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Abstract

Environment scanning is an information-rich activity which helps organizations to survive in a competitive business environment. The main objective of this study was to investigate perceptions of private education centres in Singapore of the importance of environment scanning for their business success, strategies used for gathering information about business factors, frequency of information collection, and processing and utilization of the gathered information. Data from 40 private education centres was collected through a questionnaire. It was found that most of the environment scanning activities were conducted regularly by the surveyed centres, except the step of information processing and distribution. Among various business factors, information about customers and immediate competitors were perceived to be more important than other factors. Based on the findings, it is suggested that organizations should use a variety of information sources to have a more comprehensive understanding of their business environments. They should also recruit adequately trained information professionals to systematically conduct environment scanning activities.

Keywords

Environment Scanning; Information Seeking; Information Sources; Scanning Difficulties; Education Centers; Singapore

1. Introduction

Environment scanning or environment intelligence is a process of gathering, processing and using business information for tactical and strategic decision making. Environment scanning is becoming necessary for all types of organizations because business environment is now becoming very complex, competitive and uncertain due to a multitude of factors. In addition, several business environment factors such as poltical, economical, social, technological, and government policies and regulations can influence a company's business. These environmental factors can either pose certain threats to the survivial of a company or offer opportunities to expand and remain profitable. For timely tactical and strategic decision making, companies need high quality, relevant, accurate, and up-to-date information, gathered through systematic environment scanning.

1.1. Scope and definition of environment scanning

Several overlapping definitions of environment scanning are available, emphasizing different aspects of this important business activity. According to Analoui and Karami (2002), environment scanning is the process of observing and assessing external and internal information, and disseminating the findings to relevant people in a company. Choo (2001) feels that environment scanning is a component of information behavior comprising three steps, namely information needs, information seeking, and information use. Albright (2004) considers environment scanning as a chain of activities including identifying, collecting, analyzing and interpreting external information.

1.2. Types of business environments

The business environment can be broadly categorized into two categories – domain or micro environment and general or macro environment. Domain environment includes those factors that can directly affect an organization's performance, namely competitors, buyers, suppliers and other competitive factors. On the other hand, general environmental factors are likely to affect an organization's performance indirectly and in the long-term and comprise an array of social, demographic, economic, technological, and legal factors (Stukalina, 2013).

Since many executives have limited time, they usually gather information about only those environment factors that they believe to have a direct and significant impact on their tactical and strategic decision making (Garg, Walters, & Priem, 2003). Ebrahimi (2000) claims that domain environment is more complicated and unstable than general environment and executives usually use this information for their planning and decision making. A study by Zhang, Majid and Foo (2012) also endorsed that domain information is more important than general environment.

1.3. Barrier to environment scanning

In spite of many advantages of environment scanning, several barriers can restrict organizations from achieving full benefits of this important activity. Okumus (2004) claims that lack of clear guidelines for analyzing and using the gathered intelligence is one of the major barriers. In many situations, managers might be confused when to analyze the influence of different external factors on their businesses. It is due to the fact that often it is difficult to determine whether task environment and general environment are related or isolated. For example, in some situations, any changes in the general environment may lead to changes in task factors. In contrast, the both set of factors could also be independent.

Another major barrier to environment scanning is the lack of desired information skills among the staff responsible for conducting different scanning activities. In the absence of these skills, it could be very challenging for them to gather quality, relevant, and accurate information and share it with relevant staff in the organization. Many big companies regularly undertake environment scanning activity; however, it is a challenging task for several small and medium enterprises (SMEs) due to limited resources. The management of many such companies may not be adequately exposed to the benefits of gathering business intelligence (Okumus, 2004).

1.5. Industry-specific environment scanning

Business complexity, intense competition, globalization and many other factors have enhanced the importance of environment scanning, thus motivating researchers to investigate its different

aspects. During the last one decade several studies have emerged on environment scanning practices of SMEs, hotel and tourism, travel, and manufacturing companies (Costa & Teare, 2000; Jogaratnam & Law, 2006; Zhang & Majid, 2010). However, relatively a small number of studies have explored the environment scanning practices of education institutions.

Doherty et al. (2012) investigated the higher education environment in Australasia by analyzing political, economic, social, and technology elements. Their study aimed to explore important challenges and provide strategic solutions to senior executives in higher education sector. Earlier, Thomas (2007) examined predominant components of external environment affecting business schools. Stukalina (2013) suggested some techniques that education planners and managers can use to stay connected with higher education environment.

In Singapore, some studies have investigated the environment scanning activities by SMEs, belonging to different industries (Majid & Kowtha, 2008 ; Zhang & Majid, 2010; Zhang, Majid, & Foo, 2012). Private education centers in Singapore play an important role in providing quality education to local and overseas students. However, there is no study investigating environment scanning activities of private education centers. Thus, the motivation of this research was to bridge this knowledge gap and investigate how private education centers collect and use environment intelligence for planning and decision making. The findings of this study are likely to be useful to the management of private education centers and academic program planners.

2. Method

A pre-tested questionnaire was used for data collection. The questionnaire was pre-tested on three graduate students who were working for different SMEs to assess usefulness of the questions, point out unnecessary use of jargon, and identify ambiguous questions. The survey instrument was reviewed and approved by the Institutional Review Board (IRB) of Nanyang Technological University, Singapore. The website of Singapore Ministry of Education (http://www.moe.gov.sg/education/private-education/school-list/) was used to collect information about private education centers in Singapore. The cover letter, accompanying the questionnaire, stressed that one of the senior managers of the respective education center, familiar with external business environment should fill the questionnaire. The data was collected during March/April 2014 and a total of 40 private education centres participated in this study.

3. Results and Discussion

Out of the 40 participating education centers, 55% were providing enrichment classes, 25% language courses and the remaining 20% were teaching other subjects. A majority (40%) of the centres have up to 10 staff while another 32.5% have 11-20 staff. Only 3 (7.5%) of the education centers were employing more than 50 staff. One-quarter of the centers were functioning for the last up to 5 years, 20% for 6-10 years, 40% for 11-20 years and the remaining 15% for more than 20 years. One-half of the respondents were holding top management positions such as principals, directors, and general managers. The percentage of respondents in senior management positions was 40% and the remaining 10% were managers, supervisors, and heads of departments.

3.1. Frequency of scanning activities

The questionnaire categorized the scanning process into six steps and presented these in a logical sequence. The respondents were asked to indicate the frequency of undertaking these six

scanning activities. A five-point scale was used where 1 represented 'never' while 5 represented 'always'. It was found that most of the scanning activities were undertaken at a moderate level with mean scores ranging from 3.46 to 3.85 (Table 1). Only one activity, i.e. information presentation in appropriate formats (M= 2.95) was undertaken less frequently.

Activities	N	Mean (1~5)	SD
Understand business information needs	40	3.63	1.00
Identify appropriate information sources	40	3.78	0.95
Select up-to-date, accurate and quality information	40	3.85	0.95
Assess, compare and summarize the gathered information	39	3.46	0.97
Present information to relevant staff in an appropriate format	39	2.95	1.15
Decide a strategy based on education/ business trends	40	3.70	1.08

Table 1: Frequency of scanning activities

3.2. Purpose of gathering business information
As shown in Table 2, private education centres often conducted scanning while considering reviewing their fee structures (M=3.83), and offering a new course (M=3.63). Exploring marketing strategies of competitors (M=3.56) and setting up new branch at another location (M=3.39) were also important purposes for gathering business information. Comparatively, the respondents were less interested in knowing whether any other center was considering opening a branch in their neighborhood (M=2.87).

Purposes	N	Mean (1~5)	SD
When reviewing our fee structure	36	3.83	0.94
When considering offering a new course	38	3.63	1.05
To understand marketing strategies of competitor centres	39	3.56	1.19
To open a new branch in another location	36	3.39	1.15
To find out if any other centre considering opening a branch in our vicinity	39	2.87	1.13

Table 2: Purposes of scanning activities

3.3. Difficulty level of scanning activities
The participating education centers were asked to indicate difficulties they face while conducting six environment scanning activities, where 1 represented 'very difficult and 5 'very easy'. As shown in Table 3, comparatively more difficult activities to undertake were collecting information from different sources (M=3.30), presenting information in an appropriate format (M=3.30), and identifying business information needs (M=3.15). However, mean scores for all activities occurred in a narrow range, indicating that education centers were facing a moderate level of difficulty in conducting these activities.

Activities	Mean (1~5)	SD
Identifying what business information we need to collect.	3.15	0.736
Collecting the needed information from different sources	3.33	0.730
Selecting up to date, accurate and quality information.	3.08	0.888
Assessing, summarizing and comparing the collected information.	3.13	0.791
Presenting information to decision makers in an appropriate format.	3.30	0.823
Deciding how to change the institutional strategies.	3.05	0.932

Table 3: Difficulty in conducting scanning activities (N=40)

3.4. Importance of environmental factors

The participating centers were asked to indicate the importance of various environmental factors in doing successful business, where 1 was 'least important' and 5 'very important' (Table 4). It was found that the customer factor was the most important (M=4.77), followed by economic trends in Singapore (M=3.95). Generally, all environmental factors were considered important by private education centers as their mean scores were above 3.50.

In order to compare the importance of task environment (i.e., customers, and competition from other education institutes) and general environment (i.e., economic, political, technology and demographic factors), their respective mean scores were merged. It was found that mean score of the task environment (M=4.263) was much higher than the general environment (3.744). A pair sample t-test showed a highly significant difference between perceived importance of task and general environment (Sig.= 0.00, <p=0.05). This means the information gathered from the task environment was considered more important than the general business environment.

Factors	Mean (1~5)	SD
Customers (e.g. the need of students, satisfaction of the parents)	4.77	0.423
Economic trends in Singapore (e.g. economic growth, inflation, labor cost, etc.)	3.95	1.037
Politics (e.g. government policy on education, government incentives, etc.)	3.78	1.143
Competition from other education institutes	3.75	1.080
Technology (e.g. new education technology, social networking tools, etc.)	3.70	1.043
Demographic data of Singapore (e.g. age, ethnic groups)	3.55	1.260

Table 4: Importance of environmental factors (N=40)

3.5. Scanning frequency of environmental factors

The respondents were asked about the scanning frequency of different environmental factors based on a five-point scale, ranging from 'never' (1) to 'always' (5). As shown in Table 5, information about customers was gathered most frequently (M=4.07). The respondents sometimes conducted scanning of factors related to technology, politics, and economic trends in Singapore, with mean scores of 3.30, 3.07 and 3.03 respectively. Demographic data of Singapore got the lowest scanning frequency (M=2.65).

Factors	Mean	SD
Customers (e.g. the need of students, satisfaction of the parents)	4.07	1.071
Technology (e.g. new education technology, social networking tools, etc.)	3.30	1.043
Politics (e.g. government policy on education, government incentives, etc.)	3.07	1.118
Economic trends in Singapore (e.g. economic growth, inflation, labor cost, etc.)	3.03	0.920
Competition from other education institutes	2.90	1.071
Demographic data of Singapore (e.g. age, ethnic groups)	2.65	1.027

Table 5: Scanning frequency of environmental factors

A further analysis to compare scanning frequencies of task and general environments showed that their combined mean scores were 3.488 and 3.013 respectively. The pair sample t-test showed a highly significant difference between scanning frequencies of task and general environments (Sig.=0.00 <p=0.05). This means the task environment was considered more important by the participating education centers and was most frequently scanned.

3.6. Use frequency of information sources
The respondents were asked to indicate how frequently they use different sources for seeking business information by using a five-point scale, ranging from 'never' (1) to 'frequently' (5). As shown in Table 6, the most important sources for business information were own students and their parents (M=4.08), followed by center's staff and instructors (M=3.54) and the web (M=3.49). In contrast, information was rarely collected from business analysts, government officers and education experts (M=2.69), and during education conferences (M=2.51).

Sources	Mean (1~5)	SD
Own students and their parents	4.08	1.036
Own administrative staff and instructors	3.54	1.166
World Wide Web	3.49	1.144
Internal reports	3.21	1.301
Managers, staff, students, and parents of competitors	3.18	1.333
Newspapers and magazines	3.15	1.014
Radio and television	2.82	1.211
Government reports and statistics on education	2.79	1.056
Business analysts, government officers, education experts, etc.	2.69	1.195
Education conferences	2.51	1.048

Table 6: Use frequency of information sources

Perceptions of participating centers were also sought regarding different information attributes such as reliability, availability, up-to-dateness, comprehensiveness and good quality. It was found that information gathered from own students/parents as well as from center's own staff obtained the highest scores for almost all attributes. Competitors' staff and students obtained high scores for availability, up-to-dateness and reliability attributes. On the contrary, radio, television, newspapers, and magazines were considered the most up-to-date sources but generally, they did not receive higher scores for other factors, meanings these sources were considered less useful for the purpose of environmental scanning.

4. Conclusion

Business environment is becoming very competitive, uncertain and unpredictable due to several factors. Small companies are particularly vulnerable to environmental changes as they have access to only limited resources. It is, therefore, desirable that all companies should stay connected with their business environment by gathering accurate, up-to-date and reliable information. The study revealed that education centers were conducting different environment scanning activities at a moderate level. Information from task environment was considered more important as it is can directly affect an organization's success and survivability. It is also desirable that companies should either recruit adequately information professionals or provide training to their existing staff to conduct environment scanning effectively.

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