

The Antecedents of the Market Orientation in Higher Education (Case Study of Higher Education of Aquaculture)

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Abstract: This study identifies the level and impacts of both organizational and external factors on the market orientation of Aquaculture Higher Education in Iran. A survey method for data collection was used and the data for this study were collected through a questionnaire. The population for this study comprised faculty members of colleges and research centers of aquaculture. Its findings indicated that the market orientation of higher education departments of aquaculture is determined by internal (organizational learning, networking, technology-research centers) and external (market turbulence) antecedent that forecasted a 76% variance in changes of the level of market orientation aquaculture higher education institutes.

Key words: market orientation • Aquaculture Higher Education • Organization Learning • Antecedents

INTRODUCTION

Aquaculture has been one of the fastest growing segments of the global food production industry over recent decades and has been hailed as an answer to declining wild fish stocks caused largely by over fishing. In this regard, in Iran, aquaculture plays a key role in the management of fishery resources and has significant potential as a means of food production. However, successful aquaculture depends on the availability of professionally trained manpower, the development of fish production technologies and the transfer of these technologies to fish culturists that provided by higher education institute. For aquaculture higher education to be successful must therefore attend to labor market needs, in other words be market orientated. Market orientation as a process that is the organization-wide generation of market intelligence pertaining to current and future customer needs and the dissemination of this intelligence across departments, as well as organization wide-responsiveness to it [1] is studied in this paper. The purpose of the study is to identify appropriate modifications for the aquaculture higher education market orientation along with the factors that impact on it. The level of market orientation was first quantified and measured then the relationships between market orientation and internal and external were analyzed.

Theoretical Background and Framework

Market Orientation: Today's prevailing market forces place an intense pressure on community colleges that the faculty and administrators in yesterday's institutions could not have imagined, let alone dealt with. Higher education institutes will need to ensure that their organizational designs are flexible and dynamic [2,3]. Colleges are responding to this by deliberately involving their stakeholders in decisions related to resource allocation [4] and community colleges are looking inwardly to develop flexibility and responsiveness when dealing with critical stakeholder needs [5,6]. Partnerships are being forged which rely on service, innovation and flexibility. Successful organizations are those that will embrace change and merge tradition and change in order to create value for their customers through market orientation [2]. According to resource-advantage theory [7], market orientation is an important resource for achieving competitive advantage. Market and/or customer orientation research can be traced back at least to the 1950s [8]. Among the first scholars to emphasize the marketing concept, Drucker (1954) stated that: "there is only one valid definition of business purpose: to create a customer...." The fact that market orientation has been intensively studied may also be due to its great for management relevance [9]. Different empirical measurements of market orientation have

been developed by a number of scholars from different perspectives. Five such perspectives have been advanced that visualized market orientation as the implementation of the marketing concept, namely the decision-making perspective, the market intelligence perspective, the culturally-based behavioral perspective, the strategic perspective and the customer orientation perspective [9-12]. In attempting to sum these up, Zeble [13] and Wood and Bahaian [14] analyze these five perspectives and present a better, common and comprehensive perspective rather than choosing a single perspective from the many market orientation alternatives. Their model includes four key elements that are common to the five different market orientation perspectives: customer emphasis, intelligence generation, intelligence dissemination/interfunctional coordination and intelligence responsiveness/taking action.

Customer emphasis: Researches indicate that most teachers and school administrators reject the term 'customer' preferring to use the terms 'parents', 'students' or 'families'. Despite disagreement over the use of 'customer', the essential feature of this terminology is the demonstration of an understanding and commitment that results in providing enhanced value to the clients. The key behaviors of a customer-centered approach include: researching customer needs; commitment to students; providing services of value; concentrating on needs; focusing on (customer) student satisfaction; measuring and reporting satisfaction; and augmenting existing services. According to the model, emphasis on the customer involves three strategies; understanding and commitment to the customers, creating superior value for the customers and encouraging customers' comments and complaints.

Intelligence/information Generation: Most schools carry out parent surveys and obtain feedback from informal observation and discussion, but they seldom have a systemic and integrated approach to data gathering, analysis, storage and retrieval of market information. Market oriented organizations have an intimate knowledge of their customers needs from a number of perspectives which are continuously communicated and discussed by organizational members. Key behaviors include: systemic methods of organizing and retrieving current information; an intelligence network for collecting and sharing information with everyone in the organization; a systematic research approach to gather new market information through qualitative and quantitative methods; and a process for

analyzing this information for decision making purposes [15]. As such, intelligence/information generation in the model is a broader concept than simply customers' verbalized needs and preferences. It includes the following three elements:

- i) Gathering and analyzing information regarding customers' current and future needs.
- ii) Monitoring and analyzing exogenous factors.
- iii) Gathering and monitoring of market intelligence through formal and informal means.

Intelligence Dissemination or Inter-functional

Coordination: The key indicator of this component is the total commitment of all members to a marketing philosophy and the integration of marketing activities to provide value to the customer. Typical behaviors would include: departments and teams working together to meet student needs; departments and teams sharing market information; teams and departments integrating strategies; all sections working together to offer value to students; and teams willing to share resources [15]. It the entails two distinct aspects:

- i) Sharing existing and anticipated information throughout the organization.
- ii) Ensuring effective use of disseminated information.

Intelligence Responsiveness or Taking: The fourth and last element of market orientation is a responsiveness to market intelligence. Jaworski and Kohli [12] have defined the responsiveness component as being composed of two sets of activities: (1) response design (i.e. using market intelligence to develop plans) and (2) response implementation (i.e. executing such plans). This means that responsiveness involves developing, designing, implementing and altering products and services in response to customers' current and future needs.

The Antecedents of Market Orientation: This section will focus on the antecedents of market orientation and specifically identify the principal types of internal and external factors that affect the extent to which a higher education institution is able successfully to achieve market orientation. The aim purpose of this part is to develop, identify and review the principal antecedents/factors that foster or discourage market orientation in higher education institute. Given the limitations of a market-oriented organization, Slater and Narver [11] argue that organizations should aim instead to become learning-oriented if they are to

compete successfully in the long run. However, given that a “market orientation is the principle cultural foundation of the learning organization” [11], we can argue that, once organizations are market-oriented, it is a logical step for them to develop into a learning organization. Indeed, Slater and Narver [11] state that market orientation is inherently a learning orientation. Building upon this line of argument, Sinkula, Baker and Noordewier [16] call for research that explores further the relationships between learning orientation, market orientation and organizational performance [17].

Fakhry *et al.* [18] cited institution-building as an appropriate approach for restructuring higher education to make the transition to a market economy. They address this from the perspective of institution-building, viewing enhanced cooperation within and between agricultural education institutes and establishing centers to deliver education and research outreaches as aspects of the organizational development that precondition it for success.

In relation to institutional entrepreneurship and building market-oriented institutions in higher education, Kozeracki [19] noted that the switch to a more entrepreneurial market-oriented way of operating -- of being innovative, responsive to the market and of finding new ways to make money -- began in the business world and is now spreading to the non-profit sector, including academia. The approach taken by universities generally focuses on generating revenue through research collaborations with government and industry. The types of organizations that have existed for this purpose include: (1) licensing and patenting offices, to assist faculty members and the universities in obtaining patents, trading licenses and seeking commercial outlets for their research; (2) small business development centers, to provide technical assistance for new business start-ups or technical support in management, new product development and process innovation to existing companies; (3) research and technology centers, which stimulate research and technology transfer in a particular area of technology, usually under a joint university-industry umbrella; (4) business incubators, which provide facilities and/or services to multiple businesses in a related field of technology; and (5) investment/endowment offices, which invest the university's financial resources in start-up companies or spin-off enterprises based upon university generated technology. In accordance with the impacts of establishing an industrial relations office mentioned above, incubators and science and technology centers are investigated. Taylor and Fransman [20] when exploring the role of higher education

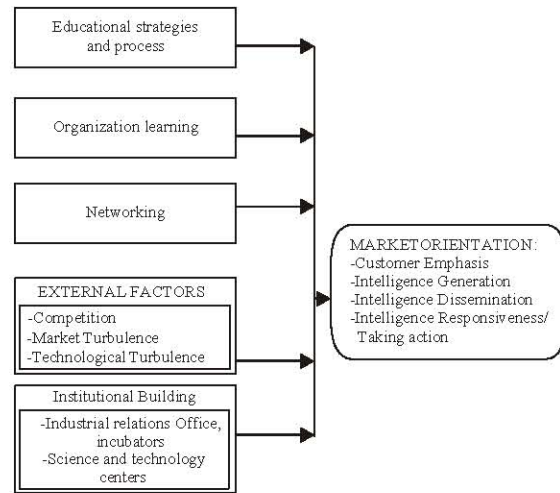


Fig. 1: A Conceptual Framework of Research: Antecedents of Market Orientation

Source: Adapted from Wood and Bhuian [14], Zebal [13] and extended on the basis of literature discussed

institutions as agents of development and social change, focus on capacity development through curriculum development and facilitating the development learning and cooperation through networking. In this research, the effects of education strategies of action-based research and networking are also assessed. Finally, since higher education is organized around a matrix of relationships that are political, bureaucratic, collegial and increasingly economic [19]. As Fakhry *et al.* [18] asserted the external environment in which organizations operate is highly complex and extremely volatile. As a result, these external environmental factors are perhaps even more influential in determining the level of market orientation [14]. Hence, Au and Tse [21] argued that market turbulence, technological turbulence, the degree of competition and the general economy all interact in a complex manner that can have an enormous impact on market orientation. Competition, market turbulence and technology can be considered as the main external factors, that have an influence on determining the level of market orientation of higher education and, as such, they are investigated in this research.

The conceptual framework of research: Figure 1 displays the proposed conceptual framework of market orientation, which is divided into two parts. The first part presents the antecedents/ factors/ barriers/ predictors/ conditions that influence the level of market orientation; the second part shows the market orientation and its components.

Market orientation lies at the core of this conceptual framework and this, involves customer emphasis, intelligence/ information generation, intelligence dissemination or interfunctional coordination and intelligence responsiveness or taking action. The conceptual framework presented in Figure1 shows that the market orientation of an organization is determined by several internal and external factors. This framework indicates that organizational learning, educational strategies and process, networking, establishing an industrial relations office, incubators and a science and technology park are all internal factors or internal antecedents. Factors pertaining to competition, market turbulence and technological turbulence are external factors or external antecedents.

Resrch methodology: A survey was conducted in order to test the theoretical research model described above. The data has been gathered by using structured questionnaire forms distributed to and collected from the faculty members of a sample of aquaculture departments in Iran. A total of 61 questionnaires out of 98 were returned and were valid for analysis giving a response rate of 62%. Regarding an acceptable response rate, Babbie [22] quoted 60% as ‘good’ and 70% as ‘very good’ (rules of thumb only). He further advised that interpretation of the adequacy of the response rate be placed in the context of existing literature for the type of study undertaken. A 51% response rate achieved for a study among the population being sampled here is fairly good taking into account the above statement made by Babbie Babbie [22]. A likert-type scale was used anchored, respectively, by (1) strongly disagree and (5) strongly agree. The study employed the collection and use of a synthesis model of the market orientation scales developed by Wood and Bhuian [14] and Zebal [13] with four, five, five and ten questions, respectively. Organization Learning was measured through 27 questions adapted from Neefe [4] and Goh, [23]. Measurement of the networking and education process was adapted from Fakhry [18] and Taylor and Fransman [16], including three and 10 questions, respectively. Institutional Building (establishing an industrial relations office, incubators and science and technology park) was also measured with 9 questions adapted from Kozeracki [19]. The data were analyzed using the SPSS 10.0 statistical program and correlation analyses and regression and were carried out in order to evaluate the relationships between the variables.

RESULTS AND DISCUSSION

Respondent profiles: The results indicated that the average age of the respondents was 40.8 years and the average number of years of experience was 1.4 years. More than half (73.8%) of the responding faculty members had a PhD degree.

Reserch variables profiles: The means, standard deviations and range among all the variables considered in this study are presented in Table1. An analysis of the research variables of faculty members of aquaculture departments indicated that the mean market orientation was 81.34 (from 120) with a standard deviation of 18.8. The averages for establishing an industrial relations office, incubators and a science and technology park as variables of institution building were 11.7, 9.6 and 11.1, respectively on a 0-12 scale with standard deviations of 4.6, 2.2 and 2.3. Networking had a mean of 10.5, a standard deviation of 4.3 and a range of 5 (Min=3; Max=12). The mean education process was 42.71 on a 0-50 scale with a standard deviation of 16.9. The mean, standard deviation and range for organizational learning were 123.1 (on a 0-150 scale), 15.7 and 65, respectively. The means, standard deviations and range among factors pertaining to competition, market turbulence and technological turbulence were treated as external factors examined by the respondent group. It was observed that market turbulence produced the highest mean (11.7) with a standard deviation of 2.6.

Correlation analysis: In this study, the bivariate Pearson product-moment correlation test was applied. The test was subject to a one-tailed test of statistical significance at two different levels: highly significant ($p < 0.01$) and significant ($p < 0.05$). The results of the correlation analysis are given in Table 2, which shows the correlation between independent variables (internal and external

Table 1: Research Variables

| Variables | Mean | St. Deviation | Range |
|-----------------------------------------|--------|---------------|-------|
| Market orientation | 81.34 | 18.80 | 42 |
| Establishing Industrial relation office | 11.70 | 4.60 | 7 |
| Incubators | 9.60 | 2.20 | 3 |
| Science and technology park | 11.10 | 2.30 | 5 |
| Networking | 10.50 | 4.30 | 5 |
| Education process | 42.70 | 16.90 | 20 |
| Organization learning | 123.10 | 15.17 | 65 |
| Competition | 8.70 | 1.80 | 7 |
| Market turbulence | 11.70 | 2.60 | 11 |
| Technological turbulence | 7.80 | 1.80 | 6 |

Table 2: Correlation Matrix for Internal and External Variables (Antecedents) with Market Orientation

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|------|----|
| Market Orientation(1) | 1 | | | | | | | | | |
| science and technology Park(2) | 0.53** | 1 | | | | | | | | |
| establishing Industrial relations office(3) | 0.46** | 0.58** | 1 | | | | | | | |
| Incubators(4) | 0.46** | 0.69** | 0.64** | 1 | | | | | | |
| Education process(5) | 0.47** | 0.50** | 0.53** | 0.57** | 1 | | | | | |
| organization learning(6) | 0.57** | 0.48** | 0.53** | 0.56** | 0.83** | 1 | | | | |
| Competition(7) | 0.35** | 0.32** | 0.18 | 0.43** | 0.59** | 0.53** | 1 | | | |
| market turbulence(8) | 0.82** | 0.39** | 0.42** | 0.36** | 0.57** | 0.39** | 0.24* | 1 | | |
| technological turbulence(9) | 0.36** | 0.33** | 0.24* | 0.36** | 0.65** | 0.69** | 0.60** | 0.34** | 1 | |
| Networking(10) | 0.85** | 0.46** | 0.40** | 0.41** | 0.36** | 0.30* | 0.20 | 0.70** | 0.19 | 1 |

Notes: **p < 0.01 & *p < .05

Table 3: Antecedents (Internal and External) of Market Orientation: Enter Regression Dependent Variable; Market Orientation

| Variables | Error. | | | | |
|------------------------------------------|--------|-----------|-------|-------|---------|
| | B | Deviation | Beta | t | sig. |
| Science and technology Park | 2.004 | 0.142 | 0.204 | 2.49 | 0.05* |
| Establishing Industrial relations office | 0.092 | 0.227 | 0.010 | 1.03 | 0.921 |
| Incubators | 0.045 | 0.206 | 0.005 | 0.86 | 0.961 |
| Education process | 0.892 | 0.178 | 0.138 | 1.305 | 0.377 |
| Organization Learning | 1.24 | 0.118 | 0.182 | 1.096 | 0.023* |
| Competition | 1.32 | 0.665 | 0.130 | 1.35 | 0.191 |
| Market turbulence | 8.19 | 0.811 | 0.75 | 4.86 | 0.000** |
| Technological turbulence | 0.662 | 0.491 | 0.072 | 0.64 | 0.511 |
| Networking | 9.25 | 0.083 | 0.815 | 7.2 | 0.000** |

R = 0.86. R2 = 0.76 F = 9.8 N = 6.7 Note: ** p < 0.01 * p < 0.05 C = 6.7

variables) and market orientation. Market orientation is found to be significant and positively correlated with the Science and Technology Park (r=.53, P<0.01), establishing an industrial relations office (r=.46, P<0.01), incubators (r=.46, P<0.01), education process (r=.47, P<0.01), organizational learning (r=.57, P<0.01), competition (r=.35, < 0.01), market turbulence (r=.82, P<0.01), technological turbulence (r=.36, P<0.01) and networking (r=.85, P<0.01). Correlation analysis also indicates that the relationship between market orientation and the existence of a science and technology park is stronger than that between establishing an industrial relations office and incubators and market orientation (53>46). Similarly, the relationship between market orientation and organizational learning is stronger than the association between market orientation and the education process (57>47). The strongest relationship between any external factor and market orientation is with market turbulence. Finally, the strongest relationship between the antecedents (internal and external) of market orientation in aquaculture higher education belongs to networking.

Regression analysis: Table 3 shows the antecedents of market orientation of aquaculture higher education. Nine antecedents- a science and technology park, establishing an industrial relations office, incubators, education process, organizational learning, competition, market turbulences, technological turbulence and networking-were entered in a regression analysis.

The regression coefficients for science and technology centers, organizational learning, market turbulence and networking were all significant in this analysis. Beta coefficients are used to assess the relative importance of individual variables' contributions to market orientation. Their results showed that, among those practices pertaining to intuitional building, having a science and technology park was found to be statistically significant and positively related to market orientation (β=.20, p<0.01). Therefore, we can say that market orientation of aquaculture higher education in Iran depends on the existence of science and technology centers. In this study, a statistically significant and positive relationship between learning organization (β =.18, p < 0.05), market turbulence (β =.75, p < 0.01) and networking (β =.81, p < 0.01) and market orientation was also identified. The relationship between these variables suggests that both the internal and external environment fosters the market orientation of aquaculture higher education institutes in Iran. The values for R=.86 and for R2=.76 also support the findings of the regression. The value for R2=.76 indicates that the nine antecedents included in the regression equation explain 76% of the total variation of market orientation. In short, the findings of this study confirm that networking, market turbulence, a science and technology park and organizational learning have an impact rather than any other independent variables.

The regression equation takes the form $Y = b_1x_1 + b_2x_2 + \dots + c$, where Y is the true dependent, the b's are the regression coefficients for the corresponding x (independent) terms and c is the constant or intercept. Then according to the Table 3 data, the regression equation for this research is:

$$Y = 2.004x_1 + .92x_2 + .45x_3 + .89x_4 + 1.24x_5 + 1.32x_6 + 9.19x_7 + .66x_8 + 9.26x_9 + 6.7$$

Based on the ANOVA (F) that also tests the overall significance of the model (that is, of the regression equation), the significance of the F=9.8 value is below .05, which means that the model is significant.

CONCULTIONS

The analyses conducted with regard to elements of institution building as the predictor variables indicate that science and technology centers are the most influential factor in forecasting the level of market orientation of aquaculture higher education. Therefore, in agreement with the results of Kzeracki [19] and Fakhry [18], the potential of institution-building as an approach to development assistance for market orientation in aquaculture higher education must be taken account of. Networking arrangements such as inter-departmental connectedness were also identified as being statistically significant and positively related to market orientation ($\beta = .81$, $P < 0.01$). Thus, in becoming more market-oriented, aquaculture higher education institutes should identify carefully any kind of inter-departmental conflicts and resolve these immediately and also develop cooperative networking as suggested by the findings of Fakhry [18] and Taylor and Fransman [20]. Since the effect of organizational learning on market orientation was clearly identified if aquaculture higher education institutes are to become more learning-oriented they can only do so if they have a market-oriented culture. The results suggest that market orientation facilitates a learning orientation. The findings from this study support the proposition by Slater and Narver [11] that a market orientation is the principal cultural foundation of the learning organization and provide strong evidence that a learning orientation is based on a market orientation. The findings also support the proposition by Sinkula and Baker [16] that a market orientation provides grounding for a learning orientation. Finally, since the turbulent market has a significant positive impact on market orientation, it is shown that environmental factors play a vital role in the market

orientation of aquacultural higher education institutes. To conclude, we can assert that market orientation is a gradual improvement and a continuing process in affecting the structure and the internal and external environment, not a radical change imposed on aquacultural higher education institutes.

Implications: Based on the literature reviewed and on the findings and conclusions of the study, as well as the researchers' own experiences, the following implications are drawn.

- For many aquacultural higher education institutes, it will require a major shift in management and academic staff focus and practice. The implementation of a market-based approach must begin with identifying the critical theory and skills that employing organizations and the community in general require of aquaculture graduates. It also requires an assessment of what other customer groups and market stakeholder's value as important in the study of aquaculture.
- If we are to maintain support and a viable role in research and education, universities need to provide dynamic learning environments that provide not only knowledge, but also skills including problem solving, communication, leadership and teamwork, flexibility to adapt rapidly and creativity, as well as analytic abilities. For students on campus and others working in aquaculture as Kapusuzoglu [3] we need to form a new culture in AHEI for providing action-based learning environments where people can see the applications of their work and understand their implications for the larger society.
- 3. Aquaculture institutes and colleges will be characterized by openness. They will have not only to be open towards each other within networks but also open towards society, in general and the rural world, in particular. Being an open institution does not mean that the quality of fundamental research should suffer. It does mean, however, that institutions increasingly realize that they derive their legitimating from the wider societal context. Therefore, it is necessary to enhance networking at the local, regional, national and global levels such as through creating of excellence centers.

Further reserch: The study has collected and analyzed data that can be used to identify strengths and weaknesses of higher education as relating to market

orientation while determining the baseline of market orientation Indices for the participating institutions. Further research can add to that foundation and should address the following.

- Repeat the survey using the same institutions within three to five years. The findings from such a study could be compared to the findings of this study to determine if the antecedents (internal and external) that positively affect the market orientation indices.
- Improved measures for market orientation need to be developed in order to ensure that all the various elements of market orientation are captured. From this work, interesting aquaculture institutes could be created in order to develop a schema where by sectors might be classified according to the level of market orientation showed.
- Further research is also needed to address the role that market orientation can have in the environment-structure-performance contingency framework. Such a framework could account for market uncertainty, technological uncertainty, strategic orientation, customer concentration, structural factors and other constructs relevant to theorizing a contingency design for market orientation and the performance relationship.
- For future studies, a similar questionnaire or an abbreviated one can be used in the empirical study of other contexts within higher education to confirm the validity of and generalize the findings.

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