

FUZZY LOGIC APPROACH TO SIMULATE THE ROLE OF ACADEMIC PERFORMANCE AND COMPETITION ON STRATEGIC INTENTION WITHIN JORDANIAN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Gaining accreditation from international bodies will improve university reputation, image and the scientific research quality (Bourini and Almsafir, 2014). As the observation from scholars, the Jordanian private universities seems to have an ambiguity in the strategic intention towards international accreditation also Jordanian HEIs were not aware of any suitable strategy formulation and implementation framework, which could be suitable for their peculiar environment. The objective of this study is to explore the possibility of academic performance role in shaping the intention to go for international accreditation within the perspective of Jordanian private universities. The researcher hypothesis that competition and academic performance has a significant relationship with strategic intention. Data were collected via questionnaire from University president, vice president, Dean, quality assurance directors, head of departments and professors. WarpPLS version 3.0 structural equation modeling was used to analyze the data and the relationships and effects among the constructs, then a fuzzy logic employed for model simulation regarding the relationship among the constructs. In particular, the research will interpret the models based on four conditions, which capture alternative interpretations of the dependencies, combining quantitative and qualitative information.

Keywords: Fuzzy Logic; Performance; Competition; Accreditation and Strategic Intention.

1. INTRODUCTION

There are many approaches for organization to be success in a tough competition environment, many authors argued that achieving competitive advantage is one of the approaches to do so. Thus, to reach that level of success organizations need resources such as employees, buildings and equipment, which considered the baseline for every organization to proceed towards achieving its mission. The key requirement for success in a competitive environment is to employ resources that are unique and specific to the organization (Kamukama, Ahiauzu, and Ntayi, 2011). However, sometimes leader will be the roadblock towards achieving competitive advantage due external and internal environment specially when make highly risk environment, another argue by Fang and Chen, (2016) that rapid changes in the customers' needs and desires and high competition level have forced managers to rethink of their strategic intentions. Thus, managers has two types of strategy to choose whether to be reactive or proactive orientation. A reactive strategy centralized on defensive activities, including the centralization of power and authority and costs controls. In the other hand, proactive strategy reflects the adoption of risk and a future thinking perspective where organizations anticipate change, seek out opportunities to

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introduce new products, and control the market in which they operate (Matsuo and Kusumi, 2002). Nooraie (2011) defined the strategic decision as “long-term, highly unstructured, complex, inherently risky, and have a great impact on the future of the organization, he added that strategic decisions are those important decisions that typically require a large amount of organizational resources”. Within higher education institutions (HEIs) achieving competitive advantage will be throughout several practices for instance; Altbach (2003) argued that quality assurance systems consider nowadays one of the most applicable approaches for HEIs to be competitive within educational market, in this approach, quality assurance is guaranteed by the test of mission and goal achievement; ranking and ratings, reputation, and program reviews, i.e., the test of peer evaluation. Another researcher agreed and stated that to sustain and improve the level of quality in the education field, HEIs should adopt a systematic quality assurance program to improve their quality in education sector (Knight (2015)). Recently several schoolers argued that that quality within HEIs became more convoluted topic, and higher education have been pressured by environmental factors in regards of survive within rigorous market (Becket and Brookes (2005), Sallis (2014), Hou (2014) and Martin (2016). Particularly, while HEIs attempt to adopt systematic quality assurance practices (accreditation) to improve the quality of educational process, HEIs are facing different environmental conditions. Hence, different environmental conditions create an open market environment, combining local and global rivals. In addition, a lot of efforts has been made through research and a significant amount of studies in regards of the quality in HEIs, but there is still no agreement on how to achieve quality in higher education or at least reach a satisfactory level of quality in higher education. According to Bourini and Bourini, (2016) higher education system within middle east region is facing several quality concerns; such as maintain and improve teaching methods, learning process, research performance and scholarship, graduates’ output, methods of defining and measuring quality, the use of benchmarking, and ways of convincing numerous stakeholders and governments that universities are doing a proficient job in ensuring quality output. Verwaal et al., (2010) discussed that modern organizations can acquire advantages due to the availability of financial resources and human capabilities. Particularly, organizational resources influence decision maker, where strategic decision making (formulation process) depends on top management that how do they use the available internal resources and external resources to an organization for its success in the long run (Rusjan (2005). The current study will focus on the role of human resource capabilities within HEIs’ strategies. Within the context of the HEIs human resource capabilities consist of intelligence, academic skills, expertise and creativity that are related to accreditation requirements in terms of research, teaching skills, and qualifications, and that lend a university its distinctive character (Grant, Widrick and Mergen 2002, p. 140). Academic staffs themselves are considered the input and output of the university system. In particular, academic staff members with strong qualifications enhance the overall level of a university’s quality. Thus, the question raised here is what is the role of academic performance in shaping the strategic intentions of Jordanian HEIs to go for international accreditation? Particularly, the academic performance that has an impact on Jordanian universities’ will be the focus of this study. Authorities within HEIs’ structure, such as presidents, deans and heads of departments, should take into consideration environmental conditions and current capabilities of their institutions, because they will inevitably influence organization’s future. More specifically, these factors might influence the strategic direction of HEI in the short and the long term. The above environmental conditions may determine the strategic direction of the academic institutions.

2. LITERATURE REVIEW

2.1. Upper Echelon Theory

The framework for this research was conceptualized by reviewing previous literature (Svenson, 2009; Heriot, Austin, and Franklin, 2009; Elliott, 2010; Sabri, 2011; Thomas and Thomas, 2011; Warren,

Howat, and Hume, 2011 and Rana, and Dwivedi, 2015). The variables in the conceptual framework were set to reveal their relationship with strategic intention of academic institutions. In order to develop a complete understanding of this process, it is essential to develop a theoretical link between academic performance and the strategic intent of Jordanian academic institutions. The theoretical link between the constructs will be supported by **Upper Echelon Theory**.

Many scholars conducted a studies regarding strategic decision and leaders' values, believes, personality and characteristic (Warren, Howat and Hume, 2011 and Adams, Licht and Sagiv, 2011), for instance, Warren, Howat and Hume (2011) argued that organizations are political systems in which all people pursue their own interests (based on their own values and beliefs) as well as influenced by external factors such as the marketplace, technology and society. It is the role of strategic thinkers to understand both the internal and external factors and their impact on the future of the organization. Similarly, Adams, Licht and Saqiv (2011) they have found that directors' personal values and roles play an important part in their decisions. Particularly Values affect the way people perceive and interpret situations and events, thus values affect peoples' decisions, choices, and behavior. Michael and Schwartz (2000) conducted a study to investigate the trustees' role and analyze their responses on the bases of sectors, gender, educational backgrounds, and years of experience. They have found that while the highly educated board members may focus more of their attention on academic matters, other trustees may find the networking and resource solicitation role an exciting one. Similarly, older trustees may find preoccupation with educational ideological issues a rewarding experience. Thus, author will adopt the upper echelons theory by Hambrick and Mason (1984). The upper echelon theory is based upon the idea that executives' view point in regards academic staff performance influence their interpretations of the situations they face and related factors, in turn, affect their choices. Nielsen (2010) states that the originate of the upper echelons theory lie in the behavioral theory of the firm. Which suggests that managerial choices are not always following rational motives but are to a large extent influenced by the natural limitations of managers as human beings. Behavioral factors, such as bounded rationality, multiple and conflicting goals, various aspiration levels are believed to influence strategic choices made by top executives, which in turn determine firm performance.

Upper echelon theory assumes that behavior results from the interaction between person and environment. Previous literature discussed about the factors could be associated with strategic intention of organization, Chen, Liu, Ni & Wu (2015) stated that the rational analysis of the strategic intent perspective showed that (CEO)'s characteristics and external environment affect a firm's strategic orientation. Whereby, the researcher views upper echelon theory as a theoretical bridge that provides a useful framework for encompassing environmental diversity in relation to strategic intention when seeking international accreditation. The question raised in the study is, does the environmental variables like Task environment (Academic Performance) relate to strategic intention within the context of seeking international accreditation.

2.2. Strategic Intention

A little research have been done or made much attention as academic entities in regards strategic intent (McGee, 2015). Particularly, there is an inadequate number of studies whether theoretical and empirical to examine and discuss about strategic intention in depth and how to measure the construct with a survey scale (O'Shannassy (2016) and Fang and Chen (2016)). Sheehan (1999) argued that strategic intent is essentially based on believes among the board and leadership in organization not on organizational resources. Several schoolers stated that strategic intent is mainly influenced by the history and culture of the society, thus it will be affected by culture which has a particular relevance in the development of

the strategic intent of foreign multinational enterprises (Phandanouvong, (2009) and Bourini and Almsafir (2014) and Brand (2010).

Brand (2010) stated there is a need to adopt proactive strategic orientation through the acceptability of shareholders' to stretch current aspirations and transition of the intent towards the future by setting a new vision, mission and goals. He contended that leadership is critical in unlocking the potential of the strategic intent to contribute towards survive in a rough competition. Strategic thinking assure the achievement of sustainable competitive advantage for modern organizations within several industries, it involves making choices about where to place the organizations within coming decades, as well as achieve sustainability by allocate organization resources. Mariadoss, Johnson, and Martin (2014) and Fang and Chen, (2016) agreed with previous statement that a firm's strategic intent can affect its performance through managerial actions.

Hamel and Prahalad (1989) stated that strategic intent represents a unique point of view about the long-term planning or position a firm hopes to realize over the coming decade or so. Hamel and Prahalad (1989) stretched the underlying definition of strategic intent as an obsession that enlists all active management processes, including an organization's focus on winning, motivation through realization of the value of the set target, and allocation of available resources in order to survive and become profitable. This would probably include a new strategic direction for the organization. Such an intention would emphasize the long-term focus on the intent of the CEO as the primary contributor to the company's strategy for survival and profit. In terms of execution of strategic intent, Hamel and Prahalad (1989) concluded that the intent provides long-term consistency from both the leaders and followers to set targets that require personal effort and commitment. In terms of strategic development, Phandanouvong (2009) argued that current resources and capabilities only serve as the initialization tool. Brand (2010) agreed and added that to be truly competitive, strategy requires commitments of significant resources, both available and required to source. This commitment can only be achieved when leaders develop a strategic intent that is understandable and acceptable at all levels of the organization.

2.3. Academic performance

Many scholars have argued that organizational resources are a combination of internal resources such as: human resources, financial resources, facilities, buildings and equipment. Nemati, et al., (2010) and Lado and Wilson (1994) have argued that the internal resources combine human capital resources, financial resources, technology, plant and equipment, innovative abilities and internal process systems. Resources, defined as physical assets, intangible assets and organizational capabilities, are tied semi-permanently to the firm (Kapelko, 2006, p. 20). These are all directly under the control of an organisation, and an organisation's success can be influenced by these factors. Indeed, Verwaal et al., (2010) stated that a large organization can gain advantages due to greater availability of financial resources and human capabilities. Rusjan (2005) stated that strategic decision making depends on decisions makers that how do they use the internal resources and external resources available to an organization for its success in the long run. Within the context of this study internal resources will be the scope to be focuses on. According to Rusjan (2005) one of the internal resources is human capital resources, and this type of resources is important for strategic decision making.

Particularly, Organizational success depends on human capital capability, where they can achieve their tasks, goals and organizational overall goals. Nemati, et al. (2010) in his study he found out that effective performance of human resource and enough capital resources can effects the decision making. If the resources were effective and efficient then the decision making will be effective. The management will

take effective decision regarding the organizational goals and objectives. It is the responsibility of a management to find out the strengths and weaknesses and resources that were available to the management. Within the context of the HEIs academic staffs themselves are considered the input and output of the university system. In particular, academic staff members with strong qualifications enhance the overall level of a university's quality. Academic performance are defined as a human resource which is considered a combination of intelligence, academic skills, expertise and creativity that are related to accreditation requirements in terms of research, teaching skills, and qualifications, and that lend a university its distinctive character (Grant, Widrick and Mergen 2002, p. 140). Tareef (2009) stated that the academic staff is the backbone of the university. The Jordanian university system allows anyone appointed as administrator to continue holding the position until he or she becomes a professor without shifting at any stage. This contributes to the decline in the quality of university staff. Thus, he recommends that universities employ highly qualified academic staff and address the issue of how to improve the level of academic staff in a university. As mentioned earlier, Tareef (2009) observed that scientific research in Jordanian HEIs was too low due to reasons previously mentioned. Lim (2009) stated that there are problems relating to the input, process and output of the delivery of offshore education that have been reported over the years. Some of the issues that are related to the input of educational services include the low quality of academic teaching and the low entry requirements of the students. Malaysia recently conducted an audit that discovered only 4.5 percent of those teaching staff at private schools in Malaysia offering degrees have a Ph.D. In a nutshell, a review of the literature revealed that only a few studies have taken the role of resources, especially within a university context, or superior management into account, both of which affect the strategic choice process (Verwaal, et al., 2010).

The standards of international accreditation bodies such as ABET, AMBA, EQUIS and AACSB emphasize a university's resources as the baseline for a successful accreditation process. Particularly, Ancheh, Krishnan, and Nurtjahja (2007) have suggested that the quality and number of scientific research is closely correlated to academic performance. Scientific research is one of the criteria to assess universities. Thus, universities are required to have their research portfolio be accredited by an accreditation body. Meanwhile, well-qualified staff can enhance the quality of a university, especially when one of the international accreditation bodies' standards is the volume of published research within HEI. Quddus (2007) found that obtaining accreditation with AACSB is widely thought of as the Holy Grail for business schools. Achieving initial accreditation is difficult, while maintaining it is also a challenge. The process of gaining the initial accreditation is a complex, non-routine undertaking, and resources in the form of faculty and staff are required. The AACSB wants the process to be faculty driven, which means the whole faculty or department will be involved directly or indirectly in the application. Almsafir and Bourini (2011) added that a university staff has a fundamental role in the accreditation process, where specifically the administrators have to restructure and change responsibilities by empowering other staff with more tasks. Where at this stage staff whether academic or administrator should be capable with skills to achieve the accreditation bodies' requirements. Particularly, Gaharan et al., (2007) explained that in the process of obtaining AACSB accreditation, extensive time and paperwork required are cited as the biggest challenge in improving faculty's intellectual contribution output, which is the second biggest challenge. In the same vein, the large amount of paperwork and planning and the lack of sufficient increases in financial resources to hire required faculty members in supporting the paperwork and accreditation processes are also cited.. Thrifts (2012) agreed with this argument, concluding that the accreditation process might take years, depending on the preparation of the institution. An institution's available resources and its ability to enlist the assistance of required faculty members and is critical, and in the end, this might derail the application process and the effort may stop there, especially when there is a change in top management personnel and they may not be as committed as previous management.

Francisco, Noland and Sinclair (2011) argued that AACSB accreditation standards are too stringent and require changes in staff qualification requirements. They stated that this is due to the decline in the number of qualified faculty, whereby shortages of business Ph.D. faculty has caused some institutions to hire faculty members who do not possess a relevant degree in order to cover the lack in staff number in their business schools. Without the change in accreditation standards, business schools are lacking financial resources to compete for Ph.D staff. Consequently, faculty will no longer seek accreditation, or if they are already accredited, they may lose their certification and no longer pay the annual accreditation fees to AACSB, which can be quite substantial. Cavico and Mujtaba (2010) agreed that the qualifications of the faculty are a very important element for accreditation purposes, and AACSB is very stringent on this aspect. One particular barrier for business schools that employ a greater number of part-time professors is that AACSB requires that a certain percentage of the faculty, regardless of full-time or part-time status, must be “academically qualified,” (AQ) while others must be “professionally qualified” (PQ). Thrifts (2012) added that the standard also requires that a certain percentage of the faculty, both full-time and part-time, must be actively involved in the academic activities of the school. Involvement in academic activities could be, for example, sitting in faculty meetings, assisting in program design, and helping to prepare syllabi and selection of course contents and books. Faculty and support staff resources are sufficient when joined with administrative leadership. Accreditation bodies imply that there should be sufficient infrastructure provided by the institution to support the administrative leadership, faculty members, support staff, and students towards successful achievement of all dimensions of the stated mission, with particular focus on high quality degree programs and scholarly research (AACSB’s standards, 2011).

Within study context university administrators will be more encourage to go for international accreditation if they have high qualified academic staff. According to Tareef (2009) stated that the academic staff is the backbone of the university. Thus, he recommends that universities employ highly qualified academic staff and address the issue of how to improve the level of academic staff in a university. According to Tareef’s observations, the scientific research at Jordanian HEIs was too low due to unqualified academic staff. The hypothesis states that universities with qualified staff encourage the presidents’ and deans’ councils to seek internationalized accreditation as a strategy. An experienced university staff, whether academicians or administrators, is essential. In other words, the more experienced the staff, the greater the ability to deal with new changes and raise awareness about quality improvement and maintenance. That is to say, presidents’ and deans’ councils are able to apply to international accreditation bodies and meet accreditation standards if those universities are represented by a highly qualified academic staff and competent administration in research, learning processes and experience.

2.4. Competition

Competition is a fundamental dimension in a properly functioning market, organisations nowadays are faced with a highly competitive environment, and newly formed organisations make their best attempts to be successful in the market. Earlier work, such as Hoffman (2000), recognizes that firms should attempt to establish unique characteristics in order to distinguish themselves from competitors in the eyes of the consumer within the market. Hamel and Prahalad (1989) discussed the need for firms to learn how to create new advantages that will keep them one step ahead of competitors. Further, Hall (1980) have suggested the need for firms to possess unique advantages in relation to competitors if they are to survive. Relying on Vickers (1995), the concept of competition has encompassed all sorts of forms of rivalry, such as market trading and races, instruments of rivalry (prices, advertising, R and D, takeover bids, effort levels), objects of rivalry (profits, market share, corporate control, promotion, prizes,

survival), as well as types of rivalry. Hence, as far as the current study is concerned, competition is defined as rivalry between individuals (or groups or nations). It arises whenever two or more parties strive for something that everyone cannot obtain, such as market share, reputation, brand image and consumer attraction (Vickers, 1995).

In markets characterized by extreme competition and a rapid pace of change, companies are being forced to compete on the edge. Their strategic thinking can no longer be limited to identifying promising industries, core competencies, and strategic positions. Rather, top management is engaged in creating a continuing flow of temporary and shifting competitive advantages relative to other competitors and the market being served. As a result, greater emphasis is placed on efficient strategic decision making to create effective strategies (Fang and Chen, (2016)).

Decisions within HEIs are really difficult to make because of the complexity of situation, particularly, universities are facing the pressure of growing enrollments, curriculum modernization, shortage of funds, source allocations, appointment of staff, maintaining educational standard, offering courses as per new demands of changing era, staff development, research and scientific developments (Verma and Agarwal, 2003). Bayraktar, Tatoglu and Zaim (2009) stated that the increase of competition and intensify market forces lead higher education institutes (HEIs) to make a decision to go for total quality management (TQM) as indispensable tools to adapt to the evolving new educational environment and to fulfill the expectations of their stakeholders. Last statement supported by Elliott (2010), he stated that competition is one of the highly significant impact drivers on institutions decision in seeking accreditation. Bradmore and Smyrniotis (2009) conducted a study which examined the response of universities to increasing competition. They found that the possibility that the identification of threats posed by competitors is a vital aspect of the strategic planning process, but it may have been ignored or at least may not have been given adequate attention, in a majority of Australian public universities to date. While the U.S., the U.K., Canada and New Zealand, which are considered the main competitors, are taking steps to protect their market shares, new competitors are already emerging in Malaysia, Singapore, France, Germany, Ireland and the Netherlands (Marginson, 2006; Bradmore and Smyrniotis, 2009). Almsafir and Bourini (2011) reviewed the phenomena of globalization in education in the context of international educational trade, competition and student mobility ratios, coupled with universities abroad offering identical courses, which has made accreditation even more prestigious among global universities. Institutions have become aware of this and have begun to strategize on how to gain a competitive advantage in this international market and strive for global accreditation to make their names in the world ranking system.

Campbell and van der Wende (2000) further investigated the quality assurance of European higher education and agreed that the competition phenomena are closely related to the strongly developing international market for education. This market has attracted the attention of both traditional institutions as well as new corporate sectors. Transnational delivery of higher education can be realized through offshore campuses, twinning programs, virtual online courses or other methods, and these new models and practices have raised questions among school administrators about the quality of the education being delivered. European institutions have to raise their standards and reputation globally since non-European providers from the U.K. and the U.S. are entering their markets and grabbing market share due to their active involvement with accreditation bodies and participation in international quality assurance standards.

The Association to Advance Collegiate Schools of Business (AACSB) is recognized globally as the premier seal of excellence in business education, and this association accredits more than 554 programs worldwide. AACSB International accreditation standards are the highest standards for business schools

globally, and in order to meet these standards, schools must adopt a commitment to quality and a philosophy of continuous improvement. It offers business schools an opportunity to gain an international stamp of approval as well as a mechanism to benchmark their performance against peer institutions (Halkias et al., 2008). Cavico and Mujtaba (2010) added that the current business school environment consists of state schools, private schools and traditional schools. Also included in the environment are innovative and entrepreneurial schools, non-profit and for profit schools, and on top of that are online-based schools or a combination of more than one of the above scenarios. They are all actively and aggressively recruiting students and bringing their competitive strategies to another level. The members of these institutions regard AACSB accreditation as imperative for a school to be regarded as a major player and qualified to be on top of the challenging academic market (Parekh, 2012). According to Hodge (2010), the AACSB standard has established a mission to ensure stakeholders of business schools that the accredited school will advance business and management knowledge, provide top quality teaching and faculty, and produce graduates who have achieved their specified learning goals.

Romero (2008) complemented that study by arguing that accredited schools enjoy the most competitive advantage, which is quality, particularly when compared to competitors that do not have established reputations or a lesser-known accreditation standard. AACSB accreditation helps schools to strategically react to key elements in their external environment by establishing long-term accountability of their educational products and communicating the quality assurance of those products through certifications that are proven. The users and buyers of the educational products derive value from AACSB accreditation in the form of quality assurance, even though they are not fully aware nor do they understand the intricacies or the requirements of the accreditation process. McFarlane (2012) added that achieving AACSB accreditation serves as the 'gold standard' in the accreditation of business schools, which is supported by the fact that members of AACSB-accredited faculties tend to have superior placement as members of the world's best institutions, business committees and societies. Within the Jordanian context, the competition described is based on the facts as shown below. The population in Jordan is approximately 6,113,000, which includes the percentage of enrolled students in higher education. Out of a total of 29,406 students from Arab or foreign nationalities, 19,243 are enrolled in public universities and 10,163 are enrolled in private universities (MOHESR, 2012). This suggests that private universities are facing stiff competition from public universities. Because public universities are preferable for local and overseas students, they have a bigger market share. The demand for higher education is expanding throughout the world, and by 2025, as many as 150 million people will be seeking higher education (Bataeineh, 2008). Thus, universities will have to compete to attract more local and overseas students as well. This will create a highly competitive environment among universities, globally as well as locally.

3. METHODOLOGY

3.1. Methodology and Findings

The contribution of the current research is to enrich an acceptable knowledge within the field of business administration, thus making epistemology philosophy research will be the most appropriate choice. Sekaran, Delahaye and Cavana (2010) suggested that the quantitative research methods can be used within the positivism research paradigm. In particular, the aim of positivism in research is to identify universal laws of human behaviour so that we can control and predict events. Based on Sekaran, Delahaye and Cavana (2010), the researcher assumes that the top and middle management within Jordanian HEIs can be controlled by several environmental factors. Whereby, a mono method, a self-administrated questionnaire were distributed on identified sample. A total of 150 questionnaire were

distributed during the survey and obtained 110 responses. however, only 85 of the sample responses consist of Universities Presidents, Deputy Presidents, Deans, Heads of Departments, Quality Assurance Unit Personals and Professors (3, 9, 14, 25, 4 and 30) were suitable to be useful for further analysis, which giving a response rate of $(110/150)*100 = 73.3\%$. All the respondents were from 4 private universities in Jordan.

The methodology in the current study combines two phases; the first phase to conduct a Structural Equation Modeling analysis SEM-PLS to investigate the role of academic performance and competition in shaping the strategic intention within the context of adopting proactive strategy or reactive strategy by going for international accreditation. Then the second phase to simulate the associations among the constructs by utilize fuzzy logic tool. Fuzzy logic designed to deal with inaccurate information, uncertain, incomplete, unreliable, vague or partially true phenomena. Particularly, due to the high degree of ambiguity in regards of universities top management intention to adopt reactive or proactive strategic orientation the researcher will utilize fuzzy logic to clarify the nature of the associations among the constructs.

3.2. Partial Least Square PLS-SEM

This research implement PLS-SEM due to many reasons; firstly, the Phenomenon to be study at the current study is relatively consider a new and measurement models need to be newly develop, where the phenomenon under investigation is the strategic intention of top managements within HEIs. Particularly, the study aims to predict the effects of defined IVs on DV, and investigates relationships between them and the effect size. PLS-SEM is preferred when the researcher wants to predict the construct and identify relationships between constructs (Hair et al., 2013; Reinartz et al., 2009). To the best of researcher's knowledge, no study has tested these integration models as a single model. Moreover, PLS has been utilized by many researchers from various disciplines such as strategic management (e.g., Hulland, 1999), management information systems (e.g., Dibbern, Goles, Hirschheim, and Jayatilaka, 2004), e-business (e.g., Pavlou and Chai, 2002), educational sector (Bourini and Bourini, 2016) organizational Learning (Fang and Chen, 2016). The assessment of the model by PLS analysis typically follows a two-step process that is conducted as the assessment of the measurement model and the structural model (Chin, 2010; Hair et al., 2011; Hair et al., 2012).

3.3. Assessment of Measurement Model

The assessment of the measurement model examines the validity and reliability of the relationship between the LV and associated observable variables, whereas assessment of the structural model considers the relationships between constructs (Chin, 2010; Hair et al., 2011). This research employed WarpPLS 3.0 to analyze the model.

To assess construct reliability, two coefficients are typically considered: construct Reliability CR and the more common coefficient Cronbach's alpha (Bagozzi and Yi, 1988; Chin, 2010; Götz et al., 2010). However, CR is more suitable for PLS-SEM (Hair et al., 2011). Table 3.1 shows that the CR for latent variables in the measurement model are more than 0.7. After removing the items with loading lower than 0.4, the CR of all constructs are higher than 0.786. The CR of COM, AP and SI is 0.786, 0.886, and 0.876 respectively. Therefore, the measurement model has internal consistency and is reliable.

The validity of the reflective measurement model considers convergent and discriminant validity (Hair et al., 2013; Götz et al., 2010). The AVE values of LVs should be higher than 0.5 to gain an acceptable convergent validity (Bagozzi and Yi, 1988; Hair et al., 2011; Chin, 2010). AVE is used to measure the

Table 3.1: Results of the measurement model for constructs

Construct	CR	Cronbach's Alpha	AVE	Full collinearity
COM	0.786	0.592	0.552	1.87
AP	0.886	0.844	0.569	2.00
SI	0.876	0.835	0.505	1.74

amount of variance in an LV that is contributed from its indicators (Chin, 2010). Table 3.1 shows that the AVE values of all constructs of the measurement model. However, after removing the items with loading lower than 0.4 the AVE of constructs have increased. The AVE of COM, AP and SI after removing tricky items are 0.552, 0.569 and 0.505 respectively. Moreover, the associated p value for all indicators is lower than 0.01. Therefore, convergent validity is acceptable in the measurement model.

Discriminant validity is the extent to which each construct is truly distinct from the other constructs in the model (Chin, 1998; Hair et al., 2013). Two measures must be checked to test discriminant validity. The AVE of each construct should be higher than the highest squared correlation of the construct with any other LV in the model, and an indicator’s loading with its associated LV must be higher than its loading with other LVs (Fornell and Larcker, 1981; Hair et al., 2011; Chin, 2010).

Table 3.2 presents the comparison of the square root of AVE of each construct with the correlation of the other construct. The full collinearity refers to vertical and lateral collinearity between one construct and other constructs (Kock and Lynn, 2012). Moreover, this measure can be used for the common method variance (CMV) test and is more conservative than the traditional test that relies on exploratory factor analysis (Kock, 2011). This measure should be lower than 3.3 according to Kock (2011). The full collinearity of all constructs are lower than threshold and acceptable except AP. Therefore this construct have discriminant validity and collinearity problem. To address these problems and gain acceptable discriminant validity and full collinearity, the indicators that affect more than one construct must be removed. Therefore, for problematic constructs, the indicators with a highly cross loading on other constructs must be found and removed from the model, and run the analysis again. To solve these problems AP3, AP4, AP5, AP6, and AP7 were removed one by one, and the analysis was repeated.

Table 3.2: First order discriminant Validity

Constructs	COM	AP	SI
COM	0.743		
AP	0.440	0.754	
SI	0.471	0.483	0.711

Note: Square roots of average variances extracted (AVE's) shown on diagonal.

Therefore, after modification and removing the tricky indicators from the constructs, reliability, convergent validity, discriminant validity, and full collinearity was highly acceptable for measurement model.

3.4. *Assessment of Structural Model*

According to the objectives of this study, the relationships between constructs and SI have been assessed. The following two criteria should be evaluated to obtain a preliminary assessment of the structural model (inner model): R-square (R^2) measure of endogenous constructs and the path coefficients (Hair et al., 2011; Chin, 2010).

The path coefficients must be significant, and R^2 is highly depended on the research area. Chin (1998) suggested 0.67, 0.33, and 0.19 measures for R^2 to be considered substantial, moderate, and weak, respectively. Whereas R^2 value of 0.20 is considered high in behavioral studies area (Hair et al., 2013). The R^2 value of endogenous construct (SI) of the current study in first round assessment is 0.49. Therefore, the value is acceptable. All path coefficients are highly significant as well (See Table 3.3). Therefore, all hypothetical relationships are significant and supported.

Table 3.3: Results of path coefficients and hypotheses testing for first model

Hypotheses	Path Coefficient	P Value	Effect Size	Supported
COM → SI	0.23	<0.01	0.122	Yes
AP → SI	0.27	<0.01	0.125	Yes

The researcher decide to utilize the effect size (f^2) (Formula 5-1) is another criterion that verifies whether the effects indicated by path coefficients are high, moderate, or low. 0.02, 0.15, and 0.35 values for f^2 represent low, moderate, and high effects, respectively (Cohen, 1988). The effect size implies whether the impact of a specific independent LV on a dependent LV is substantial or not (Chin, 2010) and is calculated according to the changes of R^2 of dependent LV when the independent variable included in the model and excluded.

After the researcher run the data on PLS the effect size represents the contribution of IV on R^2 of dependent LV. All relationships in the model have small and moderate effects which. The relationship between AP and SI has the highest effect size. Particularly, Academic Performance AP has highest significant and positive effect on Strategic Intention SI with path coefficient= 0.27, and $f^2=0.125$, that is followed by effects of COM is significant and positive where the path coefficients is 0.23 with small effect sizes equal 0.122.

WarpPLS 3.0 provides the following three important indices to assess model fit: APC, ARS, and AVIF. To fit the model, the p value of the first two measures should be less than 0.05, and AVIF should be lower than 5. In this situation, a good fit of the model to data set can be established (Kock, 2011; Kock & Lynn, 2012). Table 3.4 shows good model fit for the model. Also based on Tenenhaus the researcher utilized goodness of fit for the current model as small ≥ 0.1 , medium = 0.25, large ≤ 0.36 , indeed the model achieves a large fit index as appear in the table 3.4 shows good model fit for the model and Gof.

Table 3.4: Model fit indices Goodness of fit

Model fit Indices	Measure	Supported
Average Path Coefficients (APC)	0.209, $p < 0.01$	Yes
Average R Squared (ARS)	0.470, $p < 0.001$	Yes
Average variance inflated factor (AVIF)	1.892 < 5	Yes
Gof	0.541	

3.5. Fuzzy Logic

Humans can be capability to reasoning and make appropriate decisions within uncertainty environment and misleading information. Fuzzy logic is a form of multi-valued logic or probabilistic logic; it deals with reasoning that is approximate, rather than fixed and exact. Fuzzy logic is usually defined as an approach for decision-making based on 'degrees of truth' rather than the usual 'true or false'. It is important to extend traditional decision-making processes by adding intuitive reasoning, human

subjectivity. Most research with management and other social studies fields did not address the problems that arise when using just traditional, non-fuzzy, or crisp methods.

3.6. *Fuzzy Linguistic Variable*

Fuzzy many-valued logics are a truth-functional generalization of classical logic. Atomic predicates $p=n$ are considered fuzzy relations, whose truth degree is given by their associated membership function. Bellmann and Zadeh (1977) defines a linguistic variable as a variable whose values are not numbers but words or phrases in a natural or synthetic language. In a problem when we are working on linguistic variables, we can present their means. At that moment, we can rate and weight the various conditions by using the fuzzy linguistic variables. Linguistic variables represent the relative importance and appropriateness of each ranking method that simultaneously considers the metric distance and fuzzy mean value is proposed. The distance from the ideal solution and the fuzzy mean value are the usual criteria for ranking fuzzy numbers.

Based on fuzzy logic simulation the strategic thinkers within Jordanian private universities are affecting by several environmental factors towards going for international accreditation. According to Tomasz Korol; globalization has led to the emergence of a complex network of relationships in the business environment, which means increased complexity and uncertainty of factors affecting all businesses.

For the current study a proposed roles based on the PLS Findings. Thus, it was found that the Competition (COM) and Academic Performance (AP), has a significance relationship, hereby each factor affects the strategic thinkers of universities' to go for international accreditation as shown in table 3.5.

Table 3.5: The Estimation of competition and academic performance factors in Strategic Intention

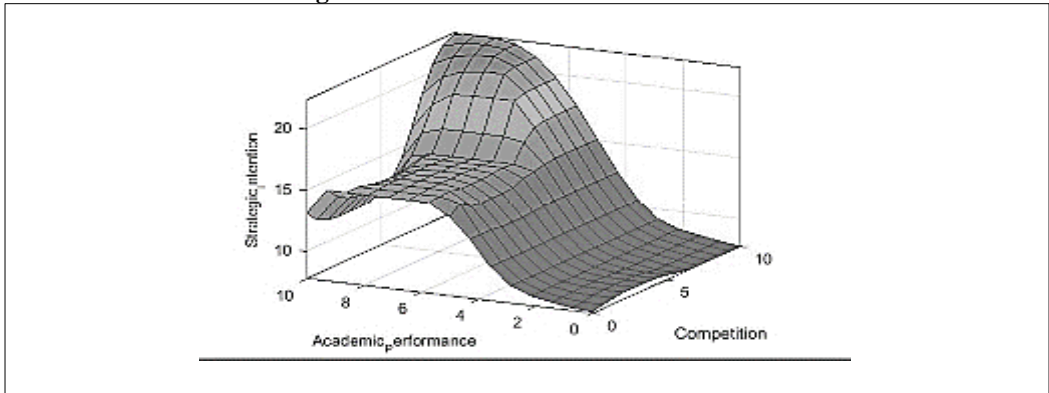
Variable	Variable	Output
COM (L)	AP (L)	SI (L) Reactive
COM (H)	AP (H)	SI (H) Proactive
COM (L)	AP (H)	SI (L) Proactive
COM (H)	AP (L)	SI (L) Reactive

As its appears in table 3.5, the first scenario show that function member for SI is Low as the function assumed that's due to low level of COM as well as AP. Practically its mean that top management within Jordanian private universities were adopt reactive strategic orientation due to the low level of competition among HEIs and they don't have enough number of qualified academic staff to meet the international accreditation requirements in regards of publications, new teaching methods and other academic activates. whereby, they don't have intention to go for international accreditation. The second scenario show that function member assumed that the strategic intention of Jordanian private universities is High and that's due to high level of COM among the HEIs and they have a qualified academic staff to meet the international accreditation criteria in regards of publications, new teaching methods and other academic activates. Bayraktar, Tatoglu and Zaim (2009) stated that the more tougher competition and intensify market forces the more higher education institutes (HEIs) will make a decision to go for total quality management (TQM) as indispensable tools to adapt to the evolving new educational environment and to fulfill the expectations of their stakeholders.

In the third scenario when the level of competition is Low and the academic performance is high the strategic thinkers will adopt proactive orientation strategy as they intent to control easy market by

gaining competitive advantage of high academic staff qualifications in regards of publications, experience, teaching methods and so and gaining accreditation from international body. Thus, acquire more students and gain a reputation. The fourth scenario when strategic thinkers work within taught competition environment where the markets share is to low and limited demand and at the same time the academic performance is low as the staff doesn't have a sufficient publication or outdated teaching methods or limited number of PhD holders then strategic thinkers will adopt reactive strategy to survive in the current hostile environment. The entire above member functions are shown in figure 1.1, where the fuzzy logic aims to simulate the relationship among the constructs at one time and situation.

Figure 1.1: Surface viewer of model rules



4. DISCUSSION

Several scholars argue that organizations success affects certain internal and external environmental factor (Steptoe-Warren et al., 2011). Top management at HEIs have to take into consideration the impacts of these factors on the future of the academic institutions. The researcher found a significant relationship between competition and Strategic Intention, which in turn will force top management to adopt proactive or reactive orientation strategy. Based on the finding respondents believe that the university where they work is preferable by students within Jordanian market and they think that university where they work responds quickly to any changes in the competitive environment in order to survive in the market. This suggests that private universities are facing stiff competition from public universities. Because public universities are preferable for local and overseas students, they have a bigger market share. Thus, universities will have to compete to attract more local and overseas students as well. This will create a highly competitive environment among universities, globally as well as locally.

It was found that there are a significant relationship between Academic performance and Strategic intent. Redmond (2005) stated that seeking accreditation requires the institution to be capable to change or update program curricula, administration policies, and academic facilities. According to Hodge (2010), the AACSB standard has established a mission to ensure stakeholders of business schools that the accredited school will advance business and management knowledge, provide top quality teaching and faculty, and produce graduates who have achieved their specified learning goals. This eventually requires a qualified academic staff with sufficient academic experience to be incurred. Based on the research findings, respondents slightly agree regarding academic performance level to meet

international accreditation requirements. Moreover, respondents slightly agree that Jordanian private universities have sufficient doctorate holders, adequate research publications in international journals and conferences, experience in reviewing research papers within international journals and indeed respondent agree that academic staff able to achieve the objectives of the curriculum's content and teaching methods. Based on the finding university administrators will be more encourage to go for international accreditation if they have high qualified academic staff. In other words, the more experienced the staff, the greater the ability to deal with new changes and raise awareness about quality improvement and maintenance. That is to say, presidents' and deans' councils are able to apply to international accreditation bodies and meet accreditation standards if those universities are represented by a highly qualified academic staff and competent administration in research, learning processes and experience. According to Tareef (2009) academic staff is one of the essential role of HEI success. Moreover, Tareef recommends that universities should recruit highly qualified academic staff in regards of publication and academic experience and address the issue of how to improve the level of academic staff in a university. According to Tareef's observations', the scientific research at Jordanian HEIs was too low due to unqualified academic staff where could be one of the reason for hesitation to go for international accreditation.

5. CONCLUSION

The results showed a significant relationship between Academic Performance, competition and strategic intention. By using fuzzy logic simulation, private higher-education institution have the choice whether to adopt proactive or reactive strategy to realizing the benefits of having applying and implemented international activities such as international accreditation. In conclusion, based on the research problem addressed, the findings suggest that Jordanian private universities need to be more series in consideration of environmental conditions. Thus, can make the appropriate direction of organizational strategy. It was noticed that some Jordanian HEIs are preferable by students based on specialization where it has a qualified academic staff within that specialization. Moreover, Jordanian private universities responds quickly to any changes in the competitive environment in order to survive in the market, also it was found that Jordanian private universities have sufficient doctorate holders, adequate research publications in international journals and conferences, experience in reviewing research papers within international journals and the ability of academic staff to achieve the objectives of the curriculum's content and teaching methods. Whereby, the question rise here based on the findings that since there are a sufficient academic performance and universities are responding quickly to competition why there are a hesitation to go for international accreditation which require to investigate further environmental factors could be related to the phenomena by using qualitative research for in depth result. Indeed the limitation of this research was the time availability to cover the whole population of university presidents, deputies, deans, quality assurance directors and professors, where it was hard to organize an appointment.

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