiveness and make improvements.</i>	<i>- Self-assessment - Trainers' assessment - Employers' assessment</i>

6. Continuous Improvement	<i>Ensuring the continuity of the curriculum's relevance to the needs of the changing labour market.</i>	- Results analysis - Periodic review - Feedback - Collaboration with industry
7. Accreditation and Quality Assurance	<i>Ensuring that the curriculum meets the required standards.</i>	- Accreditation from third parties - Application of quality standards such as ISO- Internal Audit
8. Competency-Based Education	<i>Ensuring that trainees acquire the required skills.</i>	- Defining competencies – Practical evaluation – Flexible learning

Source: Prepared by the author based on previous studies

Developing vocational training curricula necessitates systematic processes that commence with needs assessment and conclude with ongoing review and revision. These procedures ensure that curricula align with labour market demands and successfully foster the development of vocational skills in trainees. These strategies will enhance the educational product, hence facilitating effective incorporation into the workforce. The analysis of the labour market, the identification of needs, and the consultation of experts are crucial to the development of vocational training curricula that meet labour market demands.

3. Job Description

3.1. Concept of job description:

Price characterised a job description as “a document that outlines the responsibilities and duties to be undertaken by an employee, along with the qualifications and experience necessary for effective job performance” (Price, A, 2011).

Noe and Howlin assert that job description is an analytical process aimed at defining the duties, responsibilities, skills, and knowledge necessary for a certain position, as well as the organisational and environmental variables influencing job performance (Noe et al., 2020).

Milkovich and Boudreau Firian characterise it as a systematic examination of work content, encompassing tasks, responsibilities, requisite skills, and knowledge, together with the organisational and environmental factors influencing job performance (**Milkovich & Boudreau, 2013**).

A job description differs from a job analysis; the former is the outcome of the latter, which involves the systematic collection of facts regarding the job.

Job description can also be seen as job design and job foresight by studying the impact of all variables on performance and adapting the circumstances of these variables to job development, competency development, and optimal performance (**Abdullah, 2020, p. 219**)

Job description, with its accurate and clear analysis of the tasks, responsibilities, and competencies required to fill a particular job, is the cornerstone of building and developing effective vocational training curricula. It forms the foundation on which curricula and training methods are built and ensures that they are adapted to the changing needs of the labour market.

The gap between the outputs of vocational training curricula and the requirements of the labour market is a pressing problem that concerns policymakers and experts in the field of vocational training. The literature indicates that this gap is manifested in several aspects, including the mismatch of the skills and competencies acquired by graduates with those required in the labour market, the lack of technical and technological knowledge necessary to keep pace with the rapid developments in the work environment, in addition to a weakness in personal and social skills that have become increasingly important in the modern labour market.

3.2. Importance of job descriptions in building and developing vocational training curricula:

Job descriptions are an essential tool in building and developing vocational training curricula, as they contribute to identifying the skills and knowledge required to perform a particular job effectively. The following are important job descriptions in this context, based on the academic literature:

1. Accurate identification of training needs

Job descriptions help identify the technical and behavioural skills and knowledge needed to perform a particular job, enabling the design of vocational training curricula that meet these needs **(Al-Khulaifi, 2019, p. 78)**

2. Quality enhancement of training curricula

By understanding the tasks and responsibilities associated with each job, more precise and effective training curricula can be designed, enhancing the quality of vocational training outputs **(Ali, 2021, p. 89)**

Labour market needs fulfilment

Job descriptions facilitate the alignment of vocational training curricula with labour market demands, so minimising the disparity between the skills imparted and those necessitated in practice **(Taylor & Wilson, 2020, p. 102)**

3. Career development

Job descriptions help guide trainees towards careers that suit their abilities and interests, increasing their chances of success in the labour market **(Roberts, 2018, p. 112)**

4. Evaluation of the effectiveness of training curricula

Job descriptions provide clear criteria by which the success of vocational training curricula in preparing individuals for targeted jobs is evaluated **(Garcia & Martinez, 2017, p. 56)**

5. Consolidation of the participation of private sector

Job descriptions enable private sector involvement in the formulation of vocational training curricula by allowing employers to precisely delineate the necessary competencies **(Al-Gharbi, 2018, p. 45)**

6. Enhancement of employment opportunities

By designing training curricula based on accurate job descriptions, graduates' employment opportunities increase, as their skills are aligned with the needs of employers **(Abdullah, 2020, p. 67)**

7. Continuous update of curricula

Job descriptions allow vocational training curricula to be continuously updated to keep pace with changes in the nature and requirements of jobs **(Smith & Brown, 2019, p. 89)**

8. Economic efficiency consolidation

By directing training toward skills that are already in demand in the labour market, job descriptions contribute to enhanced economic efficiency and reduced waste of resources **(Johnson, 2017, p. 78)**

9. Achieving integration between education and the labour market

Job descriptions serve as a bridge between educational institutions and the labour market, ensuring that vocational training curricula are directly relevant to the needs of the economy **(Al-Khulaifi, 2019, p. 90)**

Job descriptions serve as a strategic instrument to guarantee that vocational training courses are effective and align with labour market demands, so improving employment prospects and fostering economic development. The analysis and job descriptions generated through the DACUM methodology can serve as a foundation for developing new educational curricula that correspond with labour market demands, as well as for revising existing curricula to meet these needs, ultimately ensuring the availability of graduates equipped with the requisite skills and knowledge sought by employers.

4. Concept of DACUM

In the late 1960s, Canadians were the pioneers in employing the DACUM mechanism, as identified by the Faculty of Technology, which saw that its graduates struggled to secure employment due to a lack of requisite experience and competencies demanded by the labour market. Consequently, the faculty focused on analysing job market demands and job descriptions to ascertain the essential information, skills, competencies, and training content. This method evolved over time into a framework for job description, design, development, and assessment of curriculum, whether experimental or educational **(Al-Rumaid, 2015)**

DACUM abbreviation refers to “Developing A Curriculum” **(Hashima, 2016) (Dionne, 2010)**

(Al-Rumaid, 2015) believes that the DACUM mechanism is one of the effective methods in the job description, which relies on a committee of experts in a given job and uses the brainstorming method in determining the main duties and tasks of the said job, in addition to

the skills, knowledge, tools, employee behaviours, and future trends of the job, which helps in identifying training and educational needs, increasing employee participation, evaluating employee performance, planning the career, and restructuring jobs, as well as setting a strong foundation on which to rely when selecting and hiring new workers or promoting current workers to higher job levels.

4.1.DACUM methodology:

DACUM method, which dates back to the mid-1960s, is considered an approach in the field of job analysis for the purpose of designing training curricula directed towards the development of actual competencies (i.e. necessary to perform work), which is a widespread approach at the international level. The direction of DACUM is also part of the modern approaches to building and developing curricula. It is based on the idea of cooperation between the various parties, including those responsible for learning and those responsible for operating, to come up with an applied educational formula that suits the requirements of the labour market, and it is carried out as follows:

- A- Surveying the needs of labour markets to reveal the needs of society of professions and the quality required in them and to avoid unstudied training.
- B- Profession description, analysis, and knowledge of its practical steps (the tasks of the practitioner) by discussing with the parties distinguished bosses' workers at work, work protocols, and determining the tasks and actions necessary for them.
- C- Arranging the steps of that description and analysis in the order of tasks, classifying them, and linking them to the knowledge, skills, and training that must be provided in the curricula, their contents, processes, and the foundations of their construction. Work is done with the participation of the curriculum developers and some practitioners of the profession.
- D- Formulating these tasks in procedural objectives, which is a description of the degree of competencies that the trainee must have when graduating to practice a profession in a discipline in a measurable way, taking into account the clarity, procedurality, simplicity, standards of measurement, and conditions for their implementation

4.2.Philosophy of DACUM methodology:

The literature suggests that the DACUM methodology is based on the principle that workers in a particular field are most familiar with the skills and knowledge required to perform their jobs effectively **(Norton, 1997)** By holding workshops with a group of experts, the main and sub-tasks are defined, which are later used to develop training curricula or to identify market needs.

The philosophy of DACUM methodology is based on the idea that the best way to identify the skills and competencies required to perform a particular job is through the resort to practicing experts in the field. This methodology is based on the principle that skilled workers, supervisors, and managers who practice the job daily are better able to identify the basic tasks and competencies necessary to perform them effectively **(Norton, 1997)** Thus, DACUM shifts from a mere analytical tool to an educational philosophy aimed at bringing training curricula closer to the reality of work, ensuring that educational outputs are directly relevant to the needs of the labour market.

The core philosophy of DACUM is founded on competency-based learning, where instructional curricula are designed according to the actual tasks performed in the workplace. This approach reflects a shift from traditional educational models that focus on theoretical content to more practical and applied models **(Finch & Crunkilton, 1999)** DACUM also emphasises the importance of cooperation between educational institutions and employers, which enhances the quality of training curricula and their suitability to market needs.

In practice, the DACUM philosophy also reflects flexibility and adaptability, as training curricula can be easily modified based on changes in the labour market or technological developments. This makes it an effective tool in fast-changing work environments, where modern occupations require constant updating of skills **(Rasheed, 2020)** However, this philosophy faces a major challenge, which is the need for highly qualified experts to conduct the analysis accurately, which may increase the cost and time required to implement the curricula.

4.3.Elements and components of DACUM:

The mechanism of DACUM depends mainly on the workshops that are held, called (DACUM workshops), whose elements consist of the following **(Sayed, 2008)**

- A- Coordinator: A person selected on the condition that he possesses the skills of coordination between the various parties participating in the DACUM workshops; he plans the job description process, makes the necessary arrangements for holding and organising the DACUM workshops and providing their requirements, and selects individuals from the profession experts to participate in the DACUM committee.
- B- Facilitator: He is responsible for managing the DACUM workshops and guiding their participants.
- C- DACUM committee: The coordinator and manager meticulously pick a group of excellent employees for the position to be explained. This committee is tasked with facilitating debate, dialogue, and brainstorming to offer members' thoughts, opinions, and contributions regarding the work, ultimately aiming to define the precise job description. The committee comprises 5 to 12 personnel who must be renowned and experienced in their roles **(Shin et al., 2012)**.
- D- Registrar: His responsibilities are confined to aiding the facilitator in documenting all thoughts, conversations, opinions, declarations, and conclusions that occur during the DACUM workshops, as well as enabling the follow-up process for participants regarding the topics of dialogue and discussion in the workshop.
- E- Committee of experts: The members are meticulously chosen to reflect the collective experiences pertinent to the workshop's theme, and the outcomes of the discussions and conclusions are presented to them for their feedback and suggestions for modifications or enhancements.
- F- DACUM map: This is the ultimate output of the DACUM committee's efforts following the conclusion of the workshop. It encompasses the responsibilities and activities associated with the position, the resources utilised, the attributes of the individual in the role, and its prospective developments. It is also desirable to write the names of the members of the DACUM committee on the map.

4.4.Applying stages of DACUM methodology:

This methodology is extensively employed in the formulation of vocational training and technical education courses. The subsequent stages of implementing the DACUM technique are outlined in detail:

Table 2: DACUM methodology stages

Stage	Description
Identify the target job	- Determining the job or profession to be analysed - Forming a team consisting of experts in the field - Determining the general objectives of the analysis.
Holding a DACUM workshop	- Conduct a two- to three-day workshop with the team of experts - Use a trained facilitator to analyse the job into main and sub-tasks - Use techniques such as brainstorming to prepare a comprehensive list of tasks.
Task analysis	- Dividing the job into main and sub-tasks - Determining the relationships between tasks and their chronology - Classifying tasks according to importance and difficulty.
Identify required knowledge, skills and competencies	- Identify the knowledge, skills and competencies needed for each task - Identify the tools and equipment used in performing the tasks.
Curriculum and syllabus design	- Building the training curriculum based on task analysis - Determining educational objectives, training content, and training and evaluation methods - Determining the period required for each training unit.
Development training materials	- Developing educational materials such as booklets and presentations - Designing assessment tools to measure trainees' acquisition of skills and knowledge.
Implementation of the training curriculum	- Implement the training curriculum according to the designed one - Train the trainers on the use of new materials and tools.
Evaluation and improvement	- Evaluating the effectiveness of the training program by collecting feedback from trainees and trainers - Making the necessary adjustments to improve the curriculum.

Follow-up and update

- Monitoring the graduates of the program to assess their success in the labour market
- Updating the curriculum periodically to keep pace with changes in job requirements

Source: Prepared by the author based on previous studies

- **Explanation of Table:**

1. **Identify the target job:** The job to be analysed is selected and a team of experts is formed.
2. **Holding a DACUM workshop:** During which the job is analysed into main and sub-tasks using techniques such as brainstorming.
3. **Task analysis:** Tasks are categorised according to their importance, difficulty, and identification of the relationships between them.
4. **Identify knowledge and skills:** The competencies required to perform each task are identified.
5. **Design of the training curriculum:** The curriculum is designed based on the results of the analysis.
6. **Development of training materials:** The necessary educational materials and tools are prepared.
7. **Implementation of the training curriculum:** The curriculum is implemented, and the trainers are trained.
8. **Evaluation and improvement:** The curriculum is evaluated, and adjustments are made to improve it.
9. **Follow-up and update:** Graduates are followed up, and the curriculum is updated periodically.

4.5. Benefits of using DACUM methodology:

1. **Accuracy:** A thorough analysis of the tasks and competencies required.
2. **Flexibility:** Can be applied to a wide range of jobs and professions.
3. **Interaction:** The participation of experts in the field ensures that the curriculum meets the needs of the labour market.
4. **Effectiveness:** Design training curricula that are directly relevant to practical reality.

5. Studying the Applicability of the DACUM Methodology in Building and Developing Vocational Training Curricula

5.1.Importance of the DACUM methodology:

The importance of the DACUM methodology in the development of vocational training curricula lies in the following points:

1. Accurate definition of the required skills

The DACUM methodology helps to identify the basic skills and knowledge that trainees need to perform a particular job. This is done through workshops with experts in the field, ensuring that training curricula focus on practical skills required in the labour market (Norton, 1997)

2. Quality enhancement of training curricula

By analysing tasks and jobs in detail, more effective and appropriate training curricula can be designed for business needs. This improves the quality of graduates and increases their employability .

3. Meeting labour market needs

DACUM system depends on the participation of companies and specialists in the design process, guaranteeing that educational curriculum align with labour market requirements. This mitigates the disparity between the competencies graduates possess and those demanded by employers .

4. Consolidation of the competency-based learning

The DACUM methodology focuses on the specific competencies required to perform a particular job, which promotes competency-based learning. This approach helps trainees develop practical skills that they can apply directly in the work environment (Blank, 1982).

5. Evaluation enhancement

By accurately identifying skills and knowledge, more effective assessment tools can be designed to measure the extent to which trainees have acquired the required competencies. This helps ensure that graduates have the required level of competence before entering the labour market (Norton, 1997)

5.2. Application of DACUM in determining labour market requirements:

When applying the DACUM methodology to determine market requirements, the following steps are followed:

- 1. Formation of a committee of experts:** A group of experts in the field in question is selected, including representatives from industry, academia, and practitioners.
- 2. Identify the main and sub-tasks:** Through workshops, the main and sub-tasks that employees should be able to perform are determined.
- 3. Gap analysis:** Current skills are compared with the required skills to identify gaps.
- 4. Solution development:** Based on the results, training curricula are developed or adjusted to fill the gaps.

5.3. Benefits of using DACUM in determining labour market requirements

- 1. Accuracy:** DACUM relies on the participation of experts, ensuring the accuracy of the results.
- 2. Flexibility:** DACUM can be applied in different sectors and industries.
- 3. Cost-effective:** Compared to other methodologies, DACUM is less costly in terms of time and resources.
- 4. Accurate identification of labour market needs:** DACUM methodology helps to identify the basic tasks and duties that a graduate needs in the labour market, ensuring that training curricula are relevant to labour market needs.
- 5. Participation of experts and practitioners:** DACUM methodology relies on the participation of experts and practitioners in defining tasks and duties, which increases the realism of the curriculum.
- 6. Developing an effective curriculum:** DACUM methodology helps develop an effective curriculum that focuses on the basic tasks and duties that the graduate needs in the labour market.
- 7. Improving the quality of vocational training:** By developing an effective curriculum, DACUM methodology contributes to improving the quality of vocational training and preparing

qualified graduates capable of meeting the needs of the labour market.

- 8. Increasing graduate employment opportunities:** By preparing qualified graduates, DACUM methodology contributes to increasing graduate employment opportunities in the labour market.

5.4. Application of DACUM to bridge the gap between vocational training curricula and the requirements of the labour market

Upon concluding the application of the DACUM mechanism for job analysis and description, a thorough examination and delineation of the position are achieved, encompassing duties, requisite tasks, skills and knowledge, utilised tools, worker behaviours, and prospective developments of the role. This information can be utilised in the development of new study curricula that incorporate all necessary skills and knowledge from the outset, as well as training on executing job responsibilities and utilising tools and equipment, while also considering the acquisition of requisite behaviours for those positions.

This analysis and job description are also relied upon in the development of these regulations every period in light of the future trends mentioned in the analysis and description, so that the curricula and courses are modified every period according to the developments in the work environment. If this is applied accurately, successfully, and efficiently, the student will be able after graduation to join the various jobs in his field easily without the need for training because he acquired all the needs of that job during his education and considering the information contained in the analysis and job description using the DACUM mechanism. The existing curricula can be adapted and revised to align with labour market demands, alongside the enhancement of current study programs and the introduction of new courses, ensuring that students are better equipped for future employment opportunities.

6. Results of the Study

DACUM technique is a useful tool for developing vocational training curricula, as it focuses on a precise and methodical study of the tasks and competences necessary for a certain employment. The significance of implementing this methodology is in its capacity to connect the skills imparted in training programs with those demanded

in the job market. **(Norton, 1997)** asserts that DACUM facilitates the identification of essential and subordinate tasks related to a job, hence enabling the development of training curricula that directly address the requirements of economic sectors. This methodology improves the quality of training curricula by involving domain experts in the analytical process, thereby guaranteeing that the training content is both realistic and pertinent to practical applications **(Finch & Crunkilton, 1999)**

Besides, DACUM methodology contributes to improving graduate employment opportunities, as curricula are designed based on the requirements of current and future jobs, which increases the chances of trainees' integration into the labour market **(Al-Khulaifi, 2019)** It also provides a flexible framework that can be periodically updated to keep pace with technological and economic changes, making them a strategic tool to ensure the sustainability of vocational training curricula **(Taylor & Wilson, 2020)** In conclusion, the adoption of the DACUM methodology is an essential step towards developing effective vocational training curricula capable of preparing qualified cadres to meet the needs of the changing labour market.

A study by Rivera & Porter **(Rivera & Porter, 2006)** showed that using DACUM to analyse labour market needs helped identify gaps between available and required skills, leading to the development of more effective training curricula. In addition, another study suggested that DACUM can be a powerful tool in analysing future market trends, helping to anticipate which skills will be required in the future **(McClelland, 1993)**

7. Conclusion

DACUM methodology is an effective tool in identifying market requirements, especially in skills and competency development. Through expert engagement, gaps between current and required skills can be identified, helping to develop training and educational solutions that meet market needs. However, potential challenges must be considered to ensure the accuracy and effectiveness of the results.

8. References

1. Abdullah, M. (2020). *Vocational Education and Training: A Contemporary Vision*. Center for Educational Studies.
2. Al-Gharbi, K. (2018). *Vocational training and skills development. Egypt: Dar Al-Nahda Al-Arabiya*.
3. Ali, S. (2021). *Vocational Training Curricula: Challenges and Opportunities*. Center for Educational Research and Innovatio.
4. Al-Khulaifi, A. (2019). *Vocational training and job skills development*. Al-Fikr Al-Arabi House.
5. Al-Rumaid, B. (2015). *A study of the applicability of the DACUM mechanism in the development of human resources in Egyptian tourism companies*, unpublished doctoral thesis. Faculty of Tourism and Hotels, University of Sadat City.
6. Dionne, R. A. (2010). *Emergent Requirements for Project Management Education in the Aerospace* .
7. Finch, C. R., & Crunkilton, J. R. (1999). *Crunkilton, J. R. Curriculum Development in Vocational and Technical Education: Planning, Content, and Implementation*. Allyn and Bacon.
8. Garcia, M., & Martinez, J. (2017). *Enhancing Skills through Vocational Curricula*. Training and development.
9. Hashima, O. A. (2016). *Using the DACUM Methodology to Develop a Proposed Guide for Graduates of the Clothing and Textile Department to Work in the Engineering Department*. *Journal of Specific Education Research*, 43, p. 90 _ 111.
10. Johnson, L. (2017). *Professional Skills Enhancement: Strategies and Outcomes*. Learning Publications.
11. McClelland, C. D. (1993). *Testing for Competence Rather Than for Intelligence*. *American Psychologist*, 8(1), p. 1 _ 14.
12. Norton. (1997). *DACUM Handbook*. Columbus, OH. The Ohio State University.
13. Norton, E. R. (1997). *DACUM handbook*. The Ohio State University.
14. Norton, E. R. (1997). *DACUM Handbook: A Guide to Developing Quality Curricula Using the DACUM Process*. The Ohio State University.
15. Rasheed, A. (2020). *DACUM methodology and its applications in vocational education*. *Journal of Education and Labour*, p. 45 _60.

16. Rivera, W. M., & Porter, A. L. (2006). *Using DACUM to Identify Workforce Needs*. *Journal of Extension*, 3(44).
17. Roberts, L. (2018). *Professional Development through Vocational Training*. Learning Publications.
18. Sayed, M. (2008). *The Importance of the Human Element in Achieving Corporate Goals*, Unpublished PhD Thesis. British Academy of Higher Education: Jordan.
19. Smith, J., & Brown, T. (2019). *Vocational Training and Career Development*. Academic Press.
20. Taylo, R., & Wilson, P. (2020). *Vocational Training Curricula: Design and Implementation*. Academic Press.