

Impact of Organizational Learning on Market Orientation of Higher Education Agriculture Departments

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Abstract

Traditionally, universities have sought to maintain or enhance their competitive position with activities chiefly directed at student recruitment, particularly through the use of aggressive promotional activities. With the tumult and dynamism in the present environment, university administrators cannot rely primarily on student recruitment efforts successfully. Rather, they will need to be proactive and innovative. They will need to adopt a strategic marketing approach and enfold it into their strategic management activities. And by becoming more market oriented, insightful academic administrators will likely engage in learning oriented of marketplace. The main objective of this research is to study the impact of organizational learning on market orientation of Agricultural Higher Education Departments. A questionnaire was used to collect information from respondents. In this study, a sample of 50 faculty members were selected, using "Proportional Random Sampling" method. Data for this study were collected through personal interviews, and Wood and Bhutan market orientation scale was used to specify the dimensions of a market-oriented organization. The data was analyzed using canonical correlation. The findings of the study revealed that market orientation scale provide a good measure of market orientation in this setting. Also, the results of analyses indicated a significant relationship between organizational learning and market orientation of Higher Education Agriculture Departments of Tehran University. In this regard, team working and system thinking as the elements of the organizational learning are more important. It is concluded that, departments and colleges with both orientations could be able to cover and respond to explicit and latent environmental forces through a combination of adaptive and generative learning which enable innovative and reactive marketplace behaviors

Keywords: market orientation, learning organization, higher education and canonical correlation.

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1. Introduction

Higher education is changing. Universities driven by the market forces such as new competition in the form of online course work, demands for quality products, increased accountability, and new marketplace requirements (Jasinski, 1999) to increase productivity, quality, and access while meeting the challenges of competition—especially state-assisted institutions—are seeking ways to do more with less governmental support such as market orientation. Additional challenges facing higher education include reductions in state funding and rising tuition costs for students (Lewis & Smith, 1994). Universities are engaged to become market oriented by a variety forces. Those include new competition in the form of online course work, demands for quality products, increased accountability, and new marketplace requirements (Jasinski, 1999). Bailey and Bennett (1994) identified factors such as static enrollment and poor retention rates as motivators for change in higher education. Additional challenges facing higher education include reductions in state funding and rising tuition costs for students (Lewis & Smith, 1994). Until recently, higher educational institutions were able to clearly identify their competitors. The majority of competition occurred within a geographic region. New competitors are entering these regional markets via technology. Distance education is a reality, globalizing the access and demand for education, (Bailey and Bennett, 1996; Jasinski, 1999; Karapetrovic, Rajamani, & Willborn, 1999; Alfred & Carter, 2000). Some of the virtual universities such as Capella University or the University of Phoenix in developed countries and some others in developing countries are reshaping. With emerging models of higher education while keeping the essence of traditional comprehensive university transforming toward a market oriented modeled can help prepare a university to face these emerging challenges.

This study will define and develop concepts pertinent to learning organizations and market orientation in higher education. In a theoretical study, Slater and Narver (1995) suggest that a market orientation, as an element of organizational culture (Deshpande et al, 1993), leads to higher level of organizational learning. This is because in a market-driven culture, organizations place greater emphasis on developing intelligence about customers, competitors, as well as others and, by the aid of this, develops a set of knowledge-questioning values that may bring about innovative products and services in order to create value for customers. In short, Slater and Narver (1995) hold the view that ‘a

market orientation is inherently a learning orientation.). Based on the preceding argument, the main objective of this research is to identify impact of organizational learning on market orientation of Agricultural Higher Education Departments of Tehran University. Also, specifically, this study sought to identify relationship between level of market orientation elements and organizational learning.

2. Theoretical Framework

In order to achieve a “Sustainable Competitive Advantage”, marketing literature suggests that organizations are compelled to be customer-oriented and/or market-oriented (Deshpande et al., 1993; Day, 1992, Harris and Ogbonna, 2001; Kohli and Jaworski, 1990; Narver and Slater, 1995; Webb et al., 2000), as learning-oriented (Sinkula et al., 1997; Zahra et al., 2000). De Geus (1998) proposed that the ability to learn faster than the competitor might be the only sustainable competitive advantage. This furthermore emphasizes the importance of learning capability for an enterprise. In addressing the above linkage theoretical background, in the following section we examine the literature on market orientation. This is followed by a review of the perspectives of market orientation. Specifically, There then follows a brief review of the literature on organizational learning, with particular reference to the relationship between organizational learning and market orientation.

2.1. Market Orientation

Market orientation as the culture that (1) places the highest priority on the profitable creation and maintenance of superior customer value while considering the interests of other key stakeholders; and (2) provides norms for behavior regarding the organizational development of and responsiveness to market information” (Slater and Narver, 1995).

The marketing concept has been of substantial importance for many years in marketing and is one of the most significant and popular concepts that has been developed in the marketing literature (Svensson, 2001). Despite the importance of this concept and organizations’ efforts to achieve success through being oriented to their customers, it was not until the 1970s and 1980s that attempts were made to clarify implementation issues (Kotler, 1977; Shapiro, 1988). Since then, a new perspective for viewing marketing concept as

implementation has emerged within the marketing literature. In this context, two command perspectives have been advanced that visualized market orientation as the implementation of marketing concept. These are: market intelligence perspective, culturally based behavioral perspective, (Kohli and Jaworski, 1990; Narver and Slater, 1990).

These perspectives are discussed in order to provide a clear understanding of market orientation; an introduction to each perspective is outlined below:

2.1.1 The Market Intelligence Perspective

Kohli and Jaworski (1990) proposed this perspective of market orientation. This perspective visualized market orientation as the implementation of marketing concept from the practitioner's point of view. This study concluded that a market-oriented organization is one in which the three pillars of the marketing concept (customer focus, coordinated marketing, and profitability) are operationally manifest. This market orientation perspective posits that a market orientation entails: (1) one or more departments engaging in activities geared toward developing an understanding of customers' current and future needs and the factors affecting them, (2) sharing of this understanding across departments, and (3) various departments engaging in activities designed to meet selected customer needs.

2.1.2 The Culturally Based Behavioral Perspective

Narver and Slater (1990) proposed a conceptualization of market orientation that considered profitability as a long-term objective of a firm. According to Narver and Slater (1990) market orientation consists of three behavioral elements: (1) customer orientation, (2) competitor orientation, and (3) interfunctional coordination. They defined market orientation as the organizational culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and customers.

2.1.3 Synthesis and Combine Perspective

Many researches conducted by each of two perspectives. But since market orientation has both of cultural and Intelligence dimensions; some researchers combined both perspectives. In this regard, Wood and Bhuian (1993) and Zeba (2003) developed a Synthesis Model of Market Orientation. The synthesis

model in Figure 1 presents a better, common and comprehensive perspective than a single perspective from the many market orientation alternatives. The model includes four key elements common to the five different perspectives of market orientation including customer emphasis, intelligence generation, intelligence dissemination/interventional coordination, and intelligence responsiveness / taking action. Customer emphasis is at the heart of the model and according to the model; customer emphasis involves three strategies; understanding and commitment to the customers, creating superior value for the customers, and encouraging customers' comments and complaints.

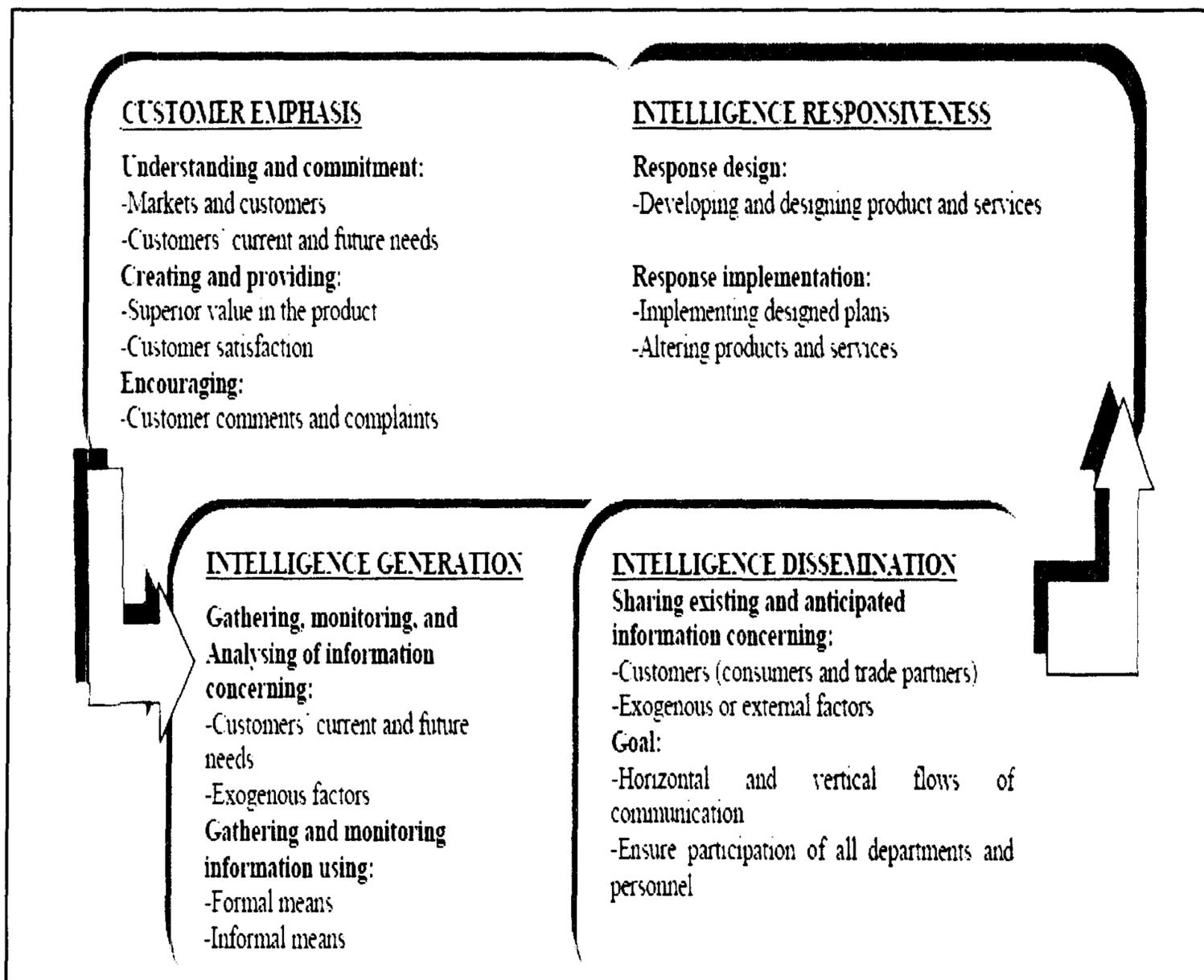


Figure 1: A Synthesis Model of Market Orientation

Source: Wood and Bhuian (1993), Zebal(2003).

2.2. Organization Learning

Although idea learning organization has often drawn on ideas from organizational learning, there has been little traffic in the reverse direction. Moreover, since the central concerns have been somewhat different, the two literatures have developed along divergent tracks. The literature on organizational learning has concentrated on the detached collection and analysis of the processes involved in individual and collective learning inside organizations; whereas the learning organizations literature has an action orientation, and is geared toward using specific diagnostic and evaluative methodological tools which can help to identify, promote and evaluate the quality of learning processes inside organizations. (Easterly-Smith, 1997). We could argue that organizational learning is the activity and the process by which organizations eventually reach the ideal of a learning organization.

Senge (1990) defined a learning organization as “an organization that is continually expanding its capacity to create its future”. For such an organization, it is not enough merely to survive. ‘Survival learning’ or what is more often termed ‘adaptive learning’ must be joined by ‘generative learning’ learning that enhances our capacity to create. According to Goh & Richards (1997) and Neefe (2001) organization learning embraces six key elements or disciplines: leadership; shared mission/vision; teamwork and team learning, organizational culture, and systems-thinking. Neefe (2001) further define the elements or disciplines that are outlined below:

(1) Leadership: According to Gephart and Marsick (1996) effective leadership models learning behavior, provides systems to facilitate learning, encourages people to contribute new ideas, ensures the sharing or knowledge and learning, allocates resources to demonstrate the organizations commitment to learning, and shares leadership.

(2) Employee capabilities: “Doing the same job over and over, at the same level of efficiency and productivity, is no longer sufficient for organizational success. For an organization just to maintain its existing relative performance, it must continually improve” (Gephart & Marsick, 1996). “The shift requires major rescaling of employees so that their minds and creative abilities can be mobilized for achieving organizational objectives”.

(3) Organizational culture: Gephart and Marsick’s view of culture aligns and supports Senge’s mental model discipline. “Reflecting upon,

continually clarifying, and improving our internal pictures of the world, and seeing how they shape our actions and decisions”.

(4) Shared Vision: “building a sense of commitment in a group by developing shared images of the future we seek to create, and the principles and guiding practices by which we hope to get there”.

(5) Team Learning: “transforming conversational and collective thinking skills, so that groups of people can reliably develop intelligence and ability greater than the sum of the individual members’ talents”.

(6) Systems Thinking: “a way of thinking about, and a language for describing and understanding, the forces and interrelationships that shape the behavior of systems” supported by Schein (1996) of organization learning typically meaning learning by individual and groups in the organization vs. learning organization by which they mean learning by the organization as a total system. We consider the learning organization as a special case of organization learning and so do Easterby-Smith (1997) and Edmondson and Moingeon (1997).

2.3. Market Orientation and Organizational Learning

Jaworski and Kohli (1993) argue that a market orientation is concerned with behaviors and activities in an organization. Narver and Slater (1990), Deshpande, Farley and Webster (1993) adopt a cultural perspective, although in subsequent work. Deshpande and Farley (1989) state that market orientation is not a culture but a set of activities. Narver and Slater (1990, p. 21) define a market orientation as:

... the organization culture that most effectively creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business.

Narver and Slater (1991, p. 14) also argue that the behavior and culture of an organization are interlinked, ‘an organization’s behavior is shaped by its culture, and in turn, over time, the culture is shaped by the organization’s behavior and performance. The dominant measures of market orientation, MARKOR, (Kohli, aworski & Kumar 1993), and MKTOR (Narver & Slater 1990) are similar in that they both focus on information gathering in order to achieve a competitive advantage. Both are composed of three sub-constructs of equal value. In general, research findings suggest that a market orientation leads

to increased business profitability (Narver & Slater 1990). In line with Slater and Narver (1995) we argue that market-oriented organizations provide the cultural framework from which a learning orientation can develop. As Slater and Narver (1995, p. 71) state, 'because of its external focus, marketing is well positioned to appreciate the benefits of market-driven learning and be the lead advocate of the market-oriented, entrepreneurial values that constitute the culture of the learning organization'. Baker and Sinkula (1999) argue that market orientation facilitates adaptive learning. Adaptive learning state Baker and Sinkula (1999, p. 412) is capable of facilitating incremental innovation. Conversely, state Baker and Sinkula (1999), a learning orientation is capable of facilitating discontinuous innovation. However, add Baker and Sinkula (1999, p. 412), a learning orientation can lead an organization astray '... if a strong market orientation is not present to provide grounding'. Finally, state Baker and Sinkula, market orientation is concerned with knowledge producing behaviours, while a learning orientation is concerned with knowledge questioning values. In agreement with Weick and Westley (1996, p. 442) we propose that conceptualizing organizations as cultures is appropriate when examining the constructs of market orientation and organizational learning. Thus we argue that a market orientation is the underlying set of organizational values (Slater & Narver 1995) from which a learning orientation is developed. That is, we argue that market-oriented departments are effective in producing knowledge, and this culture of knowledge production, inevitably leads to knowledge-questioning values. In short, organizations that are able to appreciate the value of timely and relevant information (market-oriented), will also be intelligent enough to challenge existing assumptions about the way the market operates (learning-oriented). Based on the preceding argument, we suggest the following hypotheses:

H0: The higher the level of a market orientation, the higher the level of learning orientation.

3. Research Method

3.1. Population and Sample

The population for the study was the heads and staff members of departments of agriculture at the agricultural college of university of Tehran.. The sample consisted of 50 respondents that obtained by Cochran formula and selected by stratified random sampling

3.2. Operationalization of Research Variables

For the construct of market orientation, 24 variables are selected to measure the market orientation factors. Questionnaire items that were used in previous researches (Wood and Bhuian 1993 and Zebel ,2003) were selected for this study. For the construct of organizational learning, also be used of the questionnaire items suggested by Neefe (2001). This study identifies 31 items to measure the construct of organizational learning. For the above two constructs, respondents were asked to indicate the level of agreement in their departments for each item using a five-point scale (5 indicates “strongly agree”, and 1 indicates “strongly disagree”).

3.3. Collection of Data

The initial questionnaire was further developed and refined through a process of in-depth interviews and testing, which included selective second visits, extensive debriefing and extensive pre-testing of the questionnaire. In flowing, the questionnaire, a cover letter, and a return envelope were sent to each of the 50 faculty members and heads of departments in the agricultural college. After three telephone contacts, and personal contacts, all questionnaires were returned, resulting in a 100 percent response rate.

3.4. Measurements Validity

After the data was collected, the set of items was subjected to a systematic purification process that involved the evaluation of internal consistency as measured by coefficient alpha (Churchill 1979).The Cronbach's alpha reliabilities for the Wood and Bhuian (1993) scale for educational institute retailers were adequate for this sample: four- item: customer emphases scale=0.80;Six-item intelligence/information/generation, scale, a=0.86,five-item, Intelligence/dissemination\ interfunctional coordination=.79; and nine-item responsiveness, a =.67 0.8.Responses to each question on the survey were recorded in the statistical software program spss. The hypotheses were tested by Canonic al correlation.

3.5. Data Analysis

Descriptive statistics (frequencies, range, standard deviations, and means) were used to describe the situation elements of organization learning and market

orientation in departments of higher education. Relationship between the organization learning and market orientation were tested by Canonical correlation. Canonical correlation is a form of correlation relating two sets of variables. As with factor analysis, there may be more than one significant dimension, each representing an orthogonally separate pattern of relationships between the two latent variables. The maximum number of canonical correlations between two sets of variables is the number of variables in the smaller set. The first canonical correlation is always the one which explains most of the relationship (Sharma, Subhash, 1996). The canonical correlations are interpreted the same as Pearson's r : their square is the percent of variance in one set of variables explained by the other set along the dimension represented by the given canonical correlation (usually the first). Gifi (1990) stressed that the eigenvalues as computed by SPSS are approximately equal to the canonical correlations squared. They reflect the proportion of variance explained by each canonical correlation relating two sets of variables, the ratio of the eigenvalues is the ratio of explanatory importance of the canonical correlations which are extracted for the given data. There are two canonical variables per canonical correlation (function). One is the dependent canonical variable, while the one for the independents may be called the covariate canonical variable. Canonical coefficient, also called the canonical function coefficient or the canonical weight. The canonical coefficients are used to assess the relative importance of individual variables' contributions to a given canonical correlation. Structure correlation coefficients, also called canonical factor loadings: A structure correlation is the correlation of a canonical variable with an original variable in its set. That is, it is the correlation of canonical variable scores for a given canonical variable with the standardized scores of an original input variable. The table of structure correlations is sometimes called the factor structure. The squared structure correlation indicates the contribution made by a given variable to the explanatory power of the canonical variety based on the set of variables to which it belongs (Tabachnick, et al, 1996).

4. Findings and Results

4.1. Respondent and Organizational Profiles

The results of this study demonstrate about the respondents' demographic characteristics as well as their organizational characteristics that the average age

of the respondents was 44.32 years and average number of years employed in the current job was 12.2 years.

4.2. Market Orientation

In this section considered results about market orientation and its four components, customer emphasis, intelligence generation, intelligence dissemination/ interfunctional coordination, and intelligence responsiveness/ taking action.

The questions in the category of customer emphasis were designed to measure the rate commitment to our customer, looking at ways to create customer value in our products and measure customer satisfaction on a regular basis.

The questions demonstrate an overall comments to customer (mean=15.9 and SD=3.3) and above difference among departments (range=12) (see table 3) Questions 1, 2 and 3 demonstrated statistically more impact on customer emphasis in agricultural higher education departments. (See table 1)

The questions in the category of intelligence generation were designed to determine the how to Gathering, monitoring, and analyzing of information concerning: Customers' current and future needs and exogenous factors also way of gathering and monitoring information using: formal means and informal mean. Results of means of questions 5, 8 and 9 indicate departments detect changes in customers' product preferences (3.5 from 5) and fundamental shifts in industries (3.9 from 5) also meet customers' future needs. (3.4 from 5) see table 1.

The questions in the category of Intelligence/ Dissemination/ Interfunctional Coordination were designed to determine that how Sharing existing and anticipated information concerning; Customers (consumers and trade partners, Exogenous or external factors) and Goal; (Horizontal and vertical flows of Communication Ensure participation of all departments and personnel). Results showed that there is a low in all items relate to leadership. (Mean =2.5-2.8). Range(R=20) demonstrated deference among answers is too much. Therefore, there are not internal integration and coordination among the organizations' members in developing a group of activities aimed at the satisfaction of the target market

Table 1 : Market Orientation scale

Items		Mean	SD
Customer Emphasis			
1	We encourage customer comments and complaint because they help us to do a better job	4.00	1.09545
2	We have a strong commitment to our customer.	4.17	.97217
3	We are always looking at ways to create customer value in our products	4.17	.86320
4	We measure customer satisfaction on a regular basis	3.58	1.2450
Intelligence/Information Generation			
5	In this company, we meet with customers at least once a year to find out their future needs.	3.55	1.231
6	In this company, we do a lot of in house market research.	2.65	1.299
7	We survey our end users at least once a year to assess how they perceive the quality of our products.	2.64	1.166
8	We are slow to detect changes in our customers' product preferences.	3.45	1.136
9	We are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation).	3.90	.87818
10	We periodically review the likely effect of changes our business environment (e.g., regulation) on customer.	2.90	1.098
Intelligence/ Dissemination/Interfunctional Coordination			
11	In our company, we have interdepartmental meetings at least once a quarter to discuss market trends and developments.	2.87	1.276
12	Marketing personnel in our company spend time discussing customers future needs with other functional departments.	2.58	1.149
13	Data on customer satisfaction are disseminated at all levels in this company on a regular basis.	2.76	1.281
14	When one department finds out something important about competitors, it is slow to alert other departments.	2.77	1.248
15	If anything important happens to a major customer or market, the whole company knows about it in a short period.	2.82	1.159
Intelligence/Information Responsiveness or Taking Action			
16	It takes us forever to decide how to respond to our competitors' price changes.	2.90	1.155
17	We periodically review our product development efforts to ensure that they are in line with what customers want.	3.12	1.072
18	For one reason or another we tend to ignore changes in our customers' product or service needs.	2.65	1.095
19	When we find that customers would like us to modify a product, the departments involved make concerted efforts to do so.	3.35	.934
20	The activities of the different departments in this company are well coordinated.	3.02	1.221
21	Customers complaints fall on deaf ears in this company.	2.90	1.155
22	Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.	2.31	1.176
23	If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.	2.61	.98983
24	Several departments get together periodically to plan a response to changes taking place in our business environment.	2.82	1.115

The questions in the category of Intelligence/Information Responsiveness or Taking Action were designed to measure response design concerning: Developing and designing product and services and also response implementation about: Implementing designed plans and altering products and services. Results of Questions 17 (=3.1 from 5), 19 (=3.3 from 5) and 20 (=3.02 from 5) indicate departments have a system that allows them a few developing, designing, implementing, and altering products and services in response to customers' current and future needs.

Table 2. Descriptive Characteristics of Elements of Dependent and Independent Variables

1	Customer Emphasis (from 20)	15.9	3.3	12
2	Intelligence/Information Generation (from 30)	18.9	5.7	22
3	Intelligence/ Dissemination/Interfunctional Coordination (from 25)	13.3	4.3	20
4	Intelligence/Information Responsiveness or Taking Action (from 45)	26.3	3.9	17
5	Shared Mission/Vision (from 20)	16.3	3.1	12
6	Organizational Culture (from 20)	16.11	3.7	12
7	Team Work and Team Learning (from 20)	14.7	4.1	14
8	Sharing of Knowledge (from 20)	15.2	4.4	16
9	Systems Thinking (from 20)	13.2	5.2	18
10	Leadership (from 25)	17.1	5.4	19
11	Employee Skills and Competencies (from 30)	23.2	5.2	18

4. 3. Organization Learning

The questions in the category of Shared Mission and Vision were designed to measure the effective deployment of the organization's mission and vision. The questions demonstrate an overall awareness of organizational mission and vision and their alignment with unit and personal goals. (16.3 From 20) and above difference among departments (Range = 12) (see table 3) Questions 1, 4, and the overall category score also demonstrated statistically more mean that accredited departments provide opportunities for self-assessment with respect to goal attainment and have the organization's vision statement that identifies values to which all employees must conform. (see table 3)

The questions in the category of Organizational Culture were designed to determine the organization's openness to new ideas and measure the organization's eagerness to promote innovation, experimentation and creativity among their employees.

The questions demonstrated an overall tend to organization leaning. (16.1 from 20) (Table 3). Results of means of questions 5, 6 and 8 indicate departments encourage employees to question the status quo and welcome new ideas. (=4.5, =4.03 and= 4 from 5 respectively)

The questions in the category of Team Work and Team Learning were designed to determine the organization's utilization of teams and team development strategies. The questions demonstrate a little attention to Team Work and Team Learning (14.7 from 20) Results of means of questions 9, 11 indicate departments do not to promote overlap and interaction between units and also don not encourage training within work teams and establish problem solving groups in agricultural higher education. Also, Results of Questions 14 (=4 from 5) and 15 (=3.9 from 5) indicate departments have a system that allows them shared New work processes with all employees and have an opportunity to talk to other staff about successful programs or work activities in order to understand why they succeed . The questions in the category of Systems Thinking were designed to uncover the respondents' appraisals of the organizational environment as related to an individual awareness beyond his or her own job functional area, problem solving, and use of reflection to review action outcomes. The questions demonstrate an low level of Systems Thinking (13.2 from 20) among departments. Questions 17, 18,19 and 20, along with the overall category score, demonstrated that an individual awareness beyond his or her own job functional area, problem solving, and use of reflection to review action outcomes is a mean(= 3.5)

The questions in the category of leadership were designed to determine the presence and effectiveness of leadership and managerial practices that foster organizational learning. Results showed that there is a mean in all items relate to leadership. (Mean =3.2 -3.8). Range(R=19) demonstrated deference among answers is too much.

The questions in the category of Employee Skills and Capabilities were designed to determine the organizational training philosophy and individual skill development and utilization within the organization Results of means of

questions 25, 28 and 31 indicate departments encourage employees to to determine the organizational training philosophy and individual skill development and utilization within the organization(see table 2).

Table 3: Organizational Learning in Agricultural Higher Education Departments

Items	Mean	SD
Shared Mission/Vision		
We encourage customer comments and complaints because they help us to do a better job.	.88734	.88734
2- There is widespread support and acceptance for the organization's vision statement.	4.2093	1.03643
3- Managers and employees in this organization share a common vision of what our work should accomplish	3.6977	1.47252
4- We have opportunities for self-assessment with respect to goal attainment	4.1395	1.14604
Organizational Culture		
5- I can often bring new ideas into the organization	4.5000	.81650
6- From my experience, people who are new to this organization are encouraged to question the way things are done.	4.0952	1.18547
7- Innovative ideas that work are often rewarded by leadership.	3.7381	1.39790
8- In my experience, new ideas from staff are welcomed by management	4.0000	1.29099
Team Work and Team Learning		
9- Current organizational practice encourages employees to solve problems together before discussing it with a supervisor	3.8837	1.33112
10- Most problem solving groups in this organization feature employees from a variety of functional areas or divisions	3.6279	1.51222
11- There is much overlap in work between different units in the organization.	3.8810	1.23372
12- Training in this organization is done in work teams.	3.7073	1.48734
13- I have opportunities to share my knowledge and skills learned from training with other employees.	3.6098	1.37619
14- I often have an opportunity to talk to other staff about successful programs or work activities in order to understand why they succeed.	4.0488	1.24401
15- New work processes that may be useful to the organization as a whole are usually shared with all employees.	3.9756	1.29398
16- We have a system that allows us to learn successful practices from other organizations	3.6341	1.49593

Table 3: Organizational Learning in Agricultural Higher Education Departments

Systems Thinking		
17- We problem solve by not only identifying the solution, but by identifying what led to the problem and how it can be prevented.	3.5476	1.45170
18- Individuals and teams are encouraged to reflect on actions which led to successes or failures.	3.5952	1.44930
19- Employees are informed of how their role contributes to the overall organizational process.	3.6190	1.36064
20- Employees are encouraged to understand the perspectives of people in other positions.	3.619	1.2088
Leadership		
21- Leaders in this organization are open to change and new ideas.	3.5714	1.29054
22- Leaders in this organization frequently involve employees in important decisions.	3.8095	1.34777
23- Leaders in this organization can accept criticism without becoming overly defensive.	3.3810	1.54529
24- Leaders in this organization often provide feedback that helps to identify potential problems and opportunities.	3.24	1.495
Employee Skills and Competencies		
25- Management skills such as leadership, coaching and team building are emphasized as much as purely technical work skills in this organization.	4.6429	.88893
26- I have opportunities to work on challenging assignments.	3.429	1.4167
27- My work makes full use of my skills and abilities.	3.8500	1.14466
28- I have opportunities to improve my knowledge, skills and abilities in order to undertake new work assignments.	4.1951	1.00547
29- The skill training I receive can be applied to improve my work immediately.	3.9756	1.29398
30 -Employee training is emphasized equally at all levels in this organization.	3.7143	1.33043
31- Employees in this organization are required to continuously upgrade and increase their knowledge and educational level.	4.7222	.84890

4.4. Canonical Correlation

Since in this research there are four dependent variables and six independent variables used of canonical correlation. The table 4 below provides alternative tests of significance. The usual one is Wilkes's lambda, which tests

the significance of the first canonical correlation that $p < .05$, ($=.035$), thus the two sets of variables are significantly associated by canonical correlation.

Table 4: Multivariate Tests of Significance

Test Name	Value	Approx.f	Hypoth.DF	Error DF	Sing. Of F
Pillais	.999	.666	28.00	56.00	.058
Hotel lings	2.16	.73	28.00	38.00	.000
Wilkes	.243	.70	28.00	41.08	.035
Roy's	.6234				

The ratio of the eigenvalues is the ratio of explanatory importance of the four canonical correlations (labeled "roots") which are extracted for these data. As usual the first canonical correlation is far more important than the others. For these data, however, for the first canonical correlation the "covariate" canonical variable explains only about 62% ($.79 \times .79$) of the variance in the "dependent" (market oriented) canonical variable. (See table 5)

Table 5: Eigenvalues and Canonical Correlations

Root o.	Eigenvalue	Pct.	Cum.Pct	Canon Cor.	Sq.Cor
1	1.65	76.48	76.48	.79	.62
2	.42	19.81	96.29	.54	.3
3	.062	2.88	99.17	.24	.059
4	.018	.82	100.00	.13	.017

The canonical coefficients are used to assess the relative importance of individual variables' contributions to a given canonical correlation. Here, the "dependent" canonical variable in the first Standardized canonical correlation is most related to Customer Emphasis (positively) and Intelligence/Information Generation (negatively). The second, third and four canonical correlations is not significant and should be ignored (See table .6)

$$W1 = .49X1 - 1.06X2 + .41X3 - .04X4 \quad (1)$$

A similar table for the independent canonical variables is also output by spss output that is reproduced here Table 7, the "independent" canonical variable

Table 6: Raw Canonical Coefficients for DEPENDENT Variables Function No.

Variable	W1	W2	W3	W4
Customer Emphasis	.49	.003	.009	-.02
Intelligence/Information Generation	-.106	.199	.114	-.19
Intelligence/ Dissemination/Interfunctional Coordination	.41	-.23	-.055	.18
Intelligence/Information Responsiveness or Taking Action	-.004	.006	-.057	-.12

in the first canonical correlation is most related to Employee Skills & Capabilities (negatively) and Systems Thinking (positively). For the second canonical correlation, the "independent" canonical variable is most related (negatively) to Sharing of knowledge and (positively) Team Work & Team Learning. (see table 7)

$$V1 = .104Y1 - .771Y2 + .325Y3 + -.839Y4 + 1.285Y5 - .138Y6 - .911Y7 \quad (2)$$

Table 7: Raw Canonical Coefficients for Covariate Function No

Variable	V1	V2	V3	V4
Shared Mission and Vision	.31	-.14	.25	-.054
Organizational Culture	-.18	-.062	-.33	.029
Team Work and Team Learning	.018	.029	.03	.14
Systems Thinking	-.046	-.036	-.047	-.10
Leadership	.29	-.107	-.02	.018
Employee Skills and Capabilities	-.010	.012	.06	.030

Equation (1) gives the new variable W1 which is linear combinations of the X (dependent) variables and Equation (2) also gives the new variable V1 which is linear combinations of the Y (Independent) variables. C1 as the correlation between W & V is .62(62%) in this research.

5. Conclusion

The analyses conducted in this study indicate that customer emphasis, intelligence generation, responsiveness (positively) and intelligence dissemination (negatively) as the criterion variables were the four dimensions of market orientation of departments in agricultural higher education that more influenced in formatting the first canonical variety. Similarly, based on the

analyses conducted in regard to elements of organization learning as the predictor variables indicate that Shared Mission, Systems Thinking and Team Work and Team (positively) and leadership, Employee Skills and Capabilities, Sharing of Knowledge and Organizational Culture (negatively) are more influential in forming the canonical variable respectively. Since, the value of the first canonical correlation is .79 of the variance in the dependent canonical variable; the independent canonical variable predicates only 47% of variance in the individual original dependent variables. ($C=47\%$), that confirms the hypothesis that Higher level of learning orientation leads to a higher level market orientation. The findings from this study support the proposition by Slater and Narver (1995, p. 67) that a market orientation is the principal cultural foundation of the learning organization, and provide strong evidence that a learning orientation is based in a market orientation. The findings also support the proposition by Baker and Sinkula (1999) that a market orientation provides grounding for learning orientation. The positive correlation between the criterion variables and $W1$ (Eq (1)) and between the predictor variables and $V1$ (Eq 3) suggest that the department of agricultural higher education with a higher Shared Mission, Systems Thinking and Team Work level usually more take into consideration customer emphasis, intelligence generation and responsiveness on the other hand are more tend to market orientation.

6. Implications

Subsequent to the conclusions, the following implications were proposed:

1. Customer emphasis, intelligence generation, responsiveness and intelligence dissemination as the four dimensions of market orientation of departments in agricultural higher education should be begin with identifying the critical skills in agricultural education system.
2. Colleges should be able to develop a team of employees with the combination of both market orientation and learning orientation; it would be in a stronger position to compete in a knowledge-based economy.
3. Agricultural colleges and universities must serve students and act as a judge of the student's academic performance and standards, the market oriented approach does not mean a trade-off of academic rigor for student satisfaction. However, for agricultural colleges it will require a major shift in management and academic staff focus and practice.

4. Agricultural higher education must actively support systems thinking by promoting the use of cross-functional problem solving teams, who seek the root cause of problems and not simply a solution.

5. Agricultural higher educational departments must have a clear mission and vision, which focused on the delivery of education to a specific groups or serving a specific public sector for customer emphasis as element of market orientation in agricultural departments.

6. The development of leadership and teamwork capacities and strategies for empowering staff and capturing learning at faculty level are essential if organizational learning is to occur. Leadership must play a facilitating role in the establishment and support of links across the university and outside the university

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