Factors that make it easier to overcome obstacles in developing curricula in vocational institutions

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**Abstract**

The curriculum must keep up with the times to meet the evolving needs of society. Responsive curriculum development poses challenging problems for curriculum designers in vocational education and other higher professions, although as such there is little study on this topic. This research focuses on how the process of developing a responsive curriculum for vocational education, and other higher professions based on the results of a literature review methods with data sources consisting of a collection of twenty-six articles that are putated with process of gathering and arranging information or data from multiple sources is referred to as data collection identifying six supporting components of the responsive curriculum development process: (1) Vision of Education and Learning, (2) Continuous and iterative curriculum development process, (3) Collaboration, (4) involving all contributors, (5) The presence of favorable environmental factors and circumstances, and (6) Representatives of the institution. The importance of paying equal attention to each of these aspects is the main focus. By integrating these components, curriculum creators can design adaptable programs that are efficacious across the whole learning process. This strategy necessitates a shift in mentality and heightened exertion from all tiers of educational establishments, but ultimately results in a curriculum that is more comprehensive and adaptable.

**Keywords:** other professional education; responsive curriculum development; vocational education

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# INTRODUCTION

It is imperative for curriculum designers to connect with the changing needs of society to provide the right training as per industry needs for future aspiring professionals (Cedefop 2022). Curricula in vocational education and other professions are developed based on occupational qualifications, shaped by an understanding of current skills, and influenced by broad national policies. Vocational qualifications fulfil a variety of important roles such as defining essential skills and knowledge for a particular industry, shaping vocational education programmers, facilitating career transitions, supporting learners, and evaluating the quality of education offerings, (Young & Hordern, 2022).

Entering 2016, the world is faced with the 'Industrial Revolution 4.0' to describe today's technological advances characterized by digitalization, automation, robotization, and interconnection, all focused on increasing work productivity, effectiveness and efficiency, and competitiveness in manufacturing (Loumpourdi, 2024). Avis, (2020) and McGrath, (2022) highlight the increasing recognition of modernization of the world economy that stimulates innovation and customer-focused dynamics only to maintain economic competitiveness. Furthermore, collaborative initiatives are underway to reach agreement on creating inclusive and sustainable societies, as evidenced by various works (Rusert & Stein, 2023).

Professional credentials are reluctant to adapt to social and labor market developments, despite significant modifications to be able to change one's lifestyle, find work, and interact in an already very complex scope (Loumpourdi, 2024). Various studies show that those responsible for designing vocational education programs face difficulties in adapting to technological and societal changes that are expected to have a significant impact on how to work well (Avis, 2020). If vocational education does not adapt, there will likely be concerns felt by the world of work and the world of education about less relevant curricula, (Young & Hordern, 2022). For example, problems related to capacity and quality may arise, such as graduates facing unemployment despite the increasing number of job openings, or employees without the necessary knowledge or skills.

The results of international scientific debates have given rise to ideas regarding the future of vocational curricula, taking into account two potential systems: one focuses on the study of vocational schools that meet the needs of the surrounding community, and the other conducts internships with educational curriculum structures relevant to the work sector and organization (Young & Hordern, 2022). The application of the dual system is recommended to make it easier for students to make the transition. This perspective has important consequences for designing vocational curricula (Young & Hordern, 2022). To run both systems requires the involvement and guidance of an educator, curriculum designer, a professional, and a researcher who understands the educational environment and standards of the emerging world of work. VanLaningham, (2024) argues that these necessary changes in vocational frameworks allow educators to challenge dominant ways of thinking about vocation as well as thinking about what is "common" and what is "good."

Vreuls et al. (2022) conducted an exploratory study, finding that individuals involved in vocational education curriculum development, education researchers, teachers, and employer representatives, often face challenges, but have successfully managed responsive curriculum development procedures. International organizations and donor agencies conceptualize this problem as a mismatch between skills supply and demand, (Soliman, 2023). Therefore, curriculum developers need help. Vreuls et al. (2022) said that a significant problem in the implementation of vocational education is the slow progress of curriculum development, which is hampered by the carrying capacity of ongoing changes. The responsive curriculum is designed to cater to the evolving requirements of students, effectively bridging the divide between general knowledge and theories, and the dynamic and ever-changing realities of everyday life and the professional sphere.

 **METHODS**

Writing articles utilizing books and journals as data sources is known as the literature review method, and it is used in this article as well. A literature review, sometimes referred to as literature research, is a descriptive-analytical document that is organized logically and purposefully. In order to locate theoretical and pertinent scientific studies, the literature review will search for literature sources that are pertinent to the subject (Wilkinson &; Doctor, 2023).

Since obtaining data is the primary goal of the information gathering phase of research, it is a crucial stage. The following data collection techniques are employed: The process of gathering and arranging information or data from multiple sources is referred to as data collection. This project aims to compile credible articles about curriculum development for vocational education. Data analysis is the methodical process of converting and arranging research data into a logical structure. After that, the data is analyzed to extract information, starting with a reliability-based selection of the data.

The results of the research literature review can be used as a reference for formulating problems, developing appropriate theories, and determining the research methods that were carried out. This was achieved by analyzing the contents of twenty-six reputable journals that focus on the field of vocational education curriculum development.

**RESULTS AND DISCUSSION**

**Vision of Education and Learning**

According to Vreuls et al., (2022) one of the things that supports the process of developing a responsive curriculum is the identification of the vision of education and learning. This factor has four important elements: vision, intended curriculum content, curriculum integrity, and curriculum systematics. Significantly, a strong correlation was identified between these variables and factors related to the ongoing and ongoing process of curriculum creation, as evidenced by their substantial proximity. Responsive curriculum development is significantly influenced by the existence of a shared curriculum vision, open and coherent materials, and a well-defined framework. An important aspect to responsiveness seems to be the formation of a collective vision centered around an open and adaptable curriculum. This conclusion is supported by other statements that highlight the achievement of a collective vision for an adaptable and inclusive curriculum.

**Continuous and iterative curriculum development process**

The constant and iterative process of curriculum creation has also been identified as a contributing component. According to Vreuls et al., (2022) that factors influencing this component include appropriate regulatory models and alignment, as well as sustainable, iterative, and participatory development processes. The study shows that to be responsive, the curriculum creation process must have quality continuity, iteration, and participation, which is also in order to maintain a strong relationship with professional practice.

**Collaboration**

The presence of collaboration was found to be an additional contributing factor. Factors affecting this component include a shared sense of belonging, composition of members, member competence, communication between members, and representatives, (Loumpourdi, 2024). This highlights the idea that delegating curriculum development to teams is a beneficial first step in promoting a customizable development curriculum.

Experts stress the importance of 'hybrid professionals', who are teachers who have additional positions in the workplace, in relation to responsiveness, (Schroth, 2023). This can be seen in a variety of phrases, including the phrase 'Stay ahead!' It is essential to ensure the active involvement of all stakeholders in the future-oriented change of the curriculum. The hybrid professionals concerned contribute significantly to the maintenance of an updated curriculum through their proactive pursuit of possible changes and the generation of new ideas. In addition, they enhance the Representative dimension by actively promoting new concepts and pioneering their actualization and implementation.

 **Involving All Contributors**

In addition, the study highlights elements of contribution related to stakeholders. This element involves stakeholders' desire to engage, time their engagement, and build lasting relationships. These findings emphasize the importance of consistency involving various stakeholders throughout the curriculum development process, (Vreuls et al., 2022). This statement affirms that responsive development processes benefit from perspectives offered by various stakeholders, as they provide diverse experience in designing curricula and represent unique environmental specializations and knowledge.

**The presence of favorable environmental factors and circumstances**

One of the factors that contribute to the process of developing a responsive curriculum is the presence of favorable atmosphere and conditions. This component consists of various aspects, such as skills and career advancement, accessibility of financial resources, measurable results, adaptability in modifying or abandoning the old curriculum, educational ideas, and work structures that are already stable, as well as the existence of suitable for work. This component highlights the clear interdependence between organizational development and curricular development. Scholars have underscored the importance of organizational adaptability, lasting learning, and the provision of space for constant modification within the institutions involved in curriculum development, which includes its rules, structure, boards, and panels, (Vreuls et al., 2022).

**Representatives of the institution**

In conclusion, the Representative has been identified as a contributing component. This factor includes various dimensions, such as an individual's self-confidence in their capacity to carry out tasks and achieve success, adaptability, a clear mindset, expertise, openness to change, skills to lead, and readiness to maintain stable and strong values of truth, tradition, or skill practice. Representativeness, which refers to the ability of individuals to actively and seriously design their abilities against challenging conditions, serves as a basis and is important for making responsive curriculum creation procedures more effective. Banegas et al., (2024) Stating teachers' understanding of curriculum development is essential for them to be agentically involved in curriculum change. Therefore, the authors suggest that understanding curriculum development may involve teacher knowledge of key elements in curriculum design such as needs analysis, learning outcomes, teaching materials, pedagogical approaches, evaluation, or environmental constraints.

There is a distinct correlation between Representatives and other elements, as the significance of Representatives is underlined in a wide array of subjects relating to other factors mentioned by experts. Although teachers and trainers are practical educators to develop and strengthen students' interpersonal skills (Ajambo et al., 2022). These findings suggest that Representatives (teacher and trainer) play an important role in overcoming institutional barriers faced by curriculum developers as they seek to create responsive curricula.

A strong correlation between representation and the favorable environment becomes apparent in the subject matter and influence of these elements. In line with these observations, (Özel, 2022) describe specific transformation mechanisms intricately connected with the socio-political environment, in which the active involvement of stakeholders assumes a major influence on the formulation of the educational curriculum. It is recognized that the driving force behind change is in the representation and innovation of an institution. This proves that change can only be generated externally through breakthroughs that can affect many parties, both the world of education and the world of work, which ultimately results in a profound transformation. Mulpeter et al., (2023) points to the fact that curriculum development is more likely to succeed if strong consultations with teachers, parents, and other investment bodies are carried out.

The researchers uncovered a range of complex issues at the organizational level, including social, cultural, and political aspects, faced by curriculum developers. Challenges emerge as complex socio-political issues when stakeholders participate in the curriculum development process. This occurs in rigid and unyielding institutional and organizational contexts, where curriculum developers may lack the necessary skills to carry out their duties or feel burdened by various activities and responsibilities (Bens, Kolomitro, and Han 2021; Vreuls et al. 2022). The following are the elements of curriculum development: developing curriculum renewal strategies, identifying graduate attributes, mapping learning pathways, auditing learning outcomes and developing and updating curricula and implementing programs. Dynamic elements include awareness raising and capacity development, internal and external collaboration, and ongoing monitoring and evaluation (Alghamdi, 2023).

Realizing complex problems, various approaches are needed to improve the efficiency and effectiveness of vocational education learning. McGrath (2022) points to extensive literature on general discussions but also highlights the lack of writing on effects on vocational education curricula. Cedefop (2022) also recommends conducting additional research to improve understanding of the fundamental mechanisms associated with creating adaptive curricula. As Print, (2020) for proposing five principles in curriculum development, namely: First, the principle of relevance; internally that the curriculum has relevance among the components of the curriculum (objectives, materials, strategy, organization and evaluation). While externally that these components have relevance to the demands of science and technology (epistomological relevance), the demands and potential of learners (psychological relevance) and the demands and needs of community development (sociological relevance).

Second, the principle of flexibility; In curriculum development, strive for what is produced to have a flexible, flexible, and flexible nature in its implementation, allowing adjustments based on situations and conditions of place and time that are always evolving, as well as the ability and background of students. Third, The principle of continuity; namely the existence of continuity in the curriculum, both vertically, and horizontally. The learning experiences provided by the curriculum must pay attention to continuity, both at the grade level, between levels of education, and between levels of education and the type of work. Fourth, the principle of efficiency; Namely striving so that curriculum development can utilize time, costs, and other existing resources optimally, carefully and precisely so that the results are adequate. Fifth, the principle of effectiveness; namely striving for curriculum development activities to achieve goals without wasteful activities, both in quality and quantity

Vreuls et al. (2022) stated that further review is needed on the factors that support curriculum developers. This study aims to analyze the perspective of experts on the process and supporting factors that have a significant influence on regional, national, and international institutions in discussions that discuss the structure of vocational education curriculum in the future. The processing of these supporting factors can include three phenomena. The first phenomenon is substantive and includes several elements of the curriculum, such as objectives, content, and resources.

The second phenomenon is related to social and political aspects, including political and social developments that are fundamental in curriculum development. The third phenomenon involves the practical aspects of designing, improving, and implementing curriculum development. This study uses social and political as well as technical-professional approaches to investigate important supporting variables related to the creation of responsive curricula from a process-oriented point of view.

The vocational education curriculum is a structured program designed to teach learners about science, relevant skills, and competencies necessary for their careers. In addition to specific knowledge and skills, the curriculum also includes broader goals such as being an active citizen, a responsible personality, and sufficient well-being. Creating such a curriculum requires a process or action aimed at focusing on redesigning, producing and implementing education within formal rules or based on the world of work.

Typically, these procedures are long and complicated (Vreuls et al. 2022) and those who work with schools know very well, just having great ideas and plans does not mean that curriculum development will be workable (Schroth, 2023). When faced with fast-paced developments and expectations in the general public and work environment, time is very limited (Vreuls et al. 2022). The relationship between vocational schools and the world of work is strained due to the rapid development of public knowledge and sophisticated technology. Cedefop (2021) states that feedback channels, both official and unofficial, from VET to the demands of the world of work are becoming more important to be responsive.

According to Vreuls et al. (2022), responsiveness relates to the extent to which vocational education can immediately adapt to shifts in the world of work and produce individuals who have the necessary skills and knowledge to obtain employment in the workplace. Emerging curricula, in which educators design unique learning experiences according to industry interests and needs, can provide opportunities for higher-level professions to explore the world in meaningful ways, (Trifonas & Jagger, 2024). Therefore, the process of developing a responsive curriculum is a cycle that requires a re-evaluation of initial procedures and requires a mindset and approach that ensures sufficient quality assurance (Vreuls et al. 2022). Collaboration with industry experts and the application of agile and participatory curriculum creation methods are required for this process. These models provide many opportunities to quickly adapt to advances in the field.

Based on the study of Vreuls et al. (2022) emphasizing the importance of stakeholder involvement in the curriculum development process, it is highly recommended that in order for curriculum developers to run effectively, in this case it is necessary to further identify the factors that influence the responsive curriculum development process. When researchers make informed choices is a very difficult task (Gericke, 2022). Especially considering the fact that these factors have a huge impact on the design choices made by developers and curriculum implementation. The complexity of this issue arises from the implicit nature of the various aspects that contribute to the development process and the understanding of developers, which includes the choices they make and the resulting instructional design (Bouw, Zitter, &; de Bruijn, 2021). Gaining insight into these characteristics can assist curriculum developers in contemplating and forecasting the difficulties associated with each stage of growth and equip them with practical alternative approaches.

Researchers describe four different modes of change: (1) relocation, which involves changing existing rules with new rules; (2) incremental, which requires adding new rules without replacing existing ones; (3) shifting, which involves shifting the external conditions of a rule, thereby changing its impact while formally maintaining the same rule; and (4) incorporation, which involves the interpretation and implementation of rules in new ways while formally remaining unchanged. When proponents of existing circumstances have substantial authority to resist change, curriculum planners are more likely to choose indirect adjustments to the curriculum, such as incremental changes and slowly shifting changes, rather than arguing for relocation or combined change. According to (Özel, 2022), when educational institutions give stakeholders a significant degree of autonomy in curriculum development, allowing them to incorporate their own principles, attitudes, and habits, the likelihood of deviation and conversion increases.

Current studies investigate the characteristics that facilitate the process of building responsive curricula and assess the significance and practicality of these factors. Six important aspects that provide support have been identified: a clear vision of education and learning practices, a continuous and iterative curriculum development process, effective cooperation, active stakeholder involvement, favorable environment and conditions, and the presence of representatives from the institution. In addition, the experts involved in the study provided illustrative comments to clarify the clear relationship between the aforementioned criteria and their significance in promoting responsiveness in the curriculum building process. Based on the findings mentioned above, we argue that in order to grow the curriculum in an adaptable and responsive way, it is imperative to give fair consideration to each of these aspects. As per Vreuls et al. (2022), the compiler provides suggestions to start this development process by building a collective vision and forming a proficient team consisting of stakeholders from inside and outside the organization.

It is recommended that curriculum development teams engage in an iterative process of creating a sustainable curriculum (Vreuls et al., 2022) in a supportive atmosphere that facilitates mandate organizations and empowers developers to advocate for change. Bukari et al., (2023) Presenting the results of developing an elective curriculum, this program equips students or higher professions with the knowledge and skills needed in their respective industries as planned. Nonetheless, as time goes by and technology advances as it happens in the industry, some courses require review to meet industry standards.

However, based on the findings of the constituents, it shows that the main focus is on representatives rather than vision, which arises as a result of environmental problems. The central position of representation in conducive environmental factors becomes clear through the statements of participants and the presence of these factors in other factors, such as statements of changing existing habits and changing long-standing mindsets, habits, or practices.

The relationship between a continuous and iterative curriculum development process, effective cooperation, a favorable environment, and elements of a representative is closely observed, while vision and stakeholder engagement appear to be activities that have been independent. The different positions of these components may indicate that they are well defined and separate but may also imply that simply identify a number of relationships between these criteria and other factors that constitute their existing (conventional) curriculum creation process (Leeman et al., 2020).

The curriculum of vocational and higher professions has significant relevance due to its association with increased production and employability, as well as effectively adapting to global competition. To address the ongoing debate over future structure, educational significance, and possible deterioration of vocational curricula and higher professions, researchers suggest that for these curricula to evolve and offer efficient competencies to all professions in the future, it is imperative to embrace a proactive approach to curriculum development. Thus, they can guarantee the provision of education of superior quality (Loumpourdi 2024). As a result, curriculum designers must have the ability to immediately acknowledge and adapt to the rapid transformations intrinsic to the Fourth Industrial Revolution. However, according to this study, one could argue that traditional curriculum creation procedures often fail to gain the desired level of flexibility.

To illustrate, curriculum developers face barriers at the organizational level such as inflexible frameworks (which may be legal, institutional, or both), limited stakeholder participation in the development process, and a dearth of autonomy among designers and instructors. The primary means by which employers engage in the application phase is through the facilitation of work-based learning. (OECD, 2023) However, employers may also participate in various other aspects, including ensuring the quality of work-based learning, establishing cost-sharing agreements, providing necessary equipment and instructors, and incorporating a workplace component into student evaluations.

It is suggested that to show the level of application of curriculum development, the position of stakeholders is at different levels in an organization. The first step in the transformation of vocational education towards a more adaptable model at the institutional level, involves addressing broader contextual factors and challenging the perspectives of governments and many stakeholders who are inflexible and lack a solid foundation. In addition, it is imperative to reevaluate the qualifications of teachers at the college/school level; They should no longer be considered merely as a basis for curriculum development, but rather as points of reference and means to ensure quality control. Lastly, at the department or team level, it is critical for team leaders, curriculum developers, and teachers to set direction when given significant authority in curriculum development. In short, when innovative, industry-based curricula are created collaboratively across organizational boundaries, there is an opportunity to address forces that typically hinder progress in public sector education (Stevenson, 2020).

**CONCLUSION**

This research proposes a framework to transform curriculum development into a customizable process that meets 21st century needs. The framework focuses on six key elements: educational goals, iterative development, teamwork, stakeholder involvement, learning environments, and necessary structures. By incorporating these elements, curriculum developers can create adaptable programs that are effective throughout the entire learning process. This approach requires a shift in mindset and increased effort from all levels of the educational institution, but ultimately leads to a more inclusive and responsive curriculum.

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