

Designing Industry-Driven Vocational Education: A Competency-Based Case Study from the United Arab Emirates

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ABSTRACT:

Vocational Education, emphasizing the acquisition of competencies related to a job, aligns with requests made by industry for education to focus on employment and an existing skills gap and, the United Arab Emirates vision and strategies for Emiratization. The aim of this study is to understand how vocational programs may be best designed for industry in the United Arab Emirates. The methodology is of a single case study analyzing the design process of a vocational program for local high school leavers. The vocational program is designed for industry within a competency-based educational framework, in close collaboration with industry, blending applied learning with work-integrated learning, following thorough occupational and functional analysis, and a rigorous benchmarking exercise. Recommendations are made for tertiary education institutions to engage in close dialogue with multiple stakeholders and to follow a rigorous process leading to high-quality, industry-driven vocational education.

Keywords: vocational education; design process; benchmarking; competency-based education; occupational profiling; functional analysis.

Introduction

In today's rapidly evolving job market, the need for innovative and effective vocational programs has never been more crucial. As industries continue to undergo significant transformations, there is a growing demand for skilled professionals who possess the competencies and capabilities required to excel in their roles.

Vocational education responds to technological innovation, industrial transformation, and the diversification of labor markets. In doing so, such programs harness cross-disciplinary competencies such as creativity, critical thinking skills, and a high degree of adaptability (Pan, Wang, Gao and Liu, 2025).

The aim of this research is to understand how vocational programs may be best designed for industry in the United Arab Emirates. Vocational Education aligns with requests strongly made by industry for education to focus on employment and to address an existing skills gap through partnerships between businesses and educational institutions. Vocational Education in the UAE also aligns with the country's 2030 Vision and Emiratisation strategies (Neusuess, 2020). As a response to the growing need for a highly skilled workforce in the UAE, the government has prioritized the promotion of vocational education to inspire technical and professional skills among the young Emirati population (Raji, 2019).

This article contributes to the existing body of knowledge which Aldabbas and Alzoukani (2025) describe as noticeably scarce in the context of the UAE. A further contribution is that of providing educators, policymakers, and industry stakeholders practical insights and strategies for designing and implementing cutting-edge vocational programs.

Literature Review

Vocational Education

Vocational education supports the acquisition of competencies, combining knowledge, skills, and attitudes, related to a job (Beer and Mulder, 2020). It is the responsive and adaptive education system that links universities with industry, ensuring that graduates are contributors towards the growth of economies. As the employment landscape changes and advances, vocation education provides a skillful workforce that can innovate and adjust (Liu and Muhantha, 2025).

The design of vocational education programs is set within the framework of competency-based education. Competency based education places a strong emphasis on showcasing abilities in real-world situations, guaranteeing that students are not just informed but also prepared for the workforce (Makari and Ahamed, 2024). Competency is linked to a person's performance and what results are evidence of that

performance. In competency-based education a student is rewarded for the mastery of competencies at fixed assessment points. In vocational education the curriculum is designed and organized in such a way that competencies are integrated and assessed (Holmes, Tuin and Turner, 2021).

The driving forces for a vocational education, that promotes a knowledge-based economy and the competencies required by industry, are the UAEs focus on human capital growth contributing to economic progress, and the diversification of the country's economy, leading to less reliance on oil (Amro, 2022). In achieving its 2030 vision to upgrade the skillsets of nationals, the UAE established the Vocational Education and Training Award Council (VETAC) under the umbrella of the National Qualification Authority (NQA) with the aim of building Technical and Vocational Education and Training (TVET) systems that meet the needs of the job market, identify and develop occupational skills and work performance requirements, and providing the public with information about career projections (National Qualifications Authority, 2018).

Designing Vocational Education Programs

A key component in the design of vocational education programs is the co-operative relationship between industry and educational institutions (Liu and Muhantha, 2025). For this reason, occupational profiles and functional analysis at the design stages have a key role to play. Occupational profiles and functional analysis result in the identification of vocational competencies that are converted into learning outcomes aligned to the educational and occupational standards. The character of a job is thus identified for the appropriate level of qualification (Kopnov, Shmurygina, Shchipanova, Dremina, Papaloizou, Orphanidou, Morevs, 2018).

The co-operative relationship between industry and educational institutions in the design of vocational education is also reflected in the integration of workplace learning early in the

design process. Competences are learnt through practical experience (Pambudi and Harjanto, 2020; Tapani and Salonen, 2019) making employers key stakeholders in vocational programs (Taguma and Barrera, 2019; Calero López and Rodríguez-López, 2020). Students leverage the theoretical knowledge and industry-relevant skills they learn in class with practical applications in the world of work. This results in better student engagement, motivation and future success (Rahmawati, 2024; University of Waterloo, Centre for Work-Integrated Learning, 2025).

Kurki, Weiste and Toiviainen (2025) write about co-operative relationships and co-development as cornerstones of designing vocational programs. They write about the co-development between students and educational specialists who engage in a collective learning activity to construct novel ideas and practices. Authors write about the multi-voiced dialogue highlighting that the design of vocation educational programs is not the design of a single individual or professional group but engages the multiple and competing perspectives of different stakeholders.

This collective endeavor is vital in developing a vocational program that not only matches the demands and expectations of industry however also adheres to academic benchmarks (Yoto, Marsono, Suyetno, Ardista Nursisda Mawangi, Romadin & Paryono, 2024). Academic benchmarking results in better quality of vocational education that affects its sustainability. The type of benchmarking may vary across institutions and regions with some focusing more on process benchmarking, others on performance or services, whilst others take a more operational or strategy orientation to benchmarking (Nugroho and Jaqin, 2021).

Below is a description of the methodology adopted in uncovering the design process of a vocational education program in the UAE. This is followed by a detailed account of the process. The vocational education program design in this study is generic and not tied to a specific

specialization so as to serve the purpose of a model that may be adopted across different specializations.

Methodology

The methodology adopted in this research paper is that of the single case study. This methodology was selected to illustrate how a vocational program may be best designed for the industry in the United Arab Emirates whilst driving transformation in the field of vocational education. The case selected for this study is that of a vocational program designed for local high school leavers in the UAE. This choice was made based on its relevance to the aim of the study. The case study identifies the process adopted in designing the vocational program within the specific context. The institution within which the vocational program was designed is one with a history of competency-based education. This also contributed to the choice of the case.

The framework chosen for this case study is that by Stake (2020) where the main aim is to understand through process descriptions and explorations. A deep understanding of such complexity is sought with rich context insights. The case study is meant to have an instrumental value as the outlined process may be used to design further vocational programs.

The method adopted for data collection is the use of documents used to record various stages in the design process of a single vocational program. The availability of such a well-documented process contributes to the dependability of this research study. The detailed process description also contributes to the transferability of the case study results described below. Data is analysed using narrative review of the documentation, identifying keywords, reviewing contents, summarizing and synthesizing findings, and finally integrating them into writing (Ratnaya, Indriaswuri, Widayanthi, Atmaja and Dalem, 2022).

Results

Overview

The vocational education program analyzed in this study was developed within an applied learning and competence education framework to ensure that graduates are well-prepared for the UAE labour market. The program was designed to include flexibility, adaptability, and alignment with national and international qualification standards. By integrating competency-based approaches, the curriculum was structured around core competencies, ensuring alignment with national standards. Each semester was designed to build progressively on the last, combining foundational knowledge, advanced specialized practices, and immersive industry experiences.

The program learning outcomes are to demonstrate an understanding of key terms, theories, concepts and practices, apply relevant skills and competencies, demonstrate responsible and ethical behaviour, and use current practices and trends. This was achieved by developing essential skills, offering industry-relevant coursework, utilizing active and collaborative learning techniques, and engaging students in team-based projects. The program was designed to span over two-years, with a total of four semesters.

The program was aligned to local qualification standards including 70 credit hours in specialized courses carried out within the tertiary education institution and 20 credit hours in industry in the form of work-integrated learning. 50% of the work-integrated learning takes place in semesters 2 and 3 and the rest in the 4th semester. The total number of hours of the program is 1350 hours and includes face-to-face competency-based tuition (incorporating student-led activities such as presentations, group discussions and role plays), work integrated learning, and formative and summative competency-based assessments. Students are supported by experienced tutors in competency-based education, academic advisors, academic mentors, and workplace mentors. The

tertiary institution also offers pastoral care, academic guidance, and career counseling.

Multi-voiced Dialogue

At the design stages of this vocational education program a close dialogue was kept between the expert responsible for its design, faculty members teaching on the course, and industry. Guided by frameworks such as the Northern Council for Further Education (NCFE, UK), effective outlines and materials that integrated theoretical and practical components were developed. Regular training and collaboration between teachers teaching on this vocational program ensured that teaching methodologies remained aligned with the program's objectives and the evolving demands of industry. In addition, course modules were reviewed by various members of the industry who contributed feedback for improvement.

Curriculum and modules were also reviewed by the United Arab Emirates' National Qualifications Center, affiliated with the Ministry of Higher Education and Scientific Research. The National Qualifications Center develop standards for technical and vocational education in the UAE. They are also responsible for ensuring the quality of vocational qualifications and the accreditation of such qualifications (National Qualifications Center, 2025).

Occupational profile and functional analysis

In the initial stages of designing the vocation program an occupational profile and functional analysis were drafted. Before embarking on this, the International Standard Classification of Occupations (ISCO) codes were a key reference. These codes are developed by the International Labor Organization (ILO) to classify and organize information on occupations. This coding framework is designed to facilitate international comparisons and analyses of occupational data across different countries, regions, and sectors. It is widely used in various contexts, including labor market and occupational research, policymaking, and education. One of the main advantages of the

ISCO code is its global applicability. By providing a standardized classification system, it allows for more effective communication and comparison of job-related data across international borders. Overall, the ISCO code serves as a fundamental tool in understanding and organizing the world of work, reflecting both the diversity and the commonalities of occupations globally. The ISCO codes were used to tailor the curriculum to meet occupational standards and market demands, ensuring that the educational program aligns with professional requirements. Identification of the ISCO code led to the occupational and functional analysis.

The aim of the occupational and functional analysis was to ensure that the program is tailored to meet the specific needs of the target population and is aligned with the demands of the job market. Vocational education and training programs are designed to equip individuals with the skills necessary to enter the workforce

successfully. However, the effectiveness of these programs heavily relies on their relevance to current occupational standards and labor market needs. This relevance was ensured through detailed occupational profile and functional analysis.

The occupational profile provided a comprehensive description of a particular profession or job role. It outlined the duties, responsibilities, necessary skills, and knowledge required in the occupation. The profile was drafted to help educators and program developers understand what is needed for individuals to perform effectively in specific job roles. By aligning the curriculum with real-world requirements, the vocational training became more targeted and practical.

The occupational profile format in Table 1 was adopted providing a comprehensive snapshot of what is needed to perform a specific job effectively.

Element	Description
Job Title/Role	Identifies the official title or common name of the occupation.
Occupational Description	Provides a broad overview of what the job entails, including main duties and responsibilities.
Tasks and Duties	Lists specific tasks and duties performed in the role.
Skills Required	Details the essential skills needed for the job, such as technical skills, interpersonal skills, etc.
Knowledge Required	Specifies the knowledge base required, including industry-specific knowledge, technical expertise, etc.
Tools and Equipment	Enumerates tools and equipment commonly used in the occupation.
Work Environment	Describes the typical settings and conditions in which the job is performed.
Educational Requirements	Outlines the minimum educational qualifications necessary for the job.
Professional Certifications	Lists any licenses or certifications that are required or beneficial for the job.
Experience Required	Indicates the level and type of experience needed to competently perform in the role.
Core Competencies	Highlights the key competencies and attributes needed for success in the role.

Table 1: Occupational Profile Format

Subsequently the functional analysis that followed delved deeper into the specifics of job roles, breaking down each task associated with an occupation into its core components. This

analysis identified the essential functions and competencies needed to perform these tasks effectively. It allowed for a more granular understanding of the job, facilitating the

development of specific learning outcomes and competencies in the vocational training curriculum.

The general format in Table 2 was used to understand the detailed job functions and the

specific requirements for performing each task within the essential functions. It is particularly useful for designing training programs, evaluating job performance, and structuring roles within an organization.

Element	Description
Function	Major functional areas of the job, outlining broad categories of responsibilities.
Tasks	Specific activities required to perform each function are often listed in step-by-step detail.
Skills Required	Specific skills necessary to accomplish each task, including both hard and soft skills.
Knowledge Required	Detailed knowledge needed to perform each task effectively, including technical or industry-specific knowledge.
Tools and Equipment	Tools and technology required to complete each task.
Performance Criteria	Standards and metrics used to evaluate the successful completion of each task.
Frequency	How often each task is performed (daily, weekly, monthly, etc.).
Complexity	The level of difficulty or complexity associated with each task.
Interdependencies	How tasks within a function are interrelated or depend on other tasks or functions.

Table 2: Functional Analysis

Together, these analyses helped in several key areas of vocational training program development. First, they helped in designing curricula that ensures the training provided is comprehensive, current, and directly applicable to real-world job scenarios. Additionally, they allowed for the customization of the program to cater to different learning styles and paces, as well as accommodating any special needs of participants. This includes focusing on skill development, which involves not only cultivating hard skills specific to occupation but also enhancing soft skills such as communication, teamwork, and problem-solving that are crucial for career success.

These preparatory steps were instrumental in outcome measurement and stakeholder engagement. They helped in establishing clear metrics and benchmarks to evaluate the effectiveness of the vocational training program and its impact on the employability of graduates.

They also promoted the involvement of employers, industry experts, and community leaders in the program design and implementation, ensuring that it meets broader economic and societal needs. Incorporating occupational profiles and functional analysis into the planning stages of vocational programs enhances their relevance and effectiveness, thereby increasing the likelihood of successful employment outcomes for participants and making a significant contribution to workforce development and economic growth.

Benchmarking

Benchmarking was a key part of the process adopted in developing the vocational education program. This entailed systematically comparing program structures, content, and delivery mechanisms with those of peer institutions, benchmarking provided valuable insights ensuring alignment with industry standards and best practices. This was carried out to validate the

relevance of the program and identify opportunities for differentiation and value addition.

The objectives of this exercise were to assess the program's alignment with local and international standards and to identify distinctive features that address the unique demands of the UAE job market. The process involved a comprehensive review of peer institutions offering vocational programs with similar durations and entry requirements. By examining the curricula, pedagogical approaches, and work-integrated learning opportunities of these programs, the benchmarking exercise informed the design and delivery of a diploma program that is both globally competitive and locally relevant.

The program structure, including credit hours, mode of delivery, and pre-requisites, was benchmarked and a comparative analysis highlighted the key differences and similarities that informed the development of the vocational program. The program structure forms the backbone of any educational offering, influencing its accessibility, relevance, and alignment with professional standards.

The benchmarking process demonstrated the value of systematically evaluating peer institutions to create a program that is not only competitive but also uniquely suited to its cultural and economic context. Through a comprehensive analysis of program structure, goals, learning outcomes, teaching methodologies, assessments, admissions criteria, work experience, support services, and career opportunities, the program was fine-tuned to address the specific needs of the UAE job market.

Key differentiators, such as the emphasis on Competency-Based Education and extensive Work-Integrated Learning opportunities, positioned the program as a leader in preparing graduates for the dynamic demands of industry. By integrating global best practices with localized insights, the program ensures that its graduates are equipped with the skills, knowledge, and

ethical grounding to excel in their respective specialization.

As institutions continue to evolve their educational offerings, the insights gained from benchmarking exercises such as this one provided a robust framework for innovation and continuous improvement. A strategic approach to benchmarking led to the creation of a program that is both globally competitive and locally relevant, setting a new standard for vocational education in the UAE.

A key result from the benchmarking exercise is that the program's work integrated learning places it ahead of other benchmarked institutions in terms of providing comprehensive real-world exposure. The structured progression of work placement across semesters equips students with practical skills and professional confidence. The inclusion of academic and workplace mentorship from Semester 2 onwards fosters continuous guidance, enhancing student attainment levels. Career opportunities align closely with those of benchmarked institutions. The emphasis on work-based learning ensures that graduates are competitive and well-prepared for the UAE job market.

Another result concerns program goals and learning outcomes, the program uniquely integrates a commitment to lifelong learning and technological adoption into its objectives. The program learning outcomes align closely with benchmarks but stand out for their integration of UAE-specific market needs, technological adoption, and extensive work-based learning, positioning graduates for immediate employability in the local and regional job markets.

With regards to teaching methodology, the program distinguished itself with Competency based education, ensuring inclusivity and accessibility for all students. Faculty with industry experience enhances the program's practical orientation. Teaching methodologies such as role plays, case studies, and oral presentations align with the work integrated learning model,

providing students with opportunities to engage deeply with real-world scenarios.

Discussion

This journal article provides a blueprint for other institutions seeking to develop vocational programs that blend academic rigor with applied learning in culturally contextualized settings. It highlights design elements linking university with industry and resulting in the acquisition of competencies required by the current employment landscape (Beer and Mulder, 2020; Liu and Muhantha, 2025). The co-operative relationship between industry and educational institutions (Liu and Muhantha, 2025) is achieved in the design of program learning outcomes, the adoption of work-integrated learning, the inclusion of industry leaders in the design stages, the occupational profiling and functional analysis, and benchmarking against local and foreign universities also offering vocational programs (Yoto, Marsono, Suyetno, Ardista Nursida Mawangi, Romadin & Paryono, 2024).

All design is done within the competency-based framework with its emphasis on preparing for the real-work situations (Makari and Ahamed, 2024). The curriculum is designed around core competencies identified in the occupational profiling and functional analysis as well as dialogue with industry partners. Profiling also contributed towards meeting the need of the job market, identifying and developing occupational skills and work performance requirements, and providing the public with information about career projections (National Qualifications Authority, 2018).

A limitation in the design process is that students were not involved early in the development stages. Feedback from students was collected after the vocational program was delivered for one semester. This informed the development of the remaining material, allowing the program to evolve organically. The engagement of multiple perspectives, including that of students, earlier on in the design process enriches the vocational program (Kurki, Weiste and Toiviainen, 2025). The research limitation in this study is related to data collection. Over reliance on the analysis of documentation, although bringing a factual and reliable angle to the research may lack the narrative that is provided by the individuals directly involved in the design. It is recommended that future research also includes the narratives from faculty members and industry partners involved in design.

Conclusion

Vocational programs may be best designed for industry in the United Arab Emirates within a competency-based educational framework, in close collaboration with industry, blending applied learning with work-integrated learning, and following thorough occupational and functional analysis and a rigorous benchmarking exercise. The design framework outlined in this study is intentionally transparent and transferable, enabling other institutions to adapt it across vocational specializations and contexts. A further recommendation arising from this research is the need for sustained dialogue among industry, students, and faculty members involved in the delivery of vocational programs.

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