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The impact of organizational learning on corporate sustainability and strategy formulation with the moderating effect of industry type

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Abstract

While numerous previous research studies focused on topics on organizational learning and corporate sustainability as separate areas of interest, there is a lack of literature investigating the interrelationships between these two subjects so far especially in Turkish context. Understanding the link between these two concepts is vital to answer the question of how organizations can benefit from organizational learning in their efforts toward sustainable development as a part of the corporate strategy. This study investigates the relationships between organizational learning (OL) and corporate environmentalism (CE) from the perspective of organizational members in business companies in Turkish context. We found that learning stocks and learning flows both had a positive impact on environmental orientation in Turkish corporate setting. However, neither of the organizational learning dimensions, i.e. learning stocks and learning flows, was found to have a significant relationship with environmental strategy focus.

Keywords: Organizational learning; learning stocks; learning flows; corporate environmentalism; sustainability; sustainable development; environmental strategies

1. Introduction

There is a growing concern about the environment in all parts of the global society. Academicians and practitioners of management have long suggested that businesses be aware of the ecological and social impacts of their business activities while maintaining their profitability. This requires on the part of the
business organizations a transition from the traditional business strategies where the ecological considerations have little part (if at all) to a strategy making in which people, planet, and profits are considered appropriately. Obviously, the most important tool with which organizations attempt to achieve this transition is organizational learning structures and processes. The purpose of this research is to study how OL impacts the awareness of organizations towards sustainability and the extent to which organizations involve sustainability into their strategy formulation.

2. Problem Statement

In the path to a sustainable world, corporations have both an important responsibility and resources to take necessary actions (Shrivastava, 1995; Baumgartner, 2009). Most of the times businesses do not integrate greening with their strategies (Hart, 1997), and do not link environmental and social aspects to the financial success (Figge et al., 2002). Although there is a huge potential for companies to take advantage of environmental opportunities, such as cost savings and revenue growth, most companies do not have a vision and road map to sustainability (Hart, 1997). There is a lack of empirical studies proposing a strong linkage between organizational learning (OL) and corporate environmentalism (CE) in the literature. Understanding the dynamics of these concepts and their interaction can provide valuable insights to guide managers of organizations and researchers in their endeavor to find creative solutions to sustainable development.

3. Organizational Learning

According to Argyris & Schon (1978) organizations learn through their individual members’ actions and experiences. However, only some of the organizations make deliberate attempts towards organizational learning to achieve their goals, while the rest of them, those that do not have proper organizational learning systems, may acquire counterproductive behaviors (Kim, 1993). Huber (1991) sees OL as an information processing activity by which an organization enlarges its portfolio of potential behaviors. Dodgson (1993) takes an outcome oriented view of OL and describes it as a means to increase the efficiency of the organization by acquiring and organizing knowledge to increase the skills of its organizational members. Levitt & March (1988) defines OL as a process rather than an outcome, and defines it as a process in which organizations draw lessons from history, interpret and put them into organizational routines.

Crossan et al (1999) see OL as a way to attain strategic renewal in the organization. Their OL model views the organization as an open system and takes the tension between exploration and exploitation as the central theme. Called 4I framework, this model views OL as occurring at a multilevel structure from individual, to group, and finally to the organization level. These levels are bound together by intuitions, interpreting, integrating, and institutionalizing processes, and also by feed-forward and feed-back learning flows.

4. Corporate Environmentalism

Business organizations have reached a point at which they will either start including the natural environmental into their strategies, or, they will face to be blamed by the public for contributing towards the environmental problems (Sandhu, 2010). Banerjee (2001) points out that the external environment of
the business is changing due to increased regulations, public environmental policies, growing public awareness on environmental issues, pro-environmental consumer behaviors, and environmental management norms and standards of the industry. As a result of this change, there is an emerging trend among business firms, called corporate environmentalism, to address environmental concerns and take environmental challenges into their strategy formulation. Business firms must take into consideration the environmental concerns of its diverse stakeholders and convert them into strategic actions which consequently would improve its environmental performance and its relation with the key stakeholders (Banerjee, 2002).

According to Banerjee (2002) corporate environmentalism can provide the business firms competitive advantage by providing strategic capabilities such as continuous innovation, lower costs of compliance, and higher-order learning. Banerjee defines corporate environmentalism as “the organization-wide recognition of the legitimacy and importance of the biophysical environment in the formulation of organization strategy, and the integration of environmental issues into the strategic planning process” (p. 181).

5. The Link Between Organizational Learning (OL) and Corporate Environmentalism (CE)

According to Senge et al. (1999) organizational learning is the pathway to sustainable development. The authors state that “In the end, sustainable development can’t be achieved without innovation, and innovation is best achieved in a culture that embraces and fosters learning and change” (p.535). Molnar & Mulvihill (2003) propose that both concepts involve a revision of mental models, change of status quo, and questioning of the basic assumptions and objectives of the business. For an organization, the transition towards sustainability requires a cultural change in the form of new shared values, norms, and processes, procedures, and attitudes, and a strategic renewal in which the organization integrates the three dimensions of people, planet, and profit in its strategy making. OL is the necessary concept to understand this transition process (Cramer, 2005).

6. Research Questions

The study investigates the following research questions:

- What is the relationship between the knowledge stocks at the individual, group, and organization level and feed-forward and feed-back knowledge flows (Crossan et al., 1999) of an organization’s learning system and the corporate environmentalism dimensions, which are the company’s orientation towards the environment, and the company’s tendency to integrate environmental issues into its strategic planning process, as defined by Banerjee (2002)?
- Does length of work experience has any effect on the learning stocks and learning flows?
- Are such relationships moderated by the industry type - high or moderate environmental impact sector (Banerjee et al., 2003)?

In order to answer these research questions, the following hypotheses were tested:

H1-a: There is a positive relationship with the length of work experience of organizational members and their perception of organizational learning flows in an organization.
H1-b: There is a positive relationship with the length of work experience of organizational members and their perception of organizational learning stocks in an organization.

H2: Learning flows in an organization will be positively related to learning stocks in the organization.

H3: Learning stocks in an organization will be positively related to the organization’s environmental orientation. The higher the learning stocks, the higher the environmental orientation.

H4: Learning stocks in an organization will be positively related to the organization’s environmental strategy focus. The higher the learning stocks, the higher the strategy focus.

H5: Learning flows in an organization will be positively related to the organization’s environmental orientation. The higher the learning flows, the higher the environmental orientation.

H6: Learning flows in an organization will be positively related to the organization’s environmental strategy focus. The higher the learning flows, the higher the environmental strategy focus.

H7: Environmental orientation will be positively related to the organization’s environmental strategy focus in an organization. The higher the environmental orientation, the higher the environmental strategy focus.

H8 (a through h): Industry type will moderate the relationships hypothesized in H1 through H7.

7. Methodology

This study utilized a quantitative method and a survey using self-administered questionnaires. Data was collected using an online questionnaire. Structural equation modeling (SEM) was utilized to analyze the degree of correlation between learning stocks and flows and the dimensions of corporate environmentalism in organizations. Target sample consisted of the professional employees and managers working in private sector companies in Turkey.

7.1. Description of the Sample

The target population is the professional organizational members working in private sector companies in Turkey. The resulting sample consisted of a wide range of industries including healthcare, banking, chemicals, glass, ceramics, battery, logistics, electronics, consumer goods, sales & marketing, etc. This study groups industries into two broad categories according to their impact on the natural environment: 1) low-to-moderate impact industries, 2) high impact industries (Banerjee et al., 2003). Hence, the resulting sample was divided into groups based on this dichotomy. The unit of analysis in this research was individual employees and managers working in business firms operating in Turkey. A total of 787 valid responses were collected.

7.2. Measurement Instruments

7.2.1. Measuring Organizational Learning

This study used the Strategic Learning Assessment Map (SLAM) (Bontis, Crossan & Hulland; 2002) to measure organizational learning (OL). SLAM framework contains two main categories; i) learning stocks, and ii) learning flows. Learning stocks include three levels -individual, group, and organization, and learning flows comprise of two flows – feed-forward learning flow, and feed-back learning flows (Bontis et al., 2002). This study used the 50 items in five sub-constructs (10 items per sub-construct) as confirmed by Crossan & Hulland (1997).
7.2.2. Measuring Corporate Environmentalism

This study used the corporate environmentalism construct developed by Banerjee (2002) to measure corporate environmentalism dimensions. Corporate environmentalism was measured on two dimensions; i) corporate environmental orientation, and ii) environmental strategy focus. Environmental orientation dimension comprises of two sub-dimensions – internal environmental orientation dimension with 4 items, and external environmental orientation dimension with 4 items. Environmental strategy focus scale also contains two subscales – corporate strategy focus, and business/functional strategy focus. Corporate strategy focus subscale contains 5 items, and business / functional strategy focus contains 3 items.

7.3. Data Analysis

This study uses structural equation modeling (SEM) to analyze the relationships between the dimensions of OL and dimensions of CE. The four constructs (learning stocks, learning flows, environmental orientation, and environmental strategy focus) were taken as latent variables, and nine sub-constructs (three learning stocks, two learning flows, two environmental orientations, and two strategy focus) were regarded as observed variables. Independent variables in this study were length of work experience, learning stocks, and learning flows, and dependent variables were environmental orientation and environmental strategy focus. The industry type variable was taken as the moderating variable to test the relationship between OL and CE for two different industry types, i.e. low-to-moderate impact and high-impact industries. This study first conducted CFA on each sub-construct. In the second stage, model fit evaluation was conducted on the measurement models. Structural model was constructed after assessing the measurement models. Moderating effect of the industry type is tested after assessing the structural model.

7.4. Outlier, Missing Data, and Normality Tests

Following Hair et al.(2010), cases which had Z-values larger than 3.0 and Mahalanobis D-square values larger than 107.26 were identified as possible outliers and eliminated (Chi-square (66) = 107.26, P=0.001). The online questionnaire instrument employed in this study to collect the responses from the participants did not allow any questionnaire with missing to be returned to the questionnaire database. Hence, missing data was not a concern in this research. All skewness coefficients of the variables in this study were between -0.902 and 0.590, while all kurtosis coefficients were between -1.207 and 0.513. Therefore, the results indicate that normality conditions were satisfied for the measured variables in this study.

7.5. Assessment of Measurement Models

7.5.1. Assessment of the learning stocks construct

Learning stocks construct contains individual-, group-, and organizational-level learning stocks sub-dimensions. Cronbach’s alpha coefficients for the overall learning stocks construct (0.943), and for the sub-dimensions (0.943, 0.934, and 0.966 respectively) confirmed acceptable internal consistency. CFA analysis did not indicate acceptable model fit ($\chi^2$=2009 (df = 402, p=0.000), $\chi^2$/df=4.998, GFI = 0.826, TLI= 0.910, CFI= 0.917, RMSEA= 0.077).
To improve model fit, measured items which indicated high modification index were dropped from the model one at a time until a sufficient level of model fit was achieved. Employing the methodology explained above, 4 items from individual learning stocks, 3 items from group learning stocks, and 5 items from organizational learning stocks were eliminated from the measurement model.

7.5.2. Assessment of the learning flows construct

Learning flows construct contains two sub-dimensions: feed-back learning flows, and feed-forward learning flows. Thus, there are two sub-constructs to be analyzed to assess the overall learning flows construct. Cronbach’s alpha values found for the overall construct (0.955), and for the sub-dimensions (0.947, and 0.890 respectively) indicated acceptable internal consistency. CFA analysis did not show an acceptable model fit ($\chi^2=888$ (df = 169, $p=0.000$), $\chi^2$/df=5.254, GFI = 0.881, TLI= 0.929, CFI= 0.937, RMSEA= 0.079). Thus, items associated with large modification indexes were removed one at a time until a satisfactory model fit. Overall, 3 items from the feed-forward flow, and 4 items from the feed-back learning flow were removed.

7.5.3. Assessment of the environmental orientation construct

The environmental orientation dimension comprised of two sub-dimensions – internal environmental orientation, and external environmental orientation. The following Cronbach’s alpha coefficients were achieved for the constructs: 0.796 for the overall environmental orientation construct, 0.963 for internal environmental orientation, and 0.160 for external environmental orientation. Omission of two items from the external environmental orientation sub-scale resulted in a Cronbach’s alpha value of 0.796 for external environmental orientation, and 0.947 for the overall environmental orientation construct. The initial CFA analysis did not indicate acceptable model fit: $\chi^2=150.583$ (df =8, $p=0.000$), $\chi^2$/df=18.82, GFI = 0.930, TLI= 0.943, CFI= 0.969, RMSEA= 0.162. Thus, to improve the model fit items associated with large modification indexes were removed one at a time until a satisfactory model fit. Overall, 2 items from the internal environmental orientation were removed.

7.5.4. Assessment of the environmental strategy focus construct

The environmental strategy focus construct contains two sub-scales: i) corporate strategy focus, ii) business/functional strategy focus. The following Cronbach’s alpha coefficients were achieved for the constructs: 0.971 for the overall strategy focus construct, 0.964 for corporate strategy focus, and 0.955 for business/functional strategy focus. The initial CFA analysis did not indicate an acceptable model fit: $\chi^2=150.809$ (df = 19, $p=0.000$), $\chi^2$/df=7.937, GFI = 0.947, TLI= 0.974, CFI= 0.982, RMSEA= 0.101. Thus, items associated with large modification indexes were removed one at a time until a satisfactory model fit. Overall, 1 item from the corporate strategy focus, and 1 item from business/functional strategy focus were removed. As shown in Table 1, all the constructs and sub-constructs in the re-specified models of learning stocks, learning flows, environmental orientation, and strategy focus have sufficient levels of construct validity and reliability.
Table 1. Model Fit Indexes and Cronbach’s Alpha Coefficients of the Measurement Models

| Model                        | χ²    | df  | χ²/df | P    | CFI  | GFI  | TLI  | RMSEA | Cronbach’s alpha |
|------------------------------|-------|-----|-------|------|------|------|------|-------|-----------------|
| Learning stocks              | 377.339 | 132 | 2.859 | 0.000 | 0.975 | 0.944 | 0.971 | 0.052 | 0.98            |
| Learning flows               | 176.431 | 64  | 2.757 | 0.000 | 0.980 | 0.961 | 0.976 | 0.051 | 0.96            |
| Environmental orientation    | 1.590  | 1   | 1.590 | 0.207 | 1.000 | 0.999 | 0.998 | 0.029 | 0.94            |
| Strategy focus               | 21.848 | 8   | 2.731 | 0.005 | 0.997 | 0.990 | 0.995 | 0.005 | 0.97            |

7.6. Assessment of the Structural Model

This study used item parceling technique in developing the structural model. Item parcels were constructed by summing up the scores of the individual items in each measurement model. These parcels, then, were used as manifest indicators to build the SEM models. Figure 1 shows the hypothesized structural model with four constructs. Path analysis on the structural model is conducted using AMOS 21.0. The resulting fit indexes for the structural model did not indicate acceptable fit because of a RMSEA value greater than 0.8 (Chi-square=13.204, df=2, p=0.001, CFI=0.995, GFI=0.992, TLI=0.976, RMSEA=0.091). Analysis of the regression weights of the paths in the model revealed that some of the paths were not statistically significant at p=0.05 (Table 10). These paths were removed from the model one by one since dropping one parameter could significantly affect the whole model. The resulting model after the elimination of the insignificant path shows acceptable model fit as shown in Fig 1.

Figure 1. Resulting structural model.

7.7. Assessment of the Moderating Effect of Industry Type

This study tested the moderating effect of the industry type on each of the paths in the resulting structural model using the dichotomy proposed by Banerjee et al. (2003), i.e. high environmental impact industries, and low-to-moderate environmental impact industries. The sample was divided into two
according to the type of industries that the respondents in the sample are employed in. This classification resulted in a two-group model: i) high-impact industries, and ii) low-to-moderate impact industries. A multi-group analysis was conducted using AMOS 21.0, and a chi-square difference test in Excel was employed to test whether there was any significant difference between these two groups regarding the relationships among the major constructs of the structural model. Individual paths in the model were tested to analyze whether the industry type has a moderating effect on them. Results indicate that industry type did not have a moderating effect over the hypothesized relationships in the structural model.

8. Results And Findings

The results indicate that total work experience is positively related to learning. Learning flows has a significant positive relationship with both learning stocks and environmental orientation. Learning stocks also positively influence environmental orientation. Environmental orientation has a significant positive relationship with strategy focus. The length of experience only moderately affects the learning flows, but does not have any impact on learning stocks. Learning flows strongly affects learning stocks. Learning stocks and learning flows both positively affect environmental orientation, but there is no relationship with any of the organizational learning dimensions and strategy focus. Moreover, environmental orientation strongly influences environmental strategy focus. In addition, it was found that industry type did not moderate any of the relationships hypothesized in the model.

Results indicate that organizational participants perceive a strong link between organizational learning (OL) and the level of importance given to the natural environment by organization members, and the way they perceive the relationship between what their companies do as a business firm and the condition of the natural environment. According to the results, OL did now show a positive influence on environmental strategy focus in Turkish context. However, the strong relationship found between organizational learning and environmental orientation, and environmental orientation and environmental strategy focus may indicate that organizational learning affects environmental stance of the companies via environmental awareness of individual organizational participants and the degree of consciousness of managers toward the interests of environmental stakeholders in Turkish corporate setting. In addition, organizational members’ total work experience has a positive influence on the learning flows, which in turn affect the learning stocks in organizations in Turkish context. Moreover, the study did not confirm a moderation effect of industry type on the relationship between OL and CE in Turkish context. This may indicate that Turkish companies mostly assumed a reactive rather than a proactive approach towards the environmental concern.

9. Conclusions

This study’s findings indicate that the professional organizational participants in Turkish business setting perceive a positive relationship between the level of learning stocks and flows in their companies and the extent to which their companies are concerned about the environmental matters. Individual organizational participants’ insights, ideas, and concerns for the natural environment are turned into shared understanding through feed-forward learning mechanism in Turkish business organizations. What institutionalized as organizational norms, rules, and policies toward the natural environment affects, through feed-back learning mechanism, individuals and groups in their daily work, and help adopt organizational and individual behaviors that are less environmentally damaging in Turkish business
setting. As the level of learning stocks and flows increase in Turkish business organizations, they become more sensitive to the demands from the environmental stakeholders. The environmental learning process of the organization is successful if the organizational responses to environmental concerns become standardized through this institutionalizing process in Turkish companies.

This study found that organizational learning dimensions, i.e. learning stocks and learning flows, did not have a significant relationship with environmental strategy focus in Turkish context. In other words, professional organizational members in Turkish companies perceive that the level of learning stocks and flows in their organizations do not have any influence on their organizations’ environmental strategies. This result might suggest that Turkish companies have a reactive stance toward the environmental concerns rather than a proactive one. Results may indicate that most of the business organizations in Turkey do not perceive organizational learning as a tool that could facilitate generation of valuable organizational competencies which they can use in their dealing with environmental concerns to achieve a competitive advantage. Furthermore, it can be inferred that Turkish firms do not perceive an immediate need to shift from traditional pollution control strategies to pollution prevention strategies.

This study found a significant positive relationship between environmental orientation and environmental strategy focus. Environmental orientation is the necessary precondition for a strategic stance toward the environmental concerns, and environmental strategy focus represents the actual behavior and measures to prevent or reduce the environmental harm caused by business activities in Turkish business setting. The final results indicated that no relationship in the structural model was moderated by industry type in Turkish business setting. This might indicate that business organizations in Turkish setting in general are not willing to go beyond what is required by minimum environmental regulation and standards, and the level of environmental risks and uncertainty posed by environmental problems is currently not a strong driver for business companies in Turkey to shift into environmentally friendly strategies.

10. Recommendations

10.1. Recommendations for Corporate Management

This study emphasizes that organizational learning can be an important factor for business firms to improve their environmental performances. Managers should promote organizational learning efforts towards environmental concerns in order to create a shared understanding among employees on the link between the natural environment and the consequences of business activities of their companies. Top management’s leadership is crucial in providing necessary conditions in the organization that will motivate individuals to acquire and share knowledge and to use this knowledge to evaluate environmental risks and opportunities for the company. Thus, managers should design appropriate recognition and incentive systems to motivate employees into searching for environmentally-friendly behaviors and innovative solutions for the environmental problems that their companies face.

Managers need to look into future and anticipate more threats in the form of increasing costs of complying with the environmental regulations and cost of waste disposal, and more competitive advantage through product differentiation, capturing green markets, building a positive corporate image, and developing their innovation capabilities.
10.2. Recommendations for Future Research

Further empirical studies need to be conducted in other countries to study the effect of differences in national culture on this relationship. In addition, future research may investigate the relationship of other types of antecedents with corporate environmentalism. Especially, the effects of competitive advantage, leadership, and, public concern on CE may be investigated. Finally, more research on the relationship between firms’ level of corporate environmentalism and their financial well-being is needed in Turkish context.

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