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Dedication

It is our pleasure and great privilege to present the thirty-first issue of the Academic Journal of Research and Scientific Publishing to all researchers and doctors who published their research in the issue, and we thanks and appreciate to all contributors and supporters of the academic journal and those involved in the production of this scientific knowledge edifice.

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Novel 8-Port Network

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Abstract:

The proposed 8-port network which consists of 4-coupler combined together in unique way to produce 8-port network. This network with the proper terminations will find a lot of applications in microwave and millimeter wave networks.

This proposed 8-port network (with the proper termination) can be used as power combiner divider, six-port reflect meter in order to measure both the amplitude and the phase of the network under test.

The proposed 8-port also can be used as phase comparator in a monopulse radar system for determining both the azimuth and the elevation of the target (K. Chang, et al, 1987). In addition, the circuit can be utilized as a 4-way power combiner/divider with the sub-arms isolated from one another.

Generally, this 8-port network enjoys a compact structure which contains slots in sections the ground plane and between the coupled lines in order to improve the performance of this networks.

Also this circuit can be utilized with proper termination as a network synthesizer (G. Matthaei, et al, 1980).

In the theoretical analysis of the proposed 8-port network, unique signal flow has been developed for this proposed. The purpose of the 8-port has been fabricated on Roger substrate of dielectric constant ($\epsilon_r = 3.38$) and (thickness of the substrate is $=0.2$).

Keyword: Novel, 8-Port Network

1. Introduction

A novel 8-port network is used in many microstrip applications such as oscillators, filters (P. Troughton, 1969). This paper introduces a modification to the symmetric square ring resonator described by C. E. Saavedra to develop an eight port network (J. Sewter and C. E. Saavedra, 2002). The network is composed of four quarter-wave couplers, one for each side of the ring. It exhibits resonance at the harmonic frequencies. In this paper, the effect of reducing the separation between the coupled lines is investigated.

Generally, multi ports network finds a lot of applications in microwaved, millimeter and sub-millimeter devices (C. E. Saavedra, 2001).

Incentive works and researches have been conducted on multi-port especially in 8-port network for their unique applications. Some of these applications are mentioned in references (F. Bray, et al, 2013), (M. Miyakawa, et al, 2004), (E. Praveen, et al, 2016).

In this paper, we consider a circuit constructed with four branch-line 3-dB couplers. First, after deriving admittance relations between the branch line sections for a matching and equal power splitting condition of a basic construction. The frequency dependence of the scattering parameters of this proposed network is calculated. The bandwidth and the isolation of this 8-port are enhanced (i.e. the isolation is more than -20 dB is obtained). Finally, we obtain experimental corroboration by measuring the scattering parameters of a band widened circuit. The present circuit can be manufactured in the some plane using a planer transmission line.

2. Design Methodology:

The design process was broken into two major stages. First, a quarter-wave coupler was designed based on the resonator described in. Then, the separation between the coupled lines was reduced to 0.1 mm and its effect on insertion loss was studied. All circuits were designed for fabrication on a Roger 4003 substrate, with a relative dielectric constant of 3.38 and a thickness of 0.2 mm.

3. Corrugated Coupler Design and Optimization

The overall coupler dimensions are equal to those of a traditionally-designed quarter-wave coupler. The separation between the lines is 0.1 mm. The coupler is corrugated along its coupled edges using an alternating square pattern. The corrugations are periodic and symmetric about the midpoint of the lines. The separation distance of 0.1 mm between coupled edges is maintained at all times along the corrugation.

Sewter designed a square ring resonator from four corrugated quarter-wave couplers and achieved -30 dB rejection of harmonics. Two of the couplers were used to couple energy into and out of the ring. The remaining two couplers maintained the symmetry of the device and eliminate the split-resonant behavior of the network. The mitered bends are used to connect the couplers together in order to increase the circumference of the network and to reduce the resonant frequency H. Zhang, et al, 2013).

In this work, the resonator is reduced by the separation between the coupled lines is made to be 0.1 mm in order to increase the coupling and connected eight 50 Ω ports to convert this resonator into an eight port network. The layout of the network and the prototype circuit implementation on Roger 4003 substrate is shown in fig. 1.

4. Measurements

The novel 8-port network is constructed from corrugated quarter-wave couplers. Initially, the dimensions were taken as mentioned before with the separation between the coupled lines as 12 mil. The layout and frequency response of the circuit is shown in figures 1 and 2.

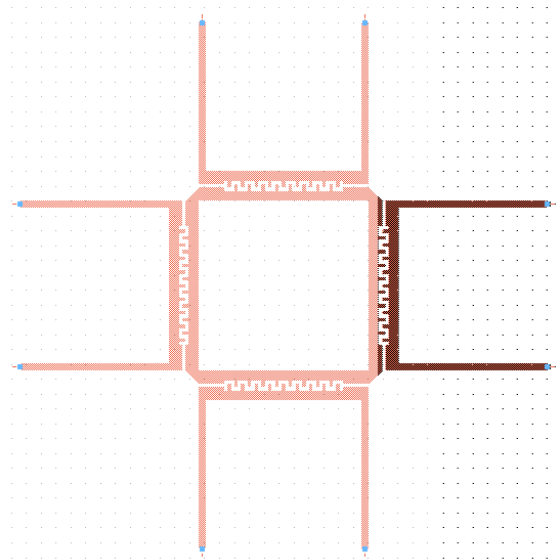


Fig. 1: 8-Port branch line coupler initial design layout diagram

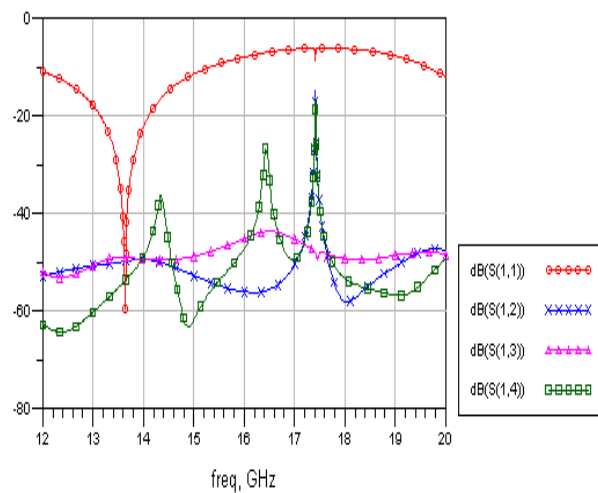


Fig. 2: Frequency response simulated using ADS 2009.

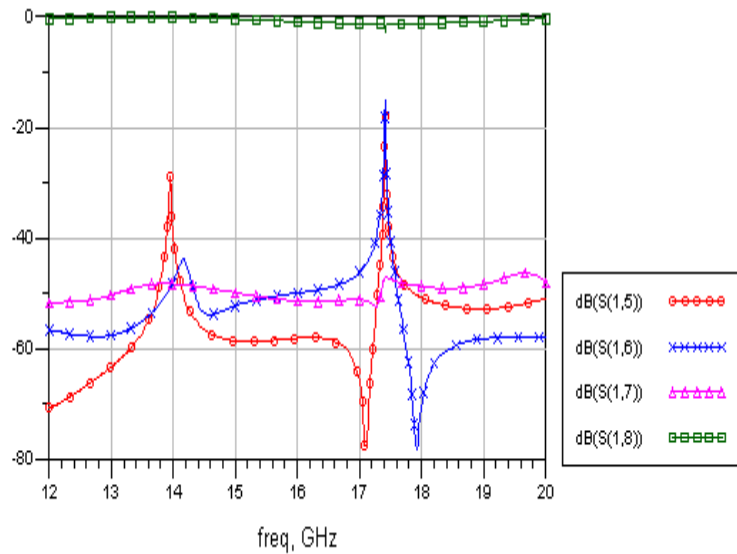


Fig. 3: Shows the frequency response of simulation using ADS.

We observe that the insertion loss is 18 dB at the resonant frequency which is very high for a coupler. Next we modify the coupler by reducing the separation between the coupled lines to 4 mils (0.1 mm) (S. Padhi, et al, 2007). The layout and frequency response of the modified circuit is given by Fig. 3 and 4.

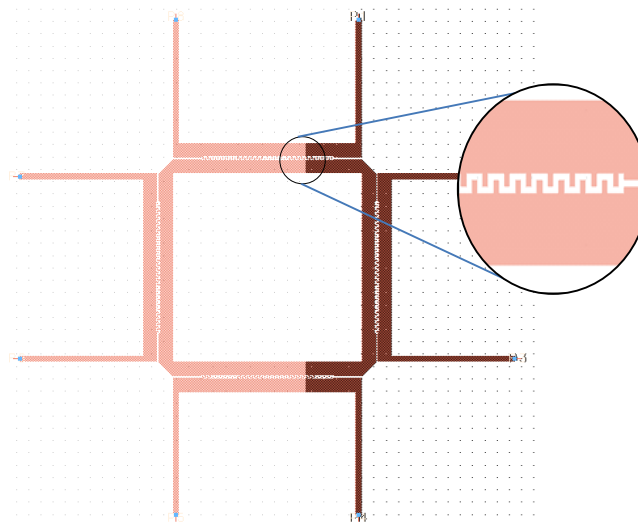


Fig. 4: Modified version of the 8 port branch line coupler layout

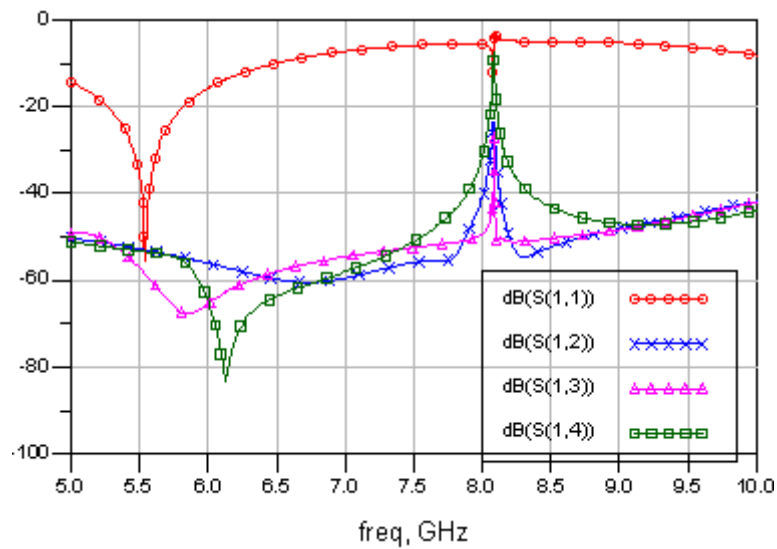


Fig. 5: Frequency Response

Fig.(2,3,4 and 5 show the frequency responses of this proposed 8-port network. This clear from the frequency responses that the manufacture 8-ports has very encouraging responses according to the design procedure.

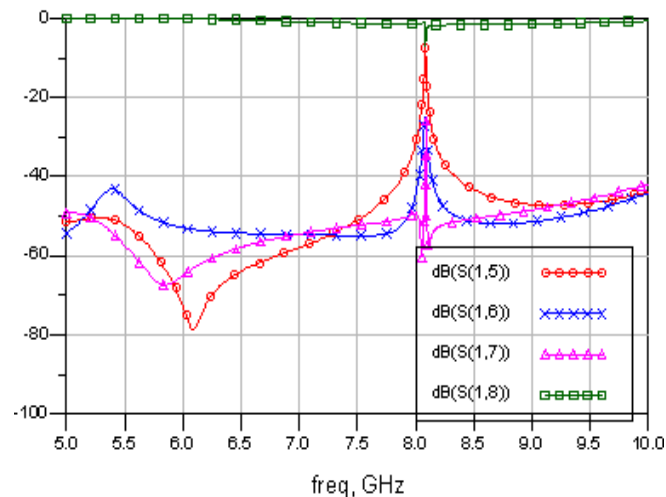


Fig. 6: Frequency Response

The observed insertion loss at the resonant frequency of 8.2 GHz is reduced to 8 dB, which indicates a 10 dB improvement.

5. Designing:

Figs. (7) And (8) show the proposed novel 8-port which have been fabricated on Roger substrate of dielectric constant ($\epsilon_r = 3.2$) (M. T. Islam, et al, 2019).

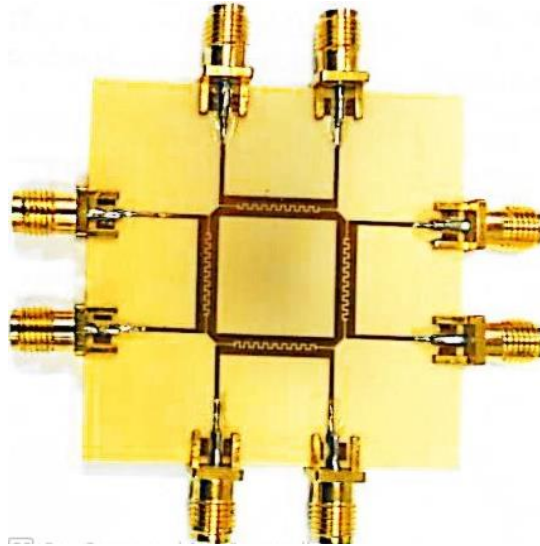


Fig.7

Fig(7) and (8) shows the proposed manufacture 8-port network

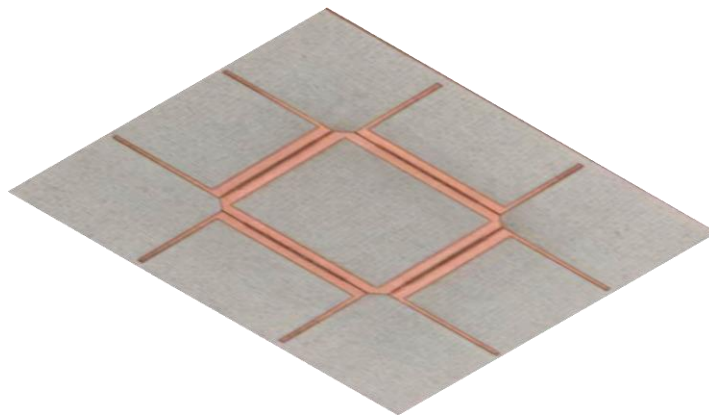


Fig. 8: Prototype circuit printed on Roger substrate

5.3. Analyzing scattering Matrix

Utilizing the scattering matrix in analyzing the scattering parameters.

$$v_1^- = s_{11}v_1^+ + s_{12}v_2^+ + s_{13}v_3^+ + s_{14}v_4^+ + s_{15}v_5^+ + s_{16}v_6^+ + s_{17}v_7^+ + s_{18}v_8^+$$

$$v_2^- = s_{21}v_1^+ + s_{22}v_2^+ + s_{23}v_3^+ + s_{24}v_4^+ + s_{25}v_5^+ + s_{26}v_6^+ + s_{27}v_7^+ + s_{28}v_8^+$$

$$v_3^- = s_{31}v_1^+ + s_{32}v_2^+ + s_{33}v_3^+ + s_{34}v_4^+ + s_{35}v_5^+ + s_{36}v_6^+ + s_{37}v_7^+ + s_{38}v_8^+$$

$$v_4^- = s_{41}v_1^+ + s_{42}v_2^+ + s_{43}v_3^+ + s_{44}v_4^+ + s_{45}v_5^+ + s_{46}v_6^+ + s_{47}v_7^+ + s_{48}v_8^+$$

$$v_5^- = s_{51}v_1^+ + s_{52}v_2^+ + s_{53}v_3^+ + s_{54}v_4^+ + s_{55}v_5^+ + s_{56}v_6^+ + s_{57}v_7^+ + s_{58}v_8^+$$

$$v_6^- = s_{61}v_1^+ + s_{62}v_2^+ + s_{63}v_3^+ + s_{64}v_4^+ + s_{65}v_5^+ + s_{66}v_6^+ + s_{67}v_7^+ + s_{68}v_8^+$$

$$v_7^- = s_{71}v_1^+ + s_{72}v_2^+ + s_{73}v_3^+ + s_{74}v_4^+ + s_{75}v_5^+ + s_{76}v_6^+ + s_{77}v_7^+ + s_{78}v_8^+$$

$$v_8^- = s_{81}v_1^+ + s_{82}v_2^+ + s_{83}v_3^+ + s_{84}v_4^+ + s_{85}v_5^+ + s_{86}v_6^+ + s_{87}v_7^+ + s_{88}v_8^+$$

5.4. At center frequency

$$\alpha = \frac{-j}{\sqrt{2}} \quad , \quad j\beta = \frac{-1}{\sqrt{2}}$$

$$1. \quad V_1^- = \alpha^2 V_5^+ + j\beta \alpha V_6^+ + \alpha j\beta V_7^+ + j\beta^2 V_8^+$$

$$V_1^- = \frac{-1}{2} V_5^+ + \frac{j}{2} V_6^+ + \frac{j}{2} V_7^+ + \frac{1}{2} V_8^+$$

$$2. \quad V_2^- = \alpha j\beta V_5^+ + j\beta^2 V_6^+ + \alpha^2 V_7^+ + j\beta \alpha V_8^+$$

$$V_2^- = \frac{j}{2} V_5^+ + \frac{1}{2} V_6^+ + \frac{-1}{2} V_7^+ + \frac{j}{2} V_8^+$$

$$3. \quad V_3^- = \alpha j\beta V_5^+ + \alpha^2 V_6^+ + j\beta^2 V_7^+ + \alpha j\beta V_8^+$$

$$V_3^- = \frac{j}{2} V_5^+ + \frac{-1}{2} V_6^+ + \frac{1}{2} V_7^+ + \frac{j}{2} V_8^+$$

$$4. \quad V_4^- = j\beta^2 V_5^+ + \alpha j\beta V_6^+ + \alpha j\beta V_7^+ + \alpha^2 V_8^+$$

$$V_4^- = \frac{1}{2} V_5^+ + \frac{j}{2} V_6^+ + \frac{j}{2} V_7^+ + \frac{-1}{2} V_8^+$$

$$V_5^- = \alpha^2 V_1^+ + \alpha j\beta V_2^+ + \alpha j\beta V_3^+ + j\beta^2 V_4^+$$

$$V_5^- = \frac{-1}{2} V_1^+ + \frac{j}{2} V_2^+ + \frac{j}{2} V_3^+ + \frac{1}{2} V_4^+$$

$$V_6^- = \alpha j\beta V_1^+ + \alpha j\beta V_2^+ + \alpha^2 V_3^+ + j\beta^2 V_4^+$$

$$V_6^- = \frac{j}{2} V_1^+ + \frac{j}{2} V_2^+ + \frac{-1}{2} V_3^+ + \frac{1}{2} V_4^+$$

$$V_7^- = \alpha j\beta V_1^+ + \alpha^2 V_2^+ + j\beta^2 V_3^+ + \alpha j\beta V_4^+$$

$$V_7^- = \frac{j}{2} V_1^+ + \frac{-1}{2} V_2^+ + \frac{1}{2} V_3^+ + \frac{j}{2} V_4^+$$

$$V_8^- = j\beta^2 V_1^+ + \alpha j\beta V_2^+ + \alpha j\beta V_3^+ + \alpha^2 V_4^+$$

$$V_8^- = \frac{1}{2} V_1^+ + \frac{j}{2} V_2^+ + \frac{j}{2} V_3^+ + \frac{-1}{2} V_4^+$$

5.5. Scattering matrix at center frequency

Calculating of the scattering parameter of the proposed 8-port network at the central frequency.

$$\begin{bmatrix} V_1^- \\ V_2^- \\ V_3^- \\ V_4^- \\ V_5^- \\ V_6^- \\ V_7^- \\ V_8^- \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{-1}{2} & \frac{j}{2} & \frac{j}{2} & \frac{1}{2} \\ 0 & 0 & 0 & 0 & \frac{j}{2} & \frac{1}{2} & \frac{-1}{2} & \frac{j}{2} \\ 0 & 0 & 0 & 0 & \frac{j}{2} & \frac{-1}{2} & \frac{1}{2} & \frac{j}{2} \\ 0 & 0 & 0 & 0 & \frac{j}{2} & \frac{-1}{2} & \frac{1}{2} & \frac{j}{2} \\ \frac{-1}{2} & \frac{j}{2} & \frac{j}{2} & \frac{1}{2} & \frac{1}{2} & \frac{j}{2} & \frac{j}{2} & \frac{-1}{2} \\ \frac{j}{2} & \frac{j}{2} & \frac{1}{2} & \frac{-1}{2} & \frac{1}{2} & \frac{j}{2} & \frac{j}{2} & \frac{-1}{2} \\ \frac{j}{2} & \frac{-1}{2} & \frac{1}{2} & \frac{j}{2} & 0 & 0 & 0 & 0 \\ \frac{1}{2} & \frac{j}{2} & \frac{j}{2} & \frac{-1}{2} & 0 & 0 & 0 & 0 \end{bmatrix} * \begin{bmatrix} V_1^+ \\ V_2^+ \\ V_3^+ \\ V_4^+ \\ V_5^+ \\ V_6^+ \\ V_7^+ \\ V_8^+ \end{bmatrix}$$

6. Conclusion:

The novel 8-port network implemented with corrugated (generated slots in both in the coupled area region and the ground plane) have been investigated. The methodology for designing the proposed 8-port network and its constituent couplers is discussed. The properties of the corrugated coupler are shown experimentally to result in an 8-port network implementation with 1 GHz bandwidth. The effect of coupled line separation on the insertion loss in the performance found to be a 10 dB improvement by reducing the line separation from 12 mils to 4 mils. The proposed 8-port network have been analyzed, manufactured (see fig.7) and tested with very encouraging result. This proposed network has so many applications in microwaved, millimeter and sub-millimeter devices (F. Islami, et al, 2017).

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8. References:

- K. Chang, et al. (1987), on the study of microstrip ring and varactor-tuned ring circuits, IEEE Trans. Microwave Theory and Tech, MTT-35, no. 12, pp. 1288-1295.
- G. Matthaei, et al. (1980), Microwave filters, impedance-matching networks, and coupling structures, Artech House.
- P. Troughton (1969), Measurement techniques in microstrip, Electronics Letters, vol. 5, no. 2, pp. 25-26.

C. E. Saavedra (2001) .Microstrip ring resonator using quarter-wave couplers. Electronics Letters, vol. 37, no. 11, pp. 694-695.

J. Sewter and C. E. Saavedra (2002), Microstrip Ring Resonator Using Slow Wave Structure Exhibiting Harmonic Suppression, International Symposium on Antenna Technology and Applied Electromagnetics.

F. Bray, et al. (2013), Global estimates of cancer prevalence for 27 sites in the adult population in 2008, Int. J. Cancer, vol. 132, no. 5, pp. 1133–1145.

M. Miyakawa, et al. (2004), imaging capability of an early stage breast tumor by CP-MCT, Conf. Proc. IEEE Eng. Med. Biol. Soc., vol. 2004, pp. 1427–1430.

E. Praveen, et al. (2016), Design of 1 X8 Phased Array Micro-strip Patch Antennas for Biomedical Applications, no. i. pp. 68–72, 2016.

H. Zhang, et al. (2013), A single antenna based microwave system for breast cancer detection: Experimental results, pp. 477–481.

S. Padhi, et al. (2007), on the accurate modeling of a complex antenna for breast tumor detection using a hybrid MOM/FDTD approach, pp. 6636–6639.

M. T. Islam, et al. (2019), A low cost and portable microwave imaging system for breast tumor detection using UWB directional antenna array, Scientific reports, vol. 9, no. 1, pp. 1–13.

F. Islami, et al. (2017), Global cancer in women: cancer control priorities, Cancer Epidemiology and Prevention Biomarkers, vol. 26, no. 4, pp. 458–470.

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Explanation of Potentials and Missing Initiatives in Palestinian Vocational and Technical Education Contents, Structure and Training

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Abstract

The study aims at explaining the missing initiatives in the contents, structure and training of vocational and technical education in Palestine. The impacts of vocational and technical education have not been largely perceived in Palestinian communities as it is yet to be placed on the hierarchy of productivity, growth and development. Apart from a growing number of scholarly responses about the inability of Palestinian vocational and technical education toward meeting market and global needs, it is however important to emphasize that this education is supposed to be a compulsory prerequisite to all students. Hence, with the review of scholarly literature and the application of content analysis through the qualitative method, the paper attempts to explain the potentials and missing initiatives of vocational and technical education in the Palestine context. Arguments were presented in previous literature as regards the importance of vocational and technical education, but none focused on the road to realizing its potentials and identifies the missing initiatives.

The study consequently discovered that signs of progress and changes could be realized in the contents, structure and training of vocational and technical education through addressing these missing initiatives.

Keywords: Vocational and Technical Education, Initiatives, Potentials, Contents, Structure, Training

1. Introduction

It is fundamental to understand that formal education differs from vocational and technical education. While formal education provides theoretical knowledge to students, vocational and technical education equips students with adequate practical skills to cope with global advancement. Vocational and technical education could prepare students with skills, training, education and knowledge suitable for a variety of jobs (UNESCO, 2015; IGI Global, 2021; INEE, 2021; Ministry of Education, Youth & Information, 2021; Jens, 2021).

In recent times, it has been so scary for industrialists to employ students who graduated from formal educational settings (universities and colleges). Industrialists' belief on those kinds of students is that their level of attitude, knowledge, experience and skills required by companies and industries will be largely limited, and will be more theoretical than practical. Besides, re-coaching the formal education graduates for the urgently needed industrial task would indeed be of expensive and harmful to industries than benefit. Lately, employers across the world prefer employing vocational and technical graduates to formal education graduates since the speedy delivery of the former is quite faster than the latter (Jens, 2021 & NACE, 2021). Globalization and hyper-competition have increased the industry's priority toward wanting graduates with technical and creative skills to solve industry issues and control problematic circumstances (Deanna, 2020).

The continuous changes in businesses and industries are increasingly demanding for reformation in the Palestinian formal educational system in the direction of considering and reemphasizing vocational and technical educational structure and contents. Palestinian education curriculum and structure need to be more dynamic in addressing global expectations and modern labour market needs. It should provide a high-quality structure ensuring that vocational and technical skills are adequately delivered to students on a contemporary basis. The structure should be supported by allocating updated resources and providing instructional regulations (OECD, 2021).

In trying to explain the process of reforming and upgrading Palestinian vocational and technical educational structure, the management is required to collaborate with industries to know the exact attitudes, knowledge and skills expected of them; review programs and modernize occupational standards; provide training opportunities to teachers; ensure quality training and education; and deliver both internal needs and external demands (Anita, 2019; Greatbatch, et. al., 2018; Gisela, et. al., 2018; OECD, 2021). The managers of vocational and technical institutions need to understand the dynamics of vocational and technical concepts; concentrate on acquiring management skills, interpersonal skills, negotiation and marketing skills, creativity and innovation skills, monitoring skills to design institutional objectives and plans; skills to be cognizance with industrial needs; skills to be capable of enhancing the quality of learning, teaching and curriculum; and know-how skills to ensure healthy enabling environments. In other words, it is necessary for the management and providers of vocational and technical education to provide training, environment, education, platforms, knowledge and education responsive and useful at labour market (The World Bank, 2017; Government of Netherlands, 2020). This paper is therefore arguing that understanding the challenges of industries, formal education and vocational and technical education is indicative of meeting the needs and expectations of Palestinian labour markets alongside global targets.

In addition to that, the heavy dependence of gulf countries on expatriates has often been a source of concern. This information may appear reasonable when local businesses and industries are found to be largely controlled by expatriates in the United Arab Emirates (UAE), Kingdom of Saudi Arabia, Oman and Bahrain. Expatriates control major sectors of the economy including infrastructure, eater, oil, electricity and health in these countries. In UAE for instance, almost 90% of those invariably coordinating these main sectors are expatriates. Ten (10) million out of Saudi Arabia's population are expatriates (Sabena, 2020), thus indicate how poor vocational and technical education has supported locals and indigenes in gulf countries including Palestine. In Kuwait, the empirical report shows that 70% of the entire population are expatriates from a different continent (World Population Review, 2020). These concerns were further affected by the Covid-19 pandemic which declined jobs at the rate of 13%. As reported by Christopher (2020), 1.2 million ex-pats may likely leave the Kingdom of Saudi Arabia this year. It was similarly forecasted by Christopher (2020) that 30% of 70% of ex-pats may probably be reduced because of the outbreak of the Covid-19 pandemic in Kuwait. This indeed indicates that these gulf countries including Palestine fail to promote and support their respective educational structure through vocational and technical training.

Such attention and intervention may have paved way for an experienced replacement among the indigenes in these countries, most especially, during this hard time of global epidemic. Through a robust plan of vocational and technical education, Palestine and other gulf countries would have made progress and headway in overcoming the existing challenges of limited local manpower to manage and maintain local businesses and industries.

1.1. Research Objectives

The focus of this study focuses on explaining the missing initiatives in the contents, structure and training of vocational and technical education in Palestine, working on them and addressing them. The impacts of vocational and technical education are largely realized in Palestinian societies as they have not yet been placed in the hierarchy of productivity, growth and development. Regardless of the growing number of scholarly responses about the inability of Palestinian vocational and technical education to meet the needs of the Palestinian market and global needs, it is important to stress that such education is supposed to be a prerequisite and mandatory for all students

1.2. Research Significance

The study will work by reviewing the scientific literature and applying content analysis to explain the missing potentials and initiatives for vocational and technical education in the Palestinian context. Focusing on the importance of vocational and technical education, as well as on the ways in which the potential of vocational and technical education in Palestine will be achieved, and identifying missing initiatives. Thus, showing signs of progress and changes that can be achieved in the contents, structure and training of TVET while at the same time addressing these lost initiatives.

2. Challenges in Palestinian Vocational And Technical Educational System

There is a widespread agreement that coherence has been an absent mechanism in the structural composition of many vocational and technical education systems. Hiim (2017) argued that distance between practice and theory and inconsistency between workplace needs and educational graduates denied VTE from producing salutary results, most especially, in Palestine communities. Hiim (2016) contended that vocational and technical training is mostly considered irrelevant alongside recognized professions at formal institutions. Dahlback et al (2018) observed that there is disunity, conflict and inconsistency between the education offered at formal schools and skills needed at workplaces.

Education and teaching have been quite broad in focus, but lacks the essential contents needed and expected in industries (Dahlback et al., 2018). These challenges remain global and have no exceptional consideration for Palestine.

According to Sylte (2018), assessment methods and teaching contents in the formal educational structure inclined more on theory than practical, thus render formal institution graduates irrelevant in industries and workplaces. It has become a source of concern as to whether the contents in the Palestinian formal educational system largely represent the demands in its labour market. It is not difficult to conclude that Palestine needs industrial and labour market experts, but can the existing design and structure produce that? Hence, the main goal of the study is to explain the missing initiatives in the contents, structure and training of vocational and technical education in Palestine.

The formal educational system mostly emphasized creating scientific and analytical thinkers rather than complex practical work solvers. Billett (2010) asserted that work demands and technological advancements call for unlimited learning exercises. Continuous societal changes proclaim for diversifying the importance and functions of vocational and technical education. Hiim (2016) corroborated the fact that VTE would significantly and appreciably promote workplace performances.

As indicated and established by Guile & Unwin (2019a), the effectiveness of vocational and technical education is increasingly staggering in many nations, as their roles and functions have been lately difficult to be perceived and identified. VTE may drastically lose relevance and become ineffective if its programs are not merged with work-life changes. Work-life is growingly transforming and advancing beyond most existing formal institutional contents, structure, curriculum, focus and setting. Apart from VTE training, the contemporary educational setting is expected to concentrate on producing students possessing innovative skills, creative skills, problem-solving skills, critical thinking skills, developmental skills and managerial skills beyond academic scholars and experts (Sylte, 2020).

3. Features and Characteristics of Vocational and Technical Learner

By meaningfully and realistically building a vocational and technical learner, several criteria need to be systematically demonstrated. Some fulfilled criteria and possessed features in the learner would indeed affirm it that major sectors in the economy will no longer be vacant or largely occupied by expatriates alongside the building of VTE learners.

The learner's level of participation in economic, growth, management, investment and policy decisions need to be more professional, constructive and worthwhile after receiving vocational and technical training. Following such an educational journey, the learner is expected to be a human resource in exploring and discovering new opportunities for the country. The learner would not be viewed from a valuable perspective if the performance does not correspond with the labour market needs.

The graduation of the vocational and technical learner must certainly be seen and perceived in institutional, industrial, regional and national development processes. The learner's mindset, orientation, ideas and initiatives need to be more creative than being a critic or enemy of progress. It would be embarrassing for a vocational and technical learner to lack knowledge, skills and experiences needed at the workplace which falls under the learner's area of expertise (Bisht & Pattanaik, 2020). The person should be able to identify lucrative initiatives for the industry. The learner should possess the ability to think both theoretically and practically toward discharging work assignments and solving the company's problems. It would be embarrassing for such a learner to lack knowledge and understanding of acting intuitively to workplace concerns.

The justification of "how" and "why" in workplaces should be professionally understood by the learner. All subjects related to a workplace should be practically and theoretically comprehended at an appreciable level because workplace demands require professional approaches.

4. Management Responsibilities in Realizing the Potentials of Vocational and Technical Education

It is important and appropriate to constitute a competent management team that can collaborate with local businesses and industries. Simone (2020) submitted that the potential effect of such collaboration between local industries and vocational and technical institutions is that the unemployment rate will drastically decline. A significant responsibility that can feature and expose the effectiveness and productivity of the management is the ability to design and point out the required attitudes, skills, experience and knowledge expected of vocational and technical graduates. It would be a plausible honour for the management to ensure that indigenous manpower replaces foreign expatriates and occupies major and essential sectors of the Palestinian economy in a short time.

The indispensable role of the management is to frequently engage with the labour market on their urgent needs and link vocational and technical education (VTE) management's programs with societal wants and challenges.

Palestinian government should not just focus on preparing individuals and students per international requirements, but also address the imbalances between local industries and vocational and technical education. The economic and social development of the nation must be stressed upon by VTE management. The issue of reducing the heavy dependence of the nation on expatriates should particularly be listed on the priority list. Several measures must be put in place by the management toward responding to business needs and industrial requirements. It is highly recommended that the management ensures that curriculum, policies, strategies and learning processes represent industrial wants and expectations (Ministry of Education and Sports, 2019; OECD, 2021). Most importantly, the management should set the action plan, create the database, review and develop curriculum following the international standard, often conduct workshops and training, design prerequisites for assessing students, conduct collaborative research, analyze the market and industrial requirements, and determine the level of required knowledge, attitudes and skills. The management needs to make constant and necessary reforms towards ensuring quality design, programs and policies. This effort will definitely result in creating and increasing job opportunities and skilled manpower to cater for national and regional labor market demands.

In the process of strengthening the effectiveness of vocational and technical education, VTE management should consider following the below process.

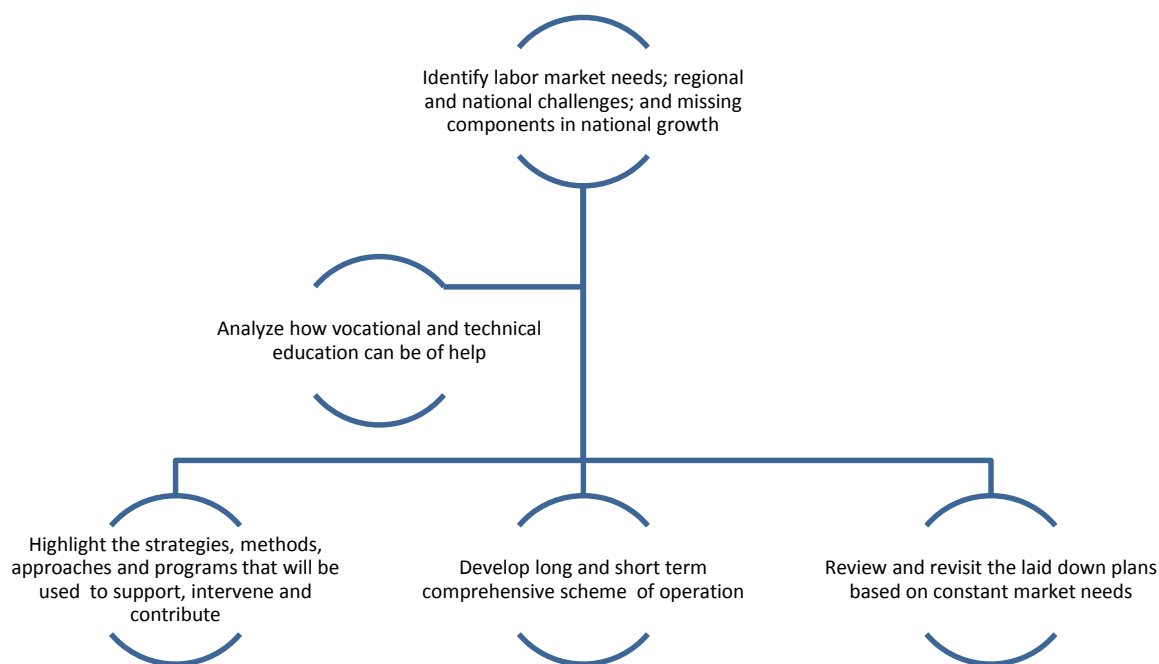


Diagram 1: Responsibility of the management of vocational and technical education

Toward hoping for a desirable objective, it would be a progressive idea for the management to consider cultural and socioeconomic factors (Pilz et al., 2020). This is because importing foreign frameworks and policies may not end well in the Palestinian context due to several cultural, national and socioeconomic factors. They should be able to distinguish culturally acceptable tactics from culturally unacceptable approaches in the course of developing a standardized framework for Palestinians. Professions and areas of expertise are supposed to be developed by VTE management following labour market demands.

Management should be capable of identifying and diagnosing situational factors as they will assist in designing and enhancing vocational and technical educational structures (Andela & van der Doef, 2018). Toward facilitating training exercises for the learners, social support is essential. The capacity and environment for building self-esteem, developing competency and satisfying future careers should be provided by the management of vocational and technical education.

The management and trainers of vocational and technical education need to understand how their roles and interventions could influence major sectors in the economy, national growth and unemployment rate across the country.

They must be cognizant and familiar with special needs suitable for the development of vocational and technical training departments and sectors in Palestine. It would be unprofessional and amateurish for them to neglect or reduce their fundamental responsibilities for these trainers merely because of personal and political interests, as this training exercise does not solely prepare them for the company, but also the future. Measuring daily structural programs with global market needs would suitably and adequately prepare vocational and technical trainers for any labour market. The management is required to design programs that will allow VTE trainers to solve complex problems related to their respective areas of expertise. VTE educational system should consider focusing on occupational programs that address unemployment challenges. The management should ensure that the programs are open for innovation, changes and advancement, and are also job-related in content and focus. They should endeavour to ensure that culture doesn't be a challenge to make modifications, adjustments and expansions in vocational and technical education programs.

5. The Missing Initiatives in Palestinian Vocational and Technical Sectors

Toward ensuring that the vocational and technical education sector effectively responds and addresses transformational, sustainable and economic challenges in the 21st century, standardized transformations are needed in the context of governing, funding, organizing and conceptualizing its educational system (Bang & Park, 2021). Palestinian government needs to develop friendly policies to match VTE training schemes with industrial demands. The marginalized groups; villagers, vulnerable and unemployed workers; low-skilled adults and disadvantaged communities should be given a crucial portion and unlimited attention in the transformational process.

Beyond depending on expatriates, providers and management of vocational and technical education need to review their programs from the perspective of ensuring that the absence of expatriates would not be a major disaster to major sectors of the Palestinian economy. The providers should not exclude education, transportation, agriculture, public health, human resource development and green growth infrastructure while expanding and diversifying VTE programs in the Palestine context. Factors like sustainability, efficiency and relevancy of these programs should also be a fundamental concern for the providers. The mechanisms for increasing employment rate, and strengthening infrastructures and capacity building must be emphasized and prioritized in the process.

In a search for the missing initiative in VTE structure, it is important to review the formal and informal educational curriculum to identify the gaps that could be filled by VTE programs.

The current challenges of VTE programs must be identified by the government, management, providers and policymakers before exploring solutions. In other words, it would be a misplacement of steps if solutions were provided before knowing the problems. Hence, the missing initiatives could be addressed through revisiting experiences; training, training curriculum, training courses and retraining schemes; educational contents, methods and approaches; investment in skills, capacity building and human resources; objectives, purpose, mission and visions of establishing VT education in Palestine.

6. Conclusion

The aforementioned initiatives are missing in Palestinian strategic-goals toward VTE sectors. Discipline-based educational systems and structures are contemporarily irrelevant in the 21st century. Palestinian educational planners need to collaborate with VTE management toward constructing curriculum and considering changes in the future workplace. Industry practical knowledge should be given priority in students' educational structure. The unemployment rate across Palestine demonstrate the need for using industrial tasks, challenges and changes to link practical knowledge to theoretical knowledge, and build comprehensive educational programs. Practical experiences and knowledge would indeed help in promoting relevance at workplaces. Theoretical teaching methods won't squarely discharge industry tasks and would lack the technic of solving workplace challenges.

Changes in industry and workplace could easily be addressed in VTE educational structure rather than in the formal educational setting. The inability of knowledge-based curricula to meet industrial needs in Palestine gives an avenue for VTE programs to be expanded, supported and planned alongside labour market demands. Job-relevant teaching methods are meaningful ways that could help in reducing the level of unemployment in Palestine.

The great responsibility of causing any changes to vocational and technical structured programs lies with the management. It would be unprofessional and substandard for the management to reform VTE programs without considering work-based learning methods, context-based learning approaches and job-relevant theories.

It is fundamental for educational planners to understand that workplaces are increasingly demanding for qualities beyond the existing educational programs. Therefore, the objective of vocational and technical education should not be merely limited to preparing students for workplaces and industries, but should be an extensive initiative for addressing social, educational and economic goals.

By acknowledging the uniqueness of VTE, the Palestinian government can create many experts in various progressive and developmental sectors. By extending the programs through the lens of industrial demands, the ratio of labour participation would increase substantially. On that account, it would be discerning to address the aforementioned initiatives for progression.

7. References

- Andela, M., & van der Doef, M. (2018). A comprehensive assessment of the person – Environment fit dimensions and their relationships with work-related outcomes. *Journal of Career Development*, 46(5), 567–582. <https://doi.org/10.1177/0894845318789512>
- Anita Lice, (2019), “Managing vocational education to facilitate the employability of graduates”, Human, technological and quality of Education, 2019.
- Bang Yonghwan & Park Taejung. (2021). Needs Analysis in Technical Vocational Education and Training (TVET) Programs for Sustainable Development of Women in Cambodian Hair and Beauty Industry. *Journal of Technical Education and Training* Vol. 13 No. 3 (2021) p. 115-124.
- Billett, S. (2010). Learning through practice. In S. Billett (Ed.), *Learning through practice: Models, traditions, orientations and approaches* (pp. 1–20). Springer.
- Bisht, N., & Pattanaik, F. (2020). Exploring the magnitude of inclusion of Indian youth in the world of work based on choices of educational attainment. *Journal of Economics and Development*, 23(2), 128–143. <http://doi.org/10.1108/JED-08-2020-0114>
- Christopher Copper, (2020), “1.2 million expats forecast to leave Saudi Arabia this year”, 19 June 2020, International Investment. <https://worldpopulationreview.com/countries/kuwait-population>
- Dahlback, J., Olstad, H. B., Sylte, A. L., & Wolden, A. C. (2018). Utfordringer og muligheter i møte-punktet mellom yrkesfaglærerutdanningen og pedagogisk praksis i videregående skole [Challenges and opportunities in the meeting point between vocational teacher education and pedagogical practice]. *Nordic Journal of Vocational Education and Training*, 8(3). 57–77. <https://doi.org/10.3384/njvet.2242-458X.188357>

- Deanna Pate, (2020), “The top skills companies need most in 2020-and how to learn them”, Learning Blog, 2020.
- Gisela Wiesner, Nurhening Yuniarti, (2017), “Systematic quality management vocational education institutes: role of teachers in development of organization quality”, Journal Pendidikan Teknologi Dan Kejuruan, Vol. 24, No.1, May 2018, pp.162-170.
- Government of Netherlands, (2020), “Closing the gap between education and industry”, 2020.
<https://www.government.nl/topics/enterprise-and-innovation/closing-the-gap-between-education-and-industry>
- Greatbatch, D. and S. Tate (2018), “Teaching, leadership and governance in FE colleges”, Research Report,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/680306/Teaching_leadership_and_governance_in_Further_Education.pdf
- Guile, D., & Unwin, L. (2019a). Introduction to the handbook: Vocational Education and Training (VET) theory, practice and policy for a complex field of inquiry. In D. Guile & L. Unwin (Eds.), *The Wiley Handbook of Vocational Education and Training* (pp. 1–39). John Wiley & Sons.
- Guile, D., & Unwin, L. (2019b). VET, expertise and work: situating the challenge for the twenty-first century. In D. Guile & L. Unwin (Eds.), *The Wiley Handbook of Vocational Education and Training* (pp. 19–40). John Wiley & Sons.
- Hiim, H. (2016). Educational action research and the development of professional teacher knowledge. In E. Gunnarsson, H. P. Hansen, B. S. Nielsen & N. Sriskandarajah (Eds.), *Action research for democracy: New ideas and perspectives from Scandinavia* (pp. 147–161). Routledge.
- Hiim, H. (2016). Educational action research and the development of professional teacher knowledge. In E. Gunnarsson, H. P. Hansen, B. S. Nielsen & N. Sriskandarajah (Eds.), *Action research for democracy: New ideas and perspectives from Scandinavia* (pp. 147–161). Routledge.
- Hiim, H. (2017). Ensuring curriculum relevance in vocational education and training: Epistemological perspectives in a curriculum research project aimed at improving the

- relevance of the Norwegian VET. *International Journal for Research in Vocational Education and Training*, 4(1), 1–19. <https://doi.org/10.13152/IJRVET.4.1.1>
- IGI Global, (2021), “What is technical and vocational education and training, TVET”, IGI Global, Published of Timely Knowledge, 2021.
- Inter-agency Network for Education in Emergencies, (2021), “Technical and vocational education and training, TVET”, INEE, 2021.
- Jens-Henning Peters, (2021), “The importance of vocational training for career development”, EHL Insights Group, Switzerland, 2021.
- Ministry of Education and Sports, (2019), “The Technical Vocational Education and Training (TVET) Policy”. Republic of Uganda. 2020.
- Ministry of Education, Youth & Information, (2021), “Technical and Vocational Unit”, Government of Jamaica, 2021.
- National Association of Colleges and Employers, (2021), “What is career readiness?”, NACE, 2021.
- OECD, (2021), “OECD reviews of vocational education and training” OECD Library, 2021.
- OECD, (2021), “Teachers and leaders in vocational education and training”, OECD Reviews of Vocational Educational and Training, 2021.
- Pilz, M., Harris, R., Zenner-Höffkes, L., & Zirkle, C. (2020). Undertaking comparative VET research in international teams: The example of exploring recruitment and training cultures in SMEs in Australia Germany and the United States. In M. Pilz & J. Li (Eds.), *Comparative vocational education research: Enduring challenges and new ways forward* (pp. 291–309). Springer VS. https://doi.org/10.1007/978-3-658-29924-8_17
- Sabena Siddiqui, (2020), “GCC faces possible setback with exodus of skilled professionals”, Al-Monitor, June 22, 2020. <https://www.al-monitor.com/originals/2020/06/gulf-state-gcc-exodus-saudi-arabia-workers-uae-kuwait.html>
- Simone R. Haasler, (2020), “The German System of Vocational Education and Training: Challenge of gender, Academization and the Integration of Low-Achieving Youth”, *Transfer: European review of Labour and Research*, February 12, 2020. <https://doi.org/10.1177/1024258919898115>

Sylte, A. L. (2018). Profesjonsretting og studentaktivitet [Professionalisation and student activity].
Scandinavian Journal of Vocations in Development, 3, 1–26.
<https://dx.doi.org/10.7577/sjvd.2694>

Sylte, A. L. (2020). Predicting the Future Competence Needs in Working Life: Didactical
Implications for VET in Norway. International Journal for Research in Vocational Education
and Training (IJRVET) 2020, Vol. 7, Issue 2, 167–192
<https://doi.org/10.13152/IJRVET.7.2.3>

The World Bank (2017), “Improving Vocational Education Brings Opportunities for Young People
in Yunnan”, March 13, 2017.

UNESCO. (2015), “TVETpedia Glossary”, UNESCO, International Centre for Technical and
Vocational Education and Training, 2015.

World Population Review, (2020), Worldometer, 2020. [https://www.worldometers.info/world-
population/kuwait-population/](https://www.worldometers.info/world-population/kuwait-population/)

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Teaching English Language Courses for Tourism and Hospitality Purposes (A Study of Graduates Workplace Needs)

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Abstract

When taking into account Palestinian tourism sites, mastering language English for instance is a prerequisite for serving and offering tourism services in tourist places such as Bethlehem, Jerusalem, Jericho and Hebron after graduation. In Palestine, English for Specific Purposes especially in hospitality and tourism purposes has not been given much investigation in research. Globally, English language is used as a medium of communication in contexts such as hospitality, travel, and tourism. This study examined how English language is used to prepare tourism and hospitality learners who anticipate serving in Palestinian tourism sites.

The data indicated that the learners' perceptions of the courses offered in English are not consistent with their aspirations and perceived academic English language needs, and their response to how they perceive the importance of English language needs was moderate. Based on these findings, the study suggests restructuring these courses and reconsidering the adopted teaching methods to help learners receive proper instruction geared towards intended learning outcomes and meets their future workplace needs. For future studies, it is recommended that quantitative and qualitative researches are needed to be carried out to analyze the actual needs of undergraduate students to the English language in programs hotel management and tourism.

Keywords: Tourism, Curriculum, EFL, Hospitality, Workplace.

1. Introduction

The English language is commonly used in many disciplines such as the tourism and hospitality industry. Learning foreign language skills is an integral part for people, who work in the tourism sector, tasks as it is the means of communication with tourists. It also helps in understanding their cultural differences and increasing the quality of the tourism industry (Sindik & Božinović, 2013). According to Leslie & Russell (2006), being able to use foreign languages is an integral part for those who work in the fields of hospitality and tourism (CAÑAS & Pérez, 2015). The reason is that it is the means for having communication with foreign tourists and understanding cultural differences (Zahedpisheh, Abu Bakar & Saffar, 2017). Mastering a foreign language is obvious in the field of tourism and hospitality. Besides, communicative language ability is also significant to develop intercultural competence (Tziora, Giovanis, & Papacharalabous, 2016). Knowing foreign languages is necessary to learn cultural awareness (Kluge, 1984). Increasing cultural awareness is a means to see both the positive and negative aspects of cultural differences (Pokhilko, 2019). In the process of learning a new language, it is important to be aware of its cultural aspect(s), because knowledge of other cultures helps a learner to learn a certain language and to assess the cultural values of that language (Choudhury, 2014; Prachanant, 2012).

According to the Palestinian Central Bureau of Statistics, 2017 the contribution of the tourism sector to the Gross Domestic Product (GDP) cumulated to \$ 2.5 million.

Although Palestine has a tremendous confiscated number of antiquities and many resorts, it annually attracts millions of tourists from all over the world (Ma'an News Agency,

2016). Tourism is not only a material contributor that creates jobs and improves income levels, but it also contributes to bridging the gaps between cultures and societies (Adiyia, Vanneste, & Van Rompaey, 2016). It is also a media platform that brings to the world the cultural dimensions and identity of the Palestinian people.

According to the Palestinian Central Bureau of Statistics, Palestine received (502,850) thousand tourists who visited the West Bank and Jerusalem in 2017. Although the current political instability in Palestine has a huge negative effect on the hospitality and tourism sector, experts in the field of hospitality and tourism in Palestine will return quickly again. In Palestine, the tourism and hospitality guides use English to deal and communicate with visitors and tourists who come to visit Palestine from all over the world. It is natural, therefore, to find English taught as a compulsory subject at universities in Palestine. According to the Palestinian Ministry of National Economy and Palestine Trade Center (2019:40), 'there is an overall need to upgrade the tourism curricula and to enhance the language skills (English as well as other languages), and to provide graduate learners at early stages of education with practical experience in the industry.' No study has been conducted to examine the courses of English language which are offered to graduates from higher education institutions and to unveil learners' views on them. The present research will bridge this gap by studying how the English language is being taught for tourism and hospitality purposes in Palestine and examining learners' satisfaction with the taught courses. An overview of tourism and hospitality in Palestine is provided in the next section.

A. HOSPITALITY AND TOURISM SECTOR IN PALESTINE

Tourism in Palestine is an important arena for establishing the Palestinian national identity. Palestine is the most important destination in the plans and programs of tourists' delegations from around the world. Tourism started from Palestine as religious tourism. The Ministry of Tourism and Antiquities, since the beginning of the year, the number of tourist arrivals and the number of nights spent in Palestinian hotels has increased significantly. The number of visitors to tourist and archaeological sites in the first half of 2018 reached 1.48 million, 5% compared to the same period of 2017, while Palestinian hotels registered 750 thousand overnight nights, an increase of 25% over the same period in 2017 (Ma'an News Agency, 2016). This is a result of the real partnership between the Ministry of Tourism and Antiquities and the activities of the Palestinian private tourism sector,

in addition to the active promotional campaign in the world of tourism markets to attract tourists to Palestine. Palestine participates in several international tourist exhibitions. This is essential to stabilize the Palestinian presence in this international arena and to market Palestine as an independent destination. Through Palestinian tourism programs based mainly on the use of Palestinian tourism facilities Palestinian cities and hotels. The Ministry of Tourism and Antiquities seeks to make the experience of the tourist in Palestine a rich experience (This week in Palestine, 2012). This year, the World Tourism Organization (WTO) has adopted the theme of "Tourism and Digital Transformation" to highlight the importance of technological developments and innovations in the continued growth as the sustainability of the tourism sector increases and will highlight the need to invest in digital technologies that can create the environment for innovation and entrepreneurship in tourism. Minister of Tourism and Antiquities in Palestine has adopted the slogan of digital transformation in the field of tourism for some time. The Ministry of Tourism and Antiquities has worked on developing Palestinian tourism through several tourist information centers in all Palestinian cities and developed the capabilities of workers in the Palestinian tourism sector (World Tourism Organization, 2017).

B. THE CASE OF TOURISM AND HOSPITALITY IN PALESTINE

Hospitality and tourism education in Palestine started in 1973 when one higher education institute was founded. In 1973, four -years period which learners should enroll in the higher institute to gain a Baccalaureate degree in Hotel Management. Different degrees were also offered such as the degree or diploma in Hotel Management, Travel Agency Management, and Tour Guides. The mission of these programs is to prepare highly qualified workers for joining the police forces and other sectors private or public who work for tourism. These programs provide learners with a variety of courses, preparation, and training in the field of hospitality, tourism, and management. Learners who major in the degrees such as Hotel Management and Tourism should choose one foreign language i.e. French or Spanish. Further, they should complete 18 credit hours in the selected language. Thirty-four credits are university requirements. Concerning the courses taught to learners who major in Hotel Management, they should complete 79 credits in total. Only one English language course is offered. After successfully passing the 131 credits in the four academic years, learners graduate with a degree in Hotel Management and Tourism. The language used in teaching the courses is Arabic.

It is very important to be motivated to master the language and be fluent in the language for professional purposes if you want a job in the field of hospitality and tourism. Also, employees must become advanced users of English for tourism purposes (Cravotta, 1990).

Arabic is the medium of instruction in higher education institutes so learners must only study two main English courses one course in the first semester and the other on the second. Learners are required to enroll in 8 courses of English language divided into four years. These courses are English Language Skills I which involves reading skills that are important for academic purposes, English Language Skills II course focuses on the learners' reading, writing, listening, and speaking skills that learners must master at the university level and English Language Skills III in which learners develop and implement the sub-skills such as reading, writing, listening and speaking. No previous studies have been conducted on the way English is taught to learners who seek a degree in tourism and hospitality in Palestine. This study also examines whether English language preparation courses meet the learners' actual needs and requirements for their future workplace.

2. RELATED STUDIES

In Palestine, the process of English language teaching for hospitality and tourism purposes has not been given much investigation in research. Internationally, the usage of the English language as a medium of communication in hospitality, travel, and tourism contexts has been given great care. Comparing researching tourism English in Palestine with Arab countries and international ones, we find for example some studies tested the impact of these courses in fostering tourism learners' language abilities (Akyel&Yalcin, 1991; Fuentes, 2004; Lo &Sheu, 2008; Luka, 2009), other studies investigated language needs of learners (Afzali&Fakharzadeh, 2009; Choi, 2010; Prachanant, 2012; Russell &Leslie, 2005; Erazo, Ramírez, Encalada, Holguin &Zou, 2019).

In the context of the Arab World, very limited numbers of studies have been carried out. For example, Abdel Ghany& Abdel Latif (2012) studied how undergraduate learners of tourism and hospitality in Egypt are prepared. Moreover, the study compared the perceptions of teachers and learners. Results revealed that learners' perceptions of the services which are provided for them to be prepared in the English language are different from those of their teachers. The study also mentioned problems in the instructions of the English language.

In a study conducted in a similar context, Zayed (2009) investigated the effectiveness of implementing active and proactive reflection in fostering tourism learners' English oral skills. The results of the study showed that the group which was subject to the experiment performed better than the control group in total performance quality, oral performance, and language awareness.

3. Present Study

This study aimed to investigate English as a language of instruction to undergraduate learners at the Institute of Hotel Management and Tourism in Palestine and to test if this way of teaching is essential for their future jobs or not. The study addressed the following two questions:

1. How is the English language delivered to learners' at the Institute of Hotel Management and Tourism in Palestine?
2. Based on the views of learners enrolled in this program, are the English language preparation courses important to learners' actual future workplace? Are they satisfied with the adequacy of these courses?

4. Methodology

To answer research questions, the present study gathered data about the English language courses which are delivered for the learners who enroll in the Institute of Hotel Management and Tourism in Palestine. The researchers collected the data using both qualitative and quantitative methods. Because it is a flexible tool, the researcher implemented the semi-structured interviews. Also, the interviews help to comprehend the research. Interviews were conducted with eight student participants and the questionnaire was distributed to 70 learners. A random sample of learners was selected. In the beginning, the researchers clarified the purposes of the study to the student participants, and they indicated that they agree to participate voluntarily in the study. The researchers interviewed male and female learners who participated in the study. Out of the ten interviewed participants, five were males and five were females. Seventy learners completed the questionnaire, 34 were males and 36 were females.

The interview questions focused on how the learners learn, and how they are taught English skills in courses of English series I, II, and III. The student participants were also asked to complete a questionnaire to examine whether English courses are important to their future workplace.

Before the researchers conducted the interviews with the participants, copies of the English language courses taught were checked to deduce the interviewees' questions. All the interview meetings were conducted in January 2019. The language of the interviews was Arabic because it is the mother tongue of the student participants. No student was obliged to be interviewed although it is a police academy and regulations allow us to do so, we did not. Every student was individually interviewed for 35–45 minutes. To transcribe and analyze the interviews, all the interviews were recorded.

5. Results of the Study

In this part, the researchers illustrate a description of the English language textbooks used. Also, how the English language is taught and assessed at the institute is investigated.

A. Teaching Materials Used in Hotel Management and Tourism Program

The book of English, drills, and testing which are used in the instruction of English to hotel management and tourism were investigated. Our investigation revealed that the textbook the University uses with learners depends, mainly, on reading and writing. The textbooks are: (a) Making Connections, (b) Skills for Effective Writing, and (c) Longman Academic Writing Series. These textbooks are English language textbooks. Each of these textbooks mainly included materials that the teachers of English for general purposes materials use. Moreover, the selected textbooks do not contain drills of listening skills and speaking skills. That is, the areas such as grammar and vocabulary, writing, reading, drills were focused on. After we analyzed the textbooks it was obvious that the majority of tasks learners did consolidate the writing skill and the structures, whereas there were no related tasks to the skill of listening or speaking. The textbooks contained general topics rather than topics related to communication in the tourism context in Palestine.

B. Emphasized skills

The student participants revealed salient features about the language skills their English language teachers emphasized. Most of the interviewed learners showed that English language teachers emphasized reading skills, grammar, writing, hospitality, and tourism expressions.

Based on learners' views, teaching to improve their language skills such as communication with foreigners functionally, speaking or listening skills is missing.

The participants asserted that most of the time, in English language classes, was a matter of translation of such reading texts into their mother tongue, Arabic. Concerning listening and speaking skills, they were overlooked. The main focus of practice was on retaliating grammar drills. Teachers of the English language, in this program, usually use the traditional method. Learners' role was discarded, and their language teaching environment was a teacher-dominated rather than students-centered. This means the teacher was dominating the scene, teaching and explaining all the time. However, learners did not produce language. They copied all the time. Some student participants' interviews excerpts indicate the way the English language is taught:

Student 5:

"We do not usually read, we just pay attention and listen to our English language teacher while he/she is reading for us loudly the passages and translating the new expressions into Arabic, then the language teacher asks learners to answer the questions in their copybooks. We don't normally speak, discuss or listen to a recording or watch a video. I feel that we should take more courses."

Student 3:

"We don't have the chance to speak or practice listening to the English language during class time. The teacher is always talking all the time. We don't use speaking to communicate with our classmates during classes. We are passive, we don't practice English. The courses they give us are not enough."

Student 7:

"We had never practiced pair work activity in our English class which is included in the book; we have speaking and listening drills in the textbook but they are skipped. We are not required to study speaking and listening drills. Mostly, we practice grammar and how writing."

C. Learners' Perceptions of Their Actual Needs

In developing an ESP material to be taught in a course, for example, *English for Tourism* two components must be included: (a) deciding on the needs of learners before starting to teach the language and learners' achievement should be tested (Razika, 2017). Language teachers should conduct needs analysis before course design to determine the Intended Learning Outcomes that should be met and the skills of English language which are potential to be developed,

(b) to change or edit the syllabus based on the learners' actual needs (Abdalla, & Mohammed, 2016; Akyel, & Ozek, 2010; Alastal, 2012; Ali, & Salih, 2013; Bosuwon, & Woodrow, 2009; Chostelidou, 2010; Chen, Chang & Chang, 2016; Elsaid Mohammed, 2018; Eslami, 2010; Mohammadi, & Abdi, 2014; Javid, 2011; Martins, 2017; Serafini, 2015; Ulla, & Winitkun, 2017; Ulum, 2016).

D. Checking the Testing Methods Used in Such Courses

After asking the department to provide the researchers with copies of the Mid-term and Final examinations, it is generally divulged that learners sit for only written exams, whereas oral exams and presentations were missing from the assessment procedure. That is, oral testing or peer assessment is not used by the language teachers. Generally, analysis of the exams used by the language teachers showed that these exams usually are prepared to comprise (1) vocabulary: which intends to assess learners' writing full sentences using the vocabulary, fill in the spaces, and fill in the spaces all related to tourism. (2) Reading: asks learners to read passages about tourism and answer comprehension questions. (3) There should be testing for language testing to assess learners' knowledge of learned structures; also (4) writing: this part measures learners' ability to write a composition of 120 words about one topic which is related to tourism and hotel management. Altogether, the learners' indications of how the language is delivered and tested in this program reveal great restrictions in the language courses provided to them. Serious problems that may draw the attention to the fragility of teaching English as a Foreign language (EFL hereafter) to the learners in this program are the absence of teaching speaking and listening skills (i.e, communication skills with special emphasis on English for Tourism), using different ways of assessments and assessing learners' needs when designing their syllabuses.

After asking learners about their English language courses, the learners' perspectives revealed two important points: The reasonableness of English courses they take and their real needs for such English courses.

E. Reasonableness of English Courses

Generally, the semi-structured interviews with learners indicated that those who are registered in this program are not happy with the number of English courses and with the instruction, their teachers offer, too.

When we asked them if they were satisfied with the instructions and the taught courses, all learners showed passive feelings because what they learned didn't meet their future workplace needs. Another reason for this feeling of discontent was that although the textbooks contained communicative drills, their language teachers neglect them.

Student1:

“Learning functional and situational English is more relevant to my work. I want to master communication so as not to be afraid of foreigners. This I need. I think teachers should focus more on the speaking activities because the exposure to listening in our courses is not enough to develop our listening and speaking skills. Accordingly, it won't be that much beneficial in our future workplace. The English language course didn't support me in the English language skills that I sought to acquire to be able to function properly in my work in the field of hospitality and tourism in the future.”

Student 2:

“Usually, in our English classes, the main focus is on reading. I think the teaching of reading will not benefit in developing my conversation /communication in English especially when we talk to tourists. I need to communicate with visitors in English in the historical sites. I think listening and speaking are more important for my future workplace.”

Student 4:

“Frankly, our language teachers focus on the reading skill. Writing is also a core of our English course. The number of English courses taught is not enough. Learners most of the time attend language courses at the British Council.”

Student 6:

“No one can deny we acquired new vocabulary, practiced grammar and we were exposed to the common errors in writing, structures, and some pronunciation by our teachers; but there our teachers do not emphasize the skills of communication, speaking, and listening. Accordingly, I and my colleagues have initiated self-studying English listening and speaking. We also enrolled in an English conversation course run by international institutions. This is because we believe when we may master communication skills, speaking and listening that will help us in our future workplace.”

Student 8:

“To develop my language level, I should register for an English language training course after I finish my study. Frankly, I don’t think that the English language course the program provides me with is not going to be that much helpful in the future workplace. I need to be hired in the field of tourism and hospitality, that is to say, I should be able to use the English language with tourists and site visitors. Accordingly, being able to communicate in English is very important. I want to practise English. Frankly, teachers use Arabic not English.”

Learners expressed a sense of dissatisfaction with English courses, and they did not feel any noticeable improvement in their English language communicative ability through their study in the program. Some learners improved their English communicative ability due to the training they received outside their university:

Student10:

“I have taken training courses in the English language at centers not at the university, concerning the listening skill, I began to develop; these days I can comprehend when native speakers speak in places such as downtown, especially in Bethlehem because it is the place where tourists visit the Nativity church. Also, when I watch movies in English with no translation of subtitles, I feel I started to understand. I am happy and enthusiastic to participate and communicated with my classmates in the English language course.”

We can see that the learners’ views on how the university program prepares them for the future workplace are negative. The learners were not happy with the teaching methods or the content of their English language courses. Also, the students were not satisfied with the way of learning they received in their classes. The learners expressed a strong need for fostering listening, communication, and speaking skills. They indicated that these skills were overlooked.

F. Results Related to Testing Used in the Courses

Student participants mentioned that the English tests they did at the end of each course were just to pass not to measure their language competencies. The results of the interviews revealed that the learners did not take care of speaking and listening skills as parts of their courses. Student participants reported that they study to achieve better grades in the exams.

Student 9:

“The tests learners sit for are just to get grades and compete. I and my colleges are just wanted to pass the tests. Further, these tests often include questions whose answers depend on reading, vocabulary, structures, and vocabulary. We do not have oral and listening tests.”

It can be safely expressed that the testing methods of learners' progress ensured that there is a state of lack of motivation to study English; just a few learners were interested in taking extra courses to develop their speaking and communication skills. The hapless case of those learners in studying English urges us to reconsider the way of teaching English and curricula chosen to be delivered to fulfill learners' needs for learning. The next section will highlight the quantitative data related to the importance of English to learners.

G. mportance of EnglishLanguage *in* Future Life at Work

Table 1 below clearly shows the results related to how learners rate English in their future workplace.

TABLE 1

Means, percentages, and standard deviations of English language importance.

No	Statement	N	Mean	STD	Percentage
1.	English helps me to succeed in external training courses delivered in English.	70	4.04	1.01	80.8%
2.	English helps me to find my job easier.	70	3.96	0.95	79.2%
3.	English is essential berceuse it is the language of international communication.	70	3.89	1.06	77.7%
4.	Learning English is important because it is the language of business.	70	3.85	1.09	76.9%
5.	English is important because it gives me better chances to apply for scholarships to continue my graduate studies or to be involved in training courses in an English-speaking country.	70	3.76	1.26	75.2%

6.	English helps to talk with people who do not speak Arabic, for example, in historical sites.	70	3.70	1.05	74.1%
7.	The English language helps to develop professional knowledge.	70	3.69	1.18	73.8%
8.	In the future, I will be able to learn about tourists` cultures.	70	3.52	1.33	70.4%
	Total score	70	3.80	1.12	76.0%

The results of the table above show the responses of the study sample on the importance English language at work. The results indicate that the importance is very high on the first item *English helps me to succeed in external training courses delivered in English*, (80.8%) whereas the rest of the items scored high ranging from (79.2%-70.4%). The responses on the total score were high as its percentage was 76.0%. Results reveal that learners of tourism and hotel management feel: if they know how to use English effectively, it will help them in many aspects of their future jobs.

6. Conclusion

The results presented in the above sections showed many problems in the English language courses taught to the learners of Tourism and Hotel Management in Palestine including (1) they are not designed based on learners' needs; (2) learners are not taught well concerning their speaking and listening skills and the way the courses are delivered is old –fashion. Such a way made learners being unable to effectively and orally communicate in English; (3) the exams learners take do not make a balance between the desired skills. The tests neglect listening and speaking skills and (4) learners are not motivated by the teachers to communicate in the English language; instead, they mostly resort to translation and memos. The study also revealed that learners need to foster their English language communication skills. The English classes focus mainly on vocabulary, structures, translation of reading passages, and writing. In general, the study indicated that English language instruction was unlikely to prepare them enough for their future workplace. In a study of a similar context conducted by Musleh (2011), the Palestinian learners showed a strong positive relation between instrumentally interacting with L2 people and culture, motivation and enjoyment, awareness for needs of English.

This study has very essential implications for management and tourism English teachers, program stakeholders, and researchers. Careful choice of English language curricula that appeal to learners' actual needs, expectations and, functionality in their future workplaces should be considered. Learners showed that English language communicative skills are important for their future workplace. Accordingly, those skills should be consolidated in those English courses. Blending ICT-based communicative activities can develop learners' communication skills. I Zulkurnain, Norafini&Kaur, Sarjit. (2014) concluded that students are interested to join English classes that teach skills such as oral communication. In his study, Laborda (2009) revealed that web quests are important for learners of foreign languages for professional purposes, and specifically English.

Based on the needs expressed by students, English language instruction which is provided to hotel management and tourism students in Palestine should be developed. The Needs analysis should emphasize scrutinizing the English language's real usage in areas like hotel management and tourism and how learners will use English for their future workplace. When designing the courses for these learners, learners' levels should be taken into consideration. In addition, communicative competence, and English proficiency (listening, speaking, reading, and writing), how learners can use English in their future workplace and the status of hotel management and tourism in Palestine must be implemented in any offered courses. A very important future step could be using English as a language as a tool of instruction in teaching the entire program. Fostering learners' English communication skills to fulfill their future needs at the workplace. Alternative assessment should be used instead of the summative traditional one. For instance, peer-assessment or self-assessment that motivates learners. Quantitative and qualitative future research is needed to be carried out to analyze the actual needs of undergraduate students to the English language in programs hotel management and tourism.

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8. References

- Abdalla, S., & Mohammed, H. (2016). Investigating the Application of Needs Analysis on EAP Business Administration Materials. *English Language Teaching*, 9(3), 74–79. <https://doi.org/10.5539/elt.v9n3p74>
- Abdel Ghany, S. Y., & Abdel Latif, M. M. (2012). English language preparation of tourism and hospitality undergraduates in Egypt: Does it meet their future workplace requirements? *Journal of Hospitality, Leisure, Sport & Tourism Education*, 11, 93–100
- Adiyia, B., Vanneste, D., & Van Rompaey, A. (2016). The poverty alleviation potential of tourism employment as an off-farm activity on the local livelihoods surrounding Kibale National Park, western Uganda. *Tourism and Hospitality Research*, 17(1), 34–51. doi:10.1177/1467358416634156
- Akyel, A. S., & Ozek, Y. (2010). A Language Needs Analysis Research at an English Medium University in Turkey. *Procedia - Social and Behavioral Sciences*, 2(2), 969–975 <https://doi.org/10.1016/j.sbspro.2010.03.136>
- Alastal, A. A. (2012). Investigating the Academic English Language Target Needs of Undergraduates at the Faculty of Applied Science at Al-Aqsa University: Learners' Perceptions. *The ASIAN ESP Journal*, 8(2), 5–26. Retrieved from http://www.dt.co.kr/contents.html?article_no=2012071302010531749001
- Ali, H. I. H., & Salih, A. R. A. (2013). Perceived Views of Language Teachers on the Use of Needs Analysis in ESP Materials Writing. *English Language Teaching*, 6(3), 11–19. <https://doi.org/10.5539/elt.v6n3p11>
- Bosuwon, T., & Woodrow, L. (2009). Developing a Problem-Based Course Based on Need Analysis to Enhance English Reading Ability of Thai Undergraduates Learners. *RELJ Journal*, 40(1), 42–64. <https://doi.org/10.1177/0033688208101453>
- CAÑAS, J. & Pérez, L.(2015). Language needs in tourism enterprises. case study: The region of Pallars Sobirà, Catalonia, Spain, *Procedia - Social and Behavioral Sciences*, 212, 298-303
- Chen, I.-J., Chang, Y.-H., & Chang, W.-H. (2016). I Learn What I Need: Needs Analysis of English Learning in Taiwan. *Universal Journal of Educational Research*, 4(1), 1–5. <https://doi.org/10.13189/ujer.2016.040101>

- Chostelidou, D. (2010). A needs analysis approach to ESP syllabus design in Greek tertiary education: A descriptive account of learners' needs. *Procedia - Social and Behavioral Sciences*. 2. 4507-4512. 10.1016/j.sbspro.2010.03.721
- Choudhury, R. U.(2014). the role of culture in teaching and learning English as a foreign language. *Express, an International Journal of Multi-Disciplinary Research*. 1(4) :1-20
- Cravotta, J. S. (1990). English for Tourism Purposes. A new approach in the field of English for Specific Purposes. Retrieved from <http://www.espfortourism.blogspot.my/2012/05/english-for-tourism-purposes.html>
- Eagles, P. (2007). Global trends affecting tourism in protected areas. In R. Bushell & P. Eagles (Eds.), *Tourism in protected areas: Benefits beyond boundaries* (pp. 27–43). Wallingford: CAB International
- Elsaid Mohammed, A. S., & Nur, H. S. M. (2018). Needs Analysis in English for Academic Purposes: The Case of Teaching Assistants at the University of Khartoum. *How*, 25(2), 49–68. <https://doi.org/https://doi.org/10.19183/how.25.2.409>
- Erazo, M., A. C., Ramírez, S., I., M., Encalada, M., A., R., Holguin , J. V. & Zou, J., H. (2019). English language skills required by the hospitality and tourism sector in El Oro, Ecuador. *Theory and Practice in Language Studies*, 9(2):156-167 DOI: <http://dx.doi.org/10.17507/tpls.0902.05>
- Eslami, Z. R. (2010). Teachers' Voice vs. Learners' Voice: A Needs Analysis Approach of English for Academic Purposes (EAP) in Iran. *English Language Teaching*, 3(1), 3–11. <https://doi.org/10.5539/elt.v3n1p3>
- Javid, C. Z. (2011). EMP Needs of Medical Undergraduates in a Saudi Context. *Kashmir Journal of Language Research*, 14(1), 89-110
- Kacatl, J.(2018). English language teaching for learners of management of travel and tourism. *SHS Web of Conferences* 48, 01037. <https://doi.org/10.1051/shsconf/20184801037>
- Kluge, E. A. (1984). The importance of foreign language education to the hospitality industry. *Journal of Nuclear Materials*, 122(1-3), 354-358

- Liton, H.(2015). ESP learners' needs related learning for the workplace: A pragmatic study for Business School Hussain. *International Journal of Instruction*. 8(2): 3-16. DOI: 10.12973/iji.2015.821a
- Ma'an NewsAgency. (2016, July 11). Israeli authorities confiscate antiquities from Palestinian-owned shops in Jerusalem's Old City. Retrieved from <https://www.maannews.com/Content.aspx?id=772181>
- Martins, H. (2017). Revisiting Needs Analysis: A Cornerstone for Business English Courses. *International Journal of English Language & Translation Studies*. 5(1), 57-63
- Mohammadi, M., & Abdi, H. (2014). Textbook Evaluation: A Case Study. *Procedia - Social and Behavioral Sciences*, 98, 1148–1155.doi:10.1016/j.sbspro.2014.03.528
- Musleh, R. Y. (2011). Language learning motivation: the Palestinian context. Attitudes, motivation, and orientations. Universitat de Barcelona
- Pokhilko, O.(2019). The role of foreign languages in the development of the tourism and hospitality industry in the context of globalization. Retrieved online June, 14/2019 from <https://ssrn.com/abstract=3125661> or <http://dx.doi.org/10.2139/ssrn.3125661>
- Prachanant, N.(2012). Needs analysis on English language use in the tourism industry. *Procedia - Social and Behavioral Sciences*, 66: 117 – 125
- R. Nicole, "Title of paper with the only first word capitalized," J. Name Stand. Abbrev., in press.
- Razika, B.(2017).*The Role of Needs Analysis in ESP Course Design Case of master one learners of Finance and International Trade Year Learners at Biskra University*. Unpublished Master Thesis, Biskra University, the People's Democratic Republic of Algeria, Retrieved from <https://pdfs.semanticscholar.org/a747/952b0a6b0f4b4749e69508536f805bb0e5e3.pdf>
- Saadeh, R.(2012,September).• This week in Palestine: Experiential Tourism in Palestine. Retrieved from <https://nepto.ps/experiential-tourism-in-palestine>
- Semradova, I., Hubackova, S.(2013). Characteristics of language teaching for travel and tourism management learners at the Faculty of Informatics and Management. *Procedia - Social and Behavioral Sciences* 93, 665 – 669

- Serafini, E. J., Lake, J. B., & Long, M. H. (2015). Needs analysis for Specialized Learner Populations: Essential Methodological Improvements. *English for Specific Purposes*, 40(2015), 11–26. <https://doi.org/10.1016/j.esp.2015.05.002>
- Sindik, J. and Božinović, N.(2013) .Importance of foreign languages for a career in tourism as perceived by learners in different years of study. *Vitez-Tuzla-Zagreb-Beograd-Bucharest*, 31(31): 1-13
- Tziora, N., Giovanis, N., & Papacharalabous, C. (2016). The role of foreign languages in hospitality management. *International Journal of Language, Translation and Intercultural Communication*, 4(1), 89-97. doi:<http://dx.doi.org/10.12681/ijltic.10353>
- Ulla, M. B., & Winitkun, D. (2017). Thai Learners' Linguistic Needs and Language Skills: Implications for Curriculum Development. *International Journal of Instruction*, 10(4), 203-220. <https://doi.org/10.12973/iji.2017.10412a>
- Ulum, Ö. G. (2016). ESP Need Analysis of Public Order Police Officers. *International Online Journal of Education and Teaching (IOJET)*, 4(1), 19–30. Retrieved from iojet.org/index.php/IOJET/article/view/147
- Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” *IEEE Transl. J. Magn. Japan*, vol. 2, pp. 740–741, August 1987 [Digests 9th Annual Conf. Magnetism Japan, p. 301, 1982].
- Zahedpisheh, N., Abu bakar, Z., & Saffar, N. (2017).English for Tourism and Hospitality Purposes (ETP).*English Language Teaching*, 10(9): 86-94
- Zayed, J.E. (2009).The effectiveness of reflection in developing learners' oracy in English at the faculties of tourism and hospitality. Ph.D. Thesis. Egypt: Mansoura University.
- Zulkurnain, Norafini & Kaur, Sarjit. (2014). Oral English Communication Difficulties and Coping Strategies of Diploma of Hotel Management Learners at UiTM. 3L: *The Southeast Asian Journal of English Language Studies*. 20. 93-112. 10.17576/3L-2014-2003-08

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An Attempt for Construction of Carbonate Platform Geometry from Devonian Hajigak Formation, Central Afghanistan, with the Help of Facies Analysis and Petrography

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Abstract:

The subject of sedimentology fundamentally remained subdivided into two sectors viz. siliciclastic and carbonate with the understanding that these two systems are mutually dissociative in terms of their genesis. Even in the highly referred textbooks, siliciclastics and carbonates are always discussed in separate sections. Presumably, the limited occurrences of mixed siliciclastic-carbonate sediments in nature are because of constraining effects that siliciclastics have on carbonate-secreting organisms; the two sediments rarely found mutually associated in nature. Although the mixed carbonate-siliciclastic sediments are subordinate in occurrence, their presence in some instances proved that they do not represent any geological oddity. Rather, their sedimentological history may tell us a great deal about the dynamics and interactions of facies, paleoecologies of many carbonate-secreting organisms, and tectonic histories of depositional basins.

Keeping this in mind, the present study made an attempt to recognize and draw the paleoenvironmental conditions and processes of the Devonian Hajigak Formation, Afghanistan by means of detailed facies analysis and petrographical signatures. An attempt has also been made to characterize sandstone wedges that punctuate the carbonate succession and some variable deposits of shales and marls.

The Hajigak Formation overlies the Greenschist Formation and is made up mainly of carbonate rocks (Dolostone and limestone), but there are alternative beds of shale and marl, with some sandstone wedges in the succession. Since the present study area was largely overlooked in earlier studies, an attempt has been made to exercise process-based sedimentological study in the area, to understand carbonate platform geometry. The facies types under this study are defined based on lithology, bed geometry, and sedimentary structures. From field-based facies identification and their respective petrography, seven different facies types were delineated that include six carbonate facies and one sandstone facies. From the wide variation in carbonate facies types viz. micritic, aspartic, bioclastic, and conglomeratic it is deciphered that the carbonates were deposited in a carbonate platform with distally steepened geometry. The presence of limited intraclasts conglomerate bears support in favor of this contention. Intermittent siliciclastic wedges within the carbonate succession are identified as input within the platform at times of high flood in distal delta or concomitant with tectonic pulses in the hinterland.

Keywords: Carbonate platform, Geometry, Devonian Hajigak Formation, Central Afghanistan, Facies analysis, Petrography

1. Introduction:

Modern sedimentology has evolved from grain- to basin-scale understanding in last six decades or so with introduction of two trend-setting concepts. The first breakthrough came with introduction of 'facies concept' in early seventies of last century (Middleton, 1973; Walker and Plint, 1992) that allowed appreciation of sedimentary units/structures in terms of their genesis i.e causative depositional/erosional processes. Field observations were ably backed by experimental set-ups in order to understand fluid-grain interaction, size effect on nature of interaction under flow shear, role of cohesion and relative roles of kinetic and gravitational energy in framing different sedimentary structures under lower (with Froude number ($F = v/\sqrt{gh}$) <1) or upper ($F = >1$) flow regimes. Delineation of depositional agents, mutual association of agents in framing depositional architecture at different environmental settings, understanding controls of basinal (eustacy/tectonics) and out-of-basin (tectonics/climate) forcings on relative strengths of depositional agents, balance between basin accommodation and sediment availability and, finally,

Developing a model that can explain all basin-scale features in a holistic space-time framework are goals of any present day sedimentological study leading to basin analysis. In last four decades, 'Facies model' turned up as a key concept in field-based sedimentological study as it allowed delineation of depositional agents and further, helped in understanding mutual association of agents in varying environmental settings. In addition, appreciation of facies succession allowed workers to exercise process-based paleo-environmental analysis.

In this backdrop, the present study attempts field and petrographic characterization of parts of the Devonian Hajigak Formation, Afghanistan in order to study its sedimentological build up, to throw some light on lithological variation in the study area and to underpin possible depositional process/es behind observed variations. Devonian succession, in particular, and Paleozoic succession, in general, from Iran, Afghanistan and Pakistan remained a topic of attention for workers for quite some time as it is believed that these successions can unveil depositional history at the northern margin of 'Gondwana' Supercontinent. Most of the studies, so far, dealt with faunal assemblage within these rocks and attempted correlation of successions exposed at different sections. Although correlatives of Devonian succession are described from both Iran and Pakistan, most extensive sites of Devonian rocks are documented from Afghanistan only and are being studied for last two decades. Under present study field work was carried out in Devonian succession of Hajigak Formation in roughly east-west transect, lithological variations were noted, lithologs were prepared and samples were collected for further laboratory studies.

Locality of Hajigak

Mountain Hajigak Mountain, which includes the present study area, is located in the South-East of Bamyan province and situated 130 Km North-West of Kabul (Capital of Afghanistan) (Fig.1). It is one of the famous mountains in Afghanistan because of hosting huge iron ore deposits. Also, the mountain is located on the Herat Fault Zone that caused juxtaposition of different rock types of different ages, starting from Paleoproterozoic to Upper Devonian and Carboniferous rock.

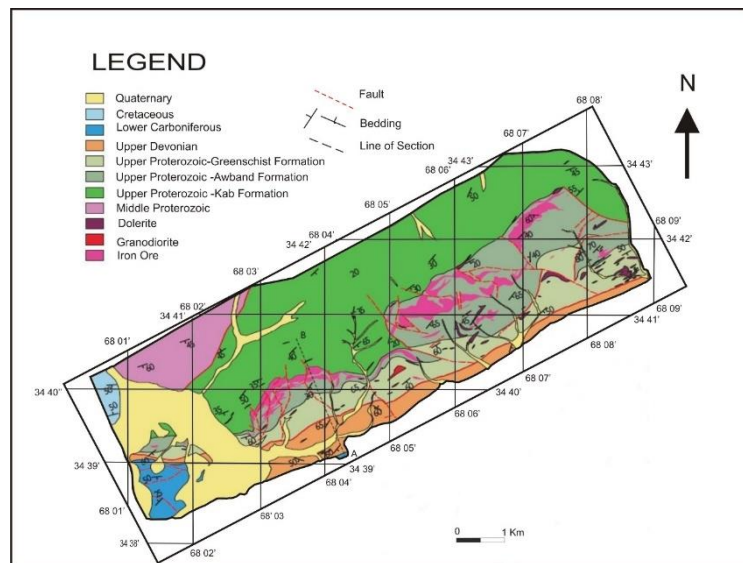


Fig.1. Geological Map of Hajigak Mountain

1.1. General Geology and Tectonic Settings

Afghanistan is a mountainous country with a very complex geology due to its position on the junction between the Indo-Pakistan and Asian crustal plates. The tectonic settings of Hajigak mountain, located on the Herat Fault zone is traced back to the accretion history of Gondwana supercontinent before becoming part of the Eurasian Plate margin. The accretionary event started 140 million years ago, and continued till recent. There are evidence of collision of Farad block with the Eurasian plate along Herat Fault zone. Later the Helmand Block collided with the Farad block. The rocks which are located in the Hajigak Mountains along the Herat Fault Zone are actually part of the Farad and Helmand Blocks.

The oldest of the succession crops out on the North-West of Hajigak Iron Ore Deposits. It consists of grey silicified limestone and dolomite interbedded with dark gray crystalline schists and light colored quartzites that shows the evidence of amphibolite grade metamorphism. The Hajigak iron ore deposit is hosted in the Upper Proterozoic Awband Formation that, together with the underlying Kab Formation, makes the Qala Series, a sequence of metavolcanic and metasedimentary rocks up to 4500m thick. The Kab Formation consists of dark gray sandy sericitic schists, interpreted as metamorphosed terrigenous rocks,

Acid volcanic rocks and minor beds of marble and phyllite. The Awband Formation consists of schists (quartz-sericite, quartz chlorite-sericite, quartz-sericite-chlorite and carbonaceous sericite) that are metamorphosed acid and basic tuffites, argillaceous rocks with minor cherts and marbles. Greenschist Formation which overlies the Awband Formation consists of green chlorite schists, and quartz-schists, locally intruded by granodiorites. Strata of lower Cretaceous and younger age crop out in the southwest of the area having unconformable relation with the older sequences.

The Upper Devonian rocks of the Hajigak Formation which is under the focus of present study unconformably overlies the Greenschist Formation. The predominant strike of the older rocks of Proterozoic and Paleozoics is between NE and NNE, with a regional dip of approximately 60° towards south - southeast. The Upper Proterozoic rocks of the Qala Series area inferred as being deposited in a slowly subsiding marine basin. One major steeply dipping fault juxtaposed the Upper Proterozoic rocks against the crystalline middle Proterozoic rocks and threw Upper Devonian rocks against the Upper Proterozoic rock of Green Schist Formation, which stratigraphic viz. has been illustrated in Table.1.1.

As discussed in literature the initial filling of basin consists of variable sequences of sandstone and minor volcanoclastic sediments. Later on there was increase in the volcanic activity and exhalative iron rich fluids formed lenses on the sea floor. These sediments were subsequently altered by burial and low-grade metamorphism of green schist facies and made the basement of the Helmand Block. This block drifted away from Gondwana supercontinent in the Triassic, and during the collision with Eurasia, which has happened in the early Cretaceous, faulting juxtaposed the Upper Proterozoic Qala series, the Middle Proterozoic rocks and the Upper Paleozoic rocks, so that these fault bounded blocks are the local characterization of the Herat Fault Zone. As the collision developed, the faulted blocks were folded and disturbed in a Northeast –Southwest trending anticline, and the axis of this anticline passes from north of the area. During the final phase of faulting the north-south and north-west-south-east faults that affect the ore deposit were developed. Later on the post-Cretaceous extension led to the further progression of north-west-southeast faults and graben structures filled with young sediments.

1.2. Earlier Studies on the Devonian Rocks in Afghanistan:

The history of Devonian investigation in Afghanistan goes back as early as 1885 and continued till recent time. Several workers studied different localities of the country to find out the history of Devonian and to find mutual correlation between sections those are dissected by post-depositional fault systems. As per the published record the pioneering work on Paleozoic (Carboniferous) rocks exposed near Tagareh, Robat-e-Pai area, located in the Band-e-Bayan, also called the Axial Zone which was described by Griesback (1885, 1887 a,b).

Subsequently, Hayden (1909, 1911) described the Devonian outcrops in the Hajigak area, which is also located in the Band-e-Bayan. However, the most important and numerous Afghanistan Devonian outcrops, are located in Central Mountain “Hazarajat Mountains”, which have only been discovered recently. Martina in 1963 has discussed a possible Devonian age for the Hajigak limestone. Hinze in 1964 concluded Devonian age for the “Hajigak Limestones and Haematite”, and also provided a detailed description about the Hajigak section recognized by Hayden. Devonian outcrops in Hazarajat “Central Mountain’s” were discovered for the first time by Durkoop, A., Mensink, H. and Plodowski, G., 1967.

With these publications and discoveries it was concluded that the upper Devonian rocks was recognized by Hayden in 1911, Lapparent in 1963 and 1964. Mistiaen et al (2015) concluded that the Devonian succession present in the eastern and central parts of the Band-e Bayan belongs exclusively to Upper Devonian (Frasnian and Famennian) and suggested that as a consequence, the stratigraphic successions in the area is considered as recording only the transgression of discordant Upper Devonian (Frasnian) on older rocks, with a significant break between the lower Paleozoic and Upper Devonian.

HAJIGAK MOUNTAIN LITHOSTRATIGRAPHIC SUCCESSION		
Age	Thickness	Name of the Formation
Post Jurassic Cover	>600 m	Cretaceous, Neogene, and Quaternary soil cover
Upper Carboniferous	> 2500m	Kharzar Formation Pelitic-schists, Quartz rich schists, sandstones, quartzites, and conglomerates

Upper Devonian	>900m	Hajigak Formation Limestones, sandstones, shales, conglomerates, and pelitic-schists
Upper Proterozoic	700m	Green Schist Formation Quartz-chlorite-Sericitic schist, Quartz-chlorite schists, and gabbroic intrusive
	300 to 1000m	Awband Formation Quartz-sericitic schist, chlorite-sericitic-schists, marbles, quartzites, extrusives, lenses of iron ore
	3500m	Kab Formation Quartz-sericitic schist, Phyllites, marble, altered extrusives, and lenses of iron ore
Middle Proterozoic	100m	Jawqul Formation Crystalline schists, quartzites, silicified limestones, and dolomites.

Table.1.1. Lithostratigraphic succession of Hajigak Mountain of Afghanistan

1.3. Knowledge Gap

It is apparent from literature that Devonian rocks of the Hajigak Formation is being only worked upon for their paleontological criteria correlation with other Devonian rocks exposed all over Afghanistan. Attempts have also been made to identify tectonic events related to the mountain building and their effects on the lithology and structure of the area. But, no study is available in literature related to facies and paleo-environment vis-a-vis, analysis of sedimentary processes involving grain size analysis, modal analysis, detailed petrography and etc., the present dissertation work thus attempts description of lithology, facies types, sediment petrography including modal analysis and inference of possible paleo-environmental conditions.

1.4. Objectives of Present Work

1. Field-based documentation of lithological variations in basal 100m succession of Hajigak Formation; reconstruction of facies succession development by detailed litholog preparation at four different sections over an east -west stretch of 3 km.

2. Collection of samples from different lithological entities encountered; petrological observations and interpretations
3. Correlation of facies lithologs measured at different localities based on petrology and field based data.
4. To propose a tentative depositional setting within limited observation.

Facies analysis

Process based facies analysis in any sedimentary succession depends heavily on identification of physical, chemical, and biological characters of a litho-unit, which is distinct from its adjacent litho-unit. In normal sedimentological parlance delineation of such distinctive lithosome is termed as “facies” (Driese et al., 1984; Walker, 1986; Reading 1986). Documentation of facies constitutes the primary goal in order to build up a story of paleo-environmental setup of any sedimentary basin (Boggs, 2006; Posamentier and Walker, 2006). However, the application mode of facies concept is different for siliciclastic and carbonate sedimentary successions; while in siliciclastic settings workers rely on lithology including granulometry, i.e. grain size, sorting, etc. and other similar physical aspects of litho unit, in case of carbonates, particularly those of fine grained variety, dependency become more on microscope, rather than field-centric. However, features like bed geometry, sedimentary structure, and type of fossil present play important role in facies delineation from either of these settings.

The Hajigak Formation overlies the Greenschist Formation and is being made up mainly of carbonate rocks (dolostone and limestone), but there are alternative beds of shale and marl, with some sandstone wedges in the succession. Since the present study area was largely overlooked in earlier studies, attempt has been made to exercise process-based sedimentological study in the area so as to understand geological buildup of the area. The facies types under this study are defined on the basis of lithology, bed geometry and sedimentary structures. The facies are described below.

Basement for the study section

Fine-grained chlorite-sericite schist constitute basement for the study section (Fig. 3.1). Rocks in the basement, in general, characterized by dark green to grayish color, occasionally become reddish when host iron ore.

The rock strata displays gentle folding and well defined schistosity. Schistosity surfaces are few millimeters to 10s of centimeter and overall these schists record low to intermediate grades of metamorphism. The foliation surfaces trend NE –SW and dip towards SE..



Fig.3.1.Well foliated chlorite-sericite-shchists

3.1. Facies types; their description and genesis

Limestone Facies

Facies A

This facies is made up of dark color micritic limestone with some occasional extra clasts in it (Fig. 3.2). In field the facies reveals massive character without any clear bedding structure. It was not possible to decipher anything about this facies with naked eye in field. Mostly this facies is restricted in the basal of study section and maximum thickness recorded is 18m. Extraclasts present in this facies are very less in abundance and whenever present made of calcareous mudstone.

Dark colour, dominant micritic nature and overall massive character bear indication of very low energy deposition of this facies (NP.James, 1977).

Extra clasts in such low-energy domain bear indication of rare supply from some slope failure (Bose and Sarkar, 1992). However, allogenic contribution always remained limited.



Fig.3.2. dark colored micritic limestone of facies A

Facies B

This facies is made up of fine grained, thinly bedded shales of yellowish to white grayish color, often with limestone interbeds with varying bed thickness. In fact, the facies is seen repeatedly in the study area with varied expression. At times this facies is without any limestone interbed, sometimes with few cm. to decimeter thick limestone interbed (Fig. 3.3) and at cases interbedded with coarse-grained limestone wackestone/packstone (Fig. 3.4). In one section, grain size at the basal part of the facies is dominantly clayey and muddy, whereas it becomes more sandy and granular at the upper part. The facies at this section is subdivided into two parts viz. lower and upper. While in the lower part it is represented by very fine-grained shale occasionally black in colour, in the upper part shales are found interbedded with dolomite and conglomerates (wackestone to packstone) in varied proportion. When checked with dilute HCl, shales also found to be calcareous. At cases the limestone interbeds are found to be marly.

This shale facies possibly represent deposition over a reasonably varying energy domain varying between very low energy to intermediate/high energy where it interfingers with carbonate wackestone/packstone. The intermediate energy is reflected when thin bedded limestones alternate with shales.



Fig.3.3. (a) shale plane laminated beds, and limy and sandy shales, (b) Shale interbedded with carbonate wackestone/packstone (arrowed)

Crystalline massive/ bedded Limestone

Two facies variants under this category are noticed in the study area viz. Bedded Limestone and domal, lensoidal crystalline dolostone.

Facies C: Bedded limestone

This facies consists of bedded limestones of different thicknesses, whitish, grayish and brownish in colour and with some degrees of gentle folding. Maximum thickness of this facies is 75m and exposure of this facies is encountered in association with facies D. Alternation between thin and medium bedded limestones constitutes the basic motif of this facies (fig. 3.5). The beds are having thickness of averaging 2-10 cm and are sheet like in geometry with sharp lower boundary and sharp to gradational upper boundary and internally massive or plane laminated. Bedding character in this facies widely variable; ranging from irregular and laterally inconsistent to laterally consistent and thereby attaining well-defined sheet geometry (Fig. 3.6) there is no grain size variation visible within bed. Under microscope this facies is showing micritic limestone, with some bioclast in it.

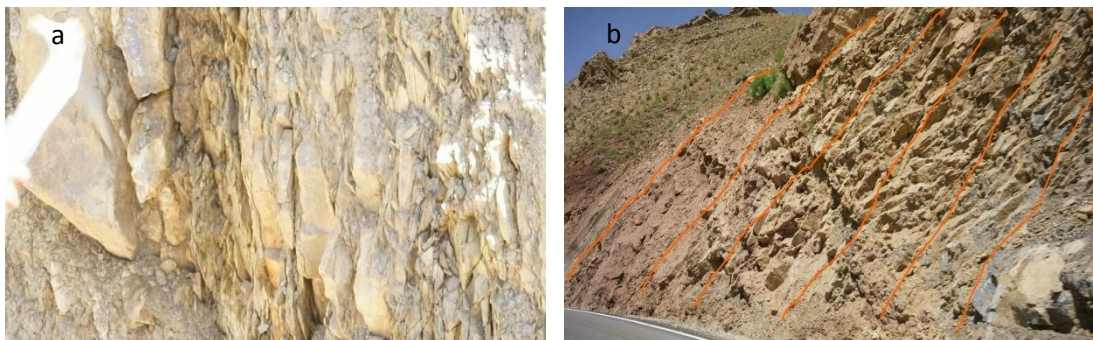


Fig.3.5. (a) thin and medium beds of limestones. Note irregular bed geometry. (b) Thinly bedded sheet-like character of facies C limestone.

Facies D: Domal, irregularly, bedded dolostone

Sandwiched between facies B and E (discussed later) on one side and facies C on the other side, this facies consists of coarsely crystalline dolostone (Fig. 3.7) and some alteration with dark brown color limestone. With a general massive look, this facies shows a very coarsely crystalline character under microscope and hence, named as crystalline dolostone, making ~ 52m of the whole succession. Best development of this facies is noticed in traverse I.



Fig. 3.7. Domal crystalline dolostone

Facies E:

This facies, is closely associated with facies D, which is made up of brownish color fossiliferous limestone with subordinate shale. Examination of shales reveal presence of macro-fossils including fragments of bioclasts of brachiopods, corals, and micro-fossils of gastropods, bivalves, and shells of corals etc. The matrix is made up of micrite and sparite with some crystals of calcite and dolomite. The characteristics of lithology is having varying grain sizes i.e. shales are of fine grained clay size, and limestones are coarse grain in the ground mass, together making about 100m of this lithology, which is being shown in fig.3.8.



Fig.3.8 Brownish color limestones of fossiliferous and shales of fossil contained in it

Facies

This facies consists of medium to coarse grained lime conglomerates (Fig. 3.9). Exposures of this facies is traced about a few meters contiguous to facies D and E. Internally, this facies is made up of lime clasts of pebble to cobble size ranging between 5mm to 7cm in diameter set in ground mass of fine to coarse grains limestone.

Occasionally a few siliciclastic boulder and granule also observed. Laterally away from facies D and E this facies unit wedges out.

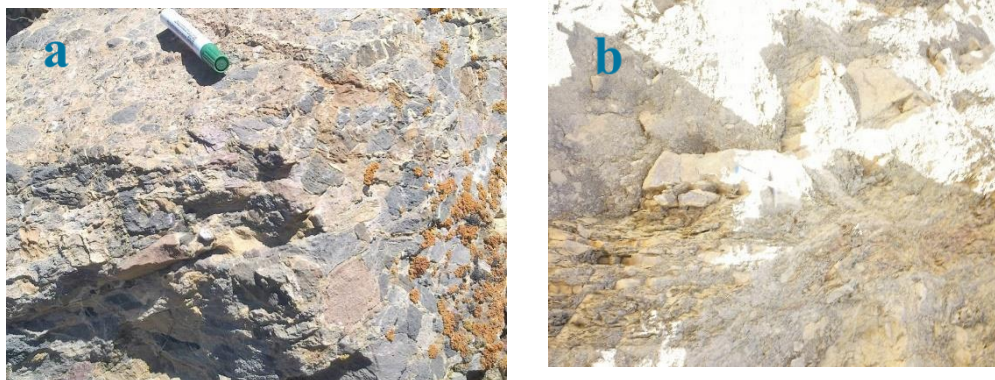


Fig.3.9 (a,b). Conglomerate with varying grain sizes

Overall, the facies unit show a fining upward character with clast size decreasing upward. Lateral impersistence and absence at certain sections are hallmark characters for this facies.

3.2. Sandstone Facies: Facies G

This facies unit is cms to decimeter thick, wedge shaped in geometry, recurrent in occurrence and consists of very fine grained arkosic sandstone, dark in color (Fig. 3.10). No sedimentary structure is visible and hence, massive in character. Grain size shows discernible variation from base to top and the sandstone units, in general, show fining- upward character. The facies unit makes some 20 meters in some localities but it is not continuous and laterally pinches away. In studied sections occurrence of this facies unit has been encountered at two stratigraphic levels.



Fig.3.10. Fine grained arkosic sandstone of facies G

Basement:

As discussed in chapter 3, the basement for Hajigak Formation is a foliated greenschist rock. Under microscope the greenschist rocks are found to be made up of chlorite and sericite with moderately-developed schistosity. Mineral assemblage is represented by chlorite, sericite, quartz, opaque minerals with some amount of iron oxide (Fig.4.1.a, b). In western part of the study area i.e at section IV basement shows relatively low grade metamorphism with well-developed foliation and lineation. Association of basement with carbonate and patches of opaque minerals can also be seen. Fine grained iron oxide is identifiable as opaque mineral along with some grains of quartz (chert), chlorite and other opaque minerals. In some thin section development of eye shape structures is noticed (Fig. 4.1.c and d).

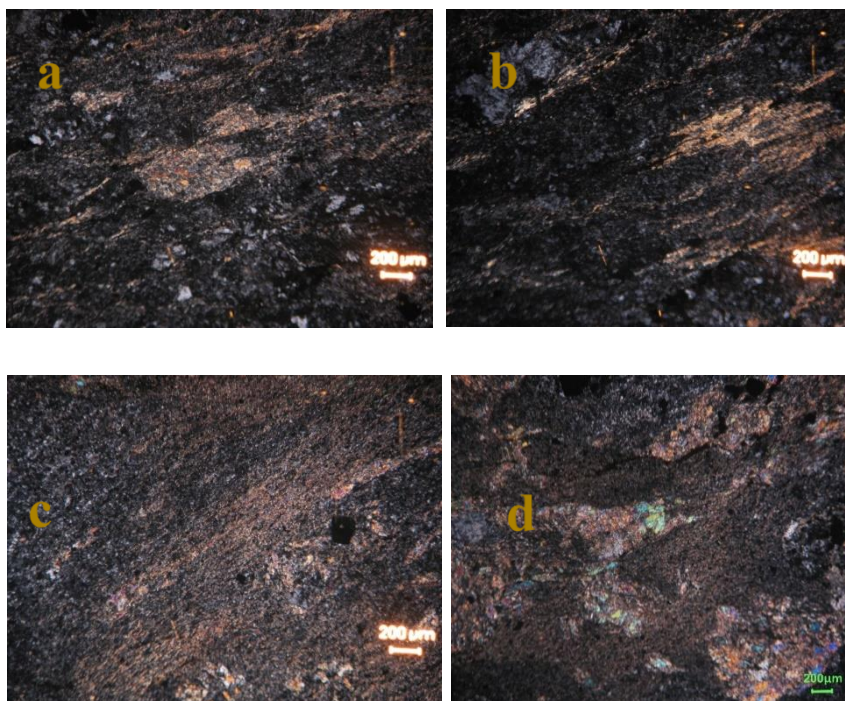


Fig.4.1 (a, b, c and d) Petrography of greenschist rocks forming basement for the Hajigak Formation

4.1. Carbonates:

As discussed, carbonates encountered all through the studied succession; the main lithology of Hajigak formation is made up of limestone and dolostone. For petrography samples were systematically collected from all carbonate facies types delineated under field study.

In total, nineteen samples were collected from different facies types of carbonate and observed under microscope by making thin sections. Broadly, carbonates vary from micritic to varied orders of recrystallized sparite; signatures of secondary chertification also seen in some facies types. A detail description of different petrographic varieties of carbonate is given below. Petrographically, the Hajigak Formation carbonates are classified under following categories.

- 4.1.1. Fully crystallized carbonate made up of sparry calcites,
- 4.1.2. Incompletely crystallized carbonates,
- 4.1.3. Chertified limestones, and admixtures of carbonate and siliceous composites,
- 4.1.4. Fossiliferous limestone with micro-fossil,
- 4.1.5. Extra and bioclasts embedded within micritic ground mass,
- 4.1.6. Very fine grained volcanoclastics and siliciclastics admixed with limestone

4.1.1. Fully crystallized carbonate made up of spar cements

Carbonates of facies F and E under microscope reveal coarse crystalline character with well-developed spars having two sets of calcite twins. Depending upon orientation of calcite crystal one and two sets of twinning are observed, and under PPL carbonates show brownish white to pinkish colour. Most of the grains are sparite, and often fractures are filled with iron oxide. At cases growth of spar grains are found incomplete and concomitant presence of micrite and sparite can be seen. Two colour shades are seen in these carbonates in PPL viz. white and yellowish, which has been shown in fig.4.2a,b,c and d.

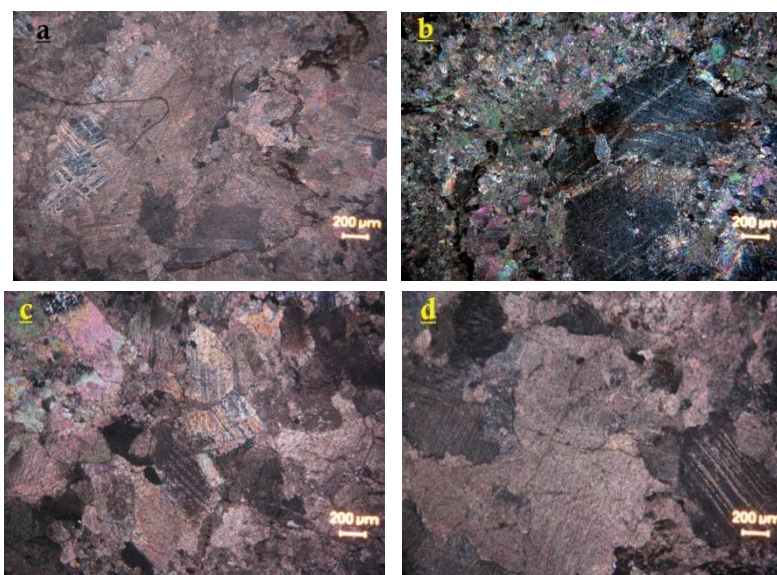


Fig. 4.2(a). Fully recrystallized carbonate made up of sparry calcite. (b). Incomplete recrystallization micrite changing to sparite. (c, d). which is making the middle part of section I and basal part of section IV

4.1.2. Incomplete recrystallized carbonate with equal proportion of micrite and spar

Rocks of facies C under microscope show incomplete crystallization i.e. both micrite and sparite coexist in varying proportion (Fig. 4.3.). Often inclusions of micrite can be seen within spar grains. Also, stringers and patches of micrite are observed between growing microspar grains. While micrites are very fine grained and relatively dark in appearance, neospars are whitish, clear in occurrence. However, well defined calcite crystal is rare amongst the neospars.

Neomorphism, i.e. transition from micrite to sparite, is clearly observed in these rocks. Presence of both micrite and spar reflects incomplete recrystallization.

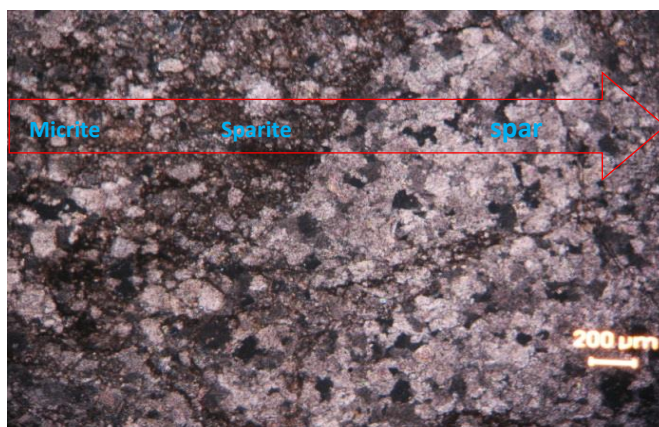


Fig. 4.3. Incomplete recrystallization of carbonate rocks .

4.1.3. Chertified carbonates:

This petrographic facies (silicified micrite/sparite) also corresponds to the rocks of facies D and E. Microcrystalline quartz in form of chert is present replacing carbonates as secondary diagenetic mineral (Fig. 4.4.a, b). At cases, silica replacement of carbonate minerals is seen along some fracture or bedding plane. These weak zones act as conduit for silica rich fluid and prompt precipitation of microcrystalline silica. At times, both micrite and spar are replaced by silica (Fig. 4.4c, d).

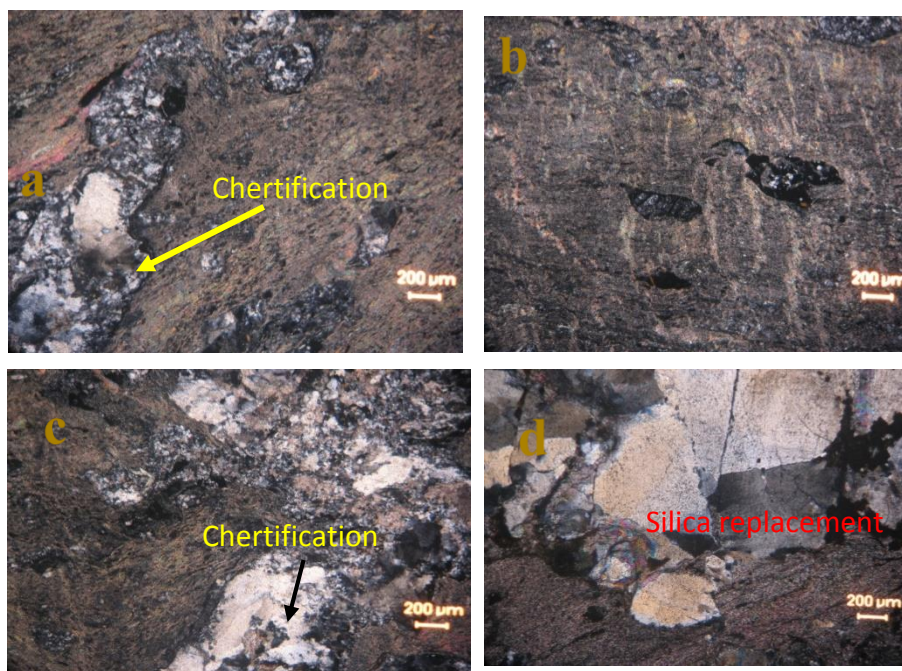


Fig. 4.4.a, b, c, d. are showing a chertified character of the rock types in transition zones

4.1.4. Fossiliferous carbonate limestones with different micro-fossils:

This petrographic facies (biomicrite to biosparite after Folk (1959) belongs to facies types C, D and E whenever degree of recrystallization is low. Best representation of the fossiliferous part of carbonate rocks can be found at the middle part of studied succession with varying types of microfossils and fossil fragments such as bivalves, foraminifera, coral fragment, bryozoa, shells of different micro-organisms and gastropods (Fig. 4.5a). The bioclasts also include different macro-fossils such as brachiopods (Fig. 4.5b, c) and some other types of upper Devonian fossils. Fragmented brachiopod shell clasts are found in abundance. In some samples from facies D and E presence of oolite (Fig. 4.5d) is also noticed. Record any preferred orientation of allochems; rather random distribution is the character of studied thin sections. None of the thin sections are showing same characters, so that the ground mass varies from micritic to sparitic.

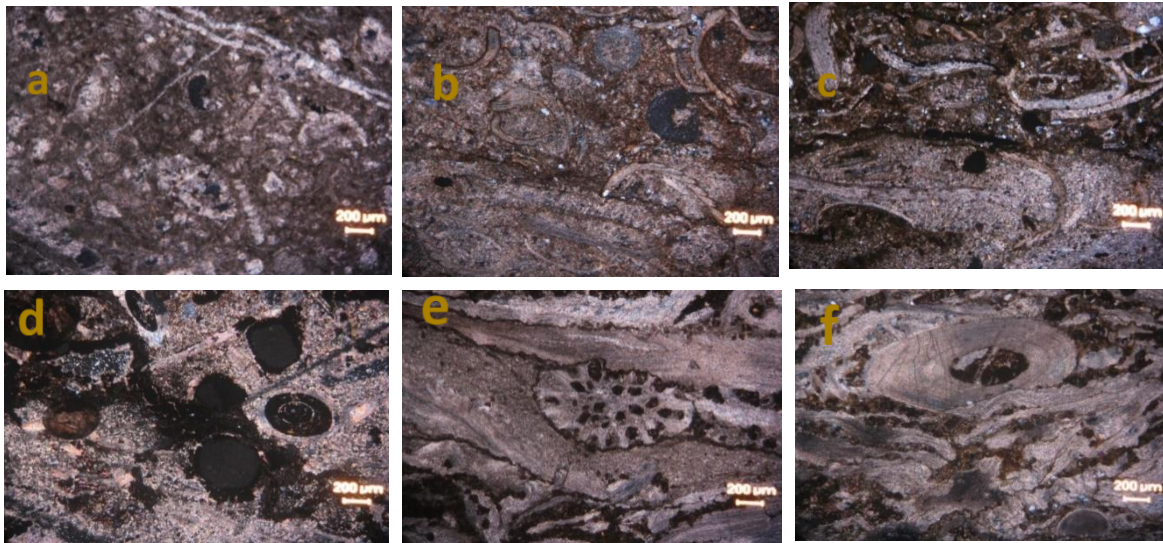


Fig. 4.5. (a,b,c,d,e,f) are showing the fossiliferous limestones in the succession

4.1.5. Extra- and bioclasts embedded within micritic groundmass:

Rocks of facies A and carbonate interbeds within facies B show this petrographic character. Carbonates of this facies have very fine grain (micrite) groundmass with isolated extra clasts embedded within micritic matrix (Fig. 4.6.b). Rocks are orthochem (matrix) supported, only rare bioclasts, and extraclasts bear coarse grain sizes of very coarse (Fig. 4.6a). Also, cavities and pores within bioclasts are filled with micrite. On the bases of the above composition rocks of this facies are named as micritic limestone.

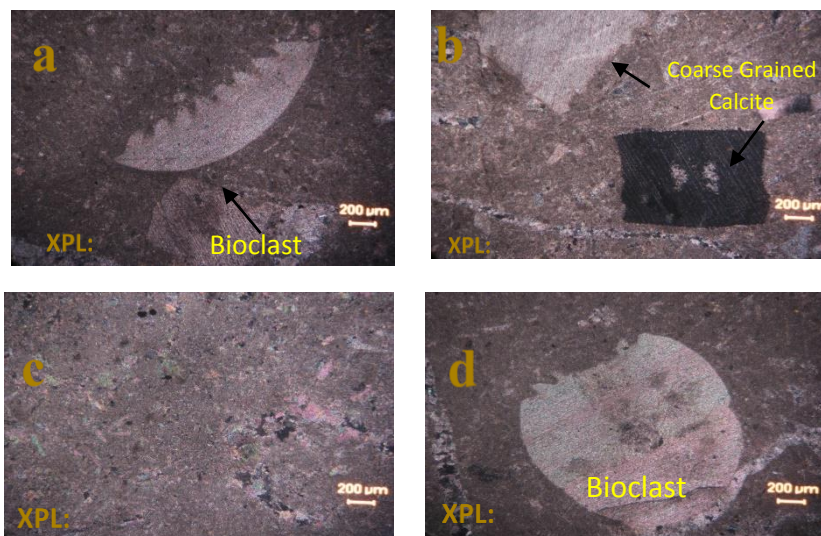


Fig.4.6.(a, b, c, and d) micritic limestone, with extraclasts and bioclast embedded in it.

4.1.6. Very fine grained volcanoclastics admixed with limestone and other minerals:

Some thin sections of facies E and F show this petrographic character. These samples in hand specimen show very dark color and under microscope show very fine grained nature. Mineralogically these rocks are made up of albite, quartz, opaque mineral (Fig. 4.7.a,b); well-developed plagioclase microlaths are visible in certain thin sections (Fig. 4.7.c,d). In general, the rocks are moderate to well sorted, highly fractured and brecciated, character of groundmass varies between calcareous to silicic.

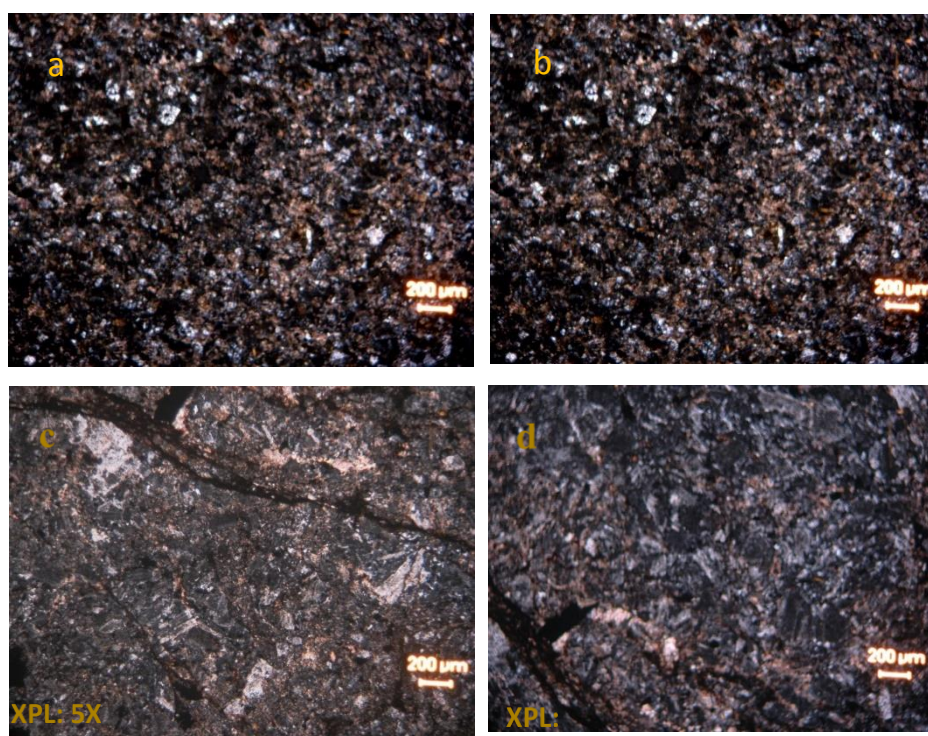


Fig. 4.7.(a,b,c,d) Fine grained volcanoclastic rock

4.2. Siliciclastic Rock Petrography:

As already discussed there are some sandstone wedges those punctuate the carbonate succession in the studied section. None of these sandstone wedges could be traced for more than a km. Two most prominent ones are encountered in the lower and upper part of succession. Petrography of the sandstone wedges reveals their widely varied character

4.2.1. Fine grained arkosic sandstone with high percentage of weathered feldspar,

4.2.2. Coarse grained arkosic sandstone with poor sorting and low percentage of weathered k-feldspar, but high percentage of crystalline fresh feldspars

4.2.3. Fine grained sandstone with low percentage of feldspar and high amount of quartz

4.2.1. Fine grained arkosic sandstone with high percentage of weathered feldspar,

The petrography of basal most sandstone wedge reveals high percentage of weathered feldspar and fragments of greenschist as framework elements (Fig. 4.8.a, b). The other framework grains include quartz grains mostly sub-rounded to well-rounded, at times polycrystalline in nature. Sorting of grains moderate to well with clayey matrix present within framework though the rock overall show grain supported fabric. Decomposition of K-feldspar to generate clayey matrix (pseudomatrix) can be observed.

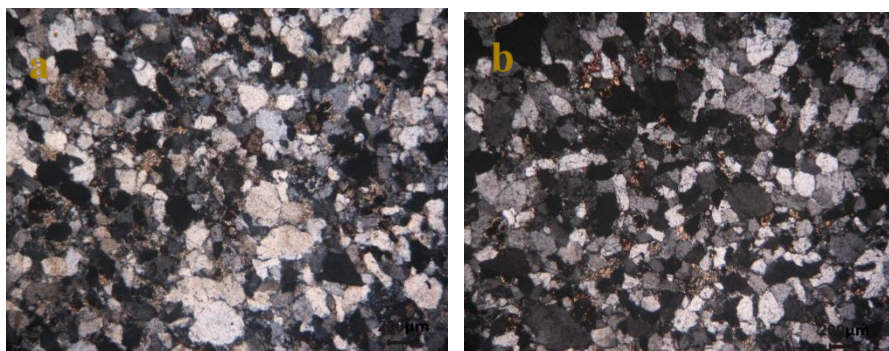


Fig.4.8.a, b. siliciclastic sandstone with high percentage of weathered feldspar.

4.2.2. Coarse grained arkosic sandstone with poorly sorting

Up the succession grain size in the sandstone wedge become coarser; vary between coarse to very coarse sand size with high percentage of feldspar grains (Fig. 4.9.a, b). Unlike the earlier wedge, feldspars are not much weathered. The rock is poorly sorted and percentage of rock fragment is much low compared to the basal wedge. Grains are moderate to high angular and presence of sweeping extinction can be observed in most grains. Sorting of grains is very poor as it is in other wedges.

Quartz content is low and when present are of both mono- and polycrystalline variety. Polycrystalline grains often show sub-grains with some definite orientation indicating their derivation from some metamorphic sources.

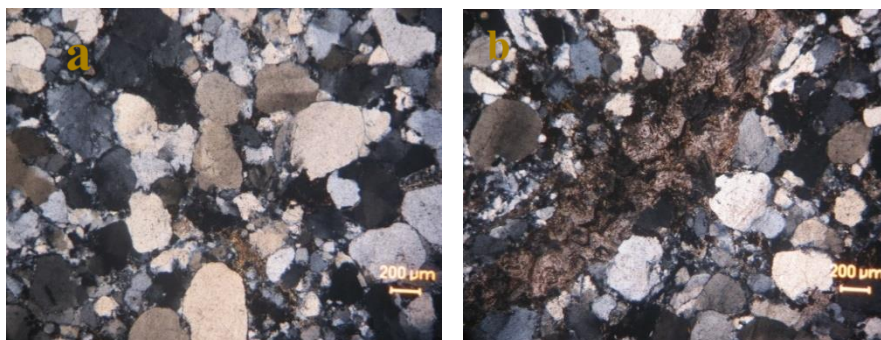


Fig. 4.9.a, b. arkosic sandstone in the middle wedge of Hajigak Formation

4.2.3. Fine grained sandstone with low percentage of feldspar, but high quartz

Upward feldspar content decreased in the wedge. A sandstone wedge present at the upper part of succession in section II shows different petrographic character compared to the other ones with higher percentage of fine grained quartz. Grains in this wedge is relatively well sorted, coarse silt to fine sand size and represented by quartz, mostly mono-crystalline, minor feldspar and some opaques set in clast-supported fabric with minor (<7.5%) clayey matrix mostly epimatrix in origin. Cement content is very low but mostly represented by silica overgrowth. The rock is identified as arenite fig. 4.10a, b.

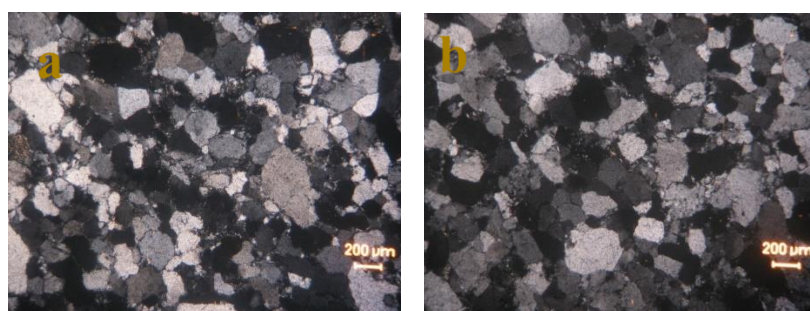


Fig.4.10.a, b. section II, fine-grained sandstone well sorted.

Discussion and Conclusion:

The Devonian of Hajigak Formation represents an important interval in Afghanistan Geology. Despite attention of geologists around the globe, the formation remained largely unattended in terms of its sedimentation history, as well as its build up as a carbonate platform. Within limited scope of study, the present work aims at understanding genesis of different carbonate litho-assemblages, and further assimilate these in terms of a possible carbonate geometry platform, process based facies analysis and facies specific petrography helped in this endeavor.

Based at bedding geology, lithology, and mutual association of facies types the study area has been modeled as a distally steepened ramp. In a seminal paper, Read (1975) described different geometry of carbonate platform, and classified those in two broad categories viz. ramp and rimmed shelf. These two broad varieties widely differ in their facies distribution and spatial energy variation. A major difference between the two types is in the presence of carbonate mass flows; while rimmed shelves triggered generation of mass flows, the ramps, except for distally steepened once, do not show presence of significant mass flow. Unlike rimmed shelf the distal steepened ramps do not encourage formation of wave baffling reefs.

Reefs forms in distal steepened ramps are mostly patchy and triggered by intra basinal tectonics that makes basin flowed shallow bringing it within light penetrating domain. Mass flow generated from these small scale reefs are aerially restricted and small scale in occurrence.

In the area under study the domal bioclastic limestones of facies D and E are interpreted as possible patch reef in the Hajigak Formation carbonate platform. The reworked shelf clasts, oolites and broken fragments of macro and micro fossils bear tell-tale signature for wave remarking operative during formation of these facies limestone –conglomerate (Facies F) immediately superjacent to Facies D and E suggest derivation of small scale mass flows from the reefs and wave action bedded limestones of (Facies C), irregular or even in character are identified as Lee-ward deposition on the basin side of these patchy reefs. Absence of any current wave feature suggest their deposition in a subtidal setting below Fair Weather Wave Base (FWWB).

Reference:

1. Boggs, S., 2006. *Principles of sedimentology and stratigraphy*. Pearson Prentice Hall.
2. Driese, S.G. and DottJr, R.H., 1984. Model for Sandstone-Carbonate. *AAPG Bulletin*, 68(5), pp.574-597.
3. Driese, S.G. and DottJr, R.H., 1984. Model for Sandstone-Carbonate. *AAPG Bulletin*, 68(5), pp.574-597.
4. Durkoop, A., Mensink, H. and Plodowski, G., 1967. Devonian of central and western Afghanistan and southern Iran.
5. Durkoop, A., Mensink, H. and Plodowski, G., 1967. Devonian of central and western Afghanistan and southern Iran.
6. Folk, R.L., 1959. Practical petrographic classification of limestones. *AAPG Bulletin*, 43(1), pp.1-38.
7. Griesbach, C.L., 1885. Afghan field notes. *Rec. geol. Surv. India*, 18, pp.57-64.
8. Griesbach, C.L., 1887. Field notes No. 5-to accompany a geological sketch map of Afghanistan and North-Eastern Khorassan. *Indian Geological Survey Publication*, 20(2), pp.93-109.
9. Hinze, 1964 Die geologischeEntwicklung der östlichenHindukush-Nordflanke (Nordost-Afghanistan)BeiheftezumGeologischenJahrbuch, 70 (1964), pp. 19–76
10. James, N.P., 1977. Facies Models 8. Shallowing-Upward Sequences in Carbonates. *Geoscience Canada*, 4(3).
11. Martina, E., 1963. New data on the Devonian of Afghanistan. *R/v./ta/. Pa/eont., LXIX*, (4), pp.545-558.
12. Middleton, G.V., 1973. Johannes Walther's law of the correlation of facies. *Geological Society of America Bulletin*, 84(3), pp.979-988.
13. Mistiaen, B., Brice, D., Hubert, B.L.M. and Pinte, E., 2015. Devonian palaeobiogeographic affinities of Afghanistan and surrounding areas (Iran, Pakistan). *Journal of Asian Earth Sciences*, 102, pp.102-126.

14. Plint, A.G., Eyles, N., Eyles, C.H. and Walker, R.G., 1992. Control of sea level change. *Facies models: response to sea level change: Geological Association of Canada*, pp.15-25.
15. Posamentier, H.W. and Walker, R.G., 2006. Facies models revisited.
16. Read, J.F. 1975. Tidal-Flat facies in carbonate cycles, Pillara Formation (Devonian), Canning Basin, Western Australia. In: Ginsburg, R.M (Ed.), *Tidal deposition*, Springer Verlag Berlin, 251-256.
17. Reading, H.G., 1986. *Sedimentary Environments and Facies*. USA.
18. Sarkar, S. and Bose, P.K., 1992. Variations in Late Proterozoic stromatolites over a transition from basin plain to nearshoresubtidal zone. *Precambrian research*, 56(1-2), pp.139-157.
19. Taylor, G. and Walker, P.H., 1986. Tertiary Lake Bunyan, northern Monaro, NSW, part II: Facies analysis and palaeoenvironmental implications. *Australian Journal of Earth Sciences*, 33(2), pp.231-251.
20. Taylor, G. and Walker, P.H., 1986. Tertiary Lake Bunyan, northern Monaro, NSW, part II: Facies analysis and palaeoenvironmental implications. *Australian Journal of Earth Sciences*, 33(2), pp.231-251.

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Identifying the Degree of Compatibility between Computer-based Accounting Information Systems, Requirements and Barriers to E-Commerce in Iranian Service Companies According to a Joint Project of the United States and Canada

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Abstract

The purpose of this study is to identify the degree of compatibility between computer-based accounting information systems, requirements, and barriers to e-commerce in Iranian service companies according to a joint project of the United States and Canada. The present study is applied in terms of purpose and descriptive-analytical in terms of method. The statistical *population* is service companies listed on the Iranian Stock Exchange (fifty-five companies). The statistical sample included 48 employees of accounting departments. So, the questionnaire was distributed among 48 employees in the accounting departments. All participants in the sample answered the questionnaire. We used the resources, references, books, papers, and scientific journals available in libraries (extracting studies related to the research topic) and the Internet (discovering new topics in the field of research) to collect data and information. Also, the main tool for collecting primary data was a questionnaire whose questions were prepared and designed based on a five-point Likert scale and a joint project between the United States and Canada (Al-Qishi, 2003 and Mahern, 2009).

Before distributing the questionnaire, some experienced professors and experts in the field of accounting sciences evaluated the apparent validity of the questions. The reliability of the questionnaire was also assessed through Cronbach's test. To analyze the data, SPSS software and arithmetic mean test and standard deviations were used to determine the degree of compatibility between the studied variables. The results showed that there is sufficient compatibility between computer-based accounting information systems and e-commerce requirements in Iranian service companies according to a joint US-Canadian project.

Keywords: Barriers to E-Commerce, Accounting Information Systems, US-Canadian Joint Project

1. Introduction

The growth of information technology and the globalization of markets is one of the most prominent developments in the contemporary world that has been achieved in the past few years. One of its effects is the evolution of various economic fields and business operations that we are witnessing in the world. Consequently, a great revolution has taken place in technology, knowledge, and the emergence of various means of communication. This trend has many positive effects, foremost of which is the ease of transfer of technology, investment flow, and reduction of transportation cost. Therefore, the world has become a small village and has led to the emergence of new concepts in business, such as e-commerce having many differences from traditional business. Information systems, especially accounting information systems, are important areas that are affected by e-commerce. Therefore, accountants need to be familiar with these systems and be able to work well with them. Accountants rely heavily on information when doing their job. They obtain this information through the accounting information system. The accounting information system is known as an effective tool to provide accurate information to users promptly. Information systems have become essential elements used in many fields to support various activities to achieve benevolent or malicious purposes.

Al-Qishi (2013), in his research, examined the effectiveness of accounting information systems in achieving security, assertiveness, and reliability in the context of e-commerce.

The results of this study show that the current accounting theory cannot manage the mechanism of verification and recognition of revenues from e-commerce operations.

The main solution to the problems related to revenue recognition and tax allocation in accounting and auditing businesses (due to the intangible nature of e-commerce and the lack of performance documentation) is to provide policies and operational procedures that ensure safety, assertiveness, and reliability in outputs of the accounting system. The issues of security, assertiveness, and reliability can only be achieved through the creation and development of a system that links the company's accounting process and the company's website to the Internet.

Matahan (2019) evaluated the ability of foreign auditors in Jordanian companies in the field of e-commerce. The results show that joint ventures between the United States and Canada have added an advanced technological dimension to both accounting and auditing that did not exist before the advent of e-commerce. The instances in the case study are fully aware of the terms of the joint US-Canadian project. Finally, it was found that the adherence of foreign audit offices to the project conditions is weak, and the interest of foreign auditors in Jordan in the field of e-commerce is not significant.

With the advent of e-commerce, the development of the principles of compatibility between accounting information systems for companies and the identification of unique e-commerce requirements has grown. In early 2002, the American Institute of Certified Public Accountants and the Canadian American Institute of Certified Public Accountants launched a joint project called Website Trust Services. The project identifies principles that must be present in accounting information systems to comply with e-commerce requirements. In this paper, based on the results of this joint project, we seek to identify barriers to compatibility between accounting information systems and e-commerce requirements in companies listed on the Iranian Stock Exchange. Consequently, we provide appropriate solutions to overcome these barriers. Our proposed solutions may have a positive impact on the service sector and the Iranian economy in general.

2. Research Questions

1- What is the level of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of protection?

2- What is the level of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of system readiness?

3- What is the degree of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of processing integration?

4- What is the level of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of privacy in the network?

5- What is the level of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of confidentiality?

6- Is there an obstacle to compatibility between computer-based accounting information systems and adherence to e-commerce requirements in Iranian service companies based on the joint project between the United States and Canada?

3. Theoretical Foundations of Research

E-Commerce Requirements: E-commerce requirements are the principles required by the US-Canada Joint Venture project to be available in e-commerce accounting information systems. Also, the process of their compliance with foreign auditors is performed in the service companies listed on the Iranian Stock Exchange. The method of measuring e-commerce requirements is based on the use of questionnaire questions.

The principle of security: The principle of security is one of the most important principles of the joint project between the United States and Canada to achieve the reliability of the website. This principle stipulates that this system is protected against unauthorized intrusions in service companies listed on the Iranian Stock Exchange. The method of measuring the principle of security is based on the use of questionnaire questions.

The principle of availability: The principle of availability is one of the principles of the joint project between the United States and Canada to achieve and ensure the reliability of the website. This principle states that the system is ready to operate in accordance with the policies set by Iranian service companies listed on the Iranian Stock Exchange. The method of measuring the principle of availability is based on the use of questionnaire questions.

The principle of processing integrity: The principle of processing integrity is one of the principles of the joint project between the United States and Canada to ensure website reliability.

This principle stipulates that all steps are processed and provide accurate, timely, and authorized information to the service companies listed on the Iranian Stock Exchange. The method of measuring the principle of processing integrity is based on the use of questionnaire questions.

The principle of online privacy: The principle of online privacy is one of the principles of the joint project between the United States and Canada to ensure the reliability of the website. This principle states that the use and disclosure of all information obtained from e-commerce are under control, in accordance with established policies to protect the privacy of individuals who trade with service companies listed on the Iran Stock Exchange. The method of measuring the principle of privacy is based on the use of questionnaire questions.

The principle of confidentiality: The principle of confidentiality is one of the principles of the joint project between the United States and Canada to ensure the reliability of the Website. This principle states that the confidentiality and reliability of all information are regulated in accordance with the policies of service companies listed on the Iranian Stock Exchange. The method of measuring the principle of security is based on the use of questionnaire questions.

Accounting information systems

Accounting information systems are one of the oldest and most vital information systems available because they are related to the recording, preparation,

And reporting of internal and external financial operations (Juma et al., 2003). This system is one of the components of the management information system that deals with collecting, classifying, and processing financial operations, converting them into information, and communicating them to different parties in order to justify their decisions (Isa, 2003, 21). The accountant should be familiar with all the factors affecting the information provided to management and all the factors affecting the accounting information system. These factors include:

Behavioral analysis: This process is done to identify the behavioral and psychological factors of the person while performing job duties.

Quantitative methods: These are analytical methods that are used by the organization to make appropriate decisions in the processes of supporting the accounting information system and increase the efficiency of the information provided.

Computer: In the past, institutions and companies did their work manually and spent a lot of time and effort. But with tremendous technological advances, the dependence of institutions on computers increased and led to savings in time and labor. This process helped institutions to store their accounting records on a computer.

Therefore, accounting information systems must take into account developments in the field of e-commerce. In particular, pay attention to the need to use modern electronic devices and redesign the system in accordance with the electronic performance of data. Because the components of accounting information systems are related to the human and material parts, that is, they are mainly dependent on human personnel. In addition, they are a set of simple automated or semi-automated tools that help accomplish the accounting process. But to work in the field of e-commerce, we are required to use electronic devices, i.e., the accounting information system relies on the electronic performance of data, and this is equivalent to the development of components according to the needs of work under e-commerce (Yahya and Al-Habiti, 2003, 41).

Abu Rahma (2019) has studied the methods of conducting e-commerce operations and accounting *settlement* systems in banks operating in the Gaza Strip. He found that despite the availability of structures, principles, and rules, the rate of use of e-commerce is low. One of the reasons for this is the lack of experience and lack of professional experts.

Also, the performance of accounting systems in Gaza banks is poor due to a lack of experience and a lack of appropriate infrastructure for efficient implementation of e-commerce operations. This process requires the development of a secure accounting system through which to conduct e-commerce operations.

Al-Jazrawi and Saeed (2019) examined information technology tools and their role in the efficiency and effectiveness of accounting information. The use of computer software in accounting information systems will lead to time and labor savings, ease of achieving efficient, effective, and timely results, and users' access to information and data.

In order for jobs to be realized faster and better, it is absolutely necessary to synchronize with the developments and make changes in the accounting profession. The main point is to make corrections and changes in the elements of accounting education to keep up with financial and future developments.

Katuna et al. (2012) studied the impact of e-commerce on the accounting information system of Jordanian banks. The results of this study showed that e-commerce has a statistically significant impact on the development of accounting information systems in Jordanian banks. The results also show the statistical importance between e-commerce and the reliability of accounting information systems. One of the quality features of accounting information is improving data management capabilities, reducing errors, evaluating data accuracy, security and protection. The study also shows the impact of e-commerce on reducing costs and improving each of the processes and services provided to customers through accounting information systems in Jordanian banks.

4. Research Methodology

The present study is applied research in terms of purpose, as well as descriptive-analytical research in terms of method. The statistical *population* is service companies listed on the Iranian Stock Exchange (fifty-five companies). The statistical sample used includes all employees of the accounting department (48). The questionnaire was distributed among 48 employees in the accounting departments. All participants in the sample answered the questionnaire.

We used the resources, references, books, papers, and scientific journals available in libraries and the Internet to collect data and information. Also, the main tool for collecting primary data was a questionnaire whose questions were prepared and designed based on a five-point Likert scale and a joint project between the United States and Canada (Al-Qishi, 2003 and Mahern, 2009). Before distributing the questionnaire, some experienced professors and experts in the field of accounting sciences evaluated the apparent validity of the questions. The reliability of the questionnaire was also assessed through Cronbach's test.

Table 1: Cronbach's alpha coefficient of components

No.	Variable	Stability coefficient value
1	The principle of protection	0.799
2	The principle of system readiness	0.927
3	The principle of processing integrity	0.915
4	The principle of privacy in the network	0.903
5	Principles of confidentiality	0.932
6	Accounting Information Systems	0.972

The researchers used SPSS software to analyze the data. Also, arithmetic mean test and standard deviations were used to determine the degree of consistency between the variables under study.

5. Results

In this sub-section, we try to assess the level of compatibility between computer-based accounting information systems, e-commerce requirements, and barriers.

1. Identifying the level of compatibility between computer-based accounting information systems and adherence to the requirements of e-commerce in Iranian service companies based on the joint project of the United States and Canada.

Table 2: A summary of the general means to identify compatibility between computer-based accounting information systems and adherence to e-commerce requirements

No.	Accounting Information Systems	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
1	The principle of protection	3.92	0.50	4	High

2	The principle of system readiness	3.90	0.65	5	High
3	The principle of processing integrity	3.71	0.58	3	High
4	The principle of privacy in the network	3.75	0.56	2	High
5	Principles of confidentiality	3.86	0.60	1	High
-	Total Arithmetic Mean	3.83	0.54		

The results of Table (2) show that the arithmetic means for all paragraphs in the range of 3.86-3.91 are variable. The general mean of the total answers of the respondents is equal to (3.83), and the standard deviation is equal to (0.54), which is higher than the mean. These parameters indicate that the sample members agreed with almost all of the paragraphs. That is, the degree of compatibility between computer-based accounting information systems and e-commerce requirements in Iranian service companies based on a joint US-Canadian project is desirable.

2. Identifying the level of compatibility between computer-based accounting information systems and adherence to the protection in Iranian service companies based on the joint project of the United States and Canada.

Table 3: Identifying compatibility between computer-based accounting information systems and adherence to protection principle requirements

No.	Statements	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
1	Documenting the definitions of warranty, security, and protection policies	3.02	1.82	10	Medium
2	Linking and communicating system protection policies to	4.21	0.45	2	High

	responsible authorities and authorized users				
3	Developing practical methods to achieve system protection	4.19	0.70	3	High
4	Monitoring the system and adhere to system protection policies	4.06	0.75	6	High
5	Pre-set and disclosed protection policies	3.88	0.95	7	High
6	User document protection requirements	4.10	0.75	4	High
7	Clarity of system commitments to the user protection process	4.10	0.92	5	High
8	Existence of mechanisms and procedures to prevent the entry of viruses and unauthorized programs	4.29	0.87	1	High
9	Monitoring technological changes in the environment of the protection system and their continuous monitoring	3.67	0,95	9	High
10	Periodic evaluation of the protection system and its compliance with established policies	3.71	0.79	8	High

	Total Arithmetic Mean	3.92	0.50	-	High
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The results of Table (3) show that the arithmetic means for all paragraphs in the range of 3.14-14.29 are variable. The mean of the total answers of the respondents is equal to (3.92), and the standard deviation is equal to (0.54), which is higher than the mean. These parameters indicate that the sample members agreed with almost all of the paragraphs. That is, the degree of compatibility between computer-based accounting information systems and adherence to protection principles in Iranian service companies based on a joint US-Canadian project is desirable.

The results show that paragraph (8) (existence of mechanisms and methods to prevent the entry of viruses and unauthorized programs) is in the first place. Then paragraph (2) (linking and communicating the protection policies of the system to officials and authorized users) is in second place. And paragraph (3) (practical measures to protect the system) is in the third place. Paragraph (10) (periodic evaluation of the protection system and ensuring its compliance with the set policies) is in the eighth place. Paragraph (9) (monitoring technological changes in the protection system and their continuous monitoring) is in the last place. Finally, paragraph (1) (documenting definition of system security and protection policies) is in the last rank.

3- Identifying the level of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of system readiness?

Table 4: Identifying the level of compatibility between computer-based accounting information systems and adherence to the principle of system readiness

No.	Statements	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
11	Documenting the definitions of system readiness policies	4.04	1.82	10	Medium
12	Linking and communicating system readiness policies to responsible	4.25	0.78	2	High

	authorities and authorized users				
13	Developing practical methods to achieve system readiness	4.00	0.74	5	High
14	Monitoring the system and adhere to system protection policies	4.10	0.77	3	High
15	Periodic approval and evaluation of system readiness policies by specific individuals or groups	3.92	0.94	6	High
16	Periodic appointment of system readiness officials and their replacement	3.63	1.12	9	Medium
17	Clarity of system commitments to the system readiness policies	3.69	0.68	8	High
18	This system includes technological techniques that help readiness the system for use.	4.25	0.75	1	High
19	Monitoring technological changes in the environment of the system and their continuous monitoring	3.46	1.05	10	Medium
20	Periodic evaluation of the readiness system and its compliance with established policies	3.83	0.90	7	High
	Total Arithmetic Mean	3.90	0.50	-	High

The results of Table (4) show that the arithmetic means for all paragraphs in the range of 3.46-4.25 are variable. The mean of the total answers of the respondents is equal to (3.90), which is higher than the mean. These parameters indicate that the sample members agreed with almost all of the paragraphs. That is, the degree of compatibility between computer-based accounting information systems and adherence to readiness system principles in Iranian service companies based on a joint US-Canadian project is desirable.

Paragraph (18) (This system includes technological techniques that help readiness the system for use.) is in the first place. Then, paragraph (12) (Linking and communicating system readiness policies to responsible authorities and authorized users) is in the second place. Paragraph (14) (Monitoring the system and adhere to system protection policies) ranks third. Also, paragraph (11) (Documenting the definitions of system readiness policies) is in the eighth place. Subsequently, paragraph (13) (Developing practical methods to achieve system readiness) is placed in the penultimate rank, and finally, paragraph (19) (Monitoring technological changes in the environment of the system and their continuous monitoring) is in the last place.

4. Identifying the level of compatibility between computer-based accounting information systems in Iranian service companies and adherence to the principle of processing integrity?

Table 5: Identifying the level of compatibility between computer-based accounting information systems and adherence to the principle of processing integrity

No.	Statements	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
21	Documenting the definitions of processing integrity policies	3.88	0.64	3	High
22	Linking and communicating processing integrity of the system to responsible authorities and authorized users	3.81	0.64	5	High

23	Developing practical methods to achieve processing integrity	3.94	0.63	2	High
24	Monitoring the system and adhere to processing integrity policies	4.04	0.65	1	High
25	Periodic approval and evaluation of processing integrity by specific individuals or groups	3.77	0.90	6	High
26	Periodic appointment of processing integrity officials and their replacement	3.35	0.86	10	Medium
27	Clarity of system commitments to processing integrity policies	3.44	0.71	9	Medium
28	Ensuring the completeness, accuracy, and safety of operations performed through the e-commerce system	3.58	0.71	7	Medium
29	Monitoring technological changes in the system environment and their impact on safety and	3.50	1.01	8	Medium

	completeness of operations and their continuous monitoring				
30	Periodic evaluation of the safety and completeness of operations and its compliance with established policies	3.85	0.94	4	High
-	Total Arithmetic Mean	3.71	0.58	-	High

The results of Table (4) show that the arithmetic means for all paragraphs in the range of 3.46-4.25 are variable. The mean of the total answers of the respondents is higher than the mean. These parameters indicate that the sample members agreed with almost all of the paragraphs. That is, the degree of compatibility between computer-based accounting information systems and adherence to readiness system principles in Iranian service companies based on a joint US-Canadian project is desirable.

Paragraph 24 (Monitoring the system and adhere to processing integrity policies) is in the first place. After that, paragraph 23 (Developing practical methods to achieve processing integrity) comes in second place. Similarly, paragraph 21 (Documenting the definitions of processing integrity policies) ranks third. And paragraph 29 (Monitoring technological changes in the system environment and their impact on safety and completeness of operations and their continuous monitoring) ranks eighth. Paragraph 27 (Clarity of system commitments to processing integrity policies) is placed before the last, and finally, paragraph 26 (Periodic appointment of processing integrity officials and their replacement) is placed in the last rank.

6. Identifying compatibility between computer-based accounting information systems and online privacy requirements based on the US-Canadian joint project.

Table 6: Identifying the level of compatibility between computer-based accounting information systems and adherence to the principle of online privacy

No.	Statements	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
31	Documenting the definitions of online privacy policies	4.19	0.70	1	High
32	Linking and communicating online privacy of system to responsible authorities and authorized users	3.96	0.61	2	High
33	Developing practical methods to achieve online privacy	3.90	0.62	3	High
34	Monitoring the system and adhere to online privacy policies	3.79	0.77	4	High
35	Periodic approval and evaluation of online privacy by specific individuals or groups	3.79	0.82	5	High
36	Periodic appointment of online privacy officials and their replacement	3.79	0.82	8	High
37	The clarity of the network mechanism that connects the	3.69	0.87	6	High

	entire e-commerce system				
38	The system includes the necessary procedures for determining the duties of those responsible for the privacy	3.69	0.68	7	High
39	Monitoring technological changes in the system environment and their impact on online privacy and their continuous monitoring	3.44	0.89	10	Medium
40	Periodic evaluation of the online privacy and its compliance with established policies	3.48	0.71	9	Medium
-	Total Arithmetic Mean	3.75	0.56	-	High

The results of Table (6) show that the arithmetic means for all paragraphs in the range of 3.44-4.19 are variable. The mean of the total answers of the respondents (3.71) is higher than the mean. These parameters indicate that the sample members agreed with almost all of the paragraphs. That is, the degree of compatibility between computer-based accounting information systems and adherence to online privacy principles in Iranian service companies based on a joint US-Canadian project is desirable.

Paragraph 31 (Documenting the definitions of online privacy policies) ranks first, followed by paragraph 32 (Linking and communicating online privacy of system to responsible authorities and authorized users) and paragraph 33 (Developing practical methods to achieve online privacy) in second and third place, respectively. Paragraph 36 (Periodic appointment of online privacy officials and their replacement) ranks eighth. Paragraph 40 (Periodic evaluation of the online privacy and its compliance with established policies) is inserted in the penultimate position,

and finally, paragraph 39 (Monitoring technological changes in the system environment and their impact on online privacy and their continuous monitoring) is inserted in the last position.

6. Identifying compatibility between computer-based accounting information systems and Principles of confidentiality requirements based on US-Canadian joint project.

Table 7: Identifying the level of compatibility between computer-based accounting information systems and adherence to principles of confidentiality

No.	Statements	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
41	Documenting the definitions of confidentiality policies	4.15	0.74	2	High
42	Linking and communicating confidentiality policies to responsible authorities and authorized users	3.94	0.48	4	High
43	Developing practical methods to achieve confidentiality of the system	4.02	0.66	3	High
44	Monitoring the system and adhere to confidentiality policies	4.17	0.72	1	High

45	Periodic approval and evaluation of confidentiality policies by specific individuals or groups	3.71	0.79	7	High
46	Periodic appointment of confidentiality policies officials and their replacement	3.69	0.77	9	High
47	The clarity of the network mechanism that connects the entire network to protect the confidentiality	3.94	0.95	5	High
48	The system includes the necessary procedures for determining the duties of those responsible for protecting the confidentiality	3.79	0.74	6	High
49	Monitoring technological changes in the system environment and their impact on confidentiality policies and their continuous monitoring	3.54	0.87	10	Medium
50	Periodic evaluation of the confidentiality policies and their	3.71	0.84	8	High

	compliance with established policies				
-	Total Arithmetic Mean	3.86	0.60	-	High

The results of Table (7) show that the arithmetic means for all paragraphs in the range of 3.54-34.17 are variable. The mean of the total answers of the respondents (3.86) is higher than the mean. These parameters indicate that the sample members agreed with almost all of the paragraphs. That is, the degree of compatibility between computer-based accounting information systems and adherence to confidentiality principles in Iranian service companies based on a joint US-Canadian project is desirable.

Where paragraph 44 (Monitoring the system and adhere to confidentiality policies) is in the first place, followed by paragraph 41 (Documenting the definitions of confidentiality policies) and paragraph 43 (Developing practical methods to achieve confidentiality of system) are in the second and third places, respectively. Paragraph 50 (Periodic evaluation of the confidentiality policies and its compliance with established policies) ranks eighth. Paragraph 46 (Periodic appointment of confidentiality policies officials and their replacement) in position before the last and finally, paragraph 49 (Monitoring technological changes in the system environment and their impact on confidentiality policies and their continuous monitoring) is inserted in the last rank.

6. Identifying existing barriers to achieving compatibility between computer accounting information systems and e-commerce requirements

Table 8: Identifying existing barriers in descending order of importance

No.	Statements	Arithmetic Mean	Standard deviation	Ranking	Level according to the mean
57	Fear of the risks of e-commerce	3.83	0.753	1	High
56	2. Lack of sufficient experience in using e-commerce in Iran	3.67	0.663	2	High

60	3. Insignificant salaries of accountants	3.67	0.724	3	High
51	4. Insufficient mechanism for recognizing revenues and expenses in e-commerce compared to traditional commerce	3.60	1.005	4	Medium
62	5. Lack of government laws, regulations and controls to regulate e-commerce operations	3.60	0.939	5	Medium
61	6. Difficulty of the tax audit process in the field of e-commerce	3.56	0.796	6	Medium
59	7. Lack of specialized and educational courses in this field	3.54	0.824	7	Medium
63	8. High cost due to rapid technological advancement	3.54	0.849	8	Medium
58	9. Regulatory problems in the field of e-commerce operations	3.52	0.989	9	Medium
55	Lack of experience in senior managers in this field	3.48	1.111	10	Medium
54	Lack of experience in accountants in this field	3.35	0.934	11	Medium
52	Lack of sufficient documentation on e-commerce operations	3.23	1.016	12	Medium
53	High complexity in e-commerce operations	3.23	0.928	13	Medium
64	Insufficient infrastructure for wireless	3.06	0.665	14	Medium

	communication and high cost of internet				
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The results of Table (8) show that the arithmetic means for all paragraphs in the range of 3.06-3.83 are variable. The mean of the total answers of the respondents is higher than the mean value. These parameters indicate that the sample members agreed with almost all compatibility barriers between computer-based accounting information systems and E-commerce requirements in Iranian service companies.

The results of the table show that the most important barriers to compatibility between computer-based accounting information systems with e-commerce requirements (given their relative importance) are:

Fear of the risks of e-commerce

Lack of sufficient experience in using e-commerce in Iran

Insignificant salaries of accountants

The insufficient mechanism for recognizing revenues and expenses in e-commerce compared to traditional commerce

Lack of government laws, regulations and, controls to regulate e-commerce operations

The difficulty of the tax audit process in the field of e-commerce

Lack of specialized and educational courses in this field.

High cost due to rapid technological advancement

Regulatory problems in the field of e-commerce operations

6. Conclusion

The purpose of this paper is to identify the level of compatibility between computer-based accounting information systems, requirements, and barriers to e-commerce in Iranian service companies based on a joint US-Canadian project. The experimental results showed that there is good compatibility between computer-based accounting information systems and e-commerce requirements in Iranian service companies.

One of the remarkable results of this finding is that accounting information systems increase the productivity of the company, and consequently, productivity can be enhanced through better information systems.

The results showed that there is sufficient compatibility between computer-based accounting information systems and the requirements of the security principle. One notable result of this finding is that accounting information systems capable of protecting systems can undoubtedly facilitate the firm's mission to convey its message and achieve its goals (including operations outside local markets and easy interaction with global markets).

Furthermore, the results of this study showed that the compatibility between computer-based accounting information systems and the requirements of the principle of availability based on a joint project between the United States and Canada is quite desirable.

The results also show that there is sufficient compatibility between computer-based accounting information systems and the requirements of the principle of availability based on a joint project between the United States and Canada. This finding means that all procedures developed based on accounting information systems provide accurate, timely, and virtual information. This feature is strictly in accordance with the requirements of the processing integrity principle.

The results showed that there is good compatibility between computer-based accounting information systems and the requirements of the principle of confidentiality, based on a joint project between the United States and Canada. One notable result of this finding is that accounting information systems constantly evaluate the confidentiality and reliability of all information in accordance with company policies.

Finally, despite the good compatibility between computer-based accounting information systems and e-commerce requirements in Iranian service companies, our case study showed that there are several barriers that reduce this compatibility. The most important known obstacle was the fear of e-commerce risk. Other barriers such as the novelty of this type of business in Iran, the low salaries of accountants, the lack of a revenue and cost recognition mechanism in e-commerce are also significant.

Officials and managers of companies consider the issue of hackers very important and find it unreasonably challenging for unrelated people to access company data and use this data by competitors. Also, the use of e-commerce in Iran is a big change, and it is difficult to accept because of the fear of risks that may jeopardize the interests of the company. Accountants' low wages may also be another barrier to using e-commerce. Accountants, like other employees, strengthen their performance if they have financial incentives. Because moving to e-commerce may require increasing effort and impose more responsibility on them.

The revenue and expense recognition mechanism used in traditional commerce is not sufficient to manage e-commerce. The use of e-commerce may incur additional costs and be a serious barrier to compatibility between accounting information systems and e-commerce. In addition, the lack of government regulations and controls to regulate e-commerce increases companies' fears about conducting e-commerce. Also, the difficulty of the tax audit process for e-commerce operations may be due to the lack of clarity and difficulty of tax audit procedures. The results of this study are consistent with the results of the study of Dehmash and Al-Qashi (2014). In their research, they showed that the accounting and auditing profession faces the challenge of lacking a revenue recognition and tax allocation mechanism in e-commerce.

Based on the above findings and relying on a joint project between the United States and Canada as a specialized reference, we recommend that the above terms and principles be followed in computer accounting information systems in companies dealing with e-commerce so that the company will adapt to the e-commerce environment.

Also, in order to eliminate or reduce the barriers of compatibility between computer-based accounting information systems and e-commerce requirements, the awareness of company officials and their training conditions in modern technological advances should be strengthened. We also recommend the following as effective items: Permanent introduction of e-commerce and the promotion of its practical tools, and showing the importance of using it in achieving company goals and continuous development of capabilities of employees (especially accountants) in business companies and the development of advanced systems to motivate workers (because of their role in increasing motivation to work and productivity).

7. References

Abu Rahma, Ayad Zaki Mohammad, 2009, "Methods of conducting e-commerce operations and *settlement* systems - a statistical population of banks operating in the Gaza Strip," unpublished master's thesis, Islamic University - Gaza.

Al-Issa, Yassin, 2013, Fundamentals of Modern Accounting, Part I, Dar al-Shorouq Publishing and Distribution Office, Amman, Jordan, First Edition.

Al-Jazrawi, Ibrahim Mohammad Ali, Loghman Mohammad, 2009, "Information Technology Tools and Their Role in the Efficiency and Effectiveness of Accounting Information," Journal of Management and Economics, No. 75, 36 – 1

Al-Qishi, Zahir Shahr Youssef, 2003, "The effectiveness of accounting information systems in achieving security, authentication and reliability in the field of e-commerce," unpublished doctoral dissertation, Oman University - Jordan.

Friday, Ahmad Helmi and Al-Arbid, Issam and Al-Zoubi, Ziad, 2013, Accounting Information Systems - Introduction to Contemporary Applied Tools, First Edition, Curriculum Distribution, and Publication Office, Jordan.

Qatawneh, Adel M, 2012, "The Effect of Electronic Commerce on the Accounting Information System of Jordanian Banks," International Business Research, Canadian Center of Science and Education, Vol. 5, No. 5; May 2012, P.158-163.

Yahya, Ziad Hashem, and Al-Habiti Qasim Mohsen, 2003, Accounting Information System, Al-Hudba Publishing Office, Al-Hudba College, Mosul, Iraq.

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