

The Challenges Facing the Vocational and Technical Education (BTEC) Program in Jordanian Vocational Schools from the Teachers' Perspective

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ABSTRACT: The main objectives of the current study were to explore the problems facing the implementation of the BTEC curriculum in vocational schools in Jordan from the teachers' perspective. A descriptive survey research design was used, and data were collected from 301 vocational education teachers who responded to a validated questionnaire. The results showed that the implementation challenges were at a moderate level overall. The most challenging issues were related to the students, the second most challenging issues were related to the curriculum and assessment, and the least challenging issues were related to teachers. The findings showed that there were no significant differences in teachers' perceptions regarding gender, academic qualification, specialization, and place of teaching, while there was a significant difference regarding their years of experience. The results revealed the need for specific professional development programs, more support in schools, and more uniform evaluation schemes to support the effective implementation of competency-based vocational education. This study makes a unique and important contribution to the field of vocational education in terms of providing empirical evidence on the multidimensional nature of implementing BTEC programs in a developing educational context and highlighting educational implications for policymakers, curriculum designers, and vocational education stakeholders.

KEYWORDS: BTEC curriculum, Vocational education, Curriculum implementation, Implementation challenges, Vocational teachers.

I. INTRODUCTION

Another direction for national efforts is vocational and technical training, which aims to align with the needs of the Jordanian labor market by producing qualified students who have the needed skills and knowledge [1]. The Jordanian Ministry of Education has recently added the Business and Technology Education Council (BTEC) curriculum to its programs [2, 3]. The BTEC curriculum is an internationally recognized, competency-based, and project-based model, which stresses the integration of knowledge and application in the teaching process [2, 4]. However, this process cannot be achieved unless teachers have sufficient knowledge, skills, and willingness. Their ability to keep up with current trends in education and technology will enable them to implement the BTEC curriculum as planned.

Therefore, the Jordanian Ministry of Education, in order to activate the teaching of the BTEC curriculum, should curb the difficulties and obstacles that may face its implementation and teaching. When teachers

acquire the required competencies, skills, and knowledge, this will positively affect their teaching and students' learning [5], and hence they will be able to achieve the program's objectives. To achieve the instructional and educational objectives of the BTEC curriculum, the process of teaching and learning should be transformed into a learner-centered process based on applied knowledge rather than merely on the teaching of theory [6].

In this vein, curriculum implementation is one of the crucial phases of the curriculum process as it introduces the curriculum to the school setting and integrates the educational process. The curriculum should be field-tested and reviewed before it is effectively implemented by a competent teacher who can deliver the curriculum and its intended objectives [7]. Effective curriculum implementation requires the collaboration of many stakeholders, including students, teachers, supervisors, school administration, parents, and educational authorities, among others [8]. Curriculum implementation occurs through stages. The first stage is preparation and orientation, which targets the preparation of curriculum implementation stakeholders in terms of psychology, materials, human, and practical aspects. During this stage, stakeholders receive a curriculum implementation heads-up regarding the nature of the process and the responsibilities they will undertake. Necessary data are collected and analyzed to depict the initial phase of the implementation process [9].

A teacher who is academically and professionally prepared to perform their duties in the teaching and learning process is more likely to implement the curriculum and perform their role effectively. In addition, a teacher who knows how to implement the curriculum because they are aware of their roles is likely to implement the curriculum successfully. Likewise, a teacher who is familiar with the objectives of the curriculum is likely to achieve the targeted outcomes [10]. In addition, a teacher who understands that teaching is a human-centered profession, and who respects, empathizes with, shows flexibility to, and demonstrates integrity in his or her personal and professional relationships, can implement the curriculum more effectively. Furthermore, the curriculum can be implemented properly only if teachers have the cognitive and practical skills necessary for its implementation [10].

Vocational and technical education seeks to achieve the goals of comprehensive learner development through the knowledge and skills it encompasses, which are structured in the form of lessons, activities, and applied projects carried out by learners under organized pedagogical supervision [11, 12]. This approach aims to prepare qualified students who possess both knowledge and skills, enabling them to contribute effectively to their society in the future [5]. Since the BTEC curriculum has been selected to achieve these goals, it is important to conduct systematic and empirical studies to identify the difficulties that may be faced by the implementation of the BTEC curriculum at Jordanian vocational schools [6].

In Jordanian vocational schools, the BTEC curriculum is adopted in partnership with and under the supervision of a UK-based organization called Pearson. The program lasts for three years, after which students graduate at Level 2 in various fields such as information technology, business, beauty, hospitality, engineering, and agriculture [2, 4]. The BTEC instruction includes theory and practice, with project-based learning and applied, hands-on activities. The BTEC program is implemented over three academic years and combines theoretical and practical learning through project-based instruction [2]. The BTEC curriculum implementation adopts a project-based and competency-based learning methodology, using laboratories and workshops to apply theoretical learning [6, 11, 12]. In the BTEC program, assessment takes place through the completion of assignments, tasks, and projects under the supervision of Pearson and BTEC teachers. The assessment is documented and assessed according to the agreed criteria by internal verifiers [3, 13]. The BTEC curriculum is structured as a program taught by vocational education teachers in Jordanian vocational schools. It is one of the curricula that achieve the vision and objectives of the Jordanian Ministry of Education in preparing individuals for manual work and valuing vocational professions [3, 14].

Teachers are one of the most significant parts of the teaching and learning process due to the responsibilities, duties, and roles they hold in achieving desired educational outcomes. A teacher's cognitive and professional skills are focused on guiding students' behavior, communicating effectively, and making professional decisions for continuous improvement [15]. Therefore, teacher preparation and training, along with equipping them with the knowledge and skills to implement the BTEC curriculum, is extremely vital,

considering the knowledge explosion and rapidly advancing technology. This will boost the teachers' abilities to adapt to this curriculum and meet its intended goals [16]. Teachers play a central role in the successful implementation of vocational curricula, as their knowledge, skills, and attitudes directly influence the effectiveness of teaching and learning outcomes in competency-based education [10, 15]. For example, obstacles in teaching computer subjects were moderate among 94 teachers, with no significant differences based on teaching experience or gender [17]. Likewise, perceptions of challenges in implementing the developmental kindergarten curriculum were moderate among 66 female teachers, and there were no differences based on educational qualification or years of experience [9].

A descriptive survey of 70 teachers and supervisors found that the aims of the curricula do not take into account the interests, needs, and inclinations of students; that they are difficult to attain; and that they lack flexibility. The study also found that the instructional content was difficult to evaluate and not suited to the students' levels [18]. A descriptive study of 100 teachers reported that challenges in implementing second-generation curricula were related to students, material resources, concepts and terminology, and the training dimension [7].

Approaches have been recommended to overcome challenges due to tensions between teachers and school administrators and between teachers and parents regarding curricula for younger children [19]. A descriptive-analytical study of 123 teachers revealed weaknesses in curricula regarding interaction, the role of the child, creativity, and self-expression [19]. Similarly, research with 102 teachers described the challenges faced by teachers in implementing a competency-based curriculum as an agenda of challenges encountered during implementation [20]. Despite previously conducted studies dealing with similar aspects of curriculum implementation and challenges within vocational education, researchers could not find any that had investigated the challenges of implementing the BTEC curriculum in Jordanian vocational schools. The studies conducted by other researchers focused on discovering and analyzing curriculum implementation challenges in various subject areas such as computer science, early childhood education, physical education, and sports education. The current study benefited from these previous works in constructing its theoretical framework, the questionnaire on the challenges of implementing the BTEC curriculum, and possible challenges faced by teachers of vocational education [7, 9, 17–20].

II. CRITICAL SYNTHESIS

The literature reviewed reveals that past research has concentrated more on describing the problems encountered in curriculum implementation in vocational and technical education and has not provided a detailed analytical explanation. The obstacles identified in most studies include teachers, students, curriculum design, and assessment systems [7, 9, 18]. Some studies focus on teacher aspects as the main barrier, while others focus mainly on students' readiness, curriculum content, and resources, revealing differences in the aspects emphasized in different contexts. Most of these studies, however, focus only on one dimension at a time and do not adequately investigate interactions between the dimensions. Moreover, while these studies offer some empirical insights, they do not have a consistent conceptual framework that explains the complex interaction of these factors affecting the effectiveness of implementing the curriculum. Thus, the current literature is still rather disjointed and descriptive, not integrative and analytical. Furthermore, there is limited consideration of international competency-based curricula such as BTEC in the creation of educational contexts such as Jordan, since institutional readiness, teacher preparation, and student adaptation are important factors that affect the success of implementation [10, 20, 21].

Curriculum implementation issues should not be treated as isolated issues, but as systemic issues, from a critical perspective. Poor teacher preparation can directly affect assessment quality, and school readiness can be strongly influenced by curriculum design, instructional resources, and school capacity. The interactions in previous studies have not been sufficiently explored, which further supports the need for a more in-depth and contextual investigation, like the one carried out in the present study [10, 21]. BTEC Curriculum, vocational education teachers also face human, administrative, and technical challenges in effectively implementing the BTEC curriculum. These challenges could include insufficient resources,

training programs, ambiguous assessment mechanisms, and insufficient equipment and materials for required practical tasks and activities [5, 12, 21].

Since the BTEC curriculum has been recently adopted in the Jordanian educational system, the researchers thought it would be worthwhile to explore the implementation challenges of the BTEC curriculum. The Ministry of Education in Jordan adopted the BTEC curriculum to make a significant change in the vocational education system in terms of practical skills and project learning, but some obstacles may impede implementation of this curriculum and cause deviation from the intended curriculum to the actual curriculum in schools [2, 6]. One reason for these deficiencies may be that the Ministry used the same teachers who taught the old vocational education curricula that included mechanics, general electricity, carpentry and decoration, and agriculture. These teachers were not trained and qualified according to the needs of the curriculum's designing body [21]. In addition, the material side of the schools was not thoroughly updated, nor were awareness and guidance programs for students and their parents concerning the nature of the program and its importance implemented properly [5]. Additionally, in Jordan, students and parents generally hold negative attitudes toward vocational education [22–26]. Therefore, the program is expected to encounter challenges in the process of implementation, especially while introducing new specializations.

III. RESEARCH GAP AND THEORETICAL BASIS

Although there has been an increasing number of studies on the implementation of the curriculum in vocational education, the studies have been limited to general vocational curricula, studies in early childhood education, or studies that focus on a specific subject or problem within vocational education, excluding studies related to international vocational curricula like BTEC in the context of Jordan [7, 9, 17–21]. Furthermore, past research has tended to merely describe problems of implementation without critically connecting them to theories of policy implementation or theories of educational change [10].

According to the theoretical perspective, this study is based on two theories: curriculum implementation theory and educational policy implementation models, which stress that curriculum implementation is successful if curriculum design is matched with teachers' ability, the readiness of institutions, the readiness of students, and assessment systems. Furthermore, the research is based on educational change theory, which emphasizes that factors within the system, such as teacher professional development, institutional support, and contextual readiness, are important in determining the success of curriculum reform [10]. In this view, the process of curriculum implementation is not linear, but is a set of interrelated factors and components that together determine the effectiveness of the curriculum.

The present study, therefore, fills this gap by empirically researching the barriers of implementation in the context of a structured multi-dimensional framework. The BTEC curriculum is described as a competency-based learning model which brings together theory and practice. The implementation of this integration is highly dependent on the preparedness of the educational environment, as it is in the process of being implemented with a high degree of alignment among curriculum content, teacher competency, student readiness, institutional preparedness, and assessment practices [2, 6, 10, 21]. Therefore, in light of the above, the researchers believed that there was a need to conduct a study to identify and investigate the challenges that face the implementation of the BTEC curriculum, analyze these challenges, and contribute to improving the process of implementing this curriculum. Thus, the researchers seek through this research to explore the challenges of implementing the BTEC curriculum in Jordanian vocational schools from the perspective of the teachers of vocational education. Based on the foregoing, the problem of this study is formulated through the following questions (i) What challenges face the implementation of the BTEC curriculum in Jordanian vocational schools from the perspective of vocational education teachers? (ii) Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the mean estimates of vocational education teachers regarding the challenges of implementing the BTEC curriculum attributable to the variables of gender, educational qualification, teaching experience, nature of the service area, and the teacher's specialization?

This study aims to analyze the constraints regarding the implementation of the BTEC curriculum in the vocational schools in Jordan, based on the perceptions of the teachers of vocational education, and to explore the differences in the teachers' perceptions according to a number of variables.

Vocational education and training contribute effectively to economic development by responding to the requirements of the Jordanian labor market for a qualified workforce that is capable of coping with recent developments in different fields [1, 22, 25]. The significance of the research at the theoretical level lies in highlighting the significance of vocational education and the role of identifying the challenges of implementing the BTEC curriculum in the educational and professional fields. In addition to that, the research works to add to the local and Arab literature by virtue of tackling some of the current research dimensions, since the curriculum was recently adopted in Jordan [2, 3, 6], and there are no previous local studies that have been conducted to identify the challenges of implementing the BTEC curriculum. In addition, this study calls for further research on curriculum implementation challenges in Jordan by researchers and practitioners. It also provides a reference for researchers interested in curriculum implementation and vocational and technical education. The practical significance of this study is represented in the guidance it provides to decision-makers and policy planners in Jordan, concerning the processes of improvement and development in vocational and technical education in general, and in the implementation of the BTEC program in Jordanian vocational schools in particular [1, 6, 21]. In addition, the findings and recommendations of this study may assist policymakers in the Ministry of Education to face these challenges and propose solutions in light of the development of teacher preparation programs and reassessment of its components.

IV. DEFINITION OF TERMS

1. CHALLENGES OF CURRICULUM IMPLEMENTATION:

Challenges of curriculum implementation are defined as the problems and obstacles encountered by teachers during the execution of their duties that negatively affect them and hinder the effective implementation of these tasks [17].

For the purposes of this study, curriculum implementation problems refer to vocational education teachers' problems in implementing the BTEC curriculum, which prevent them from achieving BTEC objectives. Curriculum implementation problems are defined as problems related to the curriculum, the teacher, the student, teaching strategies, or assessment strategies, based on the responses of the sample in this study to the questionnaire developed by the researchers.

2. BTEC CURRICULUM

The British curriculum is a vocational and technical education system recognized worldwide, focusing on acquiring skills that qualify students to enter the labor market or continue higher education. This curriculum has recently been adopted by the Jordanian education system, especially in vocational and technical education, in several majors, such as information technology, business, beauty, fitness, engineering, agriculture, and hotels. Jordanian students can benefit from the vocational British curriculum by studying this type of education for three years (Grade 10, Grade 11, and Grade 12), during which they are trained to become fully qualified to join the different sectors of the Jordanian labor market [2–4].

3. LIMITATIONS AND DELIMITATIONS OF THE STUDY

3.1 The study was conducted within the following boundaries

- Temporal boundaries: The study was implemented during the second semester of the 2025/2026 academic year.
- Spatial boundaries: The study was conducted in secondary schools in Jordan, covering grades from Grade 10 to Grade 12.
- Human boundaries: The study sample consisted of 301 vocational education teachers working in schools under the Jordanian Ministry of Education.

- The findings of this study are limited by the nature of its procedures, as well as the characteristics and psychometric properties of the research instrument.

3.2 Conceptual Framework of the Study

This study, after examining the literature, suggests a conceptual framework which sees the problems associated with implementing the BTEC curriculum as a four-way multi-dimensional matrix of four interconnected areas [7, 9, 17, 18, 20, 21]: Curriculum-related challenges, Teacher-related challenges, Student-related challenges and Assessment-related challenges. As a whole, these dimensions have negative effects on the implementation of the BTEC curriculum in Jordanian vocational schools. It assumes that any deficiency in one aspect can have a negative impact on the overall implementation process, and that any strengthening in one aspect can have a positive impact on other aspects [7, 9, 17, 18, 20, 21]. In light of this, the present study takes a holistic approach accommodating the four dimensions to better understand the challenges in implementing the Jordanian BTEC curriculum.

V. RESEARCH METHODOLOGY

The descriptive survey approach was used because it is appropriate for the objectives and nature of the research, and it achieves the goal of identifying the difficulties of BTEC curriculum implementation. This method enabled the researcher to collect the required data from the sample regarding different demographic variables [27].

1. POPULATION AND SAMPLE OF THE STUDY

The current study was performed in the Hashemite Kingdom of Jordan, where the study sample comprised vocational education teachers teaching BTEC programs in government schools under the jurisdiction of the Ministry of Education. The study adopted the stratified random sampling technique to make sure that all relevant factors are represented properly in the study sample. Stratification is done using the following factors: teaching experience, service area, highest educational qualification, gender, and teacher specialization.

First, in forming the strata, the vocational specializations of the teachers were taken into consideration. Five groups were in this regard: engineering, information technology, agriculture, beauty, hospitality, and business. Sub-strata are then put in place based on the demographic factors of teachers like teaching experience, service area, educational qualification, gender, etc. Participants were randomly selected by proportional allocation based upon the percentage of each stratum in the total study population. The teachers were randomly selected from the list of teachers available to the ministry of education for each stratum. A total of 301 teachers were sampled for the study.

Table 1. Distribution of the study sample according to study variables.

Variable	Variable Level	Frequency	Total	Subtotal %	Overall %
Gender	Male	137	301	45.5%	100
	Female	164		54.5%	
Educational Qualification	Diploma	56	301	18.6%	100
	Bachelor's	171		56.8%	
	Postgraduate	74		24.6%	
	Less than 5 years	109		36.2%	
Teaching Experience	5–10 years	89	301	29.6%	100
	More than 10 years	103		34.2%	
	City Center	190	301	63.1%	100
Service Area Type	Village, Camp, or Rural Area	111		36.9%	
	Agriculture	25	301	8.3%	100
Teacher's Subject Specialization	Engineering	37		12.3%	
	Beauty	80		26.6%	

Business	59	19.6%
Information Technology	62	20.6%
Hospitality	38	12.6%

2. RESEARCH INSTRUMENT

To collect data for this study, a questionnaire comprising 47 items was used, adapted from previous studies [9, 18]. The questionnaire aims to explore the challenges of implementing the BTEC curriculum pertaining to four areas: challenges related to curriculum, challenges related to teachers, challenges related to students, and challenges related to assessment. A Likert scale of five grades was used: 5 = Very high, 4 = High, 3 = Moderate, 2 = Low, and 1 = Very low. The values were assigned to the responses on the basis of statistical treatment of the collected data.

3. VALIDITY OF THE INSTRUMENT

To enhance the validity of the instrument and to check the suitability of the domains and items, the instrument was presented to a panel of 11 experts for content validity. To verify the construct validity, the questionnaire was applied to a pilot sample of 30 teachers, and the results of the Pearson correlation were used to verify the construct validity of the questionnaire. Table (2) shows the results.

Table 2. Pearson correlation coefficients between each item and its domain, and between each item and the total instrument on the scale of challenges facing the implementation of the BTEC curriculum in Jordanian vocational schools from the perspective of vocational education teachers.

Domain	Item	Item–Domain Correlation	Item–Total Correlation	Item	Item–Domain Correlation	Item–Total Correlation	Item	Item–Domain Correlation	Item–Total Correlation
Curriculum-related challenges	1	0.502	0.263	5	0.605	0.386	9	0.640	0.445
	2	0.489	0.219	6	0.723	0.504	10	0.665	0.385
	3	0.647	0.349	7	0.725	0.481	11	0.675	0.390
	4	0.676	0.417	8	0.652	0.441	12	0.653	0.445
Teacher-related challenges	13	0.719	0.698	19	0.722	0.695	25	0.761	0.677
	14	0.702	0.700	20	0.775	0.656	26	0.754	0.623
	15	0.653	0.675	21	0.528	0.367	27	0.590	0.354
	16	0.697	0.629	22	0.828	0.702	28	0.653	0.652
Student-related challenges	17	0.730	0.576	23	0.830	0.733			
	18	0.739	0.623	24	0.792	0.729			
	29	0.754	0.619	33	0.804	0.656	37	0.830	0.647
	30	0.742	0.619	34	0.762	0.628	38	0.675	0.440
Assessment-related challenges	31	0.680	0.501	35	0.662	0.516	39	0.727	0.528
	32	0.722	0.625	36	0.771	0.514			
	40	0.769	0.649	43	0.688	0.576	46	0.735	0.623
	41	0.672	0.535	44	0.843	0.677	47	0.772	0.624
	42	0.782	0.631	45	0.784	0.590			

4. VALIDITY INTERPRETATION

It is apparent from Table (2) that the Pearson correlation coefficients between the scores of the items and the domain to which they belong ranged between 0.489 and 0.843, while the Pearson correlation coefficients between the items and the overall instrument ranged between 0.219 and 0.733. All of the correlations show a moderate to high correlation, indicating the suitability of the items for the domains to which they belong and for the instrument, which is acceptable for construct validity [27]. Exploratory Factor Analysis (EFA) was conducted to examine the dimensional structure of the questionnaire. The analysis supported the four-

domain structure: curriculum-related, teacher-related, student-related, and assessment-related challenges. Factor loadings ranged from 0.45 to 0.82, confirming construct dimensionality. KMO = 0.89 which measures whether variables have enough in common to justify grouping them into reliable scales, Bartlett's test $p < 0.001$.

5. RELIABILITY OF THE INSTRUMENT

In order to check the reliability of the study tool, internal consistency was used to measure the reliability of the tool through Cronbach's alpha. Cronbach's alpha for the whole instrument was 0.951, which is considered high reliability for the purpose of the study [27]. Although the overall Cronbach's alpha coefficient was high (0.951), corrected item-total correlations and alpha-if-item-deleted values were reviewed to ensure items contributed meaningfully and were not redundant.

6. STUDY PROCEDURES

After obtaining permission from the Ministry of Education in Jordan, data were collected from vocational education teachers participating in the study during the second semester of the 2025–2026 academic year. Participants were briefed on the purpose and aims of the study. Participants signed consent forms to participate in the study. Confidentiality of all data collected from the participants was maintained throughout the study. Data collected as part of this study will be stored securely for 3 years.

7. STATISTICAL ANALYSIS

For Research Question 1, descriptive statistics, including means and standard deviations, were utilized in the analysis of study data. A five-way ANOVA was used to analyze the data related to Research Question 2. Post hoc testing involving Scheffé's test was conducted to explore differences among the study variables.

Before conducting the ANOVA, various statistical assumptions were checked to determine that the ANOVA test would be valid. Residual analysis and the Shapiro–Wilk test were used to test the assumption of normality. The result showed that there was no significant difference from the normal distribution ($W = 0.973$, $p = 0.118$). Levene's test was used to test for homogeneity of variance and indicated a lack of significant differences between the variances of the groups ($F = 1.284$, $p = 0.279$). Thus, it may be assumed that the assumptions of normality and homogeneity of variance were satisfied [27]. The level of difficulty in implementation the BTEC curriculum was placed into one of three categories (low, moderate, and high) for ease of interpretation. This categorization was based on an interval of 1.33 when converting a five-point Likert scale into three levels.

VI. RESULTS

The purpose of this study was to identify the obstacles to implementing the BTEC curriculum in Jordanian vocational schools as perceived by vocational education teachers. The findings related to the first research question are presented and discussed below. The first research question was: What challenges face the implementation of the BTEC curriculum in Jordanian vocational schools from the perspective of vocational education teachers?

For each response to the items of the domains of the tool, the arithmetic mean and standard deviation were calculated for the study sample. These results are shown in Table (3).

Table 3. Means and standard deviations of the challenges of implementing the BTEC curriculum and their levels across each domain of the study instrument (ordered descending).

Rank	Domain	Mean	Standard Deviation	Level
1	Student-related challenges	3.75	0.836	High
2	Curriculum-related challenges	3.51	0.734	Moderate
3	Assessment-related challenges	3.34	0.909	Moderate
4	Teacher-related challenges	3.09	0.878	Moderate
—	Total Instrument	3.39	0.654	Moderate

As shown in Table (3), it can be noted that the average of challenges facing the implementation of the BTEC curriculum at the Jordanian vocational schools, as perceived by the teachers of the vocational education teachers, in all domains of the study tool came to $M = 3.39$, with a standard deviation of ($SD = 0.654$). The low value of the standard deviation, which is less than 1, indicates the agreement of the responses of the teachers participating in the study, and that there is little divergence in views, that is, they generally agreed that the challenges included in the study tool represent the reality of the implementation of the curricula from the teachers' point of view regardless of their differences in demographic characteristics.

For the domains of the study, the results showed that the challenges related to students came first at a high level ($M = 3.75$), followed by challenges related to the curriculum, came second with a moderate level ($M = 3.51$), and the challenges related to assessment came third with a moderate level ($M = 3.34$). The challenges related to teachers came last, at a moderate level ($M = 3.09$). To obtain a more detailed examination of the teachers' estimations of the challenges, means and standard deviations were calculated for the items in each of the four domains separately. The results are as follows:

1. STUDENT-RELATED CHALLENGES

Table (4) presents the means and standard deviations of the levels of challenges associated with the implementation of the BTEC curriculum in the domain of student-related challenges.

From Table (4) it is evident that the mean score of the students' challenges was between 3.42 and 4.01 with an overall mean score of 3.75, which showed that the students perceived BTEC as a very difficult curriculum to implement. Eight items rated at a 'High' level and three items rated a 'Moderate' level. The highest mean score was for the item: "Weak reading and writing skills hinder students' understanding of the BTEC curriculum" ($M = 4.01$) and the lowest mean score was for: "Student absenteeism from BTEC classes" ($M = 3.42$). The standard deviation for this domain was 0.836, this shows that there was low variability in responses with teachers' views being relatively consistent. Overall, these findings show that teachers perceive the challenges to be quite high with regards to student-related challenges especially around basic academic skills, engagement and motivation.

Table 4. Means and standard deviations of the items in the student-related challenges domain (ordered descending).

Rank	Item	Mean	Standard Deviation	Level
1	Weak reading and writing skills hinder students' understanding of the BTEC curriculum	4.01	1.094	High
2	Weak student response to tasks and assignments required by the curriculum	3.94	1.112	High
3	Practical application is affected by the large number of students per class	3.88	1.121	High
4	Low student motivation toward implementing the BTEC curriculum	3.81	1.099	High
5	Low student acceptance of the BTEC curriculum	3.79	1.130	High
6	Students face difficulties in performing practical activities	3.77	1.048	High
7	Students' excessive focus on academic certificates rather than vocational ones	3.75	1.141	High
8	Weak student understanding of the relationship between the program and future careers	3.71	1.133	High
9	Students show disregard for occupational health and safety rules during practical implementation	3.64	1.181	Moderate
10	Low student interest in the taught topics	3.59	1.179	Moderate
11	Student absenteeism from BTEC classes	3.42	1.215	Moderate
—	Domain Total	3.75	0.836	High

2. CURRICULUM-RELATED CHALLENGES DOMAIN

Table (5) presents the means and standard deviations of the levels of challenges associated with implementing the BTEC curriculum in the domain of curriculum-related challenges.

Table 5. Means and standard deviations of the items in the curriculum-related challenges domain (ordered descending).

Rank	Item	Mean	Standard Deviation	Level
1	The curriculum is overloaded with knowledge and skills relative to the time allocated.	3.95	1.147	High
2	The terminology used in the curriculum exceeds students' comprehension levels.	3.88	1.109	High
3	The skills included in the curriculum are not appropriate for students' age group.	3.74	1.100	High
4	Weak partnerships with the local community necessary for curriculum implementation.	3.66	1.150	Moderate
5	Limited understanding of the curriculum philosophy among relevant stakeholders.	3.61	1.164	Moderate
6	Misalignment between the curriculum and students' interests, tendencies, and abilities.	3.49	1.232	Moderate
7	Insufficient use of visual organizers in the curriculum.	3.39	1.037	Moderate
8	Weak specialized educational supervision related to the curriculum.	3.38	1.203	Moderate
9	Absence of a teacher guide for curriculum implementation.	3.35	1.233	Moderate
10	Limited availability of materials, equipment, and tools necessary for implementation.	3.27	1.122	Moderate
11	Insufficient workshop and classroom space relative to curriculum requirements.	3.24	1.144	Moderate
12	Weak alignment between the curriculum and the demands of the Jordanian labor market.	3.16	1.175	Moderate
—	Domain Total	3.51	0.734	Moderate

Table (5) shows the means and standard deviations of the challenges of implementing the BTEC curriculum in the vocational school in Jordan. The overall mean score for this domain was 3.51 (SD = 0.734) which reflects moderate perceived challenges. 3 were rated as high and 9 were rated as moderate. The most rated item was the curriculum is overloaded with knowledge and skills relative to the time allocated ($M = 3.95$), while the least rated item was Weak alignment between the curriculum and the demands of the Jordanian labour market ($M = 3.16$). The standard deviation scores ranged from 1.037 to 1.233 with the majority scores being fairly consistent, suggesting that there was not too much difference in teacher's responses. In summary, the results indicate that, on the whole, there are moderate difficulties with the curriculum and specific issues are identified in terms of curriculum density, language complexity and relation to students' capacity.

3. ASSESSMENT-RELATED CHALLENGES DOMAIN

Table (6) presents the means and standard deviations of the levels of challenges associated with implementing the BTEC curriculum in the domain of assessment-related challenges.

Table 6. Means and standard deviations of the items in the assessment-related challenges domain (ordered descending).

Rank	Item	Mean	Standard Deviation	Level
1	The multiplicity of assessment components affects the time allocated for instruction	3.65	1.153	Moderate
2	Difficulty of tasks and assignments required for assessment purposes	3.57	1.140	Moderate
3	The duration of practical examinations is excessively long	3.41	1.291	Moderate
4	Difficulty in assessing project-based learning	3.34	1.203	Moderate
5	Difficulty in assessing the practical component of the BTEC curriculum	3.26	1.233	Moderate
5	Difficulty in identifying appropriate assessment strategies, tools, and methods for the BTEC curriculum	3.26	1.174	Moderate
7	Lack of clarity in student assessment procedures	3.22	1.170	Moderate
8	Difficulty in incorporating feedback from internal and external verifiers	3.05	1.259	Moderate
—	Domain Total	3.34	0.909	Moderate

The mean scores and Standard Deviations (SD) for the assessment related challenges in implementing the BTEC curriculum are shown in Table (6). The overall mean for this domain was 3.34 (SD = 0.909) which reflects moderate perceived challenges. The items in this domain were rated at moderate level. The most highly rated item was the multiplicity of assessment components affects the time allocated for instruction (M = 3.65); the lowest rated item was difficulty in incorporating feedback from internal and external verifiers (M = 3.05). The findings are also not too noisy, meaning that there is less variability in the responses, which suggests that the participants' perceptions about the challenges encountered during assessment are relatively consistent. In general, the results indicated that teachers found assessment in BTEC moderately difficult, especially with regard to the time requirements, the complexity of tasks and the need to be assessed practically.

In Table (7), the means and standard deviations of the challenges of implementing the BTEC curriculum in the teacher-related challenges domain are displayed. The means and standard deviations of the teacher-related challenges in BTEC's implementation in vocational schools of Jordan are presented in Table (7). The mean results in Table (7) reflect a moderate level of perceived challenges overall (M = 3.09, SD = 0.878) by teachers. The average scores for all the items in this domain were found in the moderate range (between (2.41 to 3.51)). The most highly rated challenge was 'Difficulty in managing the time allocated to achieve the objectives of the BTEC curriculum' (M = 3.51, SD = 1.115) and the lowest rated challenge was 'Inability to distinguish between resubmission and reassessment in assignments' (M = 2.41, SD = 1.405).

Table 7. Means and standard deviations of the items in the teacher-related challenges domain (ordered descending).

Rank	Item	Mean	Standard Deviation	Level
1	Difficulty in managing the time allocated to achieve the objectives of the BTEC curriculum.	3.51	1.115	Moderate
2	Difficulty in implementing practical activities for students.	3.34	1.155	Moderate
3	Difficulty in managing students' project implementation.	3.33	1.230	Moderate
4	The curriculum requires specialized pedagogical skills.	3.32	1.086	Moderate
5	Difficulty in attracting students' interest in vocational education topics.	3.31	1.180	Moderate

6	Difficulty in linking theoretical and practical aspects in the BTEC curriculum.	3.27	1.200	Moderate
7	Difficulty in handling assignments required from students.	3.26	1.309	Moderate
8	Difficulty in using modern instructional tools.	3.17	1.226	Moderate
8	Difficulty in developing effective instructional plans that meet students' needs.	3.17	1.181	Moderate
10	Difficulty in monitoring internal verification of student performance.	3.09	1.226	Moderate
11	Difficulty in understanding curriculum standards.	3.06	1.232	Moderate
12	Lack of sufficient knowledge and skills to implement the BTEC curriculum.	2.97	1.248	Moderate
13	Difficulty in communicating with specialists during external verification.	2.88	1.251	Moderate
14	Difficulty in assessing students.	2.87	1.256	Moderate
15	Difficulty in communicating with the quality assurance officer and examination officer at school.	2.66	1.287	Moderate
16	Inability to distinguish between resubmission and reassessment in assignments.	2.41	1.405	Moderate
—	Domain Total	3.09	0.878	Moderate

Results also showed that all items in the instructional planning, practical implementation, project management and assessment sections ranged in the moderate range, indicating that there was a shared teacher perception of implementation challenges on a number of dimensions of instruction. Overall, the results indicate that teacher-related challenges are at moderate levels and are spread across pedagogical, instructional and assessment related practices. Means and standard deviations were computed for the study variables to explore vocational education teachers' perceptions of the challenges associated with implementing the BTEC curriculum by gender, academic qualification, teaching experience, service area and teaching specialization. The descriptive statistics for each category are shown in Table (8).

Table 8. Means and standard deviations of vocational education teachers' responses regarding the challenges of curriculum implementation according to gender, academic qualification, teaching experience, service area, and teaching specialization.

Variable	Category	Mean	Standard Deviation	N
Gender	Male	3.48	0.614	137
	Female	3.33	0.679	164
	Total	3.39	0.653	301
Academic Qualification	Diploma	3.42	0.605	56
	Bachelor's Degree	3.36	0.689	171
	Postgraduate Studies	3.47	0.602	74
Teaching Experience	Total	3.39	0.653	301
	Less than 5 years	3.19	0.646	109
	5–10 years	3.44	0.609	89
	More than 10 years	3.58	0.642	103
	Total	3.39	0.656	301
Service Area	Urban (City Center)	3.39	0.681	190
	Rural/Refugee Camp/Badia	3.39	0.605	111
	Total	3.39	0.653	301
Specialization Taught	Agriculture	3.37	0.722	25
	Engineering	3.53	0.527	37
	Beauty	3.39	0.648	80

Business	3.18	0.725	59
Information Technology	3.41	0.558	62
Hospitality	3.61	0.693	38
Total	3.39	0.653	301

Table (8) shows the mean scores of the demographic variables revealing some minor differences. The mean scores (M) for the different years of teaching experience were highest for teachers with over 10 year's experience (M = 3.58, SD = 0.642) and lowest for teachers with less than 5 year's experience (M = 3.19, SD = 0.646). In terms of teaching specialization, hospitality teachers' perception of challenges was the highest (M = 3.61, SD = 0.693), followed by business teachers (M = 3.18, SD = 0.725), and business administration teachers were perceived as the lowest (M = 3.07, SD = 0.715). However, there was very little differences identified by gender and by service area categories.

The differences observed were statistically tested using a five-factor main-effects ANOVA model. The analysis was based on gender, academic qualification, teaching experience, service area and teaching specialization, and how these factors affected teachers' perception of the challenges involved in implementing the BTEC curriculum. The normality and homogeneity of variance assumptions were checked before performing the ANOVA. Normality was determined by the residual analysis and Levene's test was performed to test for homogeneity of variance. The results suggested that the assumptions used in performing the ANOVA were satisfied. The second research question did not focus on interaction effects, so a five-factor main-effects ANOVA model was used (no interaction terms).

Table 9. Results of the five-way ANOVA examining the effects of gender, academic qualification, teaching experience, service area, and teaching specialization on vocational education teachers' perceptions of challenges in implementing the BTEC curriculum.

Source of Variance	Sum of Squares	df	Mean Square	F-value	Sig.
Gender	0.736	1	0.736	1.839	0.176
Academic Qualification	0.077	2	0.038	0.096	0.909
Teaching Experience	5.684	2	2.842	7.105	0.001
Service Area	0.003	1	0.003	0.009	0.926
Specialization	2.764	5	0.553	1.382	0.231
Error	115.599	289	0.400	—	—
Total (Corrected)	128.156	300	—	—	—
Total (Overall)	3589.446	301	—	—	—

As presented in the results in Table (9), there was no statistically significant difference at the level of significance ($\alpha = 0.05$) between teachers' perceptions of the challenges of the implementation of the BTEC curriculum between the genders, the academic qualifications, service area and the specialization of the teachers. The teaching experience variable was the only one that showed statistically significant differences (F = 7.105, p = 0.001). The results indicate that there might be a difference in teachers' perceptions of challenges in implementing between experienced and inexperienced teachers. The effect size of teaching experience was small to moderate, with differences being statistically significant but not large, in practical terms. Teaching experience had a small to moderate effect size, indicating a relatively small practical effect in spite of being statistically significant. A Scheffé post hoc comparison test was used to further explore the differences among the teaching experience groups. The table (10) shows the results.

The results shown in Table (10) showed that teachers who had more than 10 years of experience were significantly higher than those who had less than 5 years of experience, and it was in favor of teachers who experience more than 10 years. The findings showed that implementation was more challenging for the more experienced teachers compared to the less experienced teachers. This may be because teachers are struggling to adopt the new system of competency-based and project-based learning of the BTEC, which replaced the

old system of vocational education. For more experienced teachers, the challenge may be greater as they have had to get used to and learn about a new system of teaching which is very different from the BTEC model. Some less experienced teachers, however, may be more flexible in responding to the needs of technological, instructional and assessment of competency-based education.

Table 10. Results of the Scheffé post hoc comparisons for the mean responses of vocational education teachers regarding the challenges of implementing the BTEC curriculum according to teaching experience.

Experience Level	5–10 Years (Mean Difference)	Sig.	More than 10 Years (Mean Difference)	Sig.
Less than 5 Years	-0.2501	0.023	-0.3900	0.000
5–10 Years	—	—	-0.1399	0.312

This finding is in line with educational change theory, in which teachers' adaptation of the curriculum is considered an important factor, particularly in relation to new pedagogical and assessment approaches [10]. The outcome is also in line with research emphasizing the importance of continuous professional development and teacher preparation programs for supporting vocational education teachers in the process of curriculum reform [15]. From the above results, it can be concluded that giving the vocational education teachers continuous professional development training and institutional support is important so that they can adapt well to the process of implementing the BTEC smoothly.

VII. DISCUSSION

The results of the present study showed that the overall challenges that face the implementation of the BTEC curriculum in the vocational schools in Jordan were moderate. This finding may indicate that while the BTEC curriculum is an important step in the vocational and technical education of Jordanian students, there are still some practical and instructional challenges in the Jordanian school environment that hinder the implementation of this curriculum. The overall level of challenges is moderate, which could be because the BTEC curriculum is a transitional course and is still relatively new in the Jordanian education system. The results are consistent with previous findings that teachers' perceptions of the difficulties encountered in implementing curricula in various contexts were at a moderate level [9, 17].

The findings also revealed that the domain of student-related challenges was the highest among all the domains related to challenges. Several difficulties with effective implementation were found by teachers, such as poor reading and writing ability, low motivation, poor performance on assignments, and lack of understanding of the linkage between the BTEC programme and employment. The results might indicate that students should possess a certain academic competence as well as knowledge of the effects of vocational learning in order to successfully implement competency-based vocational education. Furthermore, students' attitudes toward vocational education can affect their involvement in practical and project-based learning activities. This interpretation is supported by findings that curriculum subject matter and goals can differ from students' interests and readiness [18]. Similarly, student-related factors have been identified as significant issues in implementing educational reform programs [7].

The curriculum challenges were indicated at a moderate level, particularly curriculum overload, the use of terminology, and the appropriateness of the curriculum content for students' age levels. This could be because BTEC is a demanding and challenging course, which is taught and learned in a shorter period compared with other courses. The findings are consistent with the literature on competency-based education, which suggests that intensive courses may be challenging to implement if schools are not ready or if the tools and resources are not in place. The results also correspond with findings that evaluating curriculum content was challenging and could sometimes exceed students' capacity [18]. Besides, the findings might be used to support the assumption of curriculum implementation theory, which states that successful curriculum implementation needs congruity between curriculum design, learner characteristics, and institutional capacity [10].

Regarding the difficulties in assessment, moderate difficulties were found among teachers in multiple components of assessment, project-based assessment, and practical examination. This is due to BTEC's competency-based curriculum, which includes a continuous assessment process, performance tasks, and practical evaluation processes that are different from those used in Jordanian schools. The findings might also indicate the need for further competency-based assessment support and training for teachers. The results are similar to reports that assessment and implementation are challenges in competency-based education systems [20].

Teacher-related challenges were seen at a moderate level, and the main challenges were time management, implementation of practical activities, project supervision, and instructional planning. Interestingly, the means for lack of knowledge and skills were also quite small in comparison with the other challenges; this may indicate that teachers have a relatively high level of awareness of the requirements of BTEC. However, there may be implementation issues. This discovery may be a sign that shifting from more traditional vocational education to competency- and project-based learning is a complex issue. This is supported by research suggesting that teachers' professional preparation and knowledge of curriculum goals are crucial for successful curriculum implementation [10].

The results also indicated that teachers' perceptions were not significantly different in terms of gender, academic qualification, service area, and specialization. The findings on the implementation of the BTEC curriculum in vocational schools in Jordan might suggest that the challenges faced by vocational schools are fairly similar within and between groups and learning environments. That is, the implementation conditions seem to be the same for teachers of different backgrounds and located in different schools. This finding was also reported in previous studies that found no significant differences for some demographic variables [9, 17].

However, there was a statistically significant difference in the number of years taught in favor of those with more than ten years of experience. This may indicate that implementing BTEC has proven to be challenging for highly experienced teachers, as they have been in the profession longer and have known the difficulties of traditional vocational education systems for longer. Long-term teachers of a system are likely to feel pressure due to workload and assessment, as well as curriculum, when comparing the current system with other systems previously used for instruction. However, not all teachers are as comfortable with technology-based, competency-driven instruction, and more experienced educators may be less accepting of that approach. This is in line with educational change theory, which argues that the change process in education requires significant adaptation by teachers whose practices are long-standing [10]. The findings also show that professional development programmes have to be continued and tailored to the needs of competent teachers to help them adapt to competency-based vocational curricula.

VIII. CONCLUSION

This research study aims to explore the problems in implementing the BTEC curriculum in Jordanian vocational schools by vocational education teachers' views. The results indicated that there are moderate level implementation challenges overall, and the highest were in the area of student related challenges, followed by curriculum and assessment related challenges and teacher related challenges were rated at moderate level.

This study contributes to the scientific body of knowledge as it is one of the first empirical studies that analysed the Jordanian context of BTEC curriculum implementation challenges in a comprehensive manner from a multi-dimensional perspective. It combines four aspects of implementation: students, teachers, curriculum, and assessment in one integrated model and provides more comprehensive information about implementation challenges than previous studies which have focused on separate parts of the model. The findings from the policy perspective also suggest that teacher training programmes need to be strengthened, students' assessment literacy needs to be increased, and support systems for curriculum need to be improved, as well as the problem of student preparedness for competency-based learning needs to be addressed by the Ministry of Education. The findings also highlight the need to establish coordination between the labour market needs and align vocational education policies, as well as to enhance the image of

vocational education in Jordan. There are a number of limitations to the study. It is only applicable to vocational education teachers in public schools and is based on self-reported information that could have a response bias. Furthermore, the study only used a quantitative method, which makes it difficult to achieve a deeper understanding of classroom practices and institutional problems using qualitative perspectives. Further studies are suggested to use mixed methodological techniques and to involve students and administrators and to investigate the changes which may occur in the curriculum implementation of the BTEC curriculum over time.

IX. RECOMMENDATIONS

- Promote students' interest in vocational education through authentic training based on practice and work. Provide guidance programs for students and parents to understand the BTEC curriculum objectives and their design.
- Organize in-service training for vocational education teachers on the philosophy and structure of the BTEC curriculum and on teaching and assessment methodologies so that they can gain a better understanding of how to implement the BTEC system. Improve communication between teachers and verifiers both internal and external verifiers.
- Review BTEC curriculum to ensure the clarity of the content and the possibility of implementing the practical activities in the light of the situation in the schools of the vocational stream in Jordan.
- Develop the assessment procedure for pupils in BTEC by setting an accepted protocol that defines assessment strategies, techniques, and tools that are needed to attain curriculum goals. Training of teachers of vocational subjects for proper implementation of these protocols.
- Further research based on the findings of this study can explore the perception of teachers of the challenges in the implementation of the BTEC curriculum and its association with other factors.

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Conceptualization, J.S.A.A. and M.A.A.; methodology, J.S.A.A. and M.A.A.; validation, J.S.A.A., M.A.A. and Z.H.A.; formal analysis, J.S.A.A.; investigation, J.S.A.A. and Z.H.A.; resources, Z.H.A.; data curation, J.S.A.A.; writing—original draft preparation, J.S.A.A.; writing—review and editing, M.A.A. and Z.H.A.; visualization, J.S.A.A.; supervision, M.A.A.; project administration, J.S.A.A.; funding acquisition, M.A.A. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Relevant data can be made available upon request from the authors.

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