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WHAT MATTERS BETWEEN THE BOARDROOM COMMUNICATION AND CORPORATE PERFORMANCE: EXAMINING THE ROLES OF CEO'S POWER AND BOARD MONITORING

Wijethilake C

Department of Management and Finance
Faculty of Management, Social Sciences & Humanities
General Sir John Kotelawala Defence University
Sri Lanka

Ekanayake A

Department of Business Finance
Faculty of Management
University of Peradeniya
Sri Lanka

Abstract

This paper examines the moderating effects of Chief Executive Officer (CEO) leadership and board monitoring on the relationship between board activities and firm performance. Results based on a sample collected from publicly-listed companies in the Colombo Stock Exchange in Sri Lanka show that frequency of board meetings exerts a positive effect on firm performance. Consistent with the proposition of agency theory, CEO's excessive leadership power shows a negative moderating effect, however, out of our prediction, CEO duality reveals a positive moderating effect, supporting the stewardship perspective. Moreover, board ownership plays a positive moderating role. The study contributes to corporate governance literature by examining CEO leadership and board monitoring as critical moderating factors and thus explicate the inconclusive relationship between board activities and firm performance. In doing so, our study enhances the understanding of managerial contexts where the power dynamics between the CEO

and board of directors in the Asian countries would be largely different from those in Western countries.

Keywords: *Corporate Governance, Agency Theory, Frequency of Board Meetings, Sri Lanka*

1. INTRODUCTION

Among the corporate governance monitoring instruments, frequency of board meetings, typically known as board activities, has received a significant attention in achieving corporate objectives. The two major players involved in the determination of board activities are Chief Executive Officer (CEO) and board of directors. Since the CEOs and executives have the dominant controlling power over corporate information (Nowark & McCabe, 2003), the CEO's power obviously influences the level of corporate activities (Rutherford & Buchholtz, 2007). By contrast, as a corporate governance controlling mechanism, board of directors suffers from lack of information in order to perform monitoring tasks (Walsh & Seward, 1990). Therefore, it is critical to reveal how agency abuses arise in boardroom activities as a consequence of the CEO's leadership power, and, on the other hand, how effectively governance mechanisms control and monitor the CEO's entrenchment in order to protect shareholders' interests.

Investigating the association between frequency of board meetings and firm performance has been an important theme in board governance research due to the scant attention that has been paid over the former. Particularly, only a limited effort has been made to find which factors would moderate this relationship. For instance, referring to board meeting transcripts, Tuggle, Sirmon, Christopher, and Bierman (2010) investigated board of directors' attention to monitoring, with the moderating effects of prior firm performance and CEO duality. Vafeas (1999) examined the association between frequency of board meetings and firm performance. Brunding and Nordqvist (2008) conducted a qualitative study examining the role of emotions in boardroom communications, while Johnson (2004), and Samra-Fresricks (2000) examined the impact of board meeting observations.

Our examination in this setting is expected to contribute in the following ways. Firstly, even though the directors' board meeting attendance is a well accepted governance best practice, it does not alone achieve the firm performance, but in most situations the CEO's and the directors' surrounding background and involvement determine the degree of effectiveness and efficiency of their contributions. For instance, prior studies have stressed the importance of examining the roles of directors' external board membership (Sonnenfeld, 2002). Secondly, the continuous inconsistent results generated by previous studies on the determination of frequency of board meetings and firm performance provides a rationale for this study. For example, Vafeas (1999) extended a research using 307 firms over a 5-year period and found that firms in which boards meet more frequently have less market value. However, firms' operating performance increased when prior year stock performance was included. Furthermore, examining the availability of board subcommittees, as a measure to analyse interaction of board activities, Rutherford and Buchholtz (2007) found a negative insignificant association between Return on Assets (ROA) and frequency of interaction. Jackling and Johl (2009) also concluded an opposite insignificant association for ROA and Tobin's Q on the relationship between frequency of board meetings and firm performance.

Thirdly, although the issue that information asymmetry between shareholders and management has been a well researched theme, demand for examining contextual relationships between the CEO and the board is still rising. For example, previous studies (e.g., Rutherford & Buchholtz, 2007) suggest that exploring directors' backgrounds and social ties in the context of board characteristics and board information would contribute to the corporate governance literature. Moreover, Rutherford and Buchholtz (2007) have elaborated the necessity of examining information asymmetry between the boards and the CEOs as they highlighted that "... future research could usefully examine the role that information plays in an agency relationship throughout organizations. For example, information asymmetries are likely to influence relations between shareholders and directors, boards and CEOs..." (p.583). Finally, prior researchers also proposed that "the evaluation of the number, length and the content of board meetings should be done to assure that the meeting structure supports board effectiveness and accountability" (Minichilli, Gabrielsson, & Huse, 2007: 617). Hence, the number

of board meeting provides a benchmark for evaluating corporate boards. Consequently, in identifying which characteristics of the CEO's leadership power determines the frequency of board meetings, and, on the other hand, which characteristics of boards' would mitigate the agency costs, we empirically tested the moderating effects of the CEO's leadership power and the board monitoring power on the relationship between frequency of board meetings and firm performance.

We recognized the CEO's dominant leadership power as an essential criterion to minimize board's effect on firm activities. The CEO's power and authority play a significant role in revealing factors that determine the relationship between boards activates and firm performance since the CEO almost constantly lays down the schedule for board meetings (Vafeas, 1999). For example, "...there are problems associated with receiving a subordinate's unbiased assessment of a CEOs' leadership in his or her presence at a board meeting" (Walsh & Seward, 1990: 425). Thus, Hambrick, Werder and Zajac (2008: 382) proposed that "one of the next frontiers for governance researchers is to generate theories and evidence regarding how power differentials within boardrooms affect board processes and outcomes". Brundin and Nordqvist (2008) identified the CEO's emotion as a power which could influence the board decision making through frequency of meetings. Furthermore, this study suggests the necessity of examining other power sources as "Future studies can compare the role of emotions in the process of boards that have different formal power structures" (Brundin and Nordqvist, 2008: 339). Thus, as per the agency theory, the higher the power the CEO possesses, the higher the ability of the CEO to control boardroom activities, in terms of personal achievements, which obviously impact on deciding the frequency of board routine activities.

Our arguments, as set forth above, leads us to employ CEO duality as a source of leadership power, given its core to assess the board leadership structure with reference to board activities in order to determine whether the chairperson utilizes the directors' assistance in accomplishing board tasks (Minichilli et al., 2007). Further, CEO's tenure was identified as a source of leadership power, due to the fact that the CEOs with longer tenure could influence in arranging the board meeting frequency. For example, Hill and Phan (1991) argued that CEOs with longer tenure

have the potential to get control over internal information system. Finally, we utilized the CEO's busyness as a source of leadership power because majority of previous researches (e.g., Ferris, Jagannathan & Pritchard, 2003; Fich & Shivdasani, 2006) on board busyness have only focused directors' external board membership, ignoring the important aspect of examining the effect of internal multiple board memberships. Moreover, no research has focused to analyse the influence of the CEO's multiple board membership in internal board committees and its consequences on the corporate performance. Moreover, inconsistent findings (Ferris et al., 2003; Fich & Shivdasani, 2006) on this setting led us to re-examine the effect.

As per a corporate governance mechanism, the fiduciary duty of the board is to monitor the management on behalf of the shareholders. Within that one foremost role of the board is to oversight the CEO's behaviour in order to mitigate agency abuses. However, the board's oversight impact on the CEO's entrenchment on the notion of 'board meetings' has not been well researched. For instance, prior research mentioned that "... we have not focused on the board's balance between being involved in the details and the task of a more general oversight of the CEO's work... we encourage future scholars to look more specifically into how boards deal with the issue of micro management versus delegation and board oversight" (Brundin & Nordqvist, 2008: 339). The first indicator we used in this regards was the proportion of outside board members in a board since research has established that the higher proportion of independent directors on a board facilitates to improve the boards' information quality and proactive information-seeking (Rutherford & Buchholtz, 2007). Moreover, independent outside directors have long been playing a prominent role against the dominant management behaviour, particularly in situations where CEO's power influences on corporate decisions (Minichilli et al., 2007). In addition, as a corporate governance mechanism to minimize management entrenchments, board directors who possess high ownership have the ability to reduce the agency cost (Tsai, Hung, Kuo, & Kuo, 2006). It is also obvious that board size has a greater influence to force the determination of the frequency of board activities.

This research extends multiple theoretical and empirical contributions to the corporate governance literature, illustrating the notions of agency theory, namely

agency problem and information asymmetry. First, we determined the relationship between frequency of board meetings and firm performance relationship, answering the inconsistent results produced by previous studies. Second, we addressed the research gaps on the information asymmetry between the CEO and board members, which arises as a result of the CEO's excessive power in determining board activities, and availability and usage of limited information for directors. Third, our particular approach resolved what factors would determine the influence of frequency of board meetings on firm performance. Forth, given the focus for the roles of the CEO's leadership power and boards' monitoring, as the responsible authorities in setting board activities, our study emphasized the importance of the governance applications. Last, we advanced the applicability of governance practices in the Asian context, identifying existing trends and addressing future outlooks. This is partly because, in the Asian driven studies, "While most leadership studies focus on supervisor-subordinate relationships only, the effect of CEO on firm behaviour is not yet well researched. The process by which the CEO affects firm performance has not yet been addressed in the literature" (Bruton& Lau, 2008: 654).

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1 Agency Theory and Information Asymmetry

Over the years, agency theory has been the dominant presumption to contribute corporate governance research, which explains the causes and consequences separating the corporate control from the ownership (Fama & Jensen, 1983). Accordingly, agency theory provides the fundamental theoretical principle which emphasizes the board of directors' involvements over corporate control, and more sophisticated, the theory highlights monitoring management interests on corporate functions would ultimately protect shareholders' interests (Dalton, Hitt, Certo, & Dalton, 2007; Fama, 1980; Shleifer & Vishny, 1997). As per the agency theory, the deviation of information distribution between principals and agents is defined as information asymmetry (Rutherford & Buchholtz, 2007). Furthermore, it has been well accepted that the higher level of power concentration with top corporate executives is an avenue for the information asymmetry; specifically with the

CEO's leadership power (Rutherford & Buchholtz, 2007). On the other hand, employing a strong corporate governance structure reduces the possibility for information asymmetry (Kanagaretnam, Lobo, & Whalen, 2007). This is because adopting an effective corporate board ensures the quantity and quality of corporate information by minimizing managerial opportunistic behaviour (Ajinky, Bhojraj, & Sengupta, 2005; Kanagaretnam, Lobo, & Whalen, 2007; Karamanou & Vafeas, 2005). However, achieving this objective is a challenge. For instance, "After reviewing the abilities of its top managers, the board must then assess how the amount and quality of the management's efforts may have led to the present organization situation. This is very difficult for a board to assess. The problem is one of asymmetry of information. The board simply has very little information about how the firms' managers behave" (Walsh & Seward, 1990: 425). This controversy creates a potential to investigate how information asymmetry occurs in boardroom communication and which mechanisms could be implemented in order to minimize such abuses.

2.2 Frequency of Board Meetings and Firm Performance

It has been widely recognized that the higher interaction between boards and top management is an effective way to reduce agency cost. For instance, Lipton and Lorsch (1992) proposed that boards that meet more frequently have the higher potential to act effectively and diligently in order to perform shareholders' interests. Examining the relationship between board activities and firm performance, Vafeas (1999) concluded that one of the ways of board reacting to poor corporate performance is to increase the frequency of board meetings, which in turn enhance corporate performance. Previous research also found that there is a relationship between frequency of board meetings and corporate fraud activities. Uzun, Szewczyk, and Varma (2004) empirically tested the association between board composition and corporate fraud activities, and found that fraud companies have fewer board meetings than non-fraud companies. In a recent study on the corporate governance for emerging economies, Jackling and Johl (2009) hypothesized that boards respond to poor performance by increasing the level of board activities, which in turn positively associates with corporate performance. However, on the other hand, research has also argued that frequency of board meetings is not an effective governance mechanism (Jensen, 2010). Moreover,

Vafeas (1999) found that firms in which boards are met more frequently have a less market value as a result of the increase of board activity that causes share prices to decline. Taken together, this study argues that firms in which boards meet more frequently have a higher potential to respond to corporate implications effectively and to upgrade firm performance. Thus, the following hypothesis is proposed.

***Hypothesis 1:** Frequency of board meetings has a positive impact on firm performance.*

2.3 Moderating Effect of CEO's Leadership Power

Previous scholars have confirmed the consequences of CEO's leadership power on board meetings as, "...emotions as power and status energizers worked against rather than for the CEO's ability to influence the outcome of later interactions involving the same board members" (Brundin & Nordqvist, 2008: 336). Similarly, with the agency perspective, the proportion between board's power and the CEO's power influences the capacity of boards to monitor the CEO's behaviour (Ocasio, 1994; Parrino, 1997). Thus, the more power the CEO achieves, the more the opportunities created to the CEO to influence board activities, and this lessens the board's ability to monitor over the CEO's function effectively. More precisely, no matter whether the CEOs are surrounded by excessive power, typically, corporate CEOs have incentives to keep directors away from monitoring functions (Tuggle et al., 2010). This is partly because;

Top managers are well aware of their precarious employment situation. Consistent with the evidence in the turnover literature, they know that they are at risk of being dismissed for suboptimal organizational performance, even if they did not contribute to the problem. Valuing their position, many executives work to ensure their own job security. Towards that end, they have no choice but tamper with the board's ability to monitor and control their performance (Walsh & Seward, 1990: 430-431).

2.3.1 CEO Duality and Frequency of Board Meetings

Holding CEO-Chairman positions by one person is identified as the CEO duality.

With the agency theoretical perspective, the board of directors prefers non-duality due to the fact that the CEO's capacity to govern both agenda and board meetings while positioning as the chair of the same board (Finkelstein & D'Aveni, 1994). Jensen (2010) argued that it is impossible for the CEO to perform chairman's tasks without personal obligation while the duality exists. This is because chairman's responsibilities towards the firm involved with conducting board meetings and supervising the process involves hiring, firing, and determining the CEO's compensation and so on (Beasley, 1996). Accordingly, the CEO's power involved with duality would essentially impact the determination of board activities (Ruigrok, Peak, & Keller, 2006). Previous researchers have also confirmed that the duality diminishes independent directors' willingness or ability to oversee the CEO's functions in board meetings (Vance, 1983; Westphal, 1998). Furthermore, there is also evidence to prove that the CEOs would utilize their leadership power as a director on the board to dominate the board meeting agenda (Lorsch & MacIver, 1989; Westphal, 1998). Tuggle et al., (2010) suggested that the presence of duality limits the board's attention to monitoring. Therefore, agency theoretical advocates propose that the CEO duality negatively moderates the relationship between frequency of board meeting and firm performance.

However, as per the opposite view proposed by the stewardship theory, which determines that the combination of CEO-chair positions would enhance firm performance, CEO duality is a good mechanism to utilize firm information in an efficient way since the CEO is well aware of firm activities. This characteristic is a solution in situations where information asymmetry occurs between the CEO and the chairman. Thus, integration of two positions would improve firm performance with the CEO's stewardship behaviour towards the corporate performance as proposed by stewardship proponents (Davis, Schoorman, & Donaldson, 1997; Donaldson & Davis, 1991). In sum, the following hypotheses are derived.

Hypothesis 2a: *With the agency perspective, CEO duality negatively moderates the relationship between frequency of board meetings and firm performance.*

Hypothesis 2b: *With the stewardship perspective, CEO duality positively moderates the relationship between frequency of board meeting and firm performance.*

2.3.2 CEO Tenure and Frequency of Board Meetings

It is obvious that the CEO's ability to acquire leadership power with a deep understanding and closer networking with the internal and external environments depends on the CEO tenure in a particular organization. Hence, the higher the CEO's power, together with experience, knowledge and networking the higher the possibility that the CEO makes decisions based on judgment rather than having comprehensive board meetings and discussions, which results in the decrease of board activities. Moreover, the length of the CEO's tenure could influence directors' recruitments, and thus it is more likely to build a close interrelationship with board members (Westphal & Zajac, 1995), as a consequence of which directors would over trust the CEO unconditionally (Shen, 2003). As a result, higher CEO's tenures can cause decline in board of directors' independent judgments (Hermalin & Weisback, 1998). Ryan and Wiggins (2004) found that as the CEO's tenure increases, CEO strengthens entrenchment, achieving dominant power over the board members. This power is also used to determine boards' compensation package and it discourages board members from inspecting the management. Therefore, the following hypothesis is predicted.

Hypothesis 3: CEO tenure will negatively moderate the relationship between frequency of board meetings and firm performance, with the negative relationship being stronger in firms with CEOs appointed with longer tenures.

2.3.3 CEO Busyness and Frequency of Board Meetings

The practice that holding multiple directorships by individual directors or CEOs, which is defined as the "busyness", has become a controversial issue in current corporate practices. In particular, even among the majority of directors themselves there are opposing views regarding the appointment of positions with a number of board directorships (Ferris et al., 2003). This is partly because the limited time available in extending the directors' professional capability in designing and resolving corporate strategic choices (Lipton & Lorsch, 1992). For instance, Sonnenfeld (2002) says, "Indeed, some WorldCom directors were on more than ten boards, so how well prepared could they be" (Sonnenfeld, 2002: 106). In particular, Beasley (1996) found that executives' multiple board memberships seem to support for corporate frauds.

The CEO, the central decision maker for a firm, holding a higher number of positions in a company could hinder the capacity available to concentrate on corporate central objectives. This could be due to the excessive power of CEOs to dominate board members through board activities and board meeting agenda. Hence, the greater the variety of positions the CEO holds, the greater the opportunity to dominate the board interactions with internal and external environments (Finkelstein, 1992). As the CEO sets the agenda for the frequency board meeting, when the CEO holds more subcommittee positions, it is more likely to delegate functions related to board activities to board subcommittees, which in turn reduces the necessity of having a frequency of board activities. However, Vafeas (1999: 116) states that “The net effect of delegation on board activity is not clear and is an empirical question”.

In contrast, regarding committee participation of outside directors, research has postulated that multiple directors serve higher frequency of committee meeting participation and monitoring roles than that of a director who only holds one or two directorships (Ferris et al., 2003). Moreover, this study concludes that firms have higher interest and trust for directors with multiple appointments in managing and monitoring corporate governance committees. As a whole, we argue that the CEOs holding more board subcommittees would negatively moderate the relationship between frequency of board meetings and firm performance. For this ground, the following hypothesis is projected.

***Hypothesis 4:** CEO busyness will negatively moderate the relationship between frequency of board meetings and firm performance, with the negative relationship being stronger in firms where the CEO is represented in a higher number of board committees.*

2.4 Moderating Effect of Board Composition

Following the agency theory, research has concluded that the “vigilant boards are likely to take actions aimed at reducing the level of information asymmetry between them and their CEOs.” (Rutherford & Buchholtz, 2007: 576). Prior studies have also proved that the presence of a vigilant board in a firm has the ability to control the CEO's dominant power in order to advance the shareholders' interest (Walters, Kroll, & Wright, 2007). Accordingly, it is obvious that board

extends their watchfulness in all circumstances over the CEO's dominant power in order to ensure that shareholder interests are secured. When the board is represented by outsider directors with significant shareholdings of paid representatives, the board would exert a tighter control over the CEO's behaviour (Finkelstein & Hambrick, 1989). Additionally, as per the attention based view, a previous study has proved that directors do not constantly focus the attention to the monitoring; rather selectively keep focusing on managerial monitoring (Tuggle et al., 2010). As a whole, in moderating frequency of board activities, it is believed that "powerful boards are more likely to change CEO characteristics in the direction of their own demographic profile" (Zajac & Westphal, 1996: 64).

2.4.1 Board Independence and Frequency of Board Meetings

Theoretical assumptions of the agency theory expect that the independent directors should have the free access to necessary corporate information in order to fulfill their responsibility (Nowak & McCabe, 2003). Conversely, "Board of directors typically possess far less information than CEOs, due to the limited amount of time board spend with their firms and it is largely this asymmetrical distribution of information that allows CEOs to act opportunistically" (Rutherford & Buchholtz, 2007: 577). According to their study, one option available for the board of directors to avoid information disadvantage is to increase the frequency of interactions, which is referred to as board activities. Similarly, Vafeas (1999) suggested that there should be a positive relationship between the proportion of outside independent directors and board activities. The first reason he proposed was that if a higher level of board activities helps to better board monitoring, independent director's request more board meetings in order to perform the tasks. The second reason is that when there is a higher proportion of independent directors in the board, it requires more time to be spent on briefing than when the higher proportion is inside directors. Similarly, Jensen (1993) concluded that independent outside directors have less opportunity to provide managerial comments and views in board meetings since much of the time is allocated to routine tasks. Therefore, we argue that the proportion of independent directors on the board will positively moderate the relationship between frequency of board meetings and firm performance. As a whole, the following hypothesis is derived.

Hypothesis 5: *Board independence will positively moderate the relationship between frequency of board meetings and firm performance, with the positive relationship being stronger in firms with a higher proportion of independent directors on the board.*

2.4.2 Board Ownership and Frequency of Board Meetings

As per the agency assumptions, ownership mechanism assumes board of directors to have a higher involvement when they have invested on the firm. So, board members are likely to take all necessary actions in order to assure that top management performs tasks for the betterment of shareholders. However, Vafeas (1999) argued that the boards' insider shareholding as a governance mechanism could be substituted for the board activities, and he suggested that it is not wise to have costly monitoring systems such as board activities simultaneously since insider ownership has the incentive to keep vigilant on managing. Indeed, this argument applies under some circumstances where individual board of directors actively participates in monitoring, and board activities are well established and trustable. In this sense, research has found that "... board members do not consistently monitor management in order to protect shareholder value, a proposition often assumed within governance research; rather... monitoring behaviours are contextually dependent. The contextual dependency of board attention to monitoring suggests that additional efforts may be needed to ensure the protection of shareholders' interests" (Tuggle et al., 2010: 946). Further, it is believed that, board directors who have equity ownership of the firm have a higher interest in firm decisions and greater awareness of management contradictions (Finkelstein, 1992). Thus, it is fair to argue that directors who have a higher personal interest require more board activities. Based on this argument, the following hypothesis is proposed.

Hypothesis 6: *Board equity ownership will positively moderate the relationship between frequency of board meetings and firm performance, with the positive relationship being stronger in firms with a higher percentage of board shareholding.*

2.4.3 Board Size and Frequency of Board Meetings

As per the resource dependence theory, it is suggested that the increased number of directors who have an external link to the firm would improve corporate performance due to the ability of accessing a variety of external resources (Jackling & Johl, 2009). Contrary to the inverse relation of the board size and firm performance, researches (e.g., Dalton, Daily, Ellstrand, & Johnson, 1998; Pearce & Zahra, 1992) have supported that board size is positively related to corporate performance. The argument proposed by these studies is that the increased number of directors could bring a depth of intellectual knowledge and external relations to the firm, which essentially improves corporate performance (Jackling & Johl, 2009). Hence, Vafeas (1999) suggested that when the board size increases, it is also expected to increase the frequency of board meetings, respectively, in order to allocate enough opportunities to respond corporate decisions. As a whole, following this perception, we propose that the board size has the influence to moderate the relationship between the frequency of board meetings and firm performance. Therefore, the following hypothesis is derived.

Hypothesis 7: *Board size will positively moderate the relationship between frequency of board meetings and firm performance, with the positive relationship being stronger in firms with higher number of board members.*

3. METHOD

3.1 Sample and Data

Sample for the study was drawn from Sri Lankan publicly listed companies registered in the Colombo Stock Exchange (CSE) for the year ended March 31, 2009. The sample was randomly selected with 212 firms which account for 92 percent of the population, and fairly distributed among the 20 industries to avoid the common method bias in selecting the sample. Publicly listed firms were utilized in this study due to the data availability. The Securities and Exchange Commission (SEC) and the CSE regulatory requirements require to publish audited financial and other related corporate information. Firms, which had not provided sufficient information for the study purpose, and firms that went bankrupt

or registered during the financial year were excluded from the sample. Data for the study were collected from the corporate annual reports published on the CSE website and from the corporate databases published by the CSE, such as “Fact Book-2008” and “Data library – (2009)”. Table 1 provides descriptive information for the sample, including the industry-wise average board meeting frequencies.

3.2 Variable Definitions and Measurements

3.2.1 Independent Variables

Typically, board activities, boardroom communication, and board interactions are measured by availability of board subcommittees or frequency of board meetings. For instance, “Operationally, the richness of board information can be measured in terms of characteristics such as frequency of board meetings, number of subcommittees...” (Eisenhardt, 1989: 65). Following this perception, we applied

Table 1: Descriptive Information for the Study Sample

Industry Segments	Firms		Market	Turnover to Avg; Market Capitalization	Avg; Board Meetings Frequency
	Total Sample	Capitalization			
Trading	9	8	1.0	22.27	7.67
Hotels and Travels	32	28	7.4	12.59	5.89
Plantations	18	18	2.3	20.79	5.61
Services	6	5	0.3	3.86	6.40
Banking and Finance	33	31	16.8	9.00	10.84
Diversified holdings	13	12	15.7	10.87	6.67
Beverage Food & Tobacco	18	17	12.4	8.25	5.06
Chemicals & Pharmaceuticals	9	9	1.1	34.41	4.67
Constructions & Engineering	3	3	0.8	15.06	5.0
Footwear and Textiles	3	2	0.5	10.40	6.33
Health care	6	6	2.7	3.23	10.33
Info and Property Technology	20	18	0.1	58.92	6.0
Manufacturing	32	26	0.9	17.49	4.89
Motors	6	6	2.7	85.66	7.17
Oil Palms	5	5	2.5	3.40	4.0
Power and Energy	3	3	2.3	15.87	6.0
Stores Suppliers	5	5	0.5	7.75	5.80
Telecommunication	2	2	21.4	28.81	11.50
Total/Average	231	212	5%	19.68%	6.83times

frequency of board meetings, which is also known as board activities, measured as the number of board meetings held during the financial year 2008/2009 (Jackling & Johl, 2009).

3.2.2 Dependent Variables

Two performance variables, namely Return on Equity (ROE) and Earning per Share (EPS), were simultaneously utilized to evaluate the hypotheses derived on the relationship between frequency of board meetings and corporate performance as those performance variables are highly involved with corporate profitability, board's and management's responsibility towards the shareholders' interests. ROE primarily measures the effective utilization of corporate resources while EPS determines the capability of firms to run the business in order to enhance corporate profit and shareholders' earnings (Pearce & Zahra, 1992). Previous studies (Ahmed, Hossain & Adams, 2006; Shen & Lin, 2009) have employed EPS and ROE in the related corporate governance performance measurements.

3.2.3 Moderating Variables

CEO duality was coded as a binary variable, where firms with duality are coded as '1' otherwise as '0' (Boyd, 1995; Finkelstein & D'Aveni, 1994). CEO tenure was recognized as the number of years that the CEO serves in the position (Hill & Phan, 1991; Walters, Kroll & Wright, 2007). CEO busyness was identified as the CEO being a member of board subcommittees; the representation of one or more of an audit, nomination or remuneration committees (Finkelstein & D'Aveni, 1994; Jackling & Johl, 2009). A firm in which the CEO represents the committee is coded as '1' otherwise coded as '0'. Independent directors were determined as the total number of independent outside directors' representative to the board (Finkelstein & D'Aveni, 1994). Board shareholdings were measured as the percentage of the total corporate shareholding (Kim, Al-Shammari, Kim & Lee, 2009). Board size was measured as the number of members on the board of directors as mentioned in the annual financial statements (Jackling & Johl, 2009; Raheja, 2005).

3.2.4 Control Variables

This study controlled several variables, such as firm age, firm size, past firm

performance, current ratio, debt ratio, independent board committees, board's remuneration, management team, and industry segments, which were found to be associated with firm performance. Firm age was calculated as the natural logarithm of the number of years from the establishment of the firm, which helped to control for organization's maturity (Arthurs, Hoskisson, Busenitz & Johnson, 2008; Matta & Beamish, 2008). Firm size was calculated as the natural logarithm of turnover in the financial year 2008/2009 (Ahmed et al., 2006). Prior firm performance for the financial year 2007/2008 was measured as the natural logarithm of ROE and EPS. Prior firm performance was controlled since the direct influence on the CEO's perception of firm performance and board of directors' involvement (Anderson, Mansi & Reeb, 2004; Rutherford & Buchholtz, 2007). The logarithmic form of analysis was applied to reduce the heteroscedasticity (Finkelstein & D'Aveni, 1994). Firm leverage was calculated as total long term debt divided by total assets of the firm (Ahmed et al., 2006; Anderson et al., 2004). Current ratio was measured dividing current assets by current liabilities, which is an indication of the company's efficiency and its short-term financial health, to control the effect on firm performance (Jaggi & Gul, 2001; Uang, Citron, Sudarsanam & Taffler, 2006). Industry segments were controlled since characteristics of different industries have been influenced largely by stock exchange listing rules and regulations, frequency of board meetings, and other environmental influences. Therefore, all industry categories were controlled as a categorical variable determined with two dummies (Finkelstein & D'Aveni, 1994; Rutherford & Buchholtz, 2007).

Board's remuneration was controlled since multiple directors, including the CEO receive higher compensation both for committee service and overall meetings (Ferris et al., 2003). Independent board subcommittees were controlled due to the frequency of meetings of these committees could influence the frequency of general board meetings and firm performance as well. Availability of independent board subcommittees was measured as the total of audit, remuneration, and nomination committees that are reported in the annual report under the corporate governance statement (Reeb & Upadhyay, 2010). The management team that reports to the CEO was recognized (Lin & Shih, 2008). Top Management Team (TMT) was controlled as the CEO being a part of TMT may lead to have an influence between TMT, CEO, board, and firm performance (Lin & Shih, 2008).

3.3 Analytical Approach

We tested hypotheses and moderating effect on the two dependent variables by using hierarchical multiple regression analysis. For the interaction terms, means were centered in avoiding multicollinearity, which makes it difficult to separate the effect of independent variables in the multiple regression analysis. In order to mitigate the potential threat of multicollinearity, it is important to use the mean-centering approach for independent variables that have interaction terms (Aiken & West, 1991). The first model was tested with only control variables, and the influence of independent variable was analysed in the model 2. As the third step, moderating variables were examined, while the full model including the interaction terms represented in the model 4. Following Aiken and West's (1991) suggestions that plotting interaction terms is the preferred way to depict the results for regression analysis, we demonstrate graphs for all significant interaction terms, as a supplementary analysis.

4. RESULTS

Table 2 presents the results of regression analysis for EPS and ROE, respectively. As shown in the model 1a and 1b, control variables account for 35.4 percent of the total variance in firm performance for EPS, and 45.5 percent for ROE, respectively. Among the controlled variables, past firm performance, current ratio, availability of board committees, and management team show a positive significant association with the firm performance, while debt ratio and board's remunerations are negative and significantly related. Firm age and industry segments are not significant at any stage, while firm size reflects an opposite significant relationship. In testing multicollinearity, we examined the variance inflation factor (VIF). The maximum VIF recorded was 3.35, which is well below the commonly accepted standard of 10 which asserts that multicollinearity is not present among the considered variables.

Hypothesis 1 predicted that the frequency of board meetings would be positively related to firm performance. As expected, model two of both performance variables reflects a positive significant association, for EPS, $\beta = .193$, $t = 2.81$, $p \leq .01$, and for ROE, $\beta = .163$, $t = 2.65$, $p \leq .01$, respectively. Furthermore, the

addition of frequency of board meetings to the model two increases the variance of firm performance significantly in both cases. For instance, the variance for EPS is increased by 2.6 percent and for ROE by 2.0 percent, respectively. Consistent with the assumption of the hypothesis 2b which predicted that the CEO duality positively moderates the relationship between frequency of board meetings and firm performance; results for the both performance indicators represent a positive relationship. Moreover, the relationship for the EPS is significant at $p \leq .05$ ($\beta = .189$, $t = 2.59$), which confirms that the explanations given in the stewardship theory to combine the CEO-Chairman positions in order to enhance corporate performance. Figure 1 graphically portrays the interaction predicted by the hypothesis 2b.

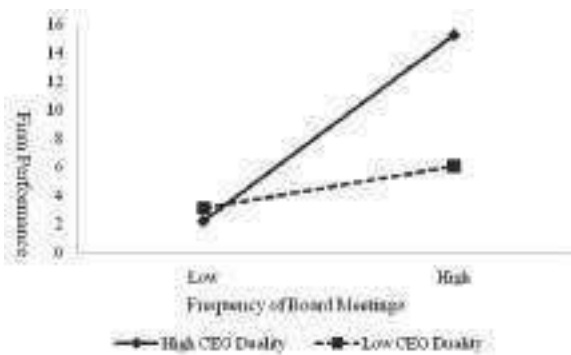


Figure 1 : Two-way Interaction between Frequency of Board Meetings and CEO Duality (EPS)

Hypothesis 3 predicts that the relationship between frequency of board meetings and firm performance would be negatively moderated by the CEO's tenure. As expected, both performance measurements depict a negative interaction (for EPS, $\beta = -.024$, $t = -.409$ and, for ROE, $\beta = -.067$, $t = -1.22$), however the relationship is insignificant. Thus, reported results do not support for the hypothesis 3. Hypothesis 4 predicts that the CEO busyness will negatively associate in the effect of frequency of board meetings on firm performance. As hypothesized, the interactions for both performance dimensions document a negative significant (for EPS, $\beta = -.125$, $t = 1.84$, $p \leq .10$ and, for ROE, $\beta = -.141$, $t = 2.22$, $p \leq .05$) relationship. This determines that CEO's committee membership negatively moderates the effect of frequency of board meetings on firm performance. As figures 2 and 3 depict, plotting the interaction terms supports this explanation.

Table 2: Results of Regression Analysis^a

Variables	Earning Per Share				Return on Equity				
	M- 1a	M-2a	M-3a	M-4a	M-1b	M-2b	M-3b	M-4b	
Control	Firm age (log)	.032	.033	.006	.001	-.046	-.047	-.048	-.050
	Firm size (log)	-.010	-.044	.045	.051	.209**	.176**	.121†	.110
	Past firm performance(log)	.495***	.477***	.498***	.460***	.160**	.169**	.178**	.174**
	Current ratio	.038	.056	.019	.029	.087	.101†	.102†	.091†
	Debt ratio	-.308***	-.349***	-.320***	-.308***	-.662***	-.698***	-.692***	-.698***
	Board subcommittees	.075	.067	.091	.108	.241***	.230***	.205**	.212***
	Board Remuneration(log)	-.073	-.072	-.057	-.065	-.108†	-.106†	-.129*	-.133*
Irrelevant	Management Team	.165*	.134*	.159*	.213***	.237***	.210***	.205***	.247***
	CEO Promoter	.010	.016	-.082	-.085	-.059	-.052	.076	.077
	Industry Service	-.059	-.003	-.009	.023	-.048	-.003	.028	.043
	Industry Manufacturing	.026	.053	.031	.015	-.111†	-.087	-.052	-.066
	Freq: of Board Meetings (H1)		.193**	.198**	.276***		.163**	.138*	.124†
Moderating	CEO Duality			.189*	.211*			-.168†	-.176*
	CEO Tenure			-.047	-.045			-.004	-.014
	CEO Busyness			-.037	-.051			.101†	.078
	Board Independence			.134†	.145†			.083	.082
	Board Ownership			.178**	.181**			-.048	-.039
	Board Size			-.324***	-.336***			.044	.040
Interactions	Freq: of BM x Duality (H2a & H2b)				.189**				.029
	Freq: of BM x CEO Tenure (H3)				-.024				-.067
	Freq: of BM x CEO Busyness (H4)				-.125†				-.141*
	Freq: of BM x Independence (H5)				.058				.046
	Freq: of BM x Ownership(H6)				.128†				.131*
	Freq: of BM x Board Size(H7)				.018				.053
R ²	34.2	36.8	44.0	47.9	46.9	48.8	51.3	54.0	
Model F	9.15***	9.35***	8.17***	6.95***	15.57***	15.30***	10.95***	8.85***	

a n= 212. Standardized coefficients are reported.

† p ≤ .10, * p ≤ .05, ** p ≤ .01, *** p ≤ .001 (Freq: of BM= Frequency of Board Meetings)

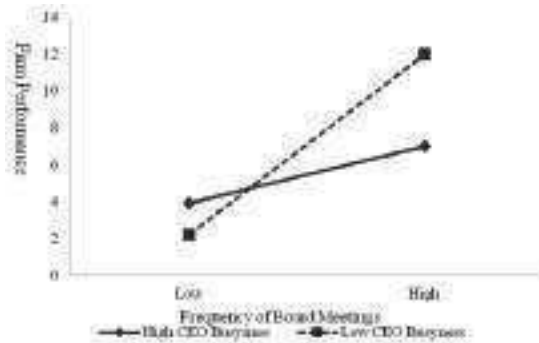


Figure 2 : Two-Way Interaction between Frequency of Board Meetings and CEO Busyness(EPS)

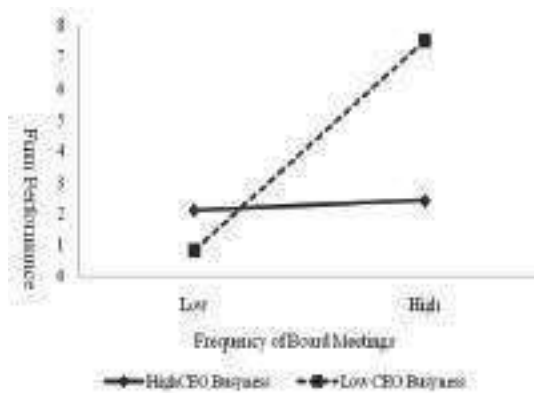


Figure 3 : Two-Way Interaction between Freq: of Board Meetings and CEO Busyness(ROE)

In the boards' monitoring perspective, hypothesis 5 predicts that the availability of a higher proportion of outside board members on the board would positively moderate the relationship between frequency of board meetings and firm performance. As assumed, outcomes of the regression association portray a positive moderating effect for both performance measurements (for EPS, $\beta = .058$, $t = .586$ and, for ROE, $\beta = .046$, $t = .493$); however, the effect is not significant. Thus, hypothesis 5 is not supported. Hypothesis 6 predicts that boards' personal shareholding would positively moderate the relationship. Supporting to the expectations, results indicate a positive significant relationship for both performance variables, with the significant level of $\beta = .128$, $t = 1.96$, $p \leq .10$ for EPS, and $\beta = .131$, $t = 2.20$, $p \leq .05$ for ROE, respectively. Figures 4 and 5 represent the two-way interaction for EPS and ROE, respectively. Hypothesis 7 tests a positive interaction effect of board size on the association. Model 4 of both

performance variables indicates a positive interaction (for EPS, $\beta = .018$, $t = .200$ and, for ROE, $\beta = .053$, $t = .642$); however, the effect is not significant. In consequence, hypothesis 7 is not supported.

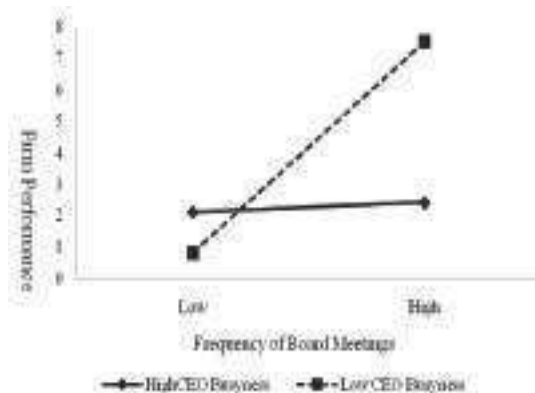


Figure 4 : Two-Way Interaction between FreqofBoard Meetings and Share Ownership (EPS)

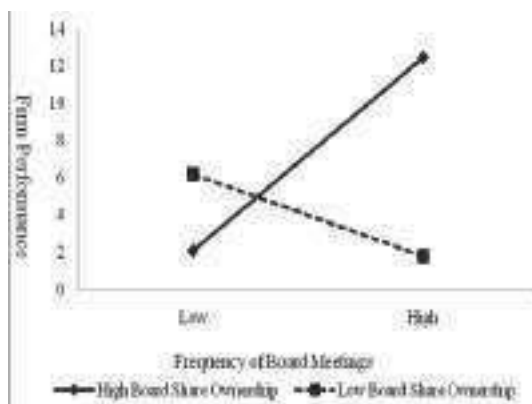


Figure 5 : Two-Way Interaction between Freq: of Board Meetings and Board Share Ownership (ROE)

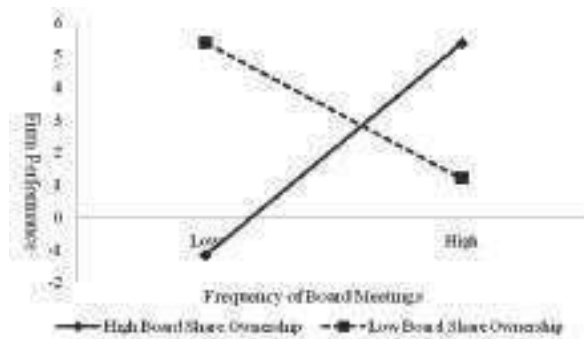


Figure 6 : Two-Way Interaction between Freq. of Board Meetings and Board Share Ownership (ROE)

5. DISCUSSION AND CONCLUSION

This study contributes to corporate governance best practices in theoretical and practical standpoints by examining the moderating effects of the CEOs leadership power and board monitoring power on the relationship between frequency of board activities and firm performance. As the literature review illustrated, there is a growing sentiment to explore the phenomena that affect to determine the boardroom information communication and firm performance. This necessity has emerged partly because of the inconsistent results generated by previous empirical research on this setting. In resolving this concern, we argued that frequency of board meetings is positively related to firm performance. Hypothesis 1 confirmed our prediction, with reference to agency and resource dependence theories for both performance measurements complying with previous findings (e.g., Vafeas, 1999). In contrast, Jackling and Johl (2009), Buchholtz (2007), and Rutherford and Buchholtz (2007) revealed opposite outcomes. Thus, our conclusion supports the current corporate governance acceptance that frequency of board meetings enhances corporate performance.

Our next question was to determine what factors would intensify or weaken the relationship between the frequency of board meetings and corporate performance. To address this question, we employed two moderating approaches with different perspectives. Firstly, showing a positive significant interaction effect of CEO duality on the relationship between frequency of board meetings and firm performance, the findings support the hypothesis 2b, with reference to the

explanations proposed by stewardship theory. These findings provide a deep insight into the Asian business context which depicts a stewardship association on the CEO duality relationship. Our conclusion is supported by the prior finding (e.g., Tuggle et al., 2010), which suggests that the presence of the duality reduces the board's attention to monitoring. Previous research has also found that the CEO duality is positively related, but insignificant to frequency of interactions, in terms of availability of board subcommittees (Rutherford & Buchholtz, 2007). Although the findings of the moderating effects of the CEO tenure are consistent and negative for both measurements, as expected, the relationship is insignificant, which indicates that the CEO's tenure itself does not have a significant influence to affect the frequency of board meetings. Thirdly, supporting the agency theory, findings for the CEO's power with busyness provides a significant explanation on the impact of the CEO's leadership power in determining the level of board activities. Our findings conclude that busy CEOs tend to decide corporate decision based on judgment and individual consent, regardless of accepted governance mechanism, which in turn brings unfavourable outcomes.

On the other hand, we examined the effectiveness of the internal corporate governance mechanism to intensify the frequency of board activities, in terms of board of directors' monitoring power. Firstly, it was predicted that proportion of independent outside directors has a greater involvement in deciding firm activities and that it strengthens the relationship. Although similar positive findings were generated for both measurements, the insignificant nature of results outlines the practical evidence on the employed proportion of outside directors and level of independence of the boards. On the one aspect, these findings could be rationalized to some extent considering the availability of expert outside directors in developing economies, such as in Sri Lanka. On the other aspect, these findings somewhat support the existing criticisms on the high family ownership in the Asian contexts which influence listed companies to minimize the employment of outside directors. Our results also comply with previous research (e.g., Ruigrok et al., 2006; Walsh & Seward, 1990), determining that board involvement characteristics such as board size and percentage of outside directors have no considerable relationship with strategic decision making and corporate performance. Secondly, board's personal equity holding portrays a significant contribution in order to monitor corporate information mechanism. Hypothesis 6 asserts this conclusion.

As a corporate governance mechanism, as per the agency theory, board ownership structure demonstrates a strong controlling influence over board activities, i.e., the higher the proportion of ownership, directors promote higher regularity of board activities in order to ensure the transparency and accountability of managerial performance, and in taking necessary actions on time. Finally, although the board size does not reflect a significant moderating effect, steady positive findings indicate insights of theoretical applications.

One reason for the insignificant findings may be the lack of adequate board members in the listed companies in developing economies which diminish the boards' ability to monitor managerial corporate behaviour. In fact, the mixed findings of this study reveal the inconsistent nature of corporate governance applications in the developing economies as some governance mechanism is well established and matured with the inherited nature of the Asian business context, while application of the rest of the practices are at the primary stage. The findings of this study also contribute to the criticisms on the universal applicability of corporate governance principles. For instance, "This focus on the Anglo-Saxon model of governance leads to suggestions for more outsiders on the board of directors, CEO compensation connections to the firm performance, and the CEO has a level of ownership in the firm. However, it has been found that this is not necessarily true in the Asian context" (Bruton & Lau, 2008, p 653). Wijethilake et al. (2015) and Ekanayake and Perera (2014) also found the ineffectiveness of such corporate governance mechanisms in the Sri Lankan context before. Interestingly, the three highly supported governance factors prove the situation very clearly, in terms of charisma of the CEO duality, CEO busyness, and directors' ownership, which are some of the prominent characteristics in the Asian business practices. These outcomes may benefit policy makers, regulatory bodies, and corporate practitioners in recognizing practical implications of corporate governance performance in Asian and emerging economies.

5.1 Limitations and Future Research

Although this study addressed the empirical research gaps on determination of frequency of board meetings and firm performance, there are some limitations involved with interpreting the findings. One limitation is that the consideration of

the sample data is only for one financial year, excluding prior firm performance indicators. Examining the aggregated impact on this setting would intensify the results further. Future research may also benefit supplementing other indicators of board activities in this context, such a quality of board meetings as measured by board meeting minutes and the influence of board subcommittees, which would reveal further corporate governance insights in different aspects. Future research may also benefit by investigating other CEO's power sources and board monitoring assessments, as such factors in this study only explain a limited portion. Also, in the theoretical viewpoint, our study is limited to agency and stewardship perspectives. One other research avenue is to investigate the impact of interrelated and opposite theoretical implications on the determination of board meeting frequency settings, as supplementary theories for the agency theory.

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DETERMINANTS OF LIFE SATISFACTION OF WOMEN: REFERENCE TO BALANGODA DIVISIONAL SECRETARIAT DIVISION

Wijesekara NM

Department of Economics & Statistics, Faculty of Social Sciences & Languages
Sabaragamuwa University of Sri Lanka
Sri Lanka

Lankeshwara P

Department of Management & Finance, Faculty of Management
Social Sciences & Humanities
General Sir John Kotelawala Defence University, Ratmalana Sri
Lanka

Abstract

In this era, since the role of women has expanded throughout the past, every country in the world demonstrates a greater interest to discover the social and economic position of women. Though much progress has been made in society to bring women to a stage, still it is not fully achieved. In most cases, women have to spend their entire lives with less pleasure or happiness, and with much stress and tension. This will lead to lower the women's life satisfaction and it has an inverse effect on the development and stability of any economy. The purpose of this study is to identify the factors which influence the life satisfaction of women. The study used primary data and 200 women were selected from three GN Divisions in Balangoda DS Division, which represent urban, rural and estate sector through cluster sampling and convenience sampling methods, using an already developed structured questionnaire. Binary Logistic Regression model was utilized as the main analysing technique. Results revealed that the overall life satisfaction was predicted by current health status, living sector, education level and being a member of community society. All the significant factors showed a positive relationship with life satisfaction. Implications of the findings and recommendations are offered.

Keywords: *Women, Life Satisfaction*

1. INTRODUCTION

Life satisfaction is widely considered to be a very important and as a central aspect of human welfare. It is not merely a judgment about one's life; it widely involves affirming, endorsing, appreciating or being pleased with one's life (Muzamil and Tasia, 2008). Life satisfaction refers to a person's general happiness, freedom from tension, interest in life etc. (Hsnain, Shadab and Shelly, 2011). Broadly, life satisfaction refers to satisfaction of an individual with his or her family life, marriage life, social life, health etc. Over the past decades, a growing numbers of scholars have attempted to study the life satisfaction of women, since the role of women in society as a working women or house wives and their contribution for the family and economy is very important and significant. The traditional role of woman was to stay at home, take care of children, clean houses and cook as society has always associated money with power. In the past few decades the role of women in society has changed significantly. Women had many more opportunities and faced different challenges. At present they are engaging in government sector, private sector, service sector, sports, and politics and they may even hold titles such as Chief Executive. In the modern society, almost every woman has her own job or duty.

Even though, there are some changes that have occurred in women's participation in the labour market, a woman's life is always more complicated than a man's life as they continue to bear most of the responsibilities of children, preparing meals and doing other household work. In all regions, women spend at least twice as much time as men on unpaid domestic work and if the unpaid work of women is taken into account, their total working time is longer than men's. Furthermore, many women choose to lead an unhappy life for fear that they would not be able to find a job, as employers still choose to employ a man over a woman. And also in unfortunate situations where women get divorced or become widows, many of them find it impossible to find a place to work and they have to live in more poverty. Therefore, their life satisfaction level differs from one another due to various socio, economic and demographic factors. Also if women feel unhappiness, stress and tension, it will directly affect their personal lives, their professional lives and finally the entire society.

In the present study, a pre-test has been conducted to get a rough idea regarding the current satisfaction level. For this purpose, 15 women were selected and for examining their attitudes a questionnaire consisting of 6 questions was utilized. According to the results of the pre-test, life satisfaction recorded a low level.

Considering the empirical studies regarding the life satisfaction of women, there are various studies which have been done by many researchers. Jadhav and Aminabhavi (2013) found that age, educational level and number of children of women are not significantly associated with women's life satisfaction. According to Muzamil and Tasia (2008), personal income, family income and age had an impact on the life satisfaction of women. Moreover, Hasnain, Shadab and Shelly (2011) found significantly greater life satisfaction and lower self-esteem in working women than in non-working women, and a non-significant difference was found between married and unmarried women on both life satisfaction and self-esteem. Concerning the previous efforts on determination of the life satisfaction of women, many researchers have paid attention to fewer factors which are associated with life satisfaction. Therefore, this study mainly focuses on identifying the factors which influence life satisfaction of women. The objective of the study is to identify the influential factors for life satisfaction of women.

A woman can be considered as a predominant character in any society. She plays an important role in the family by encouraging the husband, children and other family members. And also women provide a great service to strengthen the household economic activities and they make their full effort to enhance the welfare of the family members. Therefore, the life satisfaction of women directly affects the household economy. The decisions which are taken by satisfied women lead to the increase of the productivity level of the family as well as to enhance their personal satisfaction. Thereby, households can perform their day today activities successfully.

A household is the smallest entity in society. Success of a household is directly associated with the success of the entire society. Therefore, studying the satisfaction of women becomes a major factor in achieving an economic development in any country with social welfare.

Furthermore, social condition and life satisfaction of women are very important for the government to conduct awareness programmes, poverty reduction programmes and to improve the currently on-going development projects and as well as for Non-Governmental Organizations (NGOs) to implement women empowerment programmes. This study is also very useful for banks and insurance companies to introduce new credit schemes and life assurance policies for women to enhance their living standard. Employers can take corrective actions to enhance the productivity level of the female employees.

By using the results of this study, policy makers can implement necessary rules and regulations regarding the empowerment of women and also by referring to the results further, economists can construct indices to measure the life satisfaction of women. Considering all the above factors, this study will be very important for the economy as well as for the entire society.

2. LITERATURE REVIEW

Life satisfaction is the degree to which a person positively evaluates the overall quality of his or her life as a whole or in other words, how much the person likes the life he or she leads (Ruut, 1996). Life satisfaction is one among a range of concepts that is assumed to reflect the conditions of “a good life”. It measures how people evaluate their life as a whole rather than their current feelings.

Anne (2008) has done a study on life satisfaction in late life: markers and predictors of level and change among 80+ year olds. The overall aim of the study was to examine within individual and between individual changes in life satisfaction in the oldest-old using different time metrics and to study life satisfaction within the context of psychosocial and health related variables. Overall findings from the study demonstrated a homogenous decline in life satisfaction in the oldest-old. Despite health-related losses, social network and personal resources accounted for substantial inter-individual differences in life satisfaction. The research demonstrated the need to analyse associates of life satisfaction at the intra individual level and within a broader context of psychosocial and health related variables also in late life.

Lisa (2008) carried out a study to measure the levels of general life satisfaction

among Finnish young adults, and to clarify the way in which life satisfaction is constructed. In this study descriptive statistics, Chi Square test, Correlation analysis and Cluster analysis (Ward's method) were employed. Results of the data analysis revealed that the level of life satisfaction among Finnish young adults to be similar to that of the Finnish population in general and two main factors underlying life satisfaction were found to be social relationships and factors related to working life contexts. In addition, the study identified five distinct groups, i.e. three groups of women, two groups of men which differed from each other, both in their levels of life satisfaction and in the factors underlying life satisfaction. The groups varied in the importance for life satisfaction that they attached to marital partnerships, friends, health, and hobbies. The results were seen as supporting the assumption that life satisfaction is a socially constructed phenomenon.

The study on Life Satisfaction of Working Women and Housewives which was done by Jadhav and Aminabhavi (2013) used t test and Chi Square test to examine whether the working women and housewives are significantly differing from each other in their life satisfaction. A life satisfaction scale developed by Sinha and Sharma (1979) was administered on the sample. The results showed that the working women and housewives do not differ significantly from each other in their life satisfaction. Incidentally, it is found that age, educational level and number of children of women are not significantly associated with their life satisfaction.

Hasnain, Shadab and Shelly (2011) have studied life satisfaction and self-esteem in married and unmarried working women. The main objective of this study was to find out the difference between married and unmarried, working and non-working women on life satisfaction and self-esteem. Two-way ANOVA was applied to analyse the data. The results of data analysis revealed that significantly greater life satisfaction and lower self-esteem for working women than for non-working women. Furthermore, insignificant difference was found between married and unmarried women on both life satisfaction and self-esteem. The interactional effects of working status and marital status were insignificant for both life satisfaction and self-esteem.

Muzamil and Tasia (2008) conducted a research to evaluate life satisfaction among women and to analyze the influence of socio personal characteristics of women with their life satisfaction. The data was analyzed by computing percentage, Chi

Square value, ANOVA, Karl Pearson's correlation and degree of freedom. The results showed that personal income and family income were positively correlated with the life satisfaction of women and age was inversely affected for the life satisfaction of women.

Chungsun (1991) investigated the relationships among women's sex role attitudes, employment status and overall life satisfaction controlling for some selected background characteristics. Descriptive statistics, Correlation analysis, Multiple Regression analysis and LISREL analysis have been used as analysis tools. According to the results of the data analysis, women's sex role attitudes were unrelated to employment status and there was no significant relationship between women's sex role attitudes and satisfaction with marriage, family work and overall life. Furthermore, controlling for women's employment status and sex role attitudes were related to work satisfaction, and women's employment status has a significant influence on satisfaction with work and with overall life.

Sandra, Veronica, Martha and Kimya (2003) focused their attention on predictors of satisfaction among college educated African American women in mid life. Specifically, 3 domains of satisfaction such as overall life satisfaction, personal satisfaction and work satisfaction were examined under this study.. According to the results of descriptive statistics, correlation analysis and three stepwise multiple regression analysis, the women were highly satisfied with their work situation, their personal life, and generally with how their life had turned out so far. Overall life satisfaction was influenced by the women's perceptions of personal control, role quality, household burden and their cohort status. Work satisfaction was affected by the women's sense of personal control and role quality and household burden and physical wellbeing considered as significant predictors of personal satisfaction.

Crompton (2010) carried out a study based on the results of the 2006 Participation and Activity Limitation Survey in Canada. Multiple Regression analysis has been utilized as the main data analysis tool and the results illustrated that health problems, stress, family and financial problems are negatively associated with the life satisfaction of women and social contacts, having paid employments and living with spouse and children are positively associated with women's life satisfaction.

3. RESEARCH METHODOLOGY

This study is mainly based on primary data generated by using a structured questionnaire filled by 200 women in Balangoda Divisional Secretariat Division. Among 53 GramaNiladari Divisions, 3 GramaNiladari Divisions namely Balangoda town, Rassagala and Pettigalawatta, which represent urban, rural and estate sectors were selected by using the cluster sampling method.

The sample consisted with 62 women in Balangoda town, 74 women in Rassagala and 64 women in Pettigalawatta, who were in ages between 19 and 60. These women were selected by using the convenience sampling method. The way in which the sample was selected is further depicted in the following table.

Table 1: Method of Sampling

GN division	Female Population(Age - 1960)	Sample
Balangoda town (Urban sector)	755	62
Rassagala (Rural sector)	898	74
Pettigalawatta (Estate Sector)	775	64
Total	2428	200

Source: Sample Survey

This study employs tables, bar charts, pie charts and line charts for the descriptive analysis to review the collected data in an appropriate manner and data analysis was done by using Binary Logistic Regression method.

4. DATA ANALYSIS

Referring to the demographic profile of the sample, it comprises 38 unmarried women, 128 married women 12 divorcees and 22 widows whose ages are between 19 and 60. And also there are 127 Sinhalese, 58 Tamils and the rest are Muslims.

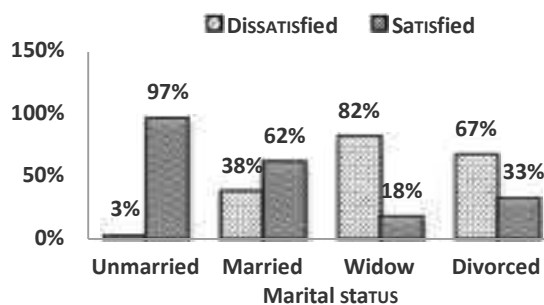


Figure 1: Life Satisfaction of Women by Marital Status

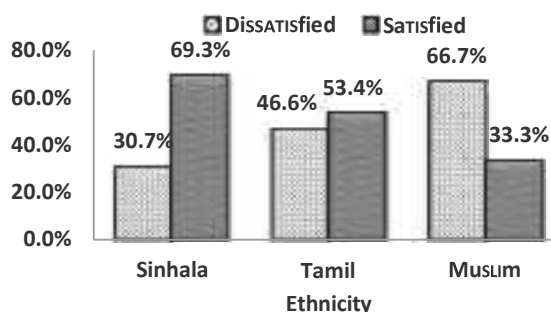


Figure 2: Life Satisfaction of Women by Ethnicity

Figure 1 illustrates the life satisfaction of women according to their marital status. There is a large gap (94%) between the satisfaction and dissatisfaction among unmarried women. In contrast, more than ¾ of the widows are dissatisfied with their lives and satisfaction of divorcees is more than half of the total divorcees in the sample. Further, it clearly explains that unmarried and married women are satisfied with their lives while widows and divorcees are dissatisfied and this difference is more significant for the unmarried and widows.

Figure 2 shows the life satisfaction of women according to their ethnicity. Referring to the figure, more than half or 69.3% of the Sinhala women are satisfied with their lives and the difference between life satisfaction and dissatisfaction of Tamils is not significant. When considering the Muslim women, the figure shows the opposite results compared to the Sinhalese and Tamils. More than half of the Muslim women are dissatisfied with their lives.

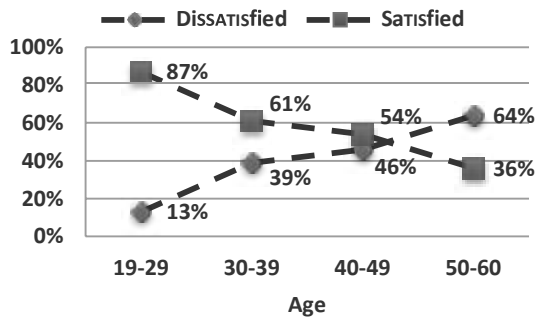


Figure 3: Life Satisfaction of Women by Age

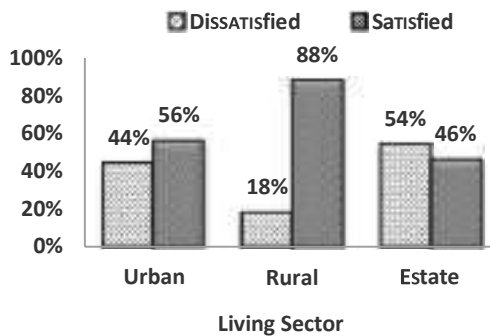


Figure 4: Life Satisfaction of Women by Living Sector

Age is also a very important demographic factor regarding life satisfaction of women. According to Figure 3, within the age group 19-39 and 40-60 there is a rapid decrease in the amount of satisfaction. Within the age group 30-49 there is a slight decrease in the satisfaction. As a whole, there is a negative or inverse relationship between age and life satisfaction of women.

Figure 4 illustrates life satisfaction of women based on their living sector. There is no considerable difference between life satisfaction and dissatisfaction among urban and estate sector women, but the results of the two categories are conflicting. When considering the rural women, higher portion (88%) are in a satisfied level and the figure is 4 times higher than the one for life dissatisfaction. As a whole, women who are living in rural and urban sector are satisfied with their lives compared to the estate sector. According to the demographic factors considered under data presentation, there is a considerable variation regarding the life satisfaction of women by demographic profiles.

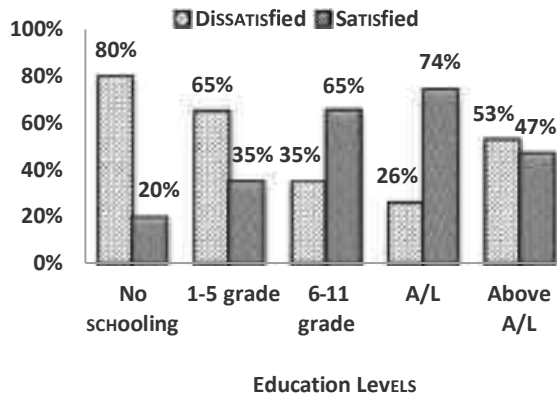


Figure 5: Life Satisfaction of Women by Education Level

Figure 5 illustrates the life satisfaction of women according to their education level. Concerning the socio-economic factors that are relevant to life satisfaction of women, education level can be identified as a very important one. According to the figure, there is a significant variation in the life satisfaction of women by their education level. Dissatisfaction of women who represent no schooling category is 4 times higher than for the satisfaction. In contrast, $\frac{3}{4}$ of the women who passed A/L examination are satisfied with their lives and the satisfaction and dissatisfaction among the women who were categorized as the above A/L group is not significant. When considering the grade 1-5 education category, the majority (65%) are in the satisfied level, and the most important thing is the women who are in grade 6-11 education category indicate the exactly reverse result compared to the women who are in grade 1-5 education level. In the overall view, at the lower as well as higher education levels, the majority represent life dissatisfaction. In contrast, the majority of the moderately educated are in the satisfied level.

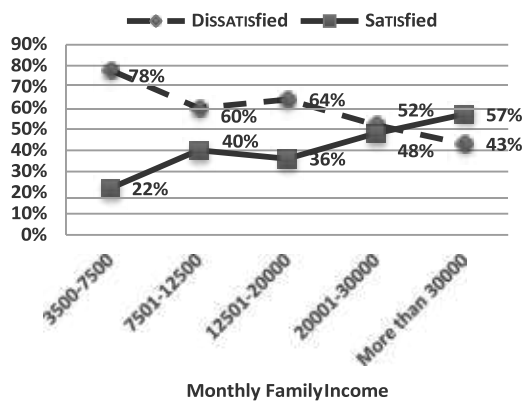


Figure 6: Life Satisfaction of Women by Monthly Family Income

According to Figure 6, within the family income 3500-12500 and 12501-more than 30000 there is a rapid increase in the amount of satisfaction. The family income group 7501-12500 records a slight decrease in the satisfaction. Further, the highest satisfaction level of 57% is recorded in the monthly family income category of more than 30000. As a whole, there is a positive relationship between the monthly family income and the life satisfaction of women.

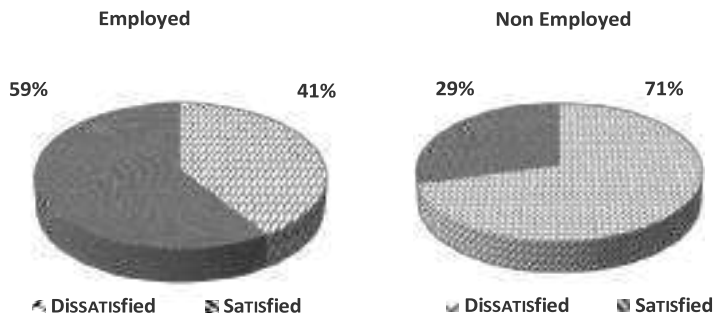


Figure 7: Life Satisfaction of Women by Being Occupied

Figure 7 gives details about the life satisfaction of women according to their occupation level. Considering the women who have career lives, more than half or 59% are satisfied about their lives and this situation is reverse for the women who are not engaged in employments.

4.1 Life Satisfaction of Women by Social Contacts

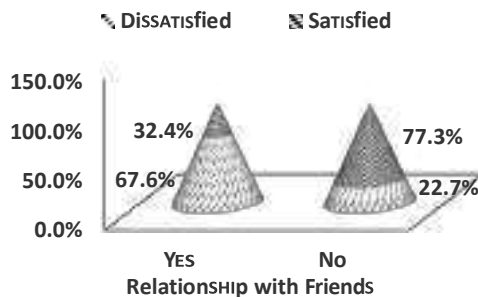


Figure 8: Life Satisfaction of Women by Relationship with Friends

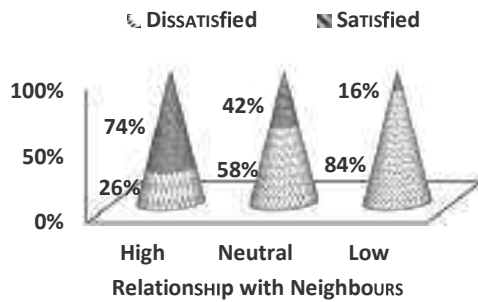


Figure 9: Life Satisfaction of Women by Relationship with Neighbors

Figure 8 explains that nearly $\frac{3}{4}$ of the women who have companions are satisfied with their lives while the majority (67.6%) of the women who have no links with friends are dissatisfied. This scenario is similar for the women who have relationship with neighbours.

According to Figure 9, life satisfaction of women whose attitude towards the current relationship with neighbours is high, neutral and low has declined gradually as 74%, 42% and 16% respectively.



Figure 10: Life Satisfaction of Women by being a Member of Community Society

Figure 10 indicates that life satisfaction of women who participate in community societies are 4 times higher than for life .When considering about the non-participants, the majority of 60% that means more than half of the non-participants was recorded as dissatisfied.

Considering the figures 8, 9 and 10, almost all the 3 figures clearly illustrate that when the social contacts of women or women's involvement with people outside their household is high, it causes to enhance their life satisfaction.

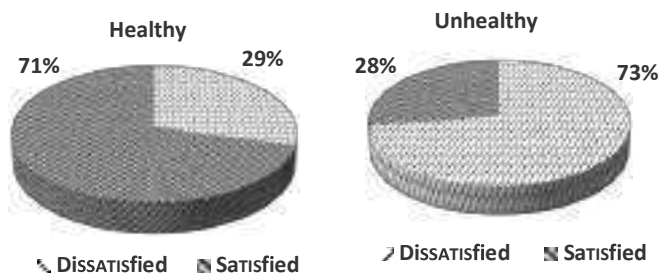


Figure 11: Life Satisfaction of Women by Current Health Status

Figure 11 explains the life satisfaction of women according to the current health status. Among the healthy women, nearly $\frac{3}{4}$ are in a satisfied level and this condition contrasts in unhealthy women; the majority of the unhealthy women (71%) are dissatisfied.

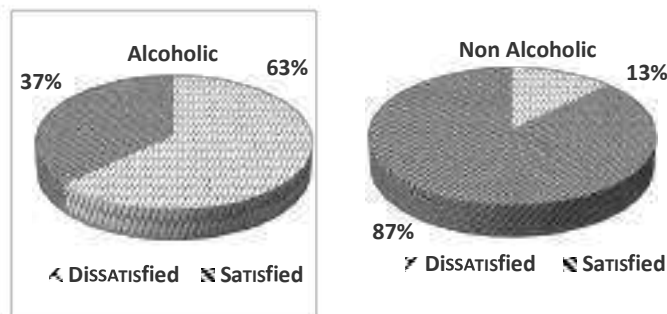


Figure 12: Life Satisfaction of Women by Alcohol Usage of Husband

Figure 12, shows the life satisfaction of women according to the alcohol usage of their husbands. According to the figure, more than $\frac{3}{4}$ of women whose husbands are not alcoholic are satisfied with their lives while the 63% majority of the women whose husbands are alcoholic are dissatisfied. Concerning the figure, there is a clear variation in life satisfaction among the women according to the alcohol usage of husband.

For measuring the overall life satisfaction of women, 5 questions which represent the following areas were applied.

- (i) Satisfaction with job or with main activity (including caring children, looking after the home, going to school, being retired and so on)
- (ii) Satisfaction with relationship with family
- (iii) Satisfaction with relationship with relatives, neighbours and friends
- (iv) Satisfaction with the way leisure time is spent

(v) Satisfaction with health

Each of the questions on above areas has 5 scales ranging from highly dissatisfied to highly satisfied.

Table 2: Reliability Statistics

Cronbach's Alpha	Number of items
0.747	5

According to the results of reliability statistics, Cronbach's Alpha is greater than 0.7. Therefore, it is possible to conclude that all the 5 questions above are reliable to measure the overall life satisfaction of women.

Table 3: The Best Logistic Regression Model

Parameter	Category		Sig.	Exp()	Reference category
Suffering from disease	No	1.932	.000	6.903	Yes
Living sector			.000		Estate
	Urban	1.197	.020	3.310	
	Rural	1.221	.020	3.391	
Education level			.048		No schooling
	1-5 grade	1.805	.243	6.079	
	6-11 grade	2.111	.026	8.255	
	A/L	2.482	.017	11.966	
	Above A/L	1.919	.249	6.814	
Community societies	Yes	.850	.037	2.340	No
	Constant	-1.265	.183	.282	

According to the results of the best logistic regression model, suffering from disease, living sector, education level and being a member of community societies are the influential factors for the overall life satisfaction of women.

In the final model almost all the variables have a positive sign, indicating the positive relationship between life satisfaction of women and the selected explanatory variables. Life satisfaction of women is increased by 6.903 times for women who are not suffering from disease relative to the women who are suffering from disease. This illustrates that the probability of having life satisfaction is greater than 66% for the healthy women relative to the unhealthy women. Life satisfaction of women is 3.391 times higher than for women who are

in rural sector and 3.31 times higher than for women who are in urban sector compared to the women in estate sector. In other words, probability of having life satisfaction is greater than 49% for rural women and 48% for women in urban sector compared to the women in estate sector.

Referring to the education level, the women who are categorized as 1-5 grade are satisfied with their lives by 3.335 times, the women whose education level is 6-11 grade are satisfied by 8.255 times, those who passed A/L examination are satisfied by 11.966 times and life satisfaction of women who studied above A/L is 3.738 times more than that of the no schooling category. Furthermore, the chance of increasing the life satisfaction is greater than 63% for women whose education level is 1-5 grade, 70% for women who are in 6-11 grade, 77% for women whose education level is A/L and 66% for above A/L category relative to the no schooling group.

The women who participate in community societies are satisfied with their lives by 2.34 times compared to the women who do not participate in community societies. This explains that the probability of having life satisfaction is greater than 40% for women who participate in community societies compared to non-participants.

5. DISCUSSION AND CONCLUSIONS

According to the findings, demographic factors such as marital status, ethnicity, age and living sector have shown considerable variation regarding the life satisfaction of women.

Concerning the marital status, single women express higher pleasure with life than married women and widows express the lowest level of satisfaction. These differences in life satisfaction occur because unmarried women have more independence, pliability and lower level of household responsibilities. According to the Ruut (1996), single women express less pleasure with life than married women and the divorced and widowed frequently express the lowest levels of satisfaction with life.

Based on the ethnicity, Sinhala and Tamil women are satisfied with life while Muslim women are dissatisfied due to their social and cultural barriers, lack of employment opportunities, social contacts and heavy household responsibilities.

Within the age group 19-39 and 40-60 there is a rapid decrease in satisfaction level and as an overall view, there is a negative relationship between age and life satisfaction of women. According to Muzamil and Tasia (2008), women have average level of life satisfaction at all age levels and age was inversely affected for the life satisfaction of women.

There is no highly considerable difference between life satisfaction and dissatisfaction among urban and estate sector women, but the results of the two categories are conflicting. Under socio-economic profile, education level, monthly family income, occupation, relationship with friends, relationship with neighbours, being a member of community societies, health status and alcohol usage of husband emerged as significant factors with life satisfaction.

A positive relationship was recorded between monthly family income and life satisfaction of women. Muzamil and Tasia (2008) also found that personal income and family income were positively correlated with the life satisfaction of women. According to Seghieri, Desantis and Tanturri (2006), it is assumed that high levels of income are implicitly associated with high levels of wellbeing.

In the case of women who have career lives, the majority are satisfied about their lives and this situation is reverse for the women who are not engaged in employments. According to Crompton (2010), there is a positive impact of having paid employment on women's life satisfaction scores. Hasnain, Shadab and Shelly (2011) found significantly greater life satisfaction and lower self-esteem in working women than in non-working women.

There is a clear variation in life satisfaction among the women according to the alcohol usage of husband and this could be recognized as an influential predictor for the life satisfaction of married women. Relationship with friends and neighbours and being a member of community society also has recorded greater

influence on life satisfaction. Haller and Hadler (2006) found that good and close relationships with other people such as partners and spouses, parents and children, kinsmen, friends, neighbours and workmates are a major source of life satisfaction.

Among the healthy women, the majority are in a satisfied level and this condition contrasts with that of unhealthy women. According to the Crompton (2010), compared to women with disabilities, those with severe or very severe disabilities rated their health satisfaction significantly lower. The women have obtained the highest personal satisfaction score are those who reported the highest level of physical wellbeing (Sandra, Veronica, Martha and Kimya, 2003).

Education level has emerged as the important factor for predicting the life satisfaction. According to David (2005), education is significantly positively related to subjective wellbeing. Diener, Eunkook, Richard and Heidi (1999) found small but significant correlations between education and subjective wellbeing.

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THE IMPACT OF HUMAN CAPITAL ON EMPLOYEE PRODUCTIVITY OF MEDIUM SCALE APPAREL INDUSTRY IN SRILANKA

Rajapaksha U G

Department of Management and Finance
Kotelawala Defence University Ratmalana
Sri Lanka

Abstract

Human capital refers to the stock of knowledge, habits, social and personality attributes including creativity, embodied in the ability to perform labour so as to produce economic value. Further, several studies have found that a number of factors affect on human capital; education is in the premier position among these factors. It includes the knowledge that comes from formal education, non-formal education and informal education. The current study is carried out with the objective of identifying and analysing the impact of human capital on employee performance of medium scale apparel industry in Sri Lanka. As the data collection tool, a semi-structured questionnaire was used with a sample of 100 employees selected on simple random sampling techniques from 10 apparel companies which were selected on convenient sampling method. Structural equation method was used to analyse the data statistically. As the tool to analyse the data, SPSS Amos (version 21) was used. Finally, the research study finds that education, age, sex, civil status, rural or urban distinction, work experience, and training and development effect on employee performance. The study found that urban employees are more productive than rural employees; female employees are more productive than males; female employees with the age lesser than 25 years are more productive while males with age less than 30 are more productive; the impact of primary education with training and development are more productive.

Further, being the employees in the urban sector, being a male aged between 30 to 35, having experience between 10 to 15 years and having education up to secondary education contribute to better employee performance.

Keywords: *Human Capital, Employee Productivity, Education, Training, Experience*

1. BACKGROUND OF THE STUDY

Every organization is based on resources such as Man, Machine, Money, Material and Method. 'Man' factor is all about human capital. Human capital is a process of enhancing an individual's knowledge, skills and ability in order to increase his/her individual performance. It characterises people's skills, knowledge, attitudes, behaviour and capacity. Once an organization has created its human capital rightly, it increase; employee performance which eventually change the organizational performance with the help of new skills, knowledge and abilities.

Sri Lanka's apparel sector has become one of the main pillars in the country's economy for the last few decades. A higher percentage of the population in apparel processing plants in Sri Lanka are working in small and medium scaled. Human capital is considered as a very important factor in the medium scale apparel industry. It plays a vital role in the development of the industry in the context of competitive advantage in both low cost and differentiation. Therefore, it is important for an organization in the apparel sector to recruit right employees with right, creativity, innovativeness, skilfulness, knowledge and attitude in order to have a sustainable spectrum of human capital development. This human capital development makes it possible to boost the employee performance (Olaniyan and Bankole (2005) and, as a result, the productivity in the apparel industry is floating on apparel industry is a labour intensive one.

1.1 Problem Statement

Human capital is considered as a one of the most important aspects of the capital in the apparel industry, and it is more significant than other capitals because it decides the employee productivity. Source of human capital comes from formal education,

informal education and non-formal education (Rajapaksha, 2014). This tri-sources of education makes from many different attributes. Further human capital mix affects employee productivity than other capitals. Then the question arises as to what type of employee attributes would make an impact on employee productivity. However, in macro perspective, the problem that the apparel industry in Sri Lanka is facing today is the lack of better human capital mix, which can increase cost-effectiveness and product differentiation (Oxley, 2005) in order to compete with competing countries apparel producing in the world at low cost.

1.2 Research Objectives

While the core objective of this research study is to identify the impact of human capital on employee performance. Hence its secondary objectives are;

- i. to identify the factors influencing on human capital of medium scaled apparel sector in Sri Lanka.
- ii. to explore the impact of factors affecting on human capital on employee performance of medium scale apparel sector in Sri Lanka.

2 LITERATURE REVIEW

Schultz (1963) in his book 'Investment in Human Capital' recognizes human capital as the stock of knowledge, skills and abilities that are derived from education. He classifies human capital as the accumulation of skills and knowledge that a people acquire during a span of time period. As Schultz (1961) identifies, the development of human capital can be categorized into five areas; (1) investment in health and services (2) employment in on the job-training (3) empowerment in education level (4) extension programmes (5) migration due to changing job opportunities. All these five areas bring education to individuals from the three sources namely formal, non-formal and in-formal (Weir, 1999). These areas give the knowledge, experience and skills to an individual to form human capital. Therefore, human capital and education cannot be separated because human capital is a further extension of education along with training, experience and health (Chandrakumara, 2009). Further, education can make a human as a capital or as a resource or as an asset due to his knowledge, skills and abilities. Oxley (2005) defines human capital as the knowledge and skills embodied in people rather than physical capital that is vital to a country's economic growth. In contrast,

Olaniyan and Bankole (2005) recognize human capital as the abilities and skills of a country. They indicate human capital is to be acquired, built up and developed and it does not come spontaneously. Hence, it needs cognitive and non-cognitive thinking to acquire, build and develop the human capital where education, training, experience can provide the same. As he indicates all forms of education does not make the human capital. Therefore, only the aspects where skills development could be made instrumentally, forms the human capital. Oxaal (1997) is in an opinion that the human capital is a private and social good which provides many economic and non-economic consequences to an individual and society.

Education means acquiring knowledge and skills. Weir (1999) identifies education in a three-fold manner; i.e. Formal, Non-Formal and Informal. Formal schooling is usually considered as education by many scholars. While formal education enhances people's cognitive skills and abstract reasoning ability, non-formal education fosters specific information needed for a particular task or type of work. However informal education directs people to form attitudes, beliefs and habits. Formal education is known as Education from schooling. It is the process of transferring knowledge and skills from one generation to the next (Janjua and Kamal, 2011). Non-formal education includes Education from extension, apprenticeships and training programmes. Informal education means Education from wide range of experiences, including 'learning by doing' and migration or other activities which provide exposure to new ideas and facilitate learning. Further, as Chandrakumara (2009) indicates human capital is also a result of formal, informal and non-formal education

Flora *et al* (2005) defines human capital as; 'the native intelligence, skills, abilities, education, self-esteem and health of individuals within a community'. Tabari & Reza (2012) define human capital as an accumulation of science, knowledge, experience, ability, health, regularity and discipline that is stored by education and health in the workforce in order to increase their work efficiency in production. Both studies perceive that human capital has the ability to increase productivity of the workforce. Gazdar *et al* (1994), Malick (1991), Ahmed (1990) and Kazi (1995) indicate that education plays a critical role in human capital development. Janjua and Kamal (2011) and Rosen (1989) are more specific on this. They point out while the stock of people with knowledge and skills is considered as human capital the

basic source of human capital comes from formal education.

However, Taking into consideration what Chan (2009) indicates about human capital, and the definition given by Chandrakumara (2009) regarding human capital and further taking into consideration the definition given by Schultz (1961) as '*human capital is a 'means' of achieving higher productivity and*

higher wages for individuals (p.3), the below Figure 1 is drawn.

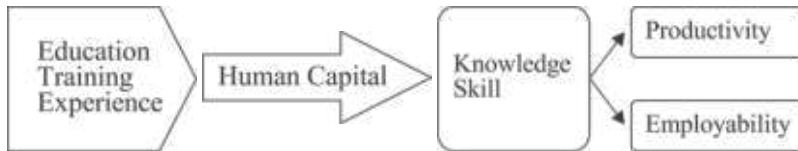


Figure 1 : Means and Ends of Human Capital

Source : Created by author based on the studies done by Chandrakumara (2009) and Schultz (1961)

Figure 1 indicates education and training along with health factor improve human capital. This notion is further consistent with what Schultz indicates; the productivity and employability are consistently developed due to the continuous expansion of knowledge, skills and abilities which come through human capital.

Human capital theorists' views on the role of education are different from the concerns on correspondence theorists (Bowles, Gintis). According to correspondence theory concern, education is valued based on employment perspective. Correspondence theorists believe that education is perceived by the employers for its non-cognitive qualities and attributes more than its cognitive skills. Correspondence theorists argue that the non-cognitive skills correspond strongly to the attributes required of employees at unskilled, middle and higher levels of the occupational hierarchy. Human capital theorists identify when the level of education increases, it increases the skills and abilities of people to enhance the employee productivity, eligibility of employment in informal sector and promotion after that. Further, correspondence theorists believe that increasing education can increase the functionality in the employment aspects.

3. RESEARCH METHODOLOGY

3.1 Introduction

In this research, the researcher is using 'positivism' as the research philosophy and the 'deductive' approach is applied as the research approach since this research is developing research questions based on the existing theory. As the research method, the quantitative method is used. As the research strategy, survey method is used while the time horizon of the study is cross sectional.

3.2 Conceptualization

Conceptual framework is shown in the Figure 2.1 to interpret how the factors of human capital have an influence on employee productivity. The researcher has developed this conceptual framework based on the findings from the literature review.

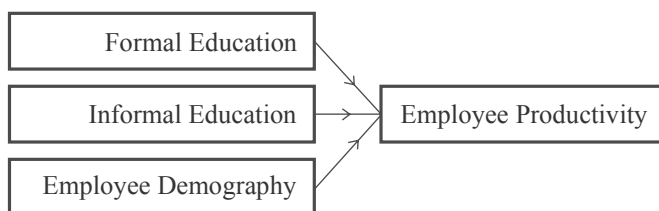


Figure 2 : Conceptual Framework: The Factors Affecting on Human Capital to Employee Productivity.
Source : Developed by Author (2015)

According to the Figure 3.1, formal education, informal education and employee demographics are the source of human capital (Rajapaksha, 2014). The factors affecting human capital such as formal and informal education along with employee's demographics have an impact on employee performance. Formal education is represented here by the school education while informal education is the non-volunteer education that comes from age and experience. The factors such as sex, marital status, rural/urban divide and sex are indicated as the employee demographics. All these factors contribute to form the human capital. However, the human capital formed thus will affect the employee productivity as identified by the review of literature.

3.3 Formulation of Empirical Model

Based on the conceptual framework developed as shown in Figure 3.1, the following empirical model is developed.

$$Y_{ij} = f(W_{ij}, X_{ij}, Z_{ij}) \dots \dots \dots (1)$$

Where: Y stands for employee performance and vectors W_i , X_i , Y_i stand respectively for factors of formal education (W_i), factors of informal education ($X_{1..2}$) and employee demography ($Z_{1..3}$). While factors of formal education (W_i) and factors of informal education (X_i) indicate the endogenous variables, employee demography (Z_i) is shown as the exogenous variable as below in the Table1 (i & j indicate 'of a person' & 'of an organization' respectively).

3.4 Operationalization

Table 1: Data and variables are developed according to the conceptual framework as shown in Figure 2 and the empirical model is as shown in the section 3.3.

Table 1: Variables and Indicators

Variable	Indicators	Measurement Scales
W_1 : Education	Education level of the employee 1= Primary Edu. 2= Secondary Edu.	Nominal
X_1 : Age	Maturity is broadened with Ranges of years of age Informal education which comes with age Linear and non-linear experience in the job and off the job	Nominal
X_2 : Experience	Range of years of experience	Nominal
X_3 : Training and Development	Periods of training and development Years/months of training	Continuous
Z_1 : Sex	Human Capacity of employee depends on the sex 1=Male, 0=Otherwise	Nominal
Z_2 : Urban/Rural	Human Capacity of employee varies with urban and rural divide 1=Urban, 0=Otherwise	Nominal
Z_3 : Marital Status	Human capacity is different with marital status 1= Married 0=Single	Nominal
Y =Employee Productivity	Number of output produced within last year/Hours of work Output per hour	Continuous

Source : Developed by Author (2015)

3.5 Sample Profile

Since the study focused on medium scale apparel industry in Sri Lanka, the sample element of the study is employees; sample unit in the study is the production lines; sample frame is the list of employees. Due to practical difficulty in investigating all the elements in the population, a representative sample of 10 garment factories were selected through convenient sampling technique. 100 operators from there

were selected using simple random sampling method. This is consistent with the sample number and the method of selection done by Dassanayake (2014).

3.6 Data Collection Tool

Primary data was considered to be the key input for the analytical process of the current study. Hence, primary data was gathered by using semi-structured questionnaires and interviews. This is consistent with Dassanayake (2014).

3.7 Data Analytical Tool

The reliability test was conducted with Cronbach Alpha which is an in-built feature of SPSS (ver 22). Researcher used the SPSS AMOS (ver. 21) in order to analyse the model fit of this research. Goodness of Fit Index (GFI), Parsimony Goodness of Fit index (PGFI), and the Root Mean Square Error of Approximation (RMSEA) have been used. GFI should be preferably less than one to indicate a close model fit. If GFI is equal to one, then it indicates a perfect fit. Statistical estimation tool is SPSS AMOS (21). Structural Equation Method was used as the estimation model.

4 DATA ANALYSIS

Under this section estimation of the empirical model was statistically tested to see the impact of human capital on employee productivity in medium scale apparel sector in Sri Lanka.

4.1 Model Fit and Reliability

According to the analysis, it shows that GFI is equal to 0.521 which indicates a close fit. In addition, the PGFI is shown as 0.208. RMSEA is 0.0727 which is acceptable as the norm is less than 0.08. Therefore, the model fit is assured from the indexes as shown above. Further, in order to make sure the reliability, statistical test was done with the aid of SPSS (21). 62 percent composite reliability was made sure based on the Cronbach Alpha.

4.2 Coefficient and Correlations

The factors affecting on human capital are Age, Sex, Marital Status, Education, Training and Experience, and they are the variables associating with human capital as recognized by Schultz (1993) and Rajapaksha (2014). The correlations and significance are shown in the Table 2 Further, the second objective of the research is to see the impact of the factors affecting on human capital on employee performance. The necessary data for the objective were analysed as per data and variables recognized in the Table 1 : Data and Indicators.

As Table 2 shows, the factors such as Age: between 15 to 20 years, Age: between 21 to 25 years, Age: between 26 to 30 years, Sex: Female, Marital Status: Married, Education: Primary Level, Education: Secondary Level, Training, Rural/Urban: Urban, Experience: between 1 to 5 years, Experience: between 6 to 10 years and Experience: between 11 to 15 years have shown a positive coefficient on employee productivity.

Further, among the variables showing positive influence, the variables such as Education: Secondary Level, Education: Primary Level, Age: between 21 to 25 years, Age: between 15 to 20 years, Sex: Female, Rural/Urban: Urban and Experience: between 6 to 10 yearsshow a significant impact on employee productivity. Further the variables such as Education: Primary Level and Age: between 21 to 25 yearsh as a high level of significance. However, the factors such as Age: between 31 to 35 years, Sex : Male, Marital Status : Single, Rural/Urban : Rural, Experience: less than 1 year, Experience: greater than 16 years are the factors which show negative influence on employee productivity. Out of the factors affecting on employee productivity negatively, the factors such as those who come from rural sector, Experience greater than 15 years, Sex: Male, Age between 30 to 35 years show a significant impact on employee productivity negatively.

Table 2: Impact of Human Capital on Employee Productivity

Variables	Standardized		Significance
	Total	Error	
Age: between 15 to 20 years	0.133	0.064	0.020
Age: between 21 to 25 years	0.189	0.059	0.010
Age: between 26 to 30 years	0.021	0.111	0.136
Age: between 31 to 35 years	-0.048	0.185	0.033
Sex : Male	-0.052	0.026	0.041
Sex : Female	0.121	0.056	0.028
Marital Status : Single	-0.033	0.034	0.065
Marital Status: Married	0.041	0.075	0.079
Education: Primary Level	0.768	0.052	0.006
Education: Secondary Level	0.461	0.065	0.030
Training	0.059	0.091	0.059
Rural/Urban : Rural	-0.162	0.026	0.009
Rural/Urban : Urban	0.109	0.056	0.033
Experience: less than 1 year	-0.024	0.163	0.255
Experience: between 1 to 5 years	0.048	0.051	0.067
Experience: between 6 to 10 years	0.077	0.045	0.041
Experience: between 11 to 15 years	0.042	0.055	0.074
Experience: greater than 16 years	-0.114	0.109	0.007

Dependent Variable: Employee Productivity

5. DISCUSSION AND CONCLUSION

As the Table 2 shows, the standardized total impact of employees aged between 15 to 20 years, 21 to 25 years, 26 to 30 years and 31 to 35 years on employee productivity are 0.133, 0.189, 0.021 and (0.048) respectively. This indicates those who are in the age group between 21 to 25 years are holding higher productivity than others and stand in a peak. After the age of 31, employee productivity starts to

decline. The behavior of productivity with the age distribution is shown below in Figure 3.

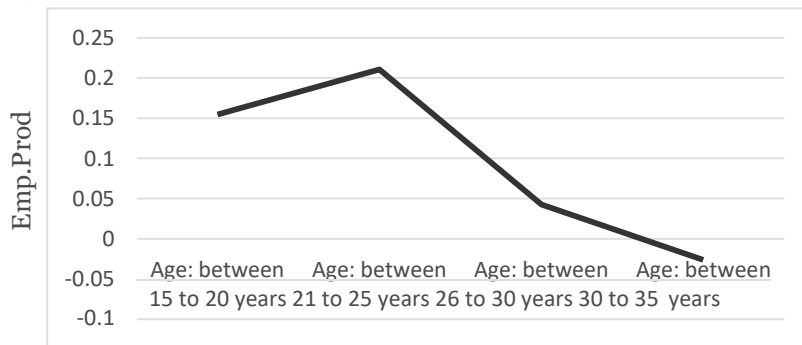


Figure 3: Behavior of Productivity with the Change of Age
Source: Survey Data (2015)

As per the Figure 3, it is clear when employees pass the age of 25 and onwards productivity starts to decline. Once an employee reaches the age group between 31 to 35 years, the employee productivity becomes negative. Then question arises whether the employees after 31 years to be employed as operators or do they need to be promoted to senior positions where they can contribute in decision making rather than doing the normal operating work. This situation is consistent with the principle laid in the scientific management introduced by FW Taylor.

Further, as the Table 2 depicts, the employees with the experience of less than 1 year, 1 to 5 year/s, 6 to 10 years, 11 to 15 years and over 16 years show the standardized total effect of employee productivity as (0.024), 0.048, 0.077, 0.042, (0.114) respectively. This indicates that the employee productivity increases up to 10 years and then it starts to decline. This means those who have completed around 10 years of experience show a higher productivity. Again the issue is whether to keep the employees who are more than 10 years experienced as operators or not. The behavior of productivity with experience is shown as below in the Figure 4.

The Figure 4 indicates when employees reach more than ten years of service, the employee productivity goes down. The factory managers need to see whether they keep the employees in the capacity of operators after their experience reaches beyond ten years. The best alternative is to introduce a job enrichment Programme where employees get additional responsibilities than tasks. This is a new forms of job redesign techniques.

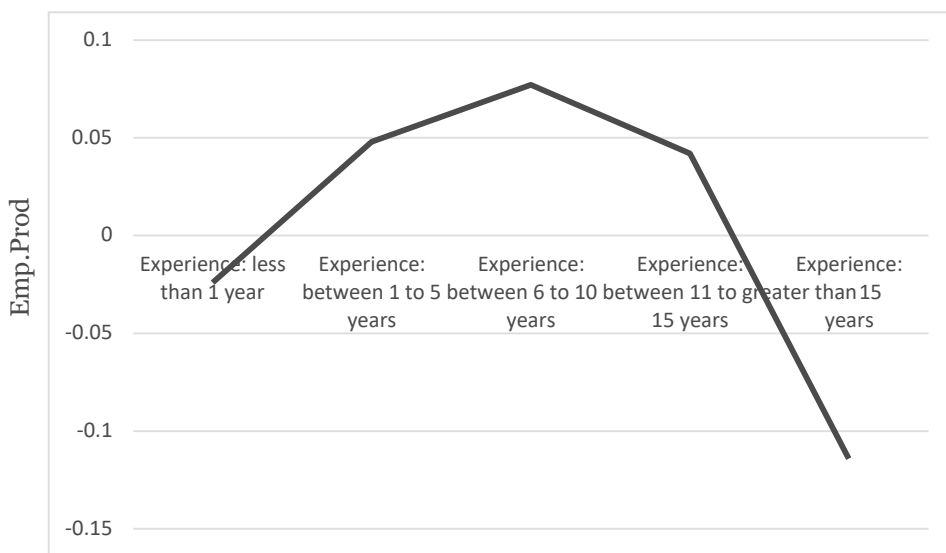


Figure 4: Behaviour of Productivity with the Change of Experience
 Source : Survey Data (2015)

As per the Table 2, the employees with primary Level education show a standardized total effect of productivity of 0.768 while those who have completed education up to secondary level show a standardized total effect of productivity with 0.461. Taking age, experience and education together, it is evident that those whose age is between 21 to 25, females with primary education and experience between 6 to 10 years show a better productivity than others do. Further those who are over 31 years with more than 16 years of experience are not productive based on the results of statistical analysis.

In the final analysis, the current study has found that human capital has a considerable impact on organisational performance. Based on the sample obtained from the organizations, it was able to identify that age, sex, marital status, education and experience are important parts of human capital that influence on organizational performance through employee productivity through their contribution on creativity, cost reduction, customer satisfaction and quality management. The study concludes that being in the categories identified as young stage, rural sector, unmarried, females, experience in between 5 to 10 years and education up to primary level influence on human performance considerably. Finally while females contribute more on human performance through employee

productivity than males who contribute more on organizational performance by their decision making capacity as per the interview details. Then the young aged employees contribute more on human performance while older employees contribute more on organizational performance according to their declaration made in the interview. Further rural employees do not support much on employee performance while urban employees contribute more on both organizational performance and employee performance.

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JOB SATISFACTION OF SEWING MACHINE OPERATORS IN SRI LANKA: A CASE STUDY

Dedduwakumara D S

Department of Statistics
Faculty of Science
University of Colombo
Sri Lanka

Abeygunawardana R A B

Department of Statistics
Faculty of Science
University of Colombo
Sri Lanka

Abstract

Apparel industry is one of the largest foreign exchange earners of Sri Lanka. Sewing Machine Operators (SMOs) can be considered as the key personnel in the apparel industry. One of the major challenges faced by the apparel industry is the retention of skilled SMOs through enhancing their job satisfaction. Therefore, the employers are keen on identifying the level of satisfaction of the SMOs about the job and on taking necessary actions to manage the factors which are associated with job satisfaction. This study focused on the job satisfaction of the SMOs employed in a particular manufacturing division of a reputed apparel company in Sri Lanka. The data were gathered through self-administered questionnaires. In the sample, most of the SMOs are on their first employment. Majority of them represent the age category 20-29. Almost half of them are married and among them nearly 50% of SMOs have children younger than six years. Overall job satisfaction of the SMOs are in a higher state where more than 75% of SMOs indicated satisfied in job satisfaction scale. The food and the number of uniforms provided are the most dissatisfactory aspects. Further, the univariate analysis revealed that SMOs working for more than five years have a higher

satisfaction level. The SMOs in the age category 30-34 are highly satisfied and greater than 34 are less satisfied. Married SMOs also display a higher job satisfaction level. Discrete Proportional Hazard model was fitted to model the job satisfaction of SMOs. Place of accommodation, service level, facilitative working environment, effective working relationships and pressure from the family were significant at 5% level. The Deviance test, Pearson chi-square test and Parallel lines test concluded the goodness of fit of the model. Odds ratios revealed that the SMOs residing at their own houses are more satisfied than the SMOs residing outside.

Keywords: *Job satisfaction, Sewing Machine Operators, Discrete Proportional Hazard model*

1 INTRODUCTION

Human resources in modern industrial organizations play a prominent role. To gain the maximum contribution from the human resource, the satisfaction on the employment should be enhanced. Satisfied workers always have a positive influence towards the success of an organization. Therefore, it can be considered that the productivity of an organization is closely linked with the concept of Job satisfaction. Enhancing the level of satisfaction of employees is a major challenge for organizations as it involves in handling the factors associated with job satisfaction. Because of the importance of job satisfaction to the business world, it has gained a special concern by many of the researchers and practitioners in the field. Apparel industry in Sri Lanka makes a major contribution to the country's economy as it accounts for about 46 % of the total export earnings in Sri Lanka (Central Bank, 2010).

Among various employment categories in the apparel industry, SMOs are the main employment category for the success of the industry (Tilakatatne, 2006). The major problem that the industry is facing today is the retention of skilled SMOs through enhancing their job satisfaction. This paper attempts to identify the context of job satisfaction of SMOs with special reference to a distinguished apparel company in Sri Lanka. The study will help the organization to understand the factors contributing to job satisfaction and their importance.

2. METHODOLOGY AND EXPERIMENTAL DESIGN

The Stratified sampling technique was used to select the sample of respondents. Gender has been used as the stratification variable since the male SMOs are proportionally low compared to the female SMOs. Further proportional allocation method has been used to decide the number of individuals that has to be sampled from each stratum. Data were collected through self-administered questionnaires from 324 respondents. The questionnaire was designed to capture demographics, personal variables, job related variables and overall job satisfaction of the SMOs. It was mainly comprised of the close ended questions and five point Likert scale questions ranging from 1=highly dissatisfied to 5= highly satisfied and 1=strongly disagree to 5= strongly agree.

The discrete proportional hazard model was used to model the job satisfaction of the SMOs depending on the nature of the data. This is an ordinal regression model with a complementary log-log link. This model assumes the proportional odds assumption. Further, the odds ratios were calculated to determine the change in odds when changing the levels of a variable.

3. RESULTS

3.1 Descriptive Analysis

According to the composition of the sample 88.6% are female respondents (refer Table 1) and remaining 11.4% are male respondents. More females are working as SMOs since the occupation is more related to females than to males. Table 1 shows that three out of every four SMOs fall into the age category of 20 – 29. The percentage of SMOs who are older than 40 years is very less. Out of the total respondents, almost 50% of SMOs are married. Furthermore, from the married employees 43% of SMOs are having children younger than 6 years. Table 1 shows the service level of the 324 respondents where most of the SMOs have 1-3 years of service (31.7%) and considerably large number of SMOs also have more than 5 years of service (27.5%). Considering about the accommodation of the SMOs 86.7% of SMOs stay at their homes while the other 13.3% reside outside their homes.

Table 1: Demographic information of the sample

Gender	Frequency	Percentage
Male	37	11.4%
Female	287	88.6%
Age	Frequency	Percentage
Less than 20	11	3.4%
20 – 24	129	39.8%
25 – 29	115	35.5%
30 – 34	46	14.2%
35 – 39	18	5.6%
40 ≤	5	1.5%
Marital status	Frequency	Percentage
Single	166	51.3%
Married	153	47.2%
Separated/ Widow/ widower	5	1.5%
Do you have children younger than 6 years?	Frequency From married SMOs	Percentage From married SMOs
No	86	57%
Yes	67	43%
Service level	Frequency	Percentage
≤ 6 months	21	6.5%
6 months - 1 year	45	13.9%
1 year- 3 years	103	31.7%
3 years – 5 years	66	20.4%
5 years ≤	89	27.5%
Accommodation	Frequency	Percentage
Home	281	86.7%
Boarding place	23	7.1%
Company hostel	13	4%
Relative's place	7	2.2%

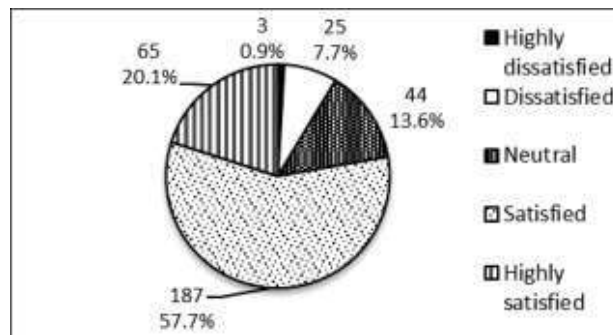


Figure 1 : Past employment composition of SMOs

Figure 1 depicts that 62% of the SMOs have not been occupied in a job before the current employment. About one fourth from the total number of SMOs in the sample have experienced one job before. About 13% of SMOs have experienced two or more jobs before.

3.2 Job Satisfaction

A five point Likert type scale ranging from 1=strongly disagree to 5= strongly agree was used to capture the overall job satisfaction of the SMOs. The Cronbach's alpha value of 0.878 indicated a higher internal consistency of the scale used (Hair, et al. 2010). The average response level for the scale was taken as the dependent variable which captures the job satisfaction of the SMOs.

The pie chart illustrates that 20.1% of SMOs are highly satisfied with their employment and 57.7% of SMOs are satisfied with their employment. Therefore, altogether 77.8% SMOs from the sample are satisfied (either satisfied or highly satisfied) with their current employment. 8.6% of SMOs from the sample are dissatisfied (either dissatisfied or highly dissatisfied) with their employment. Considerably a high percentage (13.6%) of neutral responses for the overall job satisfaction is present in the sample.

According to the above table the “number of uniforms given” and the “food of the canteen” are the conditions that the highest amount of employees are dissatisfied with compared to the other working conditions. As a percentage, almost 42% from

the total sample are dissatisfied with the number of uniforms, which are offered by the company and almost 33% of SMOs are dissatisfied with the food it provides.

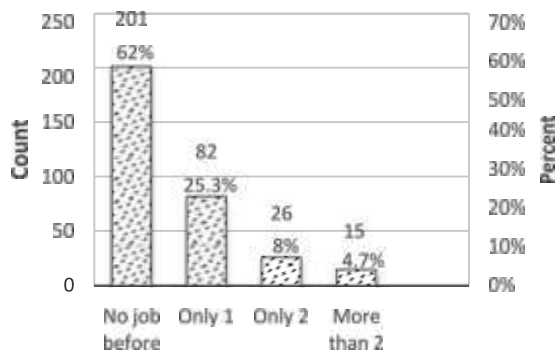


Figure 2 : Overall job satisfaction of SMOs

Table 2 : Satisfaction level of working nvironment

Working Environment	High y dissatisfied %	Dissatisfied %	Neut al %	Satisfied %	High y satisfied %
Lighting at the work place	0	0.6	0.3	49.7	49.4
Safety in the working place	0	1.9	0.3	56.5	41.4
Ventilation at the work place	0.9	3.4	1.2	57.7	36.7
Sanitary facilities	0.6	6.5	2.2	63.9	26.9
State of the machines used	0.6	4.9	9.6	66	18.8
Food of the canteen	9.6	23.1	7.1	51.9	8.3
Number of uniforms given	4.6	37.3	2.2	43.2	12.7

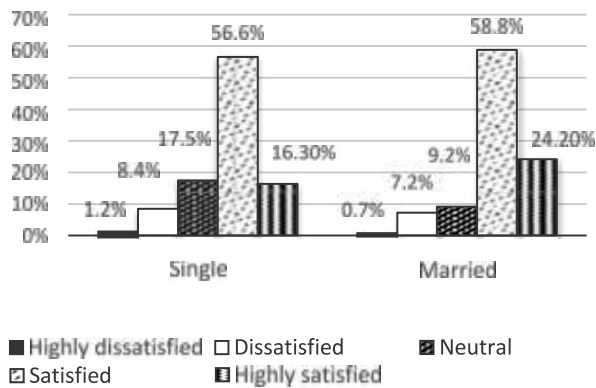


Figure 3 : Marital status vs. overall job satisfaction

According to the above figure married SMOs are more satisfied or highly satisfied (83%) with their employment rather than the unmarried SMOs (almost 73%).

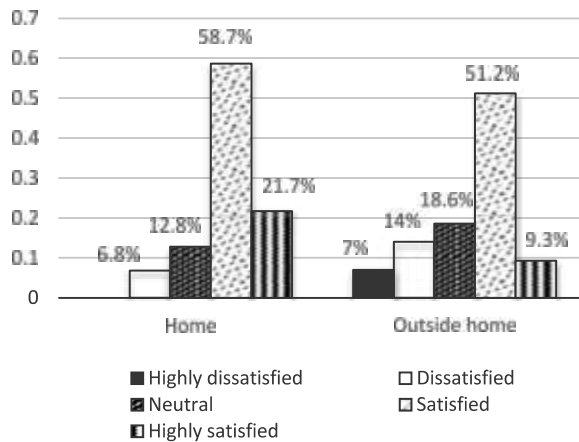


Figure 4 : Marital status vs. overall job satisfaction

SMOs who reside in their own houses have shown a higher overall job satisfaction (about 80%) than the SMOs who live outside their homes during their employment (refer to figure 4) Here the “Outside home” refers to the SMOs who live in boarding places, company hostel or their relatives' places during their employment (refer to figure 4).

Table 3 : Satisfaction level by age category

Age	Highly dissatisfied %	Dissatisfied %	Neutral %	Satisfied %	Highly satisfied %
Less than 25	1.4	10	14.3	56.4	17.9
25-29	0	4.3	15.7	63.5	16.5
30-34	2.2	2.2	6.5	60.9	28.3
Greater than 34	0	21.7	13	30.4	34.8

It can be clearly seen in table 3 that the SMOs in the age of 30 to 34 are more satisfied than the SMOs in other age categories (89.2%). SMOs in the age of 25 to 29 also show a higher satisfaction level about their current employment (80%). SMOs older than the age of 34 are more dissatisfied compared to the SMOs in the other age categories. As a proportion, it accounts for more than one fifth of the total SMOs older than 34 years. SMOs younger than 25 years also show a some dissatisfaction about their employment (11.4%).

Table 4 : Satisfaction level for service level

Level of service	Highly dissatisfied %	Dissatisfied %	Neutral %	Satisfied %	Highly satisfied %
Less than 6 months	0	14.3	9.5	47.6	28.6
6 months to 1 year	2.2	4.4	15.6	55.6	22.2
1 year to 3 years	0	15.5	19.4	51.5	13.6
3 years to 5 years	3	1.5	9.1	66.7	19.7
More than 5 years	0	3.4	10.1	61.8	24.7

The table 4 describes how the overall job satisfaction differs according to the years of service of the SMOs. The SMOs who have a service level of one to three years are the most dissatisfied (15.5%) compared to other SMOs. The SMOs in the probation period (less than 6 months) also show a comparatively higher level of dissatisfaction (about 14%). The SMOs who worked more than three years in the manufacturing division display a greater level of satisfaction compared to the SMOs who worked in the division less than that. Although the situation is such that the SMOs who have a service level between six months to one year also indicate a higher level of satisfaction.

Table 5 : Family background

Statements	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
Family issues have an adverse effect on my job	35.5	47.5	4.3	9.6	3.1
Family members push me to go for another job	41	40.7	6.5	10.5	1.2
Too many people dependent on my salary	28.4	37.3	6.5	21	6.8
I suffer from some family problems	29.3	35.5	4.6	22.8	7.7

Table 5 depicts that most of the SMOs (83%) believe that their family issues do not have a negative effect on their employment. Higher percentage (81.7%) of SMOs also responded that they are not encouraged by their family members to alter the current employment. Most satisfied SMOs responded with a strong disagreement for each statement (More than 28%). Although the situation is such that a considerable percentage of employees (27.8%) claim that too many individuals rely on their salary. About 30% of the SMOs from the sample agree on the fact that they go through some family problems.

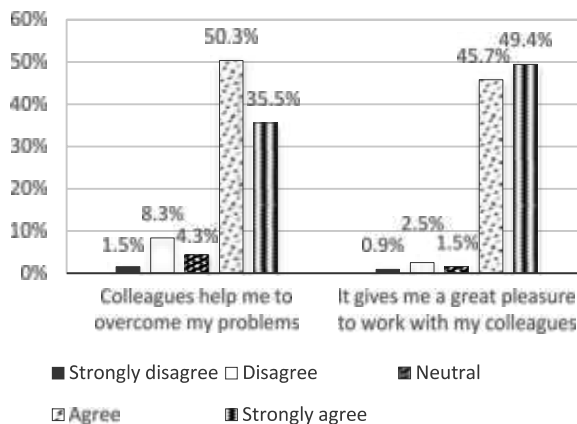


Figure 5 : Relationship with colleagues

95% of SMOs from the sample think that working with their colleagues is a pleasant experience. Almost half from the sample of SMOs strongly agreed upon this statement which talks about the pleasure of working with the colleagues. 85.8% of SMOs believe that they have been given the necessary help by their colleagues to overcome their problems. There is no any significant dissatisfaction for both of the statements (refer to figure 5).

Table 6 : Relationship with immediate supervisor

Statements	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
I can tell my immediate supervisor when things go wrong.	4.6	9.3	5.6	57.4	23.1
I prefer the way my supervisor deals with me on my job	4	5.6	8.3	57.7	24.4
My supervisor gives me necessary feedbacks to improve my work	2.2	9.3	5.9	57.7	25
My supervisor clearly informs me about the targets that should be covered	1.2	6.5	2.5	61.4	28.4

A high percentage (89.8%) of SMOs feel that they have been clearly informed about the targets that have to be achieved. They also feel that they are given the necessary feedbacks to improve their work (82.7%). 82.1% of SMOs prefer the way that the supervisor deals with them in their job related activities (see table 6).

3.3 Discrete Proportional Hazard Model

The job satisfaction measured through the above mentioned scale was used as the dependent variable for the modelling process. Given the ordinal nature of the dependent variable an ordinal regression model was used to determine the relationship between job satisfaction and the other independent variables. According to Yay & Akinici (2009) the model could be identified as Discrete Proportional Hazard model. Initially univariate analysis was carried out in order to find out the independent variables that are associated with job satisfaction. Variables with a P-value < 0.05 in the univariate analysis were included in the model. Forward and backward selection methods were applied and the variables

with a P-value < 0.05 in the model were retained. Interaction terms were not considered since meaningful interaction could not be identified through the retained factors.

The final model was consisted of the variables accommodation and service level from the demographic variables and the factors which were found through a factor analysis process carried out with the data. Those factors are known as facilitative working environment, effective working relationships, and pressure from the family.

Table 7 : Test of parallel lines

Chi-Square	DF	P-value
9.445	8	0.306

According to table 7, P- value is greater than 0.05 in the parallel lines test concluded that the model holds the proportional odds assumption.

Table 8 : Goodness of fit tests

Test	Chi-Square	DF	P-value
Pearson	632.286	634	0.512
Deviance	339.988	634	1.000

More over table 8 presents the results produced by the deviance and the Pearson chi-square statistic. Both tests displayed p-values greater than 0.05 suggesting that the fit of the model is adequate.

Odds ratio measures the association between levels of the factors with the dependent variable under consideration. When calculating the odds ratio for a particular factor, other factors were considered as constant at their base levels. Odds ratios from the model declares that a Sewing Machine Operator who is residing at a place other than home is 0.43 times are less likely to be satisfied than a Sewing Machine Operator who is residing at home. Moreover, it also states that a Sewing Machine Operator who has been working in the division for 1 year to 3 years is 0.40 times less likely to be satisfied than a Sewing Machine Operator who has been working at the division for more than 5 years.

4. DISCUSSION AND CONCLUSION

More female workers are employed in the division as Sewing Machine Operators than male workers when considering about the gender composition of the manufacturing division. The reason is that the sewing is the main occupation due to the nature of the industry and it is more related to female workers. Most of the employees are within the age group of 20-29 state that younger crowd is employed in the division. Most of the SMOs have not been employed before the current job.

Considerable percentage of SMOs are dissatisfied with the number of uniforms that they are provided with. The SMOs feel that they should be given more than two uniforms since they have to wear them continuously in all working days of the week. The other dissatisfied area of the SMOs is the food provided by the canteen. They prefer some improvements in the food provided by the canteen.

Overall job satisfaction of the SMOs was measured through the scale used in the study. According to the scale, about 77% of SMOs are satisfied with the job. From that about 20% of the employees are highly satisfied. About 9% of the SMOs are dissatisfied and a very few percentages of SMOs are highly dissatisfied. The percentage of SMOs who are neither satisfied nor dissatisfied about the job is 13.6%.

Married SMOs are more satisfied with the job than the unmarried SMOs in the division. As well as the SMOs, older than 34 years are more dissatisfied with their employment compared to the younger SMOs. SMOs who worked more than three years at the division are more satisfied with their job. It shows that when the service level increases the SMOs tend to be more settled on the employment and it drives them towards satisfaction with the job. The SMO who are accommodated outside their home are more dissatisfied with the job. This can be due to the fact that the SMOs who reside in an outside place rather than in their own houses have to undergo some practical problems compared to the SMOs who reside at their own houses. (e.g. meals, freedom etc.).

Further, a considerable percentage of SMOs claim that too many individuals rely on their salary. They also state that they have to undergo some sort of family problems. Social relationships of the SMOs at the working environment are at a

satisfactory condition.

The factors, “Accommodation”, “Service Level”, “Facilitative Working Environment”, “Effective Working Relationships” and “Pressure from the Family” were included in the final model of job satisfaction. Goodness of fit tests have suggested the better fit of the final model for the data.

The main conclusion obtained through the analysis is that the overall job satisfaction of Sewing Machine Operators in the manufacturing division depends on the 5 factors - accommodation, service level, facilitative working environment, effective working relationships, and pressure from the family.

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THE STUDY OF INVESTING IN SMEs BY WOMEN IN SRI LANKA

Ambepitiya K R

Department of Management & Finance Faculty of
Management, Social Sciences & Humanities
General Sir John Kotelawala Defence University, Ratmalana Sri
Lanka.

Abstract

In Sri Lanka, many women are running successful small businesses and some of them are very successful with entrepreneurial skills. Now they have a chance to participate in a cash economy being able to send children to school, to pay utility bills and, importantly, to feel better that they have control over their lives instead of occupying in a full time job locally or abroad. This has also created a social effect. Women in business are not only able to take care of financial position of the family but also they have quicker access to family due on any reason than a working woman. However, it has not been observed how effectively women run businesses to contribute to their family and to the economy of the country. It is common that the effective management of a small business will lead to expand the business into medium and large scale in future. This study basically aims at the progress of women in small business and how effectively they run the business towards goals in future expansion. The research method chosen and best suited to this study is descriptive quantitative research. The proposed method for data collection is close-ended questionnaire to maintain accurate accounts of information given. The researcher has used 50 registered women in small business that fitted with the outlined criteria chosen through simple random sampling. The researcher concludes the study by observing the importance of creating awareness of the need for women to invest in small businesses and financial institution to

introduce new financial mechanisms to develop women in businesses.

Keywords: *Women, Entrepreneurship, Challenges, SME, Investment*

1. INTRODUCTION

It has been proved that more than 90 per cent of industries in Sri Lanka are reported to be either small or medium sized enterprises which provide economic growth, increased productivity and employment (Organization for Economic Cooperation and Development, 2004). In view of the growing importance of entrepreneurship- oriented development it has been identified the fact that about 40% of enterprises in developing countries are owned and run by women (Zororo, 2011). Women in business have a potentiality of becoming owners of trademarks, service marks, trade names as well as of industrial designs, patents and copyright in future (Kim, 2012).

Fostering women in business can have a positive impact on a number of areas. It enhances economic growth and provides employment opportunities; in addition, it improves the social, educational and health status of women and their families as women invest more on education, health and well-being of the family (Attygalle et al., 2014). This means women in Sri Lanka have been able to send children to school, to pay utility bills and, importantly, to feel better that they have control over their lives instead of occupying themselves in a full time job locally or abroad. In global scale, the women in business use their skills, experience and time to uplift themselves and their communities. They become productive and innovative. Through their collective industry they are contributing to Sri Lanka's success as a nation.

2. RESEARCH PROBLEM

Women in business provide more benefits to the country. Sri Lanka is a developing country which has a vast demand for housemaids to middle-east countries. Although this brings foreign money to the country, it has already created some social problems like child labour, child abuse, child pregnancy, prostitution and

family problems. All of these problems can be avoided if mothers stay with their families and be self-employed. This enables families to be more sustained such as children get education, protection and enough nutrition, which cause to increase literacy rate, level of education and living standards. Then again it helps to develop the economy.

Entrepreneurship among women is very important for a country like Sri Lanka because women constitute more than half of the population of this country, but their active participation in the economy is only 34 percent (Department of Census and Statistics, 2014). Additionally, the number of females representing the employer category is about 0.6 percent of the total employed population of Sri Lanka (Department of Census and Statistics, 2007). This implies that the lack of Sri Lankan women pursuing entrepreneurship and the shortfall of successful women in business have directly resulted in their lower levels of contribution to the local economy. There are certain common challenges that were identified in developing entrepreneurs in Sri Lanka. These include, lack of access to finance, inconsistent economic policies, lack of access to technology, and a lack of managerial skills required for business development (Attygalle et al., 2014).

Then, these challenges can be common to the SMEs operated by women as well. How women face these challenges, except them any other challenges women face and the environmental conditions of businesses women operate are the areas this research covered. Therefore, this study aimed to investigate how women operate SME businesses in a challengeable environment.

3. RESEARCH OBJECTIVES

The following are the objectives which aim to fill the gap of this study. Main Objective is to study the investments of women entrepreneurs in SME sector of Sri Lanka.

Specific objectives are:

- (I) to identify the basic requirements of establishing businesses by women entrepreneurs
- (ii) to determine the challenges of women entrepreneurs.
- (iii) to learn the environment of SME women entrepreneurs in Sri Lanka.

4. RESEARCH QUESTIONS

The following research questions were set to treat the above mentioned objectives.

- (i) What basic requirements are available for women to establish a business?
- (ii) What are the challenges of operating a business by women in SME?
- (iii) How to develop a suitable environment for SMEs operate by women?

5. SIGNIFICANCE OF THE STUDY

Sri Lanka is a country which is concerned with the economic development through facilitating infrastructure. Therefore, the government invests more on development projects in order to develop some selected industries such as tourism, marine industry etc. Therefore, it is necessary to develop the private sector businesses in Sri Lanka. Supporting small business is a key to the development which will lead to eradicate some social problems like poverty. In Sri Lanka, only 35% of women are employed (Department of Census & Statistics, 2012). Usually, women are considered an important element in a family. Converting the rest of 65% of women into income generators is very important in a developing era. This study clearly identified the challenges related to the development of SME operated by women. Developing strategies to overcome or minimize the impact of these challenges is the responsibility of authorized institutes including the government. Therefore, this study empirically supports to recognize the problems related to women in business. Theoretically this study supports the need of achievement theory to extend further the focus on achievement in a challengeable environment. The goals of many women entrepreneurs are set to support the family. Therefore, the anthropological theory can be further extended by concerning this aspect.

6. LITERATURE REVIEW

6.1 Theoretical Review

The Classical theory was the result of Britain's industrial revolution which took place in the mid-1700 and lasted until the 1830s. The classical movement described the directing role of the entrepreneur in the context of production and distribution of goods in a competitive marketplace (Say, 1803). This is the foundation of any business, which highly supports in this study as well as women to operate

businesses competitively, which contributes to the production and distribution.

When it comes to developing businesses in production and distribution, the inconsistent relationship between the demand and supply must be considered to create opportunities.

A better understanding of this supports entrepreneurs to be successful in the economy. The crucial roles of the entrepreneur in economic theory were first and foremost recognized by Cantillon (1755), early in the 18th century, and he became the progenitor of the ideas that subsequent economists explored. Cantillon recognized that discrepancies between demand and supply in a market create opportunities for buying cheaply and selling at a higher price and that this sort of arbitrage would bring equilibrium to competitive market. People who took advantage of these unrealized profit opportunities were called “entrepreneurs” (Landström, 1998). Entrepreneurship is the expression of the human impulse to be creative (Khalil et al., 2007) and the role of the entrepreneur in the growth economy is argued to be direct and unambiguous.

A simple characteristic of an entrepreneur is the need of achievement. This leads the person to follow the goal until its accomplishment. Need for achievement theory by McClelland (1961) explained that human beings have a need to succeed, accomplish, excel or achieve. Entrepreneurs are driven by this need to achieve and excel.

Psychological factors of individuals are required to be considered when developing entrepreneurship. Many psychological theories have reviewed that personal characteristics define entrepreneurship (Landstrom, 1998). Personality traits needed for achievement and locus of control are reviewed and these are risk taking, innovativeness, and tolerance for ambiguity. Successful women entrepreneurs exhibit psychological characteristics such as high level of self- confidence, determination, hard work, creating a position for themselves, superior quality output and the love for their work (Schlosser, 2001).

The anthropological theory says that for someone to successfully initiate a venture the social and cultural contexts should be examined or considered. Here emphasis is on the cultural entrepreneurship model. The model says that a new venture is created by the influence of one's culture. Cultural practices lead to entrepreneurial attitudes such as innovation that also lead to venture creation behaviour. Individual

ethnicity affects attitude and behaviour (Baskerville, 2003) and culture reflects particular ethnic, social, economic, ecological, and political complexities in individuals (Mitchell et al., 2002). And, cultural environments create attitude differences and entrepreneurial behaviour differences. Women always represent the culture of that particular society. The anthropological theory applies to women in all the ways. The business practises of women are highly influenced by their individual attitudes and behavioural patterns.

Reynolds (1991) has identified four social contexts that relate to entrepreneurial opportunity. The first one is social networks. Here, the focus is on building social relationships and bonds that promote trust and not opportunism. The second one is the life course stage context which involves analysing the life situations and characteristics of individuals who have decided to become entrepreneurs. Third one is ethnic identification. One's sociological background is one of the decisive “push” factors to become an entrepreneur. Finally, the fourth social context is called population ecology. The idea is that environmental factors play an important role in the survival of businesses.

According to Das (2000), there are three categories of women entrepreneurs such as chance entrepreneurs (keep busy, hobby, special interest), forces entrepreneurs (financial need, control over time, challenge, show others what could be done) and created or pulled entrepreneurs (to be independent, self-satisfaction, example to children, employment opportunities to others). Any women entrepreneur can be listed under one of these three categories. This concept supports to understand the differences in the qualities of different entrepreneurs.

6.2 Empirical Review

Basically entrepreneurs need knowledge and creative ideas for start-ups. Successful entrepreneurs are well experienced in creating capital, taking risks and gaining resources. There are many successful stories of entrepreneurs that can be considered as examples for creative business ideas such as the Microsoft, E-bay, Body Shop, Virgin group etc. There are successful women entrepreneurs who have the same qualities and characteristics.

In the 1970s women left homes and entered the workforce in droves, women today are leaving the workforce in droves in favour of being at home. But unlike generations of women before, these women are opting to work in the home not as homemakers, but as job-making entrepreneurs. Many women start businesses that align with personal values and offers freedom and flexibility when it comes to things like scheduling. The glass ceiling that once limited a woman's career path has paved a new road towards business ownership, where women can utilize their sharp business acumen while building strong family ties (Forbs, 2012).

It has been proved that an increase in women's wealth results in the well-being of the family, especially children (Kabeer, 2001). SMEs are an essential source of employment opportunities and are estimated to contribute about 35 percent of employment. The SMEs play an important role in promoting inclusive growth. The focus on SMEs in policy discussions emanates also from their role in developing entrepreneurial skills, innovation and promoting economic growth. These are also seen as useful in promoting social cohesion. It is therefore considered essential that the environment these SMEs operate in needs be improved (National Human Resources and Employment Policy, 2012).

The number of females representing the employer category is about 0.6 percent of the total employed population of Sri Lanka in 2007 (Ranasinghe, 2008). As the Department of Census and Statistics discussed in 2007, the entrepreneurship among women is very important for a country like Sri Lanka since the women constitute to more than half of the population of this country, but their active participation in the economy is only 35 percent (Ranasinghe, 2008). According to National Human Resources and Employment Policy, SME sector of Sri Lanka accounts for 80% of the businesses and 35% of employment in Sri Lanka fulfilled by SMEs.

As Birley, Harris & Harris (1988) (cited in Cooper, n.d.) indicated to analyse the factors which influence the initial entrepreneurial decision is used to develop a theory for female entrepreneurs. The model describes three broad groups: "Antecedent Influences" include those aspects of the entrepreneur's background which affecter motivations, perceptions, and skills and knowledge. They include genetic factors, family influences, education, and previous career experiences. The

"Incubator Organisation" describes the nature of the organisation for which the entrepreneur worked immediately prior to start-up. Relevant factors include the specific geographic location, the type of the skills and knowledge acquired, the degree of contact with possible fellow founders, and the extent to which the entrepreneur gains experience. "Environmental Factors", external to the individual and to his incubator organisation provide an important setting within which the individual entrepreneur is able to flourish. Important factors here include the general prevailing economic conditions, but more specifically the accessibility and availability of venture capital, role models of successful entrepreneurs, and the availability of supporting services.

According to Hunt & Kasynathan (2002) the women and men in the developing world need access to microfinance and donors should continue to facilitate this. The equity and efficiency arguments for targeting credit to women remain powerful: the whole family is more likely to benefit from credit targeted to women, where they control income, than when it is targeted to men (Kabeer, 2001). However, donors and implementing agencies need to significantly improve the design and monitoring of microfinance programmes to ensure that they support the empowerment of women. More reflection and documentation are needed on specific programme strategies which assist women to take greater control of decision making and life choices. Microfinance must also be re-assessed in the light of evidence that the poorest families and the poorest women are not able to access credit. Swain in 2007 mentioned that a majority of microfinance programmes target women with the explicit goal of empowering them. There are varying underlying motivations for pursuing women empowerment. Mayoux in 2001 argues that the impact of microfinance programmes on women is not always positive. Women that have set up enterprises benefit not only from small increases in income at the cost of heavier workloads and repayment pressures. The contribution made by women strengthening women's position within the household and their role in decision making increased that women in the past were not able to raise their voice in their families, simply because they had neither money nor any kind of economic activities (Gunathilake & Silva, 2010).

Among the challenges faced by SMEs, the access to finance is one of main issues in this sector. A study of International Finance Corporation revealed that 77% of the

sample of SMEs required financial support but only 53% were approached by financial institutes. However only 29% were turned out to finance in long and medium term base (Nanayakkara, 2012). An unsupportive policy environment is also considered to be another key challenge to SME development in Sri Lanka. A survey conducted among entrepreneurs in the Moneragala district revealed that 27% of the respondents considered adverse economic policies as the number one factor affecting SMEs (Abyrathne, 2006). The lack of education, technical and managerial skills also acts as a major challenge to the development of SME sector (Attygalle. et.al, 2014). Another non-financial constraint faced by SMEs is the lack of information available on markets and marketing skills. Not only do SMEs find it difficult to access information on available markets (both domestic and international), they also lack the necessary know-how to market their products accordingly (Esim, 2001).

However, small businesses in Sri Lanka are facing many challenges like access to finance, physical infrastructure, level of technology, regulatory framework, access to information and advice, access to markets, business development services, industrial relations and labour legislation, intellectual property rights, technical and managerial skills, linkage formation and environmental issues. Therefore, it is a responsibility of relevant authorities to take actions to reduce involved risk of each challenge mentioned here.

7. METHODOLOGY

An empirical survey was designed with one set to study the views and experiences of women entrepreneurs who are located in three selected districts by applying simple random sampling method since questionnaires were distributed among selected districts. Geographically Colombo, Kandy and Kegalle were selected based on stratified sampling method. The women who operate small and medium scale businesses were selected on the basis of Geography and Demography: age from 18 to 77, civil status, divorced, widowed and all social status. The registration of the business was also considered. There were 50 women entrepreneurs who participated in this study. Women in business were considered as the dependant variable and the independent variables were such as knowledge, experience, education level, and basic financial knowledge. The support of financial institutes,

government support, and financial position of the business are moderate variables. Both moderate and independent variables are the challenges faced by women entrepreneurs. Research data analysis was conducted in the methods of univariate analysis, such as frequency tables, diagrams, correlation and measures of dispersion.

8. CONCEPTUAL FRAMEWORK

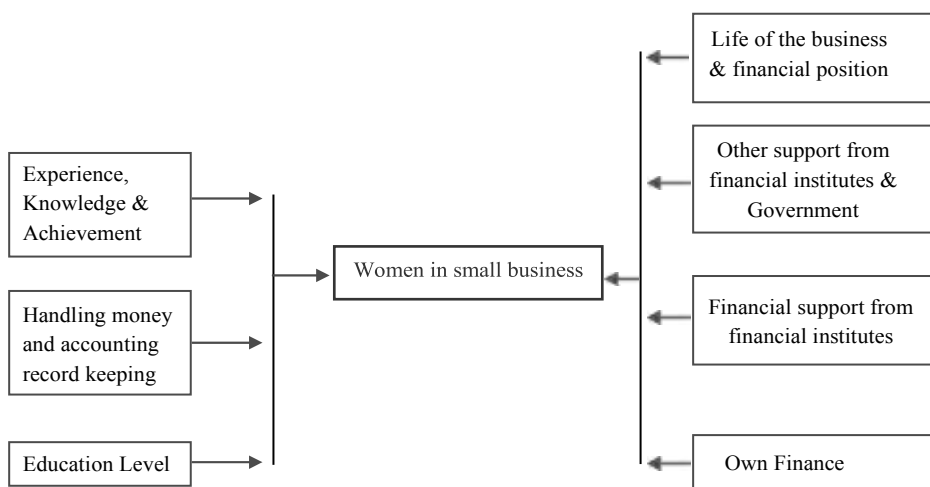


Figure 1: Conceptual Framework of the study
 Source: developed by the author

9. FINDINGS

No specific age limit was assigned for participants. However, the selected sample consisted of participants who were at least 25 years of age and at the most 60 years of age. The questionnaire was given to women who were directly involved with a business or a part of a business process.

9.1 COMMON BUSINESSES THOSE WOMEN OPERATE

Based on the statistical and illustrated data below it could be seen that data is concentrated on types of businesses which fall under the category of salon, communications and home based marketing. Therefore, it could be said that the

majority of the women in business would be highly experienced and hence would tend to adapt to positive aspects of small businesses which can be started easily, accept positive aspects as normality and continue breeding positive image towards women in business to the future generations of women within the country. This could specially encourage women to start businesses and financial institutes to make packages to suit for women.

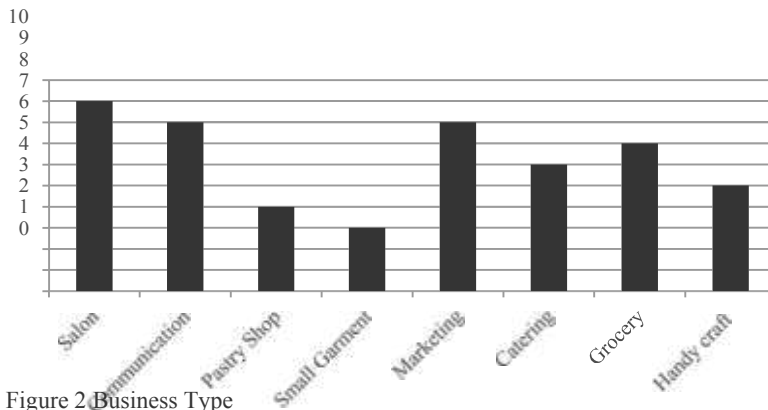


Figure 2 Business Type
 Source : Developed by the author

9.2 Marital Status Consideration

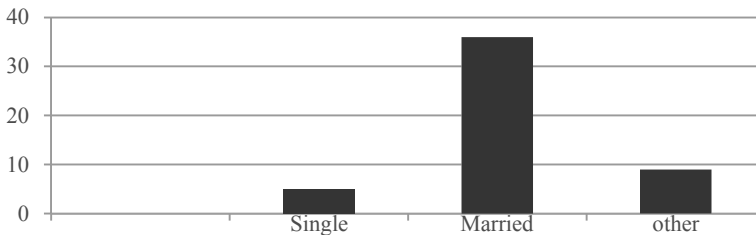


Figure 3: Marital Status

Source : Developed by the author

The respective proportions of women those who are married, single and other status are shown in the Figure 3. The result falls under the category of married. Therefore, it could be said that a majority of the women in business would be married and that has made a reason for them to start a new income as they consider that is their responsibility too. This could specially encourage married women to start businesses and to open a new income flow.

9.3 Education Level

Based on the data gathered it could be seen that a majority of the participants had received their education up to either O/L or A/L. This would mean that the women in small business sector would have minimum educational background as Advanced Level passes and this would mean a majority of the women may have necessary knowledge, skills or attitudes to perform in their businesses. However, it is also seen that out of the sample selected quite a few women had received practical education or training from institutions such as beauty and hair academies with a diploma level qualification, as they need a certification to start a salon. Other businesses do not require proper certification, but need skills to perform in the businesses such as catering, handy craft etc.

On analyzing the nature of education background mainly required for the type of skills and creativity which the business associates with it could be stated that practical education or training from different organizations is more valuable and suitable as an example of maintaining accounts. Having qualifications makes the business activities easier to carry out, and it provides a practical knowledge of how they can face positives and negatives from the environment. 25% of the women's education is equal or less than G.C.E. O/L while 75% of women indicate a small deviation as equal or less than G.C.E A/L. This indicates that only few women are educated less than or up to G.C.E.O/L.

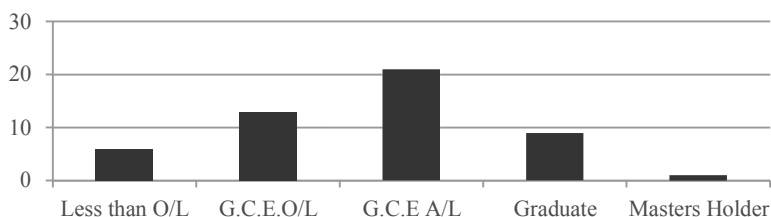


Figure 4: Education Level
Source : Developed by the author

9.4 Motives to Start an Own Business

Table 01: Analysis of Motives

Statistics		
	Response	Rank
Mean	3.14	2.84
Standard Error	0.2390628	0.218267763
Median	No suitable jobs	To support the family
Mode	To support the family	To support the family
Standard Deviation	1.6904292	1.543386153
Sample Variance	2.857551	2.382040816
Count	50	50

Source : Developed by the author

Above illustration and statistical data demonstrate that to support the family is the main motive to start a business for the majority. To be independent and to achieve an aim are the other two main motives which gained the attention of women to start a business. However, the difficulty to get an employment also causes women to seek for income generating methods. Therefore, it could be said that the main reason for women to start a business is to seek for an extra income to support the family. According to the ranking of the above causes, the majority prefer to support their families and they believe that they can become independent when they have a direct income line for them. Having a very narrow goal makes them neglect business goals.

9.5 Monthly Income

Table 02 : Monthly Income

Monthly income of the business?	Response
(SLRs) 5000 - 25000	1
(SLRs) 25000 - 45000	9
(SLRs) 45000 - 65000	8
(SLRs) 65000 - 85000	13
(SLRs) 85000 - 105000	9
More Than (SLRs) 105000	10
Total	50

Source : Developed by the author

As per the information stated above, it could be seen that a very low number of women earn a minimum income of Rs.5000 to Rs.25,000 per month. It is evident that the majority of women in business generate Rs.65,000 to 85,000 sales per month. It is also important to mention that 20% of women generate more than Rs. 105,000 worth sales per month. Therefore, on the whole it could be said that the view point held by women who participated in the survey regarding the sales can be improved further and all depends on hard work and attracting customers by providing a better service. However, they have to balance this income between the family aid and business operations. This makes them to limit the opportunity to develop the business. 25% of the business income is equal or less than Rs.45000- 65000 when 75% of business income shows a large deviation as equal or less than Rs.85000-105000. This indicates that women in business generate good income per month.

9.6 Lifetime of the Business

It is more common that the small businesses do not have a long life span. However how far women can run the businesses is shown in the data below. Upon analysing the gathered data it was seen that a majority of women were willing to run businesses more than 3 years, as they fall in the category of 3 – 4 years. 28% women run businesses for more than 5 years. This indicates that women in businesses are much committed to what they do and to achieve their goals. In a healthy strong income flow a woman would tend to act and would work towards achieving goals which would not only be beneficial for the business on the long run but also for their life itself. This is a good sign for financial organizations to support women in small enterprises. However, this does not analyse how far they could develop the business with this duration.

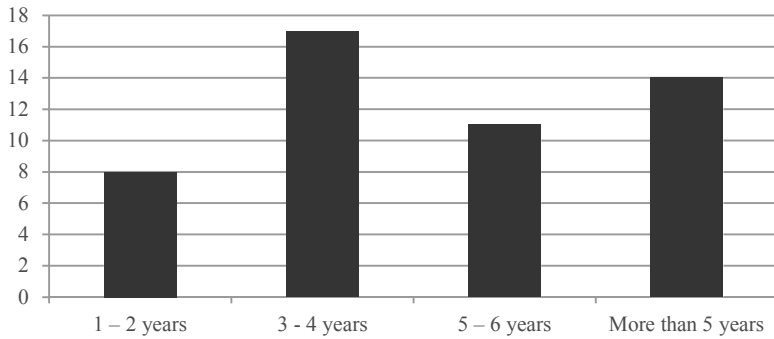


Figure 05: Average Life span of the business
Source: Developed by the author

25% of the business income is equal or less than 3-4 years when 75% of business income is equal or more than 5 years. This indicates businesses run by women having a great life span.

9.7 Expectation to Expand

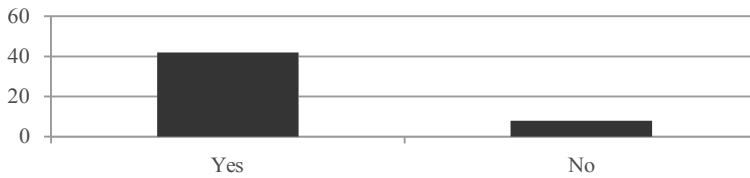


Figure 06: Expectation to expand
Source: Developed by the author

Based on the data presented above only very few women felt that there was no need to expand the business in future. However, it appeared that a majority of the women felt that they need a business expansion in future. This once again is an indicator for financial institutes to make investing decisions on women in business. Women operate business not only for survival but also to contribute to the economic growth of the country. This also specifies that women are much enthusiastic on the business they are engaged in and on achieving goals in future.

9.8 The way of Expanding the Business

Table 03 : Way of expanding the business

How do you expect to expand the business?	Response
Opening another branch	7
Skipping to another related business	17
Acquiring more equipment and labour	19
Other	7
Total	50

Source : Developed by the author

Among the choices given, a majority of the women would like to expand the business in future. A significant percentage expects to acquire equipment and labour by improving the existing capacity. Therefore, it could be said that they are in an ambition to develop the existing business further as they have already identified that it has a potential. In addition, those who had chosen the option “skipping to another related business” have either identified that the existing business does not have a potential for further growth, or they have not identified the profitable areas in the existing business. Since only a few had chosen the “opening another branch” option it could be said that they have difficulties in financing a branch. Those who selected the “other” option belong to the category of women who do not have an idea of future expansion or direction. This could be due to the negative impacts of macro and micro environments.

9.9 Ways of Spending Monthly Income

Starting from the modal class to other statistical measures, it could be clearly seen that most of the women spend the generated income for personal consumption and business operations only. According to them the income is not enough to have a percentage of saving due to high inflation over the economy. The majority of women want exactly to use the income on personal consumption, business operations and savings which is shown in the ranks clearly.

Table 04 : Ways of spending Income

How do you spend your monthly income?	Response Rank	
	Response	Rank
Personal consumption only	2	5
Personal consumption plus Business operations	23	8
Personal consumption plus savings	8	4
Personal consumption, Savings and Business operations	16	31
Savings plus Business operations	0	2
Count	49	50

Source : Developed by the author

Table 05: Analysis of spending income

Statistics	Response Rank	
	Response	Rank
Mean	2.7755102	3.22
Standard Error	0.1375975	0.15
Median	2	4
Mode	2	4
Standard Deviation	0.9631828	1.09
Sample Variance	0.9277211	1.19
Count	49	50

Source : Developed by the author

Based on the above information, significantly very few women only who like to use the income for savings and for business operations. They allocate the business income and profits for their personal consumption. Therefore, this also indicates that these small businesses which are run by women mainly focus on generating income for personal consumption.

9.10 Percentage of Spending

The data below on the percentage of spending the income generated by the women in business concentrated on mainly three areas as shown in the above statistics. The result falls under the category of personal consumption. Therefore, it could be said that a majority of the women in business spend at least 40% on personal consumption and that is the most common figure among many women who belong to this sample. Most acceptable range is then 40% on personal consumption, 35% on business operations and 25% on savings. However, savings occur when it is possible for women to save the business income only. The ability to save from business income is attracted by financial institutes mainly when they ready to provide finance for business operations. Therefore, women must understand the importance of saving which will open doors for future financial avenues for the business. 25% of the spending focuses only on personal consumption when 75% of spending focuses on business operations and savings. This indicates that a larger proportion has been allocated for savings and business operations.

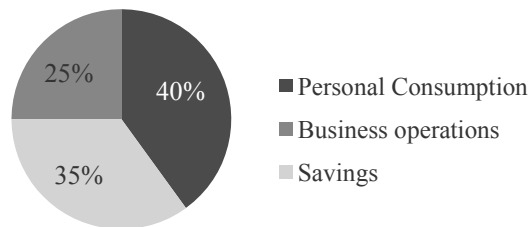


Figure 07: Income Spending
Source : Developed by the author

9.11 Keeping Accounting Records

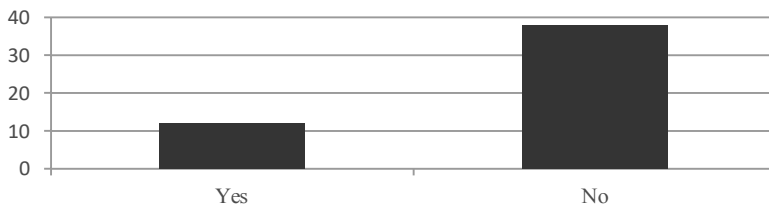


Figure 08: Keeping records
Source: Developed by the author

Based on the data gathered from women in the sample, it was possible to understand that a large number of women do not keep accounting records. However, from discussions that were held with some women, it was possible to discover that though they do not keep accounting records, they keep writing day to day transactions. Further, the majority of women (76%) do not keep accounting records and few women (24%) keep records as they explained it is helpful when they apply for a loan and some of them wanted to keep transaction records as they deal as agents for some companies. Therefore, it was possible to arrive at the conclusion that the business needs to keep transactions/accounting records properly in order to present the financial position of the organization. On the other hand, based on the analysis which was done above, it is also clearly seen that a majority of the women agreed to the fact that the business would lack health and safety if they do not write what occurs in the business. The modal class which falls on to the “No” category could possibly represent those who tend to opt out from keeping records having an answer of “not necessary, everything in mind”.

5.12 Financial Start up

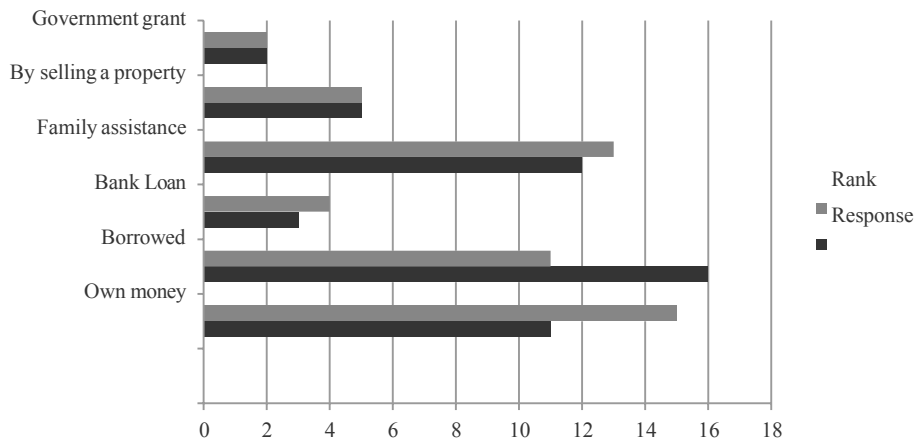


Figure 0:9: Financial Start up
Source: Developed by the author

The illustrated and analysed data shown above indicate that the majority of women had used borrowed money as the start-up capital. This borrowed money does not indicate a loan from financial institutes. Borrowing occurs informally from friends, relatives and third parties who offered loans for very high interests. A considerable group of women have received family support and some mainly used own money as the financial capital. This clearly indicates that based on the standard deviation most common sources of finance for women in business are borrowings, own money and family support.

9.13 Satisfaction with Financial Services Provided by Financial Institutes

Financial services basically are created to serve the society with various financial facilities; therefore, it is obvious that these organizations are being offered financial products to support businesses. It is clearly shown in the below analysed data that a majority of women in businesses are strongly dissatisfied with the support provided by financial institutes which is account for 34% from the whole sample. In the discussion many women explained as the first reason for why they are dissatisfied with the services provided by financial institutes is these financial organizations do not have customized facilities to support women in business especially for micro business. And some of the other reasons were that financial

institutes request for many documents, take time, and they should visit these places many times to get a work done. This is a good sign for financial organizations to develop customized programmes to suit requirements of women in business and specially to develop microfinance programmes.

Table 06 : Financial Institutes

Are you satisfied with the financial service provided by financial institutes	Response
Strongly satisfied	4
Satisfied	6
Neutral	14
Dissatisfied	9
Strongly dissatisfied	17
Count	50

Source : Developed by the author

Table 07 : Analysis of financial institutes

Statistics	
Mean	3.58
Standard Error	0.183147092
Mode	Strongly dissatisfied
Standard Deviation	1.295045504
Sample Variance	1.677142857
Kurtosis	-0.85056768
Skewness	-0.44777239
Count	50

Source : Developed by the author

9.14 Satisfaction towards Nonfinancial Services Provided by Financial Institutes

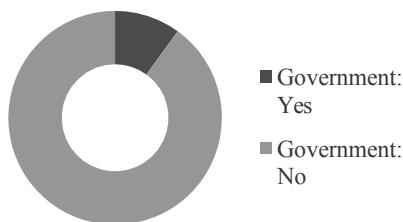


Figure 10: government support
 Source: Developed by the author

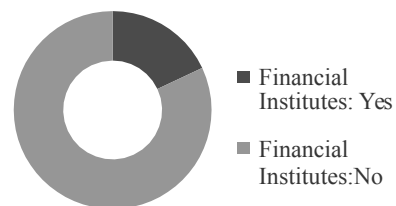


Figure 11: Other institutes' support
 Source: Developed by the author

Above illustrated and analysed data show clearly the dissatisfaction of women in business towards non-financial services provided by government and private institutes. The considered non-financial services are SME capacity building services, self-help information (workshops & seminars) for SME sector, and services for small businesses. It is clearly shown in the above analysed data that a majority of women in businesses are strongly dissatisfied with the non-financial support provided by government and private institutes. 90% of women in business

are dissatisfied with government services and 82% of them are dissatisfied with the private sector. Building capacity of SME sector is a key in a developing economy. Because of that sole proprietorship solves many problems in a country economically and socially. Therefore, government should take relevant actions and develop policies to support and aid small businesses and specially to help women in business. There are government organizations such as , Ministry of Women and Child Affairs, Ministry of Finance and Planning and National Enterprise Development Authority can provide a better service to this matter.

9.15 Challenges to the Business

Table 08 : Challenges

Please rank the following by considering them as challenges to your business?	Response
Family support	6
Economic situation of the country	7
Culture	5
Competition	1
Finance	12
Support from financial institutes	8
Support from the government	8
Managing the business	3
Count	50

Source : Developed by the author

The illustrated and analysed data show that the majority of women take finance as a challenge to the business that they are in. Some women have to spend their income for personal requirements while allocating a proportion of income to the business operations. Extra finance will grow the business into different activities is the idea the majority had.

A considerable group of women have identified the support of financial and government institutes as a challenge. Some reasons could be gathered from the discussion held as many of them said that the time taken to reach relevant authority, too many conditions and the absence of customised services are major issues.

Finally, it could be said that the economic situation and the family support also

became challenges to women in business as they consider the economic situations cause inflations and it leads small businesses to suffer. Family support is lacking for many women as they operate the businesses by isolating themselves from the family.

9.16 Improved Business Skills

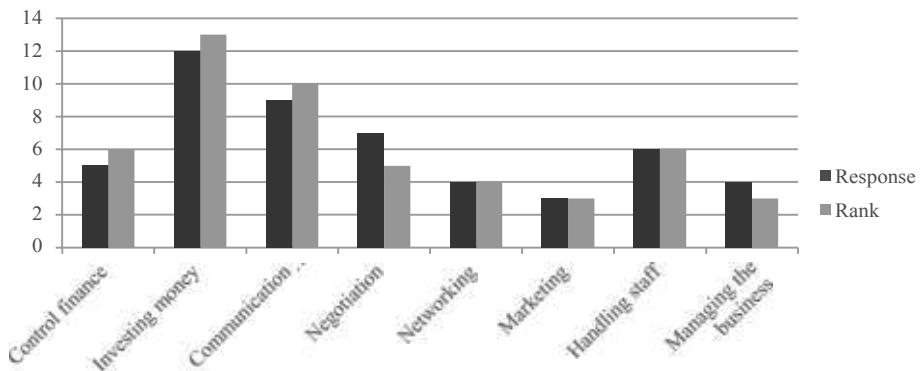


Figure 12: Business skills
 Source: Developed by the author

The above data show a very important element to prove that businesses help to grow skills of their operators. The illustrated and analysed data have shown that the majority of women had improved on how to manage finance within the business, which accounts for 24% of participants. 18% of them learnt how to invest money in order to generate profits and the way it leads the business to growth. Other than the skills women gained in investing and managing finance, they also gained skills such as communication, negotiations, marketing, handling staff and managing the business. Especially negotiation and communication might help to build relationships with external parties, which lead to build the reputation. Finally, it comes to ranking; still a majority prefers to build the skill of controlling finance and investing money towards profits. That is 46% of the participants.

9.17 Progress of the business

The below illustrated and analysed data have shown that the majority of women are satisfied with the existing position of the business. Therefore, it could be said that the majority have achieved what they expected to realize. A considerable group of women, in other words more than 50% of women, are satisfied or strongly satisfied

with the place now they are in. That reflects the hard work and commitment of women to develop the business in less than 5 years. Finally, it could be said that, this alerts financial and government institutes to reform their products services customised to suit the women in business. Investing in the small business sector might increase the assets of Banks. Therefore, it can be said that women in business require more support from the financial institutes which will bring back a return in the future.

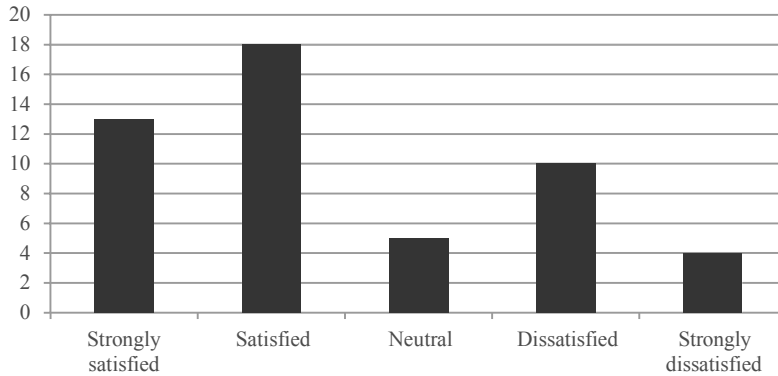


Figure 13: Progress
Source: Developed by the author

9.18 Achievements of the Business

Although women are satisfied with the existing position, more than 50% of the participants are not happy with the achievements of business activities. The illustrated and analysed data shown above present the fact that the majority of women could not achieve the planned business aim. It was observed in the discussion that the finance is the main problem along with the lack of support from the family.

A considerable number of women are satisfied with the achievement of the business, which accounts for 49% of the participants. In the discussion it was found that the personal intention to achieve goals and support from family and relatives were the main reasons behind this satisfaction.

Finally, it could be said that a business needs more commitment from the operators and continuous support from other related parties to grow. Also it requires more

attention on its operation and access to resources like finance. This statement is applicable to women in business too as they should focus more on the business growth by giving more commitment to its activities.

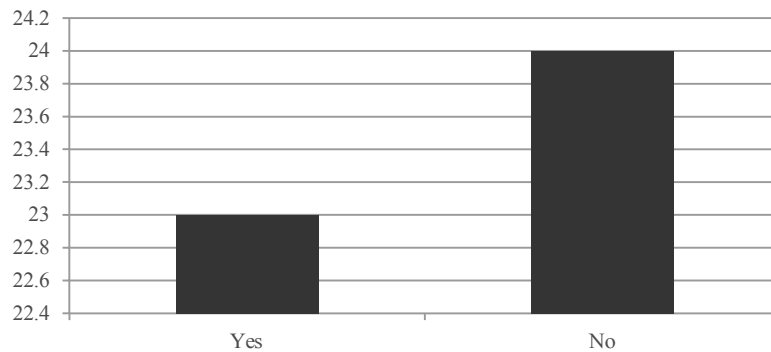


Figure 14: Business Achievements
Source: Developed by the author

9.19 How business helped to be independent

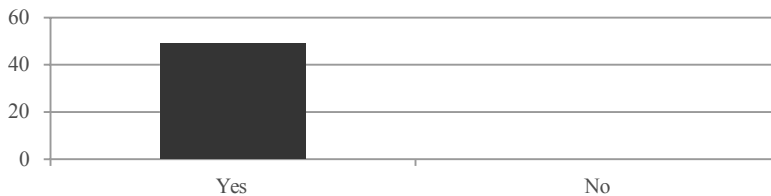


Figure 15: Independency
Source: Developed by the author

Above illustrated and analysed data show that 100% of participants have said that the business empowered them to be more independent in society. The main consideration observed in the discussion was the majority view that financial independence is more valuable as there is no need to wait to fulfil the requirements of the family. Also some women mentioned that they were happy that they also contributed to the country's economic growth by running an own business. Women in mainly salon, communication and catering businesses were able to provide employment opportunities for villagers. Many of the participants explained that they could earn more from the business than from being employed in another organization.

9.20 The Correlation between the Level of Education and Way of Spending the Income

There is a partial positive correlation between the level of education and the way of spending the income, which means that the way of spending the income is affected by the level of education that each woman belongs to. However, it could be said that this is a weak association between the education and the way of spending the income.

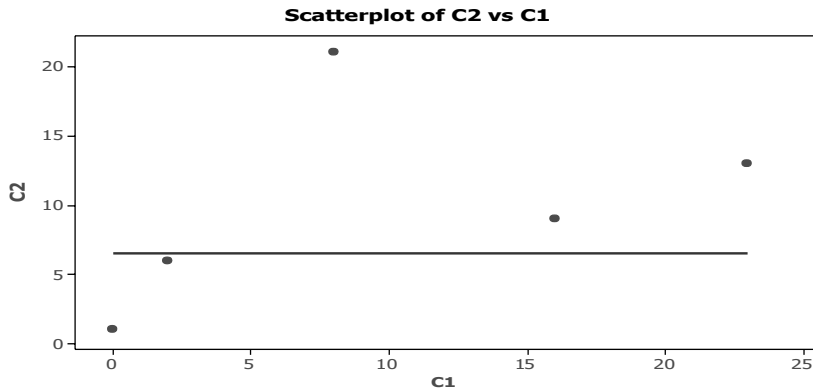


Figure 16: Correlation between the level of education and way of spending the income
Source: Developed by the author

9.21 The Correlation Between Startup Capital and the Satisfaction of Financial Services Provided by Financial Organizations

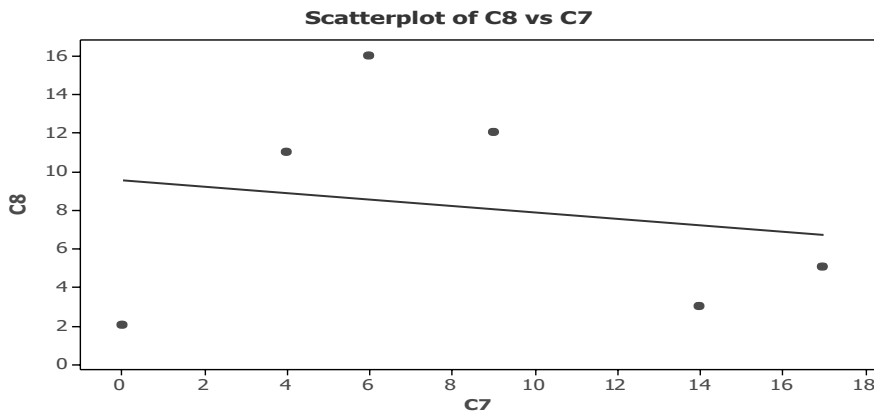


Figure 14: Correlation between startup capital and the satisfaction of financial services provided by financial organizations
Source: Developed by the author

There is a partial positive correlation between the start-up capital and the satisfaction of services provided by financial organizations, which means how sources of start-up capital of a small business is influenced by the services provided by the financial organizations.

Therefore, it could be said that the association between the sources of start-up capital and the satisfaction of financial services provided by financial organizations is very strong. That means, the financial services have not heavily accounted for business start-ups.

9.22 The Correlation between the Income and the Way of Spending the Income

There is a partial positive correlation between the income and the way of spending the income, which means that the way of spending the income is influenced by the income generated. It could be said that the association between the income generated and the way of spending the income is weak as the correlation is 0.3.

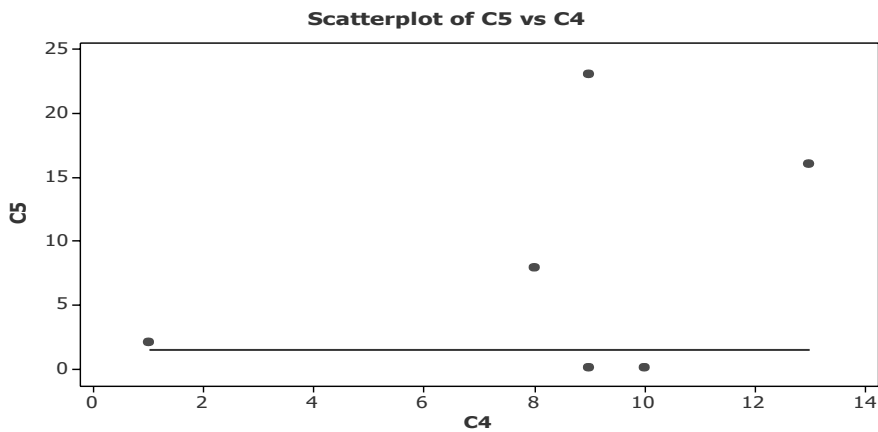


Figure 18: Correlation between the income and the way of spending the income
Source: Developed by the author

9.23 The Correlation between the Satisfaction towards Non-financial Services Provided by Financial Institutes (Government and Private)

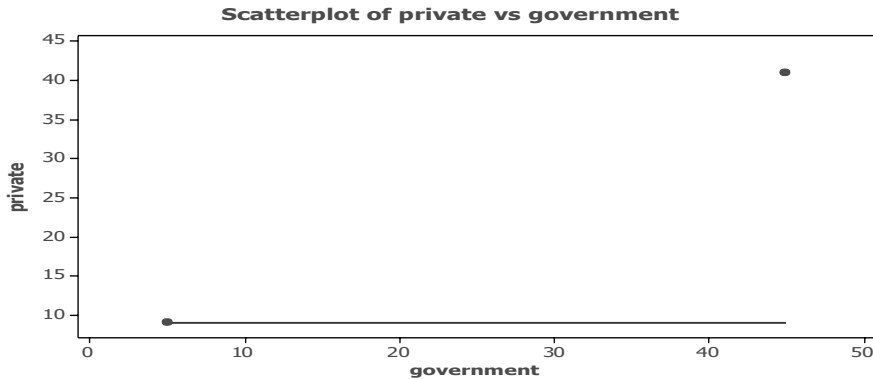


Figure 19: Correlation between the satisfaction towards non-financial services provided by financial institutes (Government and Private)
Source: Developed by the author

There is a strong perfect positive correlation between non-financial services provided by the government and private institutions. The meaning is that when the government organisations increase their services to the public, private organizations too increase their services and vice versa. Therefore, it could be said that due to some unforeseen reasons less services from both sectors are associated with the satisfaction seriously.

9.24 One-way ANOVA Application: Education and Motives

Table 09 : Education level

Your education level	Response
Less than O/L	6
G.C.E.O/L	13
G.C.E A/L	21
Graduate	9
Masters Holder	1
Total	50

Source : Developed by the author

Table 10 : Motives

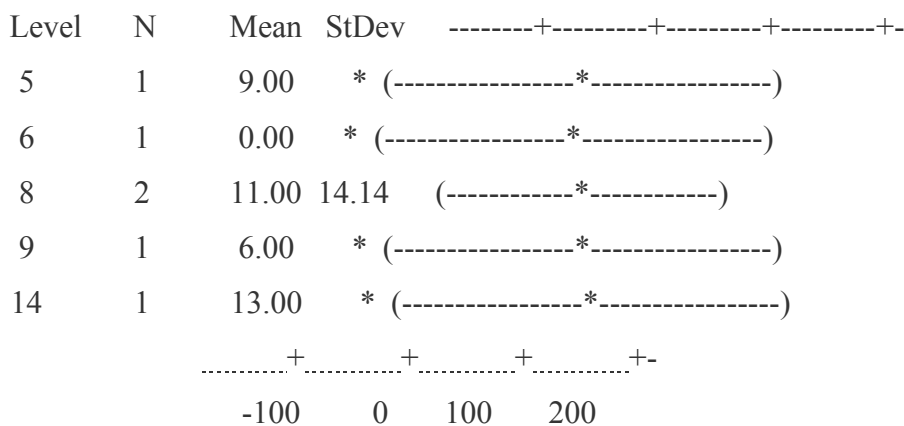
What made you to start your own business?	Response	Rank
Need of being independent	9	11
To support the family	14	15
Less availability of suitable jobs	8	8
Self-motivation	5	5
Personal aim	8	9
Other	6	2
Total	50	50

Source : Developed by the author

Source	DF	SS	MS	F	P
C2	4	111	28	0.14	0.945
Error	1	200	200		
Total	5	311			

S = 14.14 R-Sq = 35.76% R-Sq(adj) = 0.00%

Individual 95% CIs for Mean Based on Pooled StDev



Pooled StDev = 14.14

The test statistic used for ANOVA is the F-statistic and is calculated by taking the Mean Square (MS) for the variable divided by the MS of the error. The F-statistic is 0.14, meaning the F-statistic is always nonnegative. This F-statistic is a ratio of the variability between educations compared to the variability motives group. This variable measure provides statistically valuable results. It can be concluded as a difference in population means that exists for those two groups.

9.25 One-Way ANOVA Application: Education and Monthly Income

Table 11: Education level

Your education level	Response
Less than O/L	6
G.C.E.O/L	13
G.C.E A/L	21
Graduate	9
Masters Holder	1
Total	50

Source: Developed by the author

Table 12 : Monthly Income

Monthly income of the business?	Response
(SLRs) 5000 – 25000	1
(SLRs) 25000 – 45000	9
(SLRs) 45000 – 65000	8
(SLRs) 65000 – 85000	13
(SLRs) 85000 – 105000	9
more than (SLRs) 105000	10
Total	50

Source : Developed by the author

Source	DF	SS	MS	F	P	C3	4
		239.3	59.8	0.83	0.666		
Error	1	72.0	72.0				
Total	5	311.3					

S = 8.485 R-Sq = 76.87% R-Sq(adj) = 0.00%

Individual 95% CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev	-----+-----+-----+----- +- (-----*-----) (-----*-----) (-----*-----) (-----*-----)
1	1	6.00	*	(-----*-----)
8	1	21.00	*	(-----*-----)
9	2	7.00	8.49	(-----*-----)
10	1	0.00	*	(-----*-----)
13	1	9.00	*	(-----*-----)

-----+-----+-----+----- +-
 -60 0 60 120

Pooled StDev = 8.49

The test statistic used for ANOVA is the F-statistic and is calculated by taking the Mean Square (MS) for the variable divided by the MS of the error. The F-statistic is 0.83, meaning the F-statistic is always nonnegative. This F-statistic is a ratio of the variability between education compared to the variability Monthly income. This variable measure provides statistically valuable results. It can be concluded as a difference in population means that exists for those two groups. But this association is very weak.

10. CONCLUSION

During the course of the research, several independent variables were identified, which were highly important to measure the effectiveness of investing in small enterprises by women. The women in small business sector have minimum educational background as Advanced Level passes and this implies to a majority of

the women may have necessary knowledge, skills or attitudes to perform in their businesses. A majority of the women were without previous employment experience. On the other hand, when considering women who are with employment experience, it could be seen that they were very keen in performing their business. Having a previous employment helps women to be motivated and self-confident to start and run operations in a business. Women with related experience to the current business perform well in business operations as they have the advantages of created network and a reputation. Also they are very punctual and know how to manage the time. Related working experience caused women to start a new business and this also should be attracted by financial institutes. The main reason for women to start a business is to seek extra income to support the family. The majority prefer to support family and they believe that they can become independent when they have a direct income line to them. By having a very narrow goal makes them neglect business goals. It is observed that many women operate businesses which serve women customers, such as salons, marketing herbal cosmetics, handy craft etc. The achievements of the business have made women to be independent. It means that the business has empowered them to be more independent in society. Offering credit to women remains more powerful than for men: the whole family is more likely to benefit from credit targeted to women, where they control income, than those targeted to men. Therefore, this is a good sign for women to apply for credits from financial institutes with many benefits of microfinance. Women spend the generated income for personal consumption and business operations only. According to them the income is not enough to have a percentage of saving due to high inflation over the economy.

Financial start-ups of many women in businesses are based upon borrowings which occurred formally and informally. This makes them fall into heavy debts, which leads them to avoid future investments. Women are willing to run for many years. This indicates that women in businesses are very committed to what they do and to achieving their goals. In a healthy strong income flow a woman would tend to act and would work towards achieving goals which would not only be beneficial for the business on the long run but also for her life itself. Women need a business expansion in future. This also specifies that women are more enthusiastic on what business they engage in and on achieving goals in future. In addition, the most women prefer working with state banks than with private banks, as the

environment in state banks is very familiar to them and they have many branches that enable easy access. Women in small businesses do not have the power or the resources to fight against the arguments of banks and financial companies.

Many women are dissatisfied with financial facilities provided by financial organizations which do not have customized facilities to support women in business especially for micro business. And financial institutes request many documents, take a lot of time, and make it necessary for customers visit them many times to get a work done. Based on these findings of the study, there is a clear indication that above variables directly influences the effectiveness of investing by women in small businesses. Furthermore, based on the findings of this study, it is also possible to state that the women in businesses are strongly dissatisfied with the non-financial support provided by government and private institutes. Building capacity of SME sector is a key in a developing economy. Because of that the sole proprietorship solves many problems in a country economically and socially.

A majority of the women in business are married and that has become a reason for them to start a new income as they consider that is their responsibility too. This could specially encourage married women to start businesses and to open a new income flow. It is possible that having children is a cause for women to start a business. The majority of the women in business have at least two children in their families and that is the most common number of children in a Sri Lankan family. Therefore, it can be said that having children makes women to search for extra income paths such as investing in small businesses. As it was mentioned before the findings of the research point out that there is a strong link between the above variable and investments in small enterprises by women. It further indicates that sales & profits of the business can be increased further and all depends on available finance, hardwork and ability to attract customers by providing a good service. Women would develop many business skills by involving a business, especially investing and managing finance, communication, negotiations, marketing, handling staff and managing the business. Especially negotiation and communication might help them to build relationships with external parties, which leads to build their reputation. It was observed that many women could earn more from the business than being employed in another organization. When government organisations increase their services to the public, private organizations too increase and when government organizations decrease the level of the services to

small businesses, private organizations do decrease the facilities to small businesses.

Manufacturing has become difficult for small firms due to two main reasons; industrialization and larger firms push away small firms from manufacturing. This is because of small firms' low capacity and lack of resources, technology & finance. However, entering into the small business sector is easier than entering into other sectors. Small businesses in Sri Lanka are facing many challenges like access to finance, physical infrastructure, level of technology, regulatory framework, access to information and advice, access to markets, business development services, industrial relations and labour legislation, intellectual property rights, technical and managerial skills, linkage formation and environmental issues. Therefore, it is a responsibility of relevant authorities to take actions to reduce involved risk of each challenge mentioned here.

However, access to finance is a major problem to start a small business, but the knowledge on how to manage the financed money effectively is also lacking in new start-ups. Therefore, understanding financial statements is essential to the success of a small business. They can be used to guide a business in the right direction and to help avoid costly failures. However, it can be found that there are ways of financing businesses especially a start-up business. Finally, it could be concluded that women perform effectively by investing in small enterprises, enhancing family well-being and by contributing to the GDP and economic growth.

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APPLICATION OF QUEUING THEORY TO ENHANCE THE OPERATIONAL EFFICIENCY OF THE BANK

Hettiarachchi A T

Area Manager, Bank of Ceylon North
Western Province, Kurunegala Sri
Lanka

Cooray T M J A

Department of Mathematics
Faculty of Engineering
University of Moratuwa Sri
Lanka

Abstract

This study is to ascertain the contributions and applications of queuing theory in the field of Banking queue management problems. This review proposes a system of classification of queues in the Banking sectors. The goal is to provide sufficient information to an analyzer who is interested in using queueing theory to model an effective queue management process. Customer satisfaction is a concern to service industries as customers expect to get their service promptly when they arrive. Demand for service is highly variable, and it depends on customer's satisfaction. For a service industry like a bank, there is a need for efficient bank Teller scheduling system that takes into account recognizing various customer expectations. This research study involves as to how a bank could provide value added customer service by reducing customer-waiting time to the maximum possible standard. The model takes into account real time system behaviour including changing customer arrival rates throughout the day and customer service manner. This study is centered on the single channel waiting line systems with poisson arrivals and exponential service times in Bank of Ceylon, City office, Bank of Ceylon Kuliapitiya and Bank of Ceylon Bingiriya. Banking

activities and behavior of these three branches are completely different. They represent stages of customer-flow management processes. Waiting systems are stochastic mathematical models and they represent the describing base of the waiting phenomena, services processes, and prioritization among others. Mathematical models of queuing theory present interest in modelling, designing, and analysing information networks.

Keywords: *Queuing Theory, Mathematical modeling, Bank*

1. INTRODUCTION

This paper involves as to how a Bank could provide value added customer service by reducing customer-waiting time to the maximum possible standard. The model takes into account real time system behaviour including changing customer arrival rates throughout the day and customer service manner. It provides scheduling rules and the corresponding service levels when demand varies with cost minimization as goals.

Queuing theory is the mathematical study of waiting lines, and it is very useful to define modern information technologies require innovations that based on modeling, analyzing, designing to deals as well as the procedure of traffic control of daily life of human. This paper is centered on the single channel waiting line systems with Poisson arrivals and exponential service times in a Bank. They represent stages of customer-flow management processes.

Waiting systems are stochastic mathematical models and they represent the describing base of the waiting phenomena, services processes, and prioritization among others. Mathematical models of queuing theory present interest in modeling, designing, and analyzing information networks. The expanded networks of a Bank and years of establishment/service should bring about modern technologies of attending to customers in banking halls across the globe thereby increasing their turn out and efficiency of carrying out business. Many commercial banks have made great efforts to increase the service efficiency and customer satisfaction, but most of them are facing serious problems regarding waiting lines

of customers. In a bank, the waiting line of customers appears due to low efficiency of the queuing system, and it reflects the lacking of a business philosophy of customer centric, low service rate system. The waiting queues of customers develop because the service to a customer may not be delivered immediately as the customer reaches the service facility. Lack of satisfactory service facility would cause the waiting line of customers to form. The only technique to meet the service demand with ease is to increase the service capacity and the efficiency of the existing capacity to a higher level.

As the service speeds up, time spent waiting on queues decreases. Service cost, however, increases as the number of service stations increase. The goal of managers is to schedule as few employees as possible while maintaining a maximum customer service level. Managers should make every endeavor to make the queues short enough so that customers are not dissatisfied or they will not leave without transacting their business or transact once and never return in the future. However, some waiting can be allowed if the waiting cost is balanced with significant saving in service cost.

In most of the banks, customer and service information is identified generally based on manual observation and personal judgment (Obtained through information from visits to some local banks). This gives inaccurate results and wastes time. It also requires continuous observation by management personnel and thus results in additional cost. These results have greater possibility to make some customers being dissatisfied as customers who came first may be served last. Profit maximization objective may not be easy to achieve in banking, without providing a good level of customer service exceeding their expectations. In other words, the faster they are attended to, the more the customer would be encouraged to keep their money with a bank.

This research and study is completely based on. Queuing theory is a mathematical approach applied to the analysis of waiting lines. It uses models to represent various types of queuing systems. Formula for each model indicates how the related queuing system should perform, under a variety of conditions. The queuing model is a very powerful tool for determining how to manage a queuing system in the most effective manner. Queuing theory is considered as random system theory,

which studies the content of the behavior problems, the optimization problem, and the statistical inference of queuing system.

Queuing is a challenge for all the branches in the Banking industry. In the developed world, considerable research has effected on how to improve queuing systems in various Banks. Unfortunately, above situation has not occurred in the case of developing countries like Sri Lanka. This study seeks to contribute to this subject by analyzing the queuing situation in public banks in Sri Lanka and to bring its practical value to how decision-making can be enhanced in banking industry.

Long waiting queues are symptomatic of inefficiency in the banking industry or any other service industry. Unfortunately, this is the case in many public banks in Sri Lanka. Capacity management decisions in banking industry are arrived at on experience and on rule of the thumb rather than with the help of strategic research model-based analysis coupled with good mathematical approach.

All the larger banks in Sri Lanka receive a large number of customers every day and this generally results in long customer waiting times. In response to this challenge, this research study analyses the queuing system of the banking industry in order to develop a model that can help reduce the waiting time of their customers. Specifically, this study seeks to construct a structural model of customer flow within the bank and to model a queuing system using the queuing theory to minimize customers waiting times in the bank.

The objective of queuing analysis is to offer a reasonably satisfactory service to waiting customers. In general, the approach of queuing theory is not an optimization technique, but instead it determines the measure of performances of waiting lines, such as average waiting time in the queue and the productivity of the service facility, which can be used to design the service installation.

The applications of queuing theory extend well beyond waiting in line at a bank. It may take some creative thinking, but if there is any sort of scenario where time passes before a particular event occurs, there is probably some way to develop it into a queuing model. Queues are so commonplace in society that it is highly worthwhile studying them, even to reduce only a few seconds off one's time waiting in a queue.

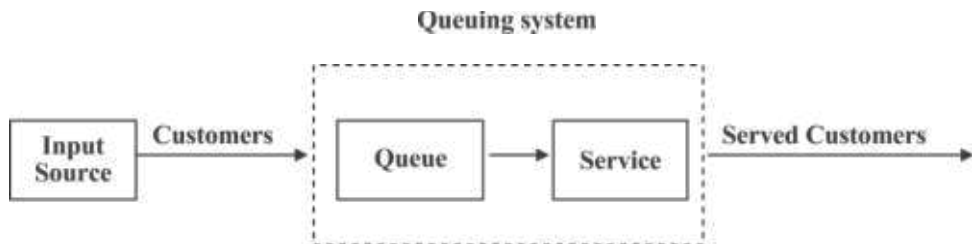


Figure 1: Queuing System

2. QUEUE DISCIPLINE

This means how customers should be selected from the waiting lines. This can happen on one of the four types given below.

i. First in first out (FIFO) or First come first served (FCFS) basis

That is the customer who has been queuing the longest time is served first. This is the most common and fairest queue discipline.

ii. Last in first out (LIFO) basis

That is the customer who comes last or the item that was stocked last is taken first.

iii. Service in random order (SIRO) basis

For example, in telephone exchanges, the operator has no means of telling how long any caller has been trying to make the call and callers are selected at random.

iv. Service in priority order (PRI) basis

For example, in the telegraph system urgent messages are sent before the ordinary messages.

The queuing behavior of customer plays a role in waiting line analysis.

3. TERMINOLOGY AND NOTATIONS

P_n = Probability of having n customers in the system

N = Number of customers in the system

L_s = Expected number of customers in the system

L_q = Expected number of customers in the queue

W_s = Waiting time of customers in the system

W_q = Waiting time of customers in the queue

λ_n = mean arrival rate (expected number of arrivals per unit time) of new customers in the system

μ_n = mean service rate for overall system. (Expected number of customers completing service per unit time) when n customers are in system

ρ = Traffic intensity (Utilization factor)

s = Number of servers

4. QUEUING MODELS

4.1 Single-server, Single-phase



For M/M/1 system we define the utilization factor (or traffic intensity) as

$$\rho = \frac{\lambda}{\mu}$$

Where ρ is the expected number of arrival per mean service time. If $\rho < 1$, then

steady state probabilities exist and are given by $p_n = \rho^n (1 - \rho)$

4.2 Measures of Model

1. Expected (average) number of units in the system L_s

$$L_s = \sum_{n=1}^{\infty} np_n = \sum_{n=1}^{\infty} n \left(\frac{\lambda}{\mu} \right)^n \left(1 - \frac{\lambda}{\mu} \right) \quad \text{This can be simplified as } L_s = \frac{\rho}{1-\rho}$$

2. Expected (average) queue length L_q

$$L_q = L_s - \frac{\lambda}{\mu} = \frac{\rho^2}{1-\rho}$$

3. Expected waiting time in the queue

$$W_q = \frac{\rho}{\mu - \lambda}$$

4. Expected waiting time in the system

$$W_s = W_q + \frac{1}{\mu} = \frac{1}{\mu - \lambda}$$

4.3 Multi Server Model

When there are n number of units in the system, may be obtained in the following two situations

(i) if $n \leq S$ all the customers may be served simultaneously. There will be no queue. $(s-n)$ number of servers may remain idle and then $\mu_n = n\mu$ $n = 0, 1, 2, 3, \dots, S$

(ii) If $n \geq S$, all the servers are busy, and the maximum number of customers waiting in queue will be $(n-s)$, then Also $\lambda_n = \lambda$ $n = 0, 1, 2, 3, \dots$

4.4 Measures of Model

$\sum_{n=0}^{S-1} P_n + \sum_{n=S}^{\infty} P_n = 1$ This gives the steady state distribution of arrivals.

$$P_n = \begin{cases} \frac{\lambda}{n\mu} P_{n-1} = \frac{\lambda^n}{n! \mu^n} P_0 & \text{for } 1 \leq n \leq S-1 \\ P_n = \frac{1}{S^{n-S} \times S!} \left(\frac{\lambda}{\mu}\right)^n P_0 & \text{for } n \geq S \end{cases}$$

1. Length of the queue $L_q = P_s \frac{\rho}{(1-\rho)^2}$ where $P_s = \frac{\left(\frac{\lambda}{\mu}\right)^s}{S!} P_0$

2. Length of the system $L_s = L_q + \frac{\lambda}{\mu}$

3. Waiting time in the queue $W_q = L_q / \lambda$

4. Waiting time in the system $W_s = L_s / \lambda$

5. $\text{Pro}(W > 0) = \frac{P_s}{(1-\rho)}$ where $P_s = \frac{\left(\frac{\lambda}{\mu}\right)^s}{S!} P_0$

6. Probability that there will be some one waiting = $\frac{P_s \rho}{(1-\rho)}$

Multi server model can be classified as:

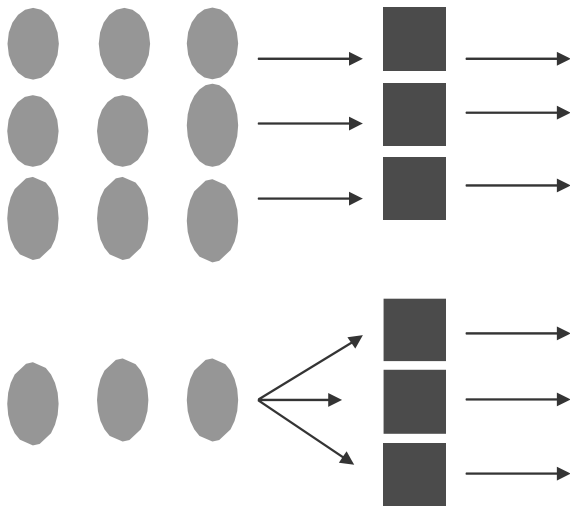


Figure 2: Single line Channel Customer queue at a bank

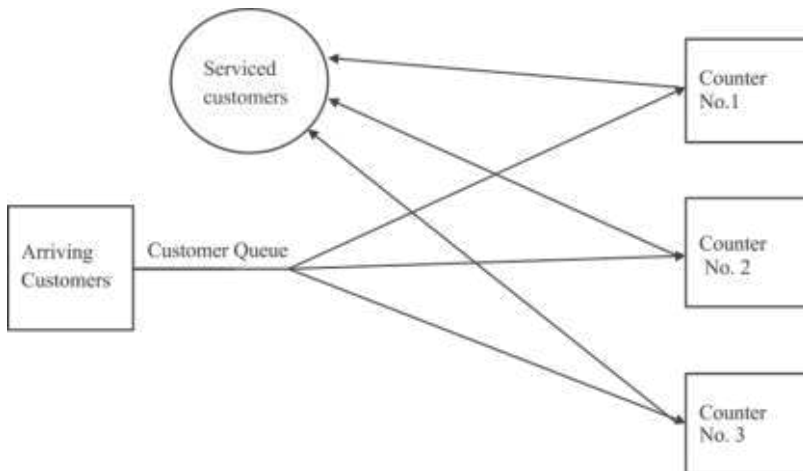


Figure 3: Multiple line Channel Customer queue at a bank

5. DATACOLLECTION

Data has been collected selecting three branches at the Bank of Ceylon. Initially at City office branch in Colombo 1 and then at Kuliypitiya branch and finally at Bingiriya branch. City office branch is a very busy place in the entire week. There will be three counters at all the branches. Data in respect of customer arrival time and service time have been extracted from the above three branches for a period of two month during the year 2014. Two months' data were taken from all the above branches with the assistance of employees at the banks.

6. ANALYSIS

Table 1: Extracted the following figures from the three branches of the Bank.

	City office branch (A)	Kuliypitiya branch (B)	Bingiriya branch (C)
Average Customers arrival rate (λ) per hour	50	40	21
Average Service Rate (μ) per hour	40	30	18

By using extracted data at each branch, waiting time and length have been calculated and shown in the tables 2, 3 and 4.

Table 2: Estimated at City office branch

	λ	μ	L_s (customers)	L_q (customers)	W_s (hrs)	W_q (hrs)
One line & two counters	50	40	2.05	0.80	0.041	0.016
Two lines & two counters	25	40	1.67	1.04	0.067	0.041

Table 3: Estimated at Kuliypitiya branch

	λ	μ	L (customers)	L_q (customers)	W (hrs)	W_q (hrs)
One line & two counters	40	30	2.4	1.067	0.06	0.027
Two lines & two counters	20	30	2.0	1.33	0.1	0.067

Table 4: Estimated at Bingiriya branch

	λ	μ	L (customers)	L_q (customers)	W (hrs)	W_q (hrs)
One line & two counters	21	18	1.77	0.60	0.084	0.029
Two lines & two counters	10.5	18	1.4	0.82	0.133	0.078

6.1 Chi-squared Test for Goodness of Fit

Arrivals during the day

Ho: Number of arrivals is independent of the day. Alternative Hypothesis

Ht: Number of arrivals is not independent of the day. Under Ho, the expected frequencies are E_i

Table 5 : Calculation of Chi-squared test for goodness of Bingiriya Branch

	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Total arrivals(O_i)	416	600	358	504	394	2272
Mean arrivals (E_i)	454.4	454.4	454.4	454.4	454.4	
$\frac{(O_i - E_i)^2}{E_i}$	3.245	46.653	20.451	5.414	8.028	83.792

The observed value of the test statistic $\sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i} = 83.792$

$\chi^2_2(5\%) = 5.991$ Since $83.792 > 5.991$, rejects Ho at 5% level, it can be

concluded that the number of arrivals is not independent of the day of the week.

7. WHY USE THIS MODEL

1. Common queuing system is having a number of counters and a number of queues for those counters. (Many lines)
2. We have proved that having one line is more effective than having many lines and quantitative method for having a number of counters through the queue probability.
3. When using this one line system, definitely the efficiency of the queue will upgrade and it will reduce customer-waiting time at the queue.
4. When practicing this suggested queue probability method, the manager of the branch will be able to open an exact number of counters. This effort will result the manager to obtain optimum service from the other employees at the branch.

8. CONCLUSION

In every above occasion, we found that, in one line and two counters L_q , W_s , and W_q are lesser than in two lines and two counters. Hence, we recommend having one line and a number of counters instead of having separate queues (lines) for separate counters. Application of queuing theory has assisted to prove this fact. By the example, the results are effective and practical. This strategy will reduce the waiting time of customers in the queues at the bank. This has resulted in increasing customer satisfaction towards the bank. Through this strategy the bank will be able to enhance its operational efficiency. Therefore, one can conclude that this condition will remain despite the change of arrival time and service time.

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PROMOTING PEER INTERACTION IN PRESCHOOL CHILDREN THROUGH PLAY

Rajapakshe P L N R

Department of Early Childhood and Primary Education
Faculty of Education
Open University of Sri Lanka

Sri Lanka

Abstract

According to Vygotsky's theory children develop in social matrix that is formed by their relationships and their interactions with other children. Peer interactions are important in preschool years because they lead to positive social and emotional development in children. Children, who can interact successfully with their peers, are more popular, have stronger friendships, and are included more often in classroom activities. Play takes a significant mean of promoting peer interaction in children. However, the attention given to such opportunities are declining at present due to increasing demands for more written exercises. Thus the study attempted to promote peer interactions among preschool children through play. The objectives were to examine how peer interactions are promoted through play and the role of the teacher in that process. The single-case study design was employed. The sample comprised with a group of 12 children selected purposively from 4-5 year olds in a preschool located in Nawala area, Colombo District. A socio-dramatic play intervention was implemented for 3 weeks collaboratively with the preschool teacher. The data gathered through the observation; interview and reflective journal were analysed based on descriptive analysis method under several sub themes. The data revealed that the majority of children were able to improve their peer interactions in the play intervention. Significant improvements in the abilities to cooperate with children recognise

needs of peers and responds positively, comfort friends and share ideas and objects with peers were identified. Boys showed better interactions than girls. The strategies such as giving prompts or cues, constructive feedback and giving play ideas used by the teacher created many opportunities for children to improve peer interactions in the play intervention. Therefore, the study concluded that more opportunities are created through socio-dramatic play intervention to improve better peer interactions in preschool children though these play activities are not encouraged in the preschool and the nature of the teacher's role is identified. Lack of generalisability was a limitation in the study. Thus the study recommends providing more emphasis on giving more opportunities to peer interactions through play in the preschool classroom by giving more guidance and training to teachers.

Keywords: *Peer interaction, Socio-dramatic play, Preschool education*

I. INTRODUCTION

Peer interaction is something that children commonly manage by themselves at an early age, and therefore are supposed to manage without too much involvement from adults. As soon as an adult is involved, it is pre definition no longer primarily a peer interaction (Bruce & Hansson, 2011). Peer interactions can be viewed as a platform for sharing of experiences and co-learning in adopting others perspectives, which is essential for both social and cognitive development (Williams, 2007). Positive experiences from peer interaction are a key to language as well as cognitive and social development in children. In peer interaction, it is identified and improves the awareness of both positive and negative emerging and developments. (Bruce & Hansson, 2011).

Vygotsky (1978) stressed that children develop in a social matrix that is formed by their relationships and interactions with other children. The social environment is a major contributor to the cognition of children because of the open area of communication that exists and allows them to express and negotiate ideas as well as contribute to each other's understanding. Vygotsky (1978) invoked the principle

of the “zone of proximal development” (ZPD) to explain the significance of social interaction. The ZPD represented the distance between what the child could do independently and what he or she could do with the collaboration or assistance of others.

Researchers such as Tudge (1992), Hogan & Tudge (1999) and Rogoff (1997) have argued that the child's peers can play the role of co-constructivist. Thus, pairing with a more competent, “expert” peer may assist the child's movement through the ZPD (Duran & Gauvain, 1993). Vygotsky theorised that when children scaffold each other, they modify a task and offer assistance to each other to help complete the task (Tharpre & Gallimore, 1998). When children model each other, they offer behaviours to each other for imitation, thereby helping each other to see the appropriate behaviours, understand the reasons for their use (Tharpre & Gallimore, 1998).

One important quality in peer interaction is to be able to take other's perspectives, to mentalize, which is essential in social interaction (Bruce & Hansson, 2011). During preschool years the most complex form of group interactive activity is socio-dramatic play (Goncu et al., 2002), which is referred to voluntary social role-taking involving two or more children (Levy, 1986).

In socio-dramatic play with increasing age, play partners become better able to agree with each other about the roles, rules, and themes of their pretence and maintain their play interactions by adding new dimensions to their expressed ideas. These developments reflect the preschooler's capacity to take the perspective of the play partner (Watson, Nixon, Wilson, & Capage, 1999). According to Howes (1992) socio-dramatic play creates a context for mastering the communication of meaning, provides opportunities for children to learn to control and compromise and allows for a “safe” context in which children can explore and discuss issues of intimacy and trust.

2. PROBLEM STATEMENT

In the Early Childhood Education context in Sri Lanka, the National Policy on Early Childhood Care and Development (2004) has emphasised the significance of developing an effective program providing adequate opportunities for play and

creative activities for mental stimulation, development of language skills through interaction, communication and vocalization; social climate conducive for emotional security and socialisation, attitudes and values that will counter already conditioned inhibitions and stereotyped behaviours. To create a stimulating playful environment for holistic development of preschool children, peer interaction is significant as it leads to better socialisation. However, in the current context of preschool education the attention given to such play opportunities in which children learn to improve skills to interact with each other positively are distracted by the emerging trend of using more academic reading and writing activities. In this situation more often preschool teachers do not attempt create sufficient opportunities for peer interaction due to desk work. This weakness can be seen in the socialisation process in preschools. There is a need for emphasising more peer interaction and playful experiences in preschool classroom. Therefore this study attempted to fill the gap by identifying how peer interaction can be promoted through playful experiences.

3. RATIONALE OF THE STUDY

Early childhood years are the most important period in any individual as it creates the foundation for life. Peer interaction in this period leads to so many advantages particularly in socialisation. Play is the leading source of development in the early years. It is essential to children's optimal development (Isenberg & Quisenberry, 2002). Many countries emphasis and practise more playful activities in their programs and conduct researches on this aspect. However, in Sri Lanka, investigations on peer interactions and play are very limited. On the other hand mushrooming of preschools with many desk work activities diminishes interactive playful environments for children. Therefore, there is a gap in the pool of early childhood education literature on the applicability of play for the development of preschool children interactions. Therefore, the researcher undertook this research in order to fill the gap.

4. RESEARCH QUESTIONS

In order to achieve the purpose of this study the researcher attempted to investigate two research questions as follows,

- (i) How can peer interactions be improved in preschool children through

socio-dramatic play intervention?

- (ii) What is the facilitative role of the teacher in promoting peer interactions in preschool children through socio-dramatic play intervention?

5. RESEARCH OBJECTIVES

1. To examine how peer interactions are improved during the socio-dramatic play intervention implemented in the preschool classroom.
2. To identify the facilitative role of the teacher in promoting peer interaction during the socio-dramatic play intervention implemented in the preschool classroom.

6. CONCEPTUAL FRAMEWORK OF THE STUDY

The theoretical and empirical literature of this study provided lens to design and implement a sociodramatic play intervention in order to achieve the objectives. The following figure 1.1 shows the conceptual framework of the study.

The Vygotsky theory supports the theoretical framework for this study. According to Vygotsky's view, learning is a social process which occurs in the zone of proximal development. During this social process of learning peer interaction facilitates reach the ZPD. Secondly, providing play training, adequate time, space, play props and objects and establishing common experiences support to design Socio-dramatic play intervention. Thirdly, the teacher's scaffolding and providing

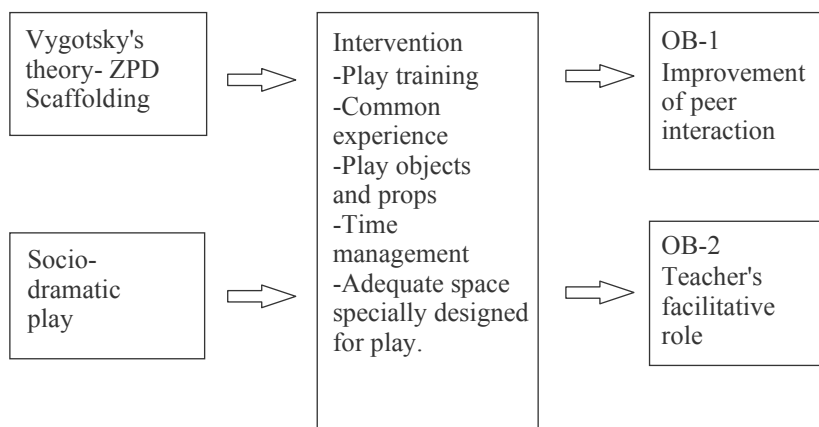


Figure 1: Conceptual framework for the study

play props support the children's participation in play and taking the co player and play leader role in the play by the teacher and using questioning and commenting as strategies support to produce and promote peer interaction in Socio-dramatic play. Finally all of these provide the appropriate context for promoting peer interaction through play.

7. RESEARCH METHODOLOGY

7.1 Research Design

Under the qualitative approach the study employed a single case study research design. According to Yin (2009) a case study research design is an empirical inquiry about a contemporary phenomenon (e.g., a “case”), set within its real-world context—especially when the boundaries between phenomenon and context are not clearly evident. Thus case study research assumes that examining the context and other complex conditions related to the case being studied are integral to understand the case. A “case” is generally a bounded entity; a person, organisation, behavioural condition, event, or other social phenomenon which serves as the main unit of analysis of the study (Yin, 2009). A case study consists of a single case or multiple cases. In this research the purpose was to promote peer interaction of a group of children through play not multiple groups of children in different preschools. Therefore the research utilised the single case study research design. Further the researcher didn't intend to generalise the results in this study.

7.2 Population and Sample

According to National Policy on Early Childhood Care and Development (2004) preschool children belong to the age category of 3-5. The researcher selected the sample from this age category. Therefore the total population of this study was the children under the age category of 3 to 4 years in Sri Lankan setting. Since, the purpose was to study a group of children's peer interactions in a socio-dramatic play intervention, a target population was selected.

7.3 Target Population

As the target population, 50 preschool children and one teacher from the preschool in the Nawala area in the Colombo District were selected. The preschool children were belonged to the age category of 3 to 5 years.

7.4 Sample and the Setting

In purposive sampling, researchers hand-pick the cases to be included in the sample based on the judgement of their typicality, thus the sample is chosen for a specific purpose satisfactorily to the specific needs of the study (Cohen et al., 2003). The researcher in this study selected 12 children, six girls and six boys who showed less interaction with their peers during the pilot study which conducted using purposive sampling technique in order to be in line with the purpose of the study. In the teacher's sample the class teacher from the lower class was selected. The setting of this study was a preschool situated in the Nawala area in the Colombo district. The following table 1 further describes the details of the sample.

Table 1 Details of the Sample

Child's name code	Completed Age 4 and 5	Sex
MN	4 yrs	Boy
ML	4 yrs	Boy
HK	4 yrs	Boy
NT	4 yrs	Girl
KV	4 yrs	Girl
TU	4 yrs	Girl
HR	5 yrs	Boy
SV	5 yrs	Boy
RN	5 yrs	Boy
SS	5 yrs	Girl
SN	5 yrs	Girl
ST	5 Yrs	Girl

7.5 Observation

According to Lekamge (2006) in the non participant observation the researcher engages in direct observation without making an interaction with the environment observed. Since the researcher aimed to observe without an interaction, the researcher acted as a non participant in the intervention.

An observation schedule was prepared adopting the Starting Light: Early Childhood Development Standards for Sri Lankan Children from 3-5 years in 2014 developed by the Child Secretariat of the Ministry of Child Development and Women's Affairs and UNICEF in line with the National Policy on ECCD in Sri Lanka. This provides the standards that each child from 3-5 years of age attains in the main domains of total development. Relationship with peers is a specific aspect of the social emotional domain. Thus the observations were focused on four subcategories namely; ability to cooperate with peers, ability to comfort friends, ability to develop close friendships, ability to recognise needs of others and respond positively.

The researcher attempted to observe the intervention without being noticed by the children even though this has informed overt observation. According to the researcher focus is mainly on observing through video recording during the intervention and documenting the modes of interactions between the participants and the teacher (Patton, 2002) in the field notes after each session.

7.6 Reflective Journal

As a supplementary to the researcher's field notes, the teacher was asked to keep a reflective journal which is a kind of annotated chronological record or a log of experiences and events (Wellington, 2000). The reflective journal of the teacher helped to add more richness and reliability to the data gathered (Steenberg, 2007).

7.7 Semi Structured Interview

Miller & Glassner (2004), Patton (2002) and Steenberg (2007) emphasised, interviews allow the researcher to enter into other people's perspectives and to understand of the things which the researcher could not directly observe. A

qualitative interview can be regarded as an interaction between the researcher and the research participant, during which the researcher has a general plan of inquiry for the interview, but not a detailed set of questions that must be asked in particular words and in a particular order (Babbie & Mouton, 2001 and McMillan & Schumacher, 2001). Since the researcher intended to use the interview as a meaning-making process to explore more on teacher's views on children's peer interactions in the socio-dramatic play intervention, her role in the intervention as a facilitator a semi structured interview schedule was used.

7.8 Intervention with Children

Before the intervention the researcher observed the peer interactions of children during their ordinary classroom activities which created less room for peer interactions since they were more toward seat work. However, before implementing the intervention a pilot session was conducted under the shop theme. During the piloting it was observed that, these types of classroom play activities are new to them even though they engage in such play in their free play time. Further, more play materials and varieties of themes are necessary to encourage peer interactions. The socio-dramatic play intervention was developed by the researcher aiming to improve peer interaction. It was implemented for 3 weeks collaboratively by the lower class head teacher. Prior to the intervention the teacher was instructed by the researcher on her role as a facilitator. The intervention was conducted in Sinhala language. Three themes, The Market, The Dispensary and The School Classroom were selected for the intervention based on the year plan of the preschool. 12 sessions were conducted for 30 minutes each (Steenberg, 2007) in the morning in the preschool classroom. The physical setting for each theme was prepared with suitable play materials. Due to the ethical consideration informed consent was taken from all parents of the participants.

8. DATA ANALYSIS AND INTERPRETATION

The process of data analysis was started at the beginning of the study. The data analysis was carried out under several stages. In order to analyse the data the descriptive analysis method was employed. Initially, as Bluiett (2009) mentioned, the video tapes were viewed over and over again focusing on each child in relation to the objectives. While the videotapes were viewed the conversations were noted

down. As Agbenyega (2007) said, reading the data collected several times helped to get familiarised with the data.

Therefore, the researcher went through the entire field notes, observation schedules, teacher's reflective journal and interview data in order to become familiarised with the data. In order to establish the trustworthiness of the data, data triangulation was used. Triangulation involved using multiple sources of data collection with the hope that they will all converge to support a particular hypothesis or theory (Leedy & Ormrod, 2005). Thus, the triangulation was done focusing all the data into specific objectives under several themes. Finally, according to the sub themes developed based on the literature, the data were analysed and interpreted.

9. RESULTS AND DISCUSSION

In this section the results and the discussion are presented under two main sub themes; Improvement of peer interaction among children during the sociodramatic play intervention and Teacher's facilitative role in promoting peer interaction during the intervention

9.1 Improvements of Peer Interaction among Children during the Sociodramatic Play Intervention

The data on the above objective were analysed and presented according to the following sub-themes.

9.1.1 Ability to cooperate with peers

At the beginning of the intervention the Market theme was played in which children imitated the roles of sellers of clothes, shoes, accessories and teddy bears and customers. According to the observations carried out during the socio-dramatic play intervention, it was identified that children showed less cooperativeness with their peers at the beginning since the socio-dramatic play activity was a new experience for them. This appeared during the first two sessions. However, it was observed that they gradually started to co-operate with each other in selling and buying clothes. The following conversation that emerged during the

first session shows the less cooperativeness of peers.

During the first theme the teacher became the mother, ML was the shop owner and KV the helper.

Teacher: "Mudalali we came to buy some clothes for my sons and daughters. Can you help us?"

ML: "OK "

Teacher: "Let's see a frock for my daughter (SS)."

ML: "Take this" (giving a frock)

Teacher put the frock on SS

Teacher: "Mudalali, this is too small."

KV: "Ok try this one" (shows a skirt)

ML: "try a skirt"

According to the above conversation it could be identified that the considerable involvement of the teacher has reduced the opportunity for peers to cooperate with each other.

During the second theme a gradual increment of the children's ability to cooperate with each other was demonstrated. The following field note further explains the improvement of children's cooperativeness in the play.

I think now the children are more used to the socio-dramatic play than at the beginning. So now they are cooperating more and helping each other. So the interaction has improved. I saw a very good improvement in ML, SS, NT, HR and KV in their role as Nurse. All of them liked to help the doctor and the patients. (Field note, 01. 12. 2014)

During the teacher's interview the teacher revealed that the children were more supportive to each other when they were familiarised with the play. Further she said that the older children volunteered to co-operate the younger ones more often. The following views of the teacher further illustrate the gradual improvement of children's ability to cooperation.

“I saw at the beginning children were shy to interact with each other”
“But when they entered to the play later they were more supportive to each other.”
“During Dispensary theme I saw that those who acted as patients waited till their turn came and Nurses helped to prepare medicines”

Thus it could be identified that the children were able to improve their ability to cooperate with peers to a satisfactory level.

9.1.2. Ability to Comfort Friends

It was observed during the intervention that the majority of older children showed a significant improvement in the ability to comfort friends than younger ones. Benenson, Markovits, Roy, & Denko (2003) mentioned that older children direct pro-social behaviour such as caring, sharing, and helping behaviours to their peers more often than 3-year olds. This was apparently seen during the intervention. The following are some of the conversations that emerged with regard to comforting friends.

Example 1 – The Market Theme

SV: “I like this hat” (Showing a brown coloured hat)
ML: “OK. You take it”
KV: “No it is my hat, Give me that” (with an angry mood)
SV: “Oh! I'm Sorry, you take it”

Example 2: The Dispensary Theme

Teacher: “Who likes to be the Doctor next?”
HR: “Me”
NT: “No! I want to be the Doctor”
Teacher: “HR, Shall we give the chance to NT?”
HR became upset. He started thinking for a while and then said,
HR: “OK. You be the Doctor this time.”
Teacher: “Thank you HR. You can take the next turn.”

Example 3- The School Classroom

KV was the teacher. She first drew a picture of a child on the board and asked others to draw by looking at it.

ML: "Hey, look at your picture. The girl has no legs." (Laughed)

Others also started laughing. KV became angry.

KV: "I will give a sad face."

HR: "Okay.. Okay Sorry"

In the above three examples HR and SV were older than others. According to the observations it could be identified that the majority of children specially who had completed age 5 were able to develop the ability to comfort others.

The following reflective note of the teacher further illustrates the children's improvement of the ability to comfort peers.

I think children are more caring to their friends now in the play. It was surprised to see that some boys who were little aggressive in the classroom said sorry to their friends (Teacher's Reflective Journal, 08.12.2014).

Accordingly an improvement in children's ability to comfort friends was identified in the socio-dramatic play intervention. But with regard to the younger children, those who had completed age 4 showed less improvement in this ability compared to older ones.

9.1.3. Ability to Develop Close Friendships

According to Rubin, Bukowski & Parker (2007) in preschoolers the similarities in age and sex draw young children together. Furthermore, preschoolers appear to be attracted to, and become friends with peers whose behavioural tendencies are similar to their own (Kandel, 1978 & Ryan, 2001).

This was apparent in the intervention. In the observation it was demonstrated that younger children were able to develop close friendships with same age peers than older children. Similarly, it was noticed with regard to sex as mentioned by Rubin et al., (2007), which was both 4 year old and five 5 old of the same sex showed more close friendships than with the opposite sex. However, this was mostly appeared in

girls than in boys.

The following field note further explains the children's improvement of the ability to develop close friendships.

I noticed that SS who is from upper class became close friends with NT and KV who are younger to her. Three of them always liked to be together and imitate the same role. (Field note, 02.12.2014)

This shows that when making friendship children considered the sex and the similarity of their behaviours.

When the teacher was questioned at the interview about this, she indicated that the majority of children obtained more opportunities to make friends with others who were not friends before the intervention.

The following are some of her sentiments with regard to the improvement in the ability to develop close friendship.

"I saw that they are very friendly with each other in the activity."

"It was a good chance for them to make friends within the upper class sisters and brothers"

"HK and TU were very close friends and didn't make friendship with others earlier. But in this activity I saw that HK was trying to be friendly with others."

Accordingly it could be revealed that the majority of children were able to develop close friendship with their same age, same sex peers and with peers who have similar behavioural tendencies.

9.1.4. Ability to Recognise Needs of Others and Responds Positively.

Hay, Payne, & Chadwick (2004) explained that preschoolers' conversations reflect numerous interpersonal goals (e.g., negotiating roles and rules in play; arguing and agreeing). Levin & Rubin, (1983) note that older preschool-age children direct more speech to their peers than do their younger counterparts.

During the observations this was further demonstrated that older children were able to develop the ability to recognise the needs of the others and respond

positively than younger children. However it was further observed that some of the younger children too were able to develop this ability while playing with older children.

The following conversation further explains the improvement of their ability to recognise needs of others and respond positively.

MN: "What do you want?"

SS: "I need a frock."

MN: "Take this." (gives a blue colour frock)

SS: "How much is this?"

MN: "Rs 5."

She pretends giving money to him and takes the frock.

SN: "Please come to buy shoes."

NT: "I want a pair of shoes"

SN: "Okay, try this."

NT puts on a pair of shoes.

SN: "That is good. You take it."

KV: "Give me a necklace."

TU: "Take a look at this."

KV starts to choose necklaces

SS: "Mudalali, Do you have bangles? This colour" (Showing a red bangle)

HK: "Yes,"

The above conversations show how children obtained opportunities in the socio-dramatic play intervention to develop their ability to recognise others needs and respond positively. The following reflective notes from the teacher further explain the children's improvement of the ability to recognise the needs of others and respond positively.

Today children were more interested in the play activity. Since they had more play materials their interactions were increased. Most of them engaged in rich

conversations. Those who were little backward to talk, also responded to their peers well (Teacher's Reflective Journal, 09.12.2014).

Accordingly, it could be identified that during the intervention majority of children regardless of their age developed the ability to recognise the needs of others and respond positively.

With regard to the objective of promoting peer interaction through socio-dramatic play it could be identified that majority of children were able to improve their abilities to develop positive peer interaction.

9.1.5. Teacher's Facilitative Role in Promoting Peer Interaction During the Intervention

As Christie & Enz (1993) highlight in socio-dramatic play, teachers can assume either a play-leader role or co-player role. The difference between the co-player role and the play-leader role is the degree of control over the course of the play. In the play-leader role, the teacher indirectly directs and redirects the children's play still using pretend talk. In the co-player role, teachers take a minimal play role.

According to Vygotsky (1978) adult interactions can facilitate children's development within their zone of proximal development. Stantan-Chapman (2014) mentioned that preschool teachers are the key to orchestrating successful peer interactions for all children within the early childhood program including typical, inclusive, and at-risk classrooms. Further, the teacher can involve by careful planning and preparation, creativity, reflection, and providing opportunities for peer interactions to happen.

Accordingly, it was observed during the intervention that the teacher's influence in promoting peer interaction was identified to a certain extent. However, as it was identified during the observation, the teacher's role in promoting peer interaction was low during the first theme compared to the other themes.

During the second theme, it was observed that this situation changed slightly when the teacher shifted her role from play-leader to co-player role. It was noticed that this gradual shift in the teacher's role created much opportunities to children to

interact with their peers.

Grosman et al. (1999) claims that preschool children who view their teachers as secure bases for play and interactions are more willing to participate in play episodes with peers as they feel comfortable navigating the unfamiliar territory of peer play with adult assistance. This assistance was seen when the intervention reached the second and third themes.

In addition, Kontos (1999) and McWilliam and Casey (2008) state that a teacher can support peer interaction in the socio-dramatic play by providing materials for play and giving suggestions for use of materials. This was further established in the intervention as it was identified that the suggestions given by the teacher to use different play props increased their participation in the play as well as in their interaction with each other.

The following conversation in the third theme describes how the teacher supported peer interaction by giving ideas to use the play props.

Teacher: "Doctor can check the patient using the stethoscope."

ST starts to check HR.

ST: "Breathe fast."

ST writes a prescription and gives RN who is the mother.

Teacher: "Nurse aunty, you can check the pressure of the patient."

NT is the nurse. She starts to check HR's pressure.

According to the above conversation it could be identified that the teacher's suggestions given for children to make use of the play props influenced them to interact with their peers better.

It was identified that when children have prior experiences of the theme they seemed to interact in the play freely. The teacher could easily promote their peer interaction. This was further identified in the teacher's reflection as follows,

I noticed that if the children who had experiences of going to market early showed better interaction with other children. It was easier for me to provide support for

them than in the other themes. (Teacher's reflective journal, 09.12.2014)

Statnan-Chapman (2014) states that the teacher can use different teacher talks to facilitate peer interaction, which would help to promote language development in socio-dramatic play. According to Sharpe (2008), teacher talk can take five different formats as follows; Recasting, Repeating, Expanding, Questioning, and Prompting.

Among the above five types of teacher talks, it was observed that during the intervention the teacher used questioning and prompting frequently. The following dialogue of the teacher during the second and third themes illustrates the teacher's use of questioning talk.

Second theme:

Teacher: "Don't you want to buy something from shoe shop?"

Third theme:

Teacher: "Doctor, don't you want to check the patient more?"

Fourth theme:

Teacher: "What do you do when the teacher comes to the class?"

It was identified that when the teacher used the above questioning talk in the play more opportunities were created for children to interact with each other. The following dialog from the third theme of School classroom describes the use by the teacher of prompting talk in the play intervention.

Fourth theme:

Teacher: "I think we need to tell what you are going to teach before writing. Right?, I think KV can give him a happy face."

It was observed that when the teacher used this type of prompting talk with children they received support from the teacher to engage in more peer interaction as children responded positively. Therefore the teacher talk was helpful to create more opportunities for peer interaction in the play intervention.

interact with their peers.

Grosman et al. (1999) claims that preschool children who view their teachers as secure bases for play and interactions are more willing to participate in play episodes with peers as they feel comfortable navigating the unfamiliar territory of

10. CONCLUSIONS AND RECOMMENDATIONS

The study focused on promoting peer interaction of preschool children through play. In order to achieve the research objectives the researcher developed and implemented a socio-dramatic play intervention. The intervention on the socio-dramatic play led to significant conclusions in the study. The intervention concluded that children showed a greater interest to interact with their peers in the socio-dramatic play intervention when compared with the other usual classroom activities irrespective of their ages and gender. Further the intervention created greater opportunities to the majority of children to develop their abilities to cooperate with peers, comfort friends, build up friendships and identify others needs and respond them positively by taking up different roles under different themes and imitating those roles and building up stories. The socio-dramatic play created greater opportunities for children to improve their abilities to peer interaction.

Further, with regard to the teacher's facilitative role the intervention concluded that the play leader and co-player roles are facilitative roles in the socio-dramatic play which promote both play and peer interactions among children. Moreover, the intervention explicated concrete pedagogic strategies from which the teacher can promote peer interactions while encouraging the children in the socio-dramatic play.

The study recognised that the children are free, enchanted and lively and they create opportunities within a playful context. It presented reliable evidences that children's socio-dramatic play is both a medium and context for developing peer interactions in children.

However, the conclusions of the study cannot be generalised since this study was qualitative and it is an inherent characteristic of qualitative research. Further, the

limited time duration of the intervention could hinder the reveal of actual improvements since it takes longer period to shape the behaviours of children. These aspects are identified as limitations of the study.

Thus the study recommends putting greater emphasis on incorporating socio-dramatic play into the preschool curriculum and time table to encourage peer interactions among preschool children. Further, the study recommends teachers encourage children to cooperate with each other, make close friendships, identify others' needs and respond them positively and comfort friends in the play by using various play materials, different themes which are familiar to children, including different age groups and gender into play activity, reducing teacher involvement, use pretend talk, questioning, prompting, feedback and giving ideas on play.

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ANALYSIS OF SUSTAINABILITY MANAGEMENT PRACTICES IN THE SRI LANKAN TELECOMMUNICATION INDUSTRY

Ratnajeewa D R

General Sir John Kotelawala Defence University
Ratmalana
Sri Lanka

Abstract

The telecommunication industry plays a vital role in a country as a major contributor to its economy, and it plays a major role in society, facilitating communication among and between people and organisations. Therefore the sustainability of the industry is of great importance. The Sri Lankan mobile telecommunication industry directly and indirectly contributes to the economy of the country and utilizes a huge amount of resources. Overall it is extremely important to the country. Therefore, this study examines the sustainability of management practices in the Sri Lankan telecommunication industry by developing an integrated sustainability management index. The objectives of the study are to develop an integrated sustainability management index, to assess the industry sustainability and organisational sustainability. This was conducted as a case study of the Sri Lankan mobile telecommunication industry. An extensive literature survey was utilized to develop the sustainability management index. A questionnaire consisting of the sub-dimensions of the index and a rating scale of 1-10 was developed to capture responses. A primary data collection was done from all five organisations in the Sri Lankan telecommunication industry which are Mobitel Private Limited, Dialog Axiata Public Listed Company, Etisalat Lanka Private Limited, Bharti Airtel Lanka and Hutchison

Telecommunications Lanka Private Limited. The developed index was used for data analysis. In conclusion the overall sustainability of the industry could be stated as acceptable, nevertheless more sustainable practices could be implemented in most of the categories. Especially environmental sustainability practices are still lagging behind apart from the practice of e-billing (reduced paper consumption) and facility sharing.

Keywords: *Telecommunication industry, Sustainability, Sri Lanka, Sustainable management index*

1. INTRODUCTION

The concept of 'Sustainability management' has gained significance in almost all the industries worldwide and is in the focus of many important parties in the world. Organizations embrace the concept of sustainability willingly or as a necessity due to a wide variety of reasons which vary from customer awareness and customer pressure to profit maximization and government regulations. Unsustainable development and manufacturing that has continued for the past century or so resulted in a variety of issues which include climate change, global warming and rapid resource depletion which are being experienced widely by developed as well as developing countries. Organizations were slow and reluctant to embrace the concept of environmental friendliness and sustainability and were unwilling to incorporate sustainability practices into their product and process strategies. Sustainability and the green concept were considered as an inherent enemy of profit generation due to the extra expenses that they imposed on the organization. This negative perception was the result of lack of innovative strategies to manage solid waste, gas emissions and turn these outputs into products which can make a gain for the company. However, in the last two decades or so, with a greater concern on environmental issues throughout the world, major companies were forced to adopt a more sustainable approach as stakeholder awareness and pressure began to increase. Over time, they have also realized that by adopting innovative sustainable strategies they can in fact move towards more profits and increase their

competitiveness in their respective sectors along with fulfilling stakeholder demands. Now globally organizations regard sustainable management as a vital part of CSR .

The telecommunication industry plays a vital role of a country while being in the service sector. Although it does not deliver a tangible product, the service provided by the telecommunication industry is vital for almost all other manufacturing as well as service sectors. It is a major contributor of the economy and plays a foremost role in society, as it is the facilitative link for the communication among and between people and organisations. Therefore the sustainability of the industry is of great importance for the wellbeing of all other sectors of a country. The importance of sustainability in the telecommunication industry is highlighted by the International telecom union by stating that there is a direct correlation between a national economy's telecommunication penetration and the rate of growth of GDP. The telecommunication sector not only contributes to the economic growth but it also provides important platform for sustainable development by offering innovative solutions to overcome environmental and social challenges. In the telecommunications industry, sustainability is essential as telecommunication services stem from social trust and favor with stakeholders . Further as an example, they have stated that consumer telecommunication expenditures, one of the main revenues of telecommunication organizations, come from ongoing service subscriptions and not from a one-time purchase. Thus it is very important for these organizations to sustain continuous healthy relationships with consumers. Additionally, telecommunication services play a central role in the daily life of society from businesses to individual lives and therefore telecommunication services are life-lines of the modern society, thus making sustainability of these organizations a crucial one. On the other hand, sustainability is also a business opportunity which can be capitalized by organizations. Further, sustainability rankings such as carbon disclosure project, Dow Jones Sustainability Index and Green Rankings signify the importance that sustainability has gained.

The Sri Lankan telecommunication industry is one of the most important sectors in the development process which directly and indirectly contributes to the economic growth of the country. Also it utilizes a huge amount of resources. In 2010 it generated the highest Foreign Direct Investment (FDI) of the country. Therefore as

a vital industry of the country it is necessary to assess the sustainability of the industry, but no research has been conducted in Sri Lanka about the sustainability management of the telecommunication industry and globally also very less research has focused on this aspect. Therefore this study examines the sustainability management practices of the Sri Lankan telecommunication industry by developing an integrated sustainability index and using it to analyze the industry sustainability and to compare organisational sustainability.

The objectives of the study are to develop an integrated sustainability management index, to assess the industry sustainability and organisational sustainability. The sustainability is assessed with respect to economic, social and environmental sustainability which is included in the triple bottom line. This research was conducted as a case study of the Sri Lankan mobile telecommunication industry.

2. THE SRI LANKAN TELECOMMUNICATION INDUSTRY

The telecommunication sector in Sri Lanka is one of the most dynamic sectors, contributing both directly and indirectly to investment, employment, innovation, productivity and overall economic growth. It consists of fixed, mobile and broadband sub sectors. The most dominant sub sector is the mobile telecommunication sector and therefore this study will focus on this sub sector.

Table 1: An Overview of the Telecommunication Sector as at end of March 2014

Category	Amount
Number of System Licenses Total	43
number of Fixed phones	2,695,636
Teledensity (Fixed Phones per 100 inhabitants)	13.2
Number of Cellular Mobile Subscribers Mobile	21,394,262
Subscription per 100 people	104.4
Internet & Email Subscribers – Fixed	539,631*
Internet & Email Broadband Subscribers (Mobile)	1,777,955*
Internet & Email Narrowband Subscribers (Mobile)	2,987,899*
Number of Public Pay Phone Booths	6,284*

Source: Telecommunications Regulatory Commission of Sri Lanka (2014)

As shown in Table 1, when considering different sub sectors of the telecommunication industry, the mobile sector is the most rapidly growing and most popular sub sector with 21,394,262 subscribers and 104.4 mobile subscriptions per 100 people by 2014. The operators provide a wide range of services which include many applications which have become an integral part of the day today life of people. These are connected to many industries which include entertainment, ticket bookings, health, news alerts, religious services, banking, networking and socializing with people, traveling and insurance. Almost all businesses too heavily rely on this industry in their operations as a supportive service. The mobile telecommunication industry of Sri Lankan consists of five organisations; Mobitel Private Limited, Dialog Axiata Public Listed Company, Etisalat Lanka Private Limited, Bharti Airtel Lanka and Hutchison Telecommunications Lanka Private Limited. Mobitel (Pvt)Ltd commenced their operations in the year of 1993 and went on to become a fully-owned subsidiary of Sri Lanka Telecom in 2002. Dialog Axiata Plc was incorporated as a private limited liability company in 1993 and was subsequently transformed to a public limited liability company in 2005. Etisalat Lanka (Pvt) Ltd which commenced their Sri Lankan operations in 2010 is totally owned and operated by the Emirates Telecommunication Corporation in UAE. This organization was previously the Sri Lanka's inaugural cellular network, which was at that time known as 'Celltell' which was commenced in the year of 1989 and subsequently changed its brand name to "Tigo" with a change of appearance in year 2007. Hutchison Telecommunications Lanka (Pvt) Ltd. launched operations in Sri Lanka in year 2004 and is a member of the Hutchison Asia Telecom. Bharti Airtel Lanka is a subsidiary of Bharti Airtel Limited of India and commenced operations in Sri Lanka in year 2009 and was the fifth entrant to the market and is the final entrant to the market up to now. Hereafter virtual names are used in this paper for the protection of identity of organizations.

3. METHODOLOGY

This research was carried out as a case study of the Sri Lankan telecommunication sector and all five operators in the sector have been considered. Therefore during the data collection process responses were gathered from all five operators. It is

stated in previous research that sustainability management for telecommunication services is a multifaceted practice, and that the case study method is an appropriate approach for research, that allows the researcher to gain insight in a wide-ranging manner. In this study initially an extensive literature review was carried out to ascertain different assessment models of sustainability. Based on these identified sustainability management practices and indicators a questionnaire was designed to include the relevant indicators and practices of sustainability. A rating scale comprising of 10 points on a '1 to 10 scale' was used to capture the responses of the relevant respondents. This rating scale method has been embraced by Kang, Ryu, & Kim, in their 2010 case study to develop a sustainability index for the Korean Telecommunication industry. Another study too has likewise used a rating scale consisting of five points . As the next step the questionnaire was then sent to the organizations to gather relevant data. Initially a pilot survey was done and then based on its feedback the main study was carried out.

4. DIFFERENT MODELS OF SUSTAINABILITY

According to Ascom AG who is an international mobile solution provider, being sustainable as a company is “delivering value-added products and services in an environmentally friendly, secure, reliable and efficient manner”. The concept of sustainability can be divided into three aspects named as environmental, economic and social sustainability. Additionally it is discussed that these aspects are interrelated to each other up to a certain level. Further it is discussed that organizations should adopt a cradle-to- cradle design structure to ensure that all waste materials are reintegrated into the system instead of discarding and polluting the environment. This is evident in closed-loop manufacturing cycles and take- back programs that certain organizations have adopted .

There are several frameworks which have been discussed in related studies. The 'Triple Bottom Line' (TBL) framework is built on the three pillars of sustainability. It is “an accounting framework that incorporates three dimensions of performance: social, environmental and financial. This differs from traditional reporting frameworks as it includes ecological (or environmental) and social measures.”

On the other hand, there is an issue with the triple bottom line. The implementation

of triple bottom line however, is tricky as there is no prearranged or universally accepted standard to measure these three components. Table 2 depicts the variables generally considered under the TBL framework.

Table 2: The Triple Bottom Line variables

TBL dimension	Variables
Economic variables (financial)	Expenditures, taxes, business climate
Environmental variables	Greenhouse gas emissions, fossil fuel consumption, electricity consumption, solid and hazardous waste management
Social variables	Measurements of education, health and well-being, access to social resources, quality of life and social capital

Similarly have also discussed about indicators of sustainable development for industry and have proposed a general framework which consists of three groupings of indicators; environmental, economic and social.

'Natural capitalism' is another such framework discussed. This frame work lays on four principles that are more or less interlinked with each other: radical resource productivity, bio mimicry, service economies and reinvestment. has developed a composite sustainability performance index for the steel industry consisting of five dimensions; sustainability, environment, social, economic, technical aspects and organisational governance. It has been developed for the cement manufacturing industry and in order to identify key sustainability issues a brain storming session consisting of fifteen experts has been conducted.

5. SUSTAINABILITY MANAGEMENT FRAMEWORK

A sustainability management framework which is specific to the telecommunication industry has been developed . This is depicted in Figure 1.



Figure 1: Sustainability Management Framework for Telecommunication services Source: Kang, Ryu, & Kim (2010)

Kang, Ryu, & Kim (2010) have built upon the three pillars of sustainability and another four derived interrelated sustainability dimensions. Thus overall seven dimensions have been taken into consideration in this framework. Out of all the models discussed, this framework is specific to the telecommunication industry and it has been developed to assess the sustainability management of the Korean telecommunication industry using two mobile telecommunication companies, therefore this study is also based on this framework (which is depicted in Figure 1) as its conceptual framework. Additionally the sub category of use of renewable energy has been considered as a separate entity by this study, as it is a focal practice stated by various studies conducted related to the sustainability of the telecommunication industry. The electrical energy consumed by the telecommunication industry is rising rapidly due to the advancements made in the field of Information Technology. Further in countries such as Japan, energy saving strategy campaigns such as 'Save Power' have already begun which include the development of network equipment to decrease power and the use of solar power. It is stated in research that Data-centers generally consume around ten times as much power per unit floor area as workplaces, therefore a quantitative assessment of the effect of introducing energy-saving technology can be anticipated to contribute towards a reduction of carbon monoxide emissions when such

technologies are adopted. The practices which have been measured under this category are Eco-friendly facility ratio and degree of carbon monoxide emission ratio.

Based on the dimensions given in Figure 1, the appropriate sub-dimensions and the related measures to be considered have been derived. This is given in Table 3. Each of the main dimensions has an equal weight assigned as done by several previous researchers. Thereafter in a similar manner each sub-dimension has been assigned an equal weight. By multiplying the weight of each sub-dimension with their relevant dimensional weight the integrated weight of each sub dimension is calculated as shown in Table 3. A questionnaire was developed consisting of the measures depicted by Table 3 and a rating scale of one to ten (10 denoting the highset value) was used to capture the responses.

Data were collected from all five organizations of the mobiletelecommunication industry. Thereafter the gathered data were analysed using the Telecommunication Sustainability Management Index (TSMI) which is shown in Table 4. Table 4 shows the weighted scores which were obtained. The weighted scores shown in Table 4 were obtained by multiplying the response rated score with the integrated weight. Finally the weighted score of each organization is summed up to calculate the overall value which depicts the sustainability.

6. RESULTS

The results of the data analysis are shown in Table 4. The value/score obtained for each sub-dimension through the completed questionnaire and the weighted score relevant to each sub-dimension which is calculated is given. The total score for each dimension is also given in Table 4. Through this analysis the sustainability of each of the organizations can be identified and overall sustainability can be compared with each other and separately for the main dimensions.

7. DISCUSSION

Table 4 illustrates the TSMI scores for the five organizations. When considering overall sustainability, it can be identified that the sustainability management practices of B are the best and it is closely followed by C. Next in line is A. The least

practice of sustainability management is in E as it has the lowest score. When considering the industry overall, except for organization E, all other organizations seem to have adequate scores which show that they practice a satisfactory level of sustainability management practices.

When comparing the TSMI scores obtained by the Sri Lankan telecommunication operators with those of the Korean telecommunication operators the dimension of economic-social-environmental sustainability is left out as it has been assessed differently. Both of the Korean telecommunication operators have higher TSMI scores which Sri Lankan operators have not been yet able to achieve. The scores obtained by KT and SK Telecom of Korea are 5.829 and 6.443 respectively. Two of the Sri Lankan operators are close to this score with organization B and C having scores of 5.498 and 5.225 respectively. Therefore the Sri Lankan telecommunication industry needs to improve much on the sustainability management practices.

Next each dimension will be observed separately. Thus when considering economic sustainability A and B are on equal grounds and they are followed upon by C. The lowest value for economic sustainability has been obtained by E. As for social sustainability all three organizations B, C and D have scored an equal value of 0.852. Organization A has scored lesser in this dimension although it scored most in economic sustainability. It is important to notice that in this dimension too E has obtained the minimum score of all.

In terms of the dimension of environmental sustainability, B has scored a significant value which is notably well above the other four organisations. Therefore it can be stated that Organization B is well ahead of the other four operators when it comes to environmental reporting and environmental management. B is followed by C and then by Organizations A and D who have obtained equal scores. Additionally when comparing with the Korean telecommunications operators, in terms of environmental reporting which is a sub-dimension under environmental sustainability, organization B is well ahead of them and organization D is also reasonably ahead of the Korean operators. Therefore it can be stated that the Sri Lankan operators are practicing environmental reporting in a better manner. When it comes to the other sub-dimension of environmental management under the main dimension of

environmental sustainability, only organization B is ahead of the Korean operators which depicts that Sri Lanka has much to improve in environmental management practices.

In the dimension of economic-social sustainability, Organizations A and B are leading with equal scores and they are followed by C. The essential practice of Research and Development comes under economic-social sustainability. Except for organization A and C, all the other operators have scored low values for Research and Development practices. When comparing with KT (of Korea) which has only scored 0.095, organizations A and C are ahead with scores of 0.144 and

0.12 respectively. On the other hand when comparing with the other Korean operator, SK Telecom which has a score of 0.167, all of the Sri Lankan operators are lagging behind in this practice. Therefore overall much attention has to be paid for practicing of Research and Development by this industry as it is vital for future sustainability.

It is important to look into the sub-dimension of Human Resource Development under economic-social sustainability as it is a vital practice much needed for the future development of any industry. When comparing this practice with the Korean industry it can be stated that all of the Sri Lankan operators are lagging behind as they all have obtained lesser scores than the Korean operators (0.214) .

When considering the dimension of social-environmental sustainability C has obtained the highest value which means that this organization is practising E-waste management in the best manner when compared with the other operators. In terms of economic-environmental sustainability which is measured through E- transactions B and C have higher scores. This implies that these organizations are paying greater attention towards this practice and use more E-transactions than the other organizations. These organisations have made their customers aware about e- billing and use of e-payslips by conducted programmes about them and encouraging their customers to move towards e-bills and e-payslips. When looking into the Economic-social-environmental sustainability, for the facilities management all the organizations have scored high values. On the other hand when considering the use of renewable energy it is the opposite that can be observed. None of the organizations are practicing any strategies which are related to renewable energy even at a trivial level. In fact when looking into the individual

scoring it can be observed that all organizations have used the value of one. The energy that is consumed by the facilities is mainly acquired from generators and from the national grid. Currently the strategy followed by these organizations in order to reduce emissions is to shift from generator power which is using fuel, to the national grid which is mainly sourced from hydro power. Moving to new renewable sources of energy is not a practice of any organization in the telecommunication industry. This is a major deficiency as other countries have already initiated the usage of renewable energy in this industry.

It is significant to identify that Organization E has obtained the least scores in almost all the dimensions except for four dimensions. Therefore E is lacking behind sustainability in most of the areas. Digital inclusion is practiced by D in the highest level (with a score of 9 out of 10) when compared with the other organizations. Digital inclusion is the provision of access to information and communications technology with the intention to solve the digital divide between information-poor and information-rich citizens. With new applications and technologies being introduced, new forms of exclusion may occur. As an example, the blind cannot enjoy pictures from a camera phone. Additionally social networks such as YouTube and Facebook may increase the digital divide between dissimilar generations. Further it is discussed that there is a connectivity between digital exclusion and social exclusion, thus likely consequences of the vicious cycle between these two. Taking all these into consideration the telecommunication industry ought to pay more attention to digitally excluded parts of society in order to resolve the digital divide. Three of the Sri Lankan operators are ahead of the two Korean organizations considered in the case study done previously focusing on the Korea telecommunication industry, with respect to digital inclusion. Therefore it could be stated that it is in an acceptable level but with room for improvement.

It is significant to identify that organization B is having the maximum score in four out of the seven main dimensions considered in the study which include: economic sustainability, social sustainability, environmental sustainability, economic-social sustainability, which emphasises that they are well ahead of their competitors when it comes to sustainability management. Another noteworthy observation is about e-waste management practices. All the organizations have scored 5 or less than 5 for e-waste management. This means that only one organization is on the middle

score on 5 and other four organizations haven't even reached the midpoint with reference to this practice. Therefore this depicts that the overall focus on e-waste management practices by the operators is lagging behind. This is a major problem with the vast amount of equipment being used in the industry. This is not in line with the global trend in the industry as the telecommunication industry is moving towards a “greener” supply chain for manufacturing and as part of this greening process, more prominence is given for logistics management, remanufacturing and recycling of e-waste. Currently there is much publicity in relation to the environmental benefits of recycling electronic equipment and reselling it to customers instead of manufacturing new like-kind equipment .

Also when considering the Korean companies it can be stated that they are well ahead with individual scores of 9 each (on a score scale of 0 to 10). Additionally they have each scored 1.286 as the TMSI value whereas the maximum obtained by the Sri Lankan operators is 0.71.

Other countries too are moving towards e-waste management practices. Alcatel- Lucent has a dedicated section within the company as the Special Customer Operations (SCO) organization to handle many of the functions related to reverse logistics within the supply chain which include the reverse logistics associated with the customer returned materials process, the recycling of old and obsolete products and remanufacturing. Alcatel-Lucent is also committed to the logistics responsibility in take-back programs required by legislation such as the European Union's (EU) Waste Electrical and Electronic Equipment (WEEE) directive which requires electrical and electronic equipment waste to be collected and recovered, giving priority to reusing and recycling materials and products .

When looking into economic-social-environmental sustainability of the Korean organizations, only the facilities have been considered. The individual scores have been 4 by KT and 6 by SK Telecom. Whereas the individual scores of the Sri Lankan organizations are either 7 or 8 and this depicts that Sri Lankan operators are ahead of the Korean companies with regard to sustainable facility management practices.

8. CONCLUSION AND RECOMMENDATIONS

In conclusion of the study, it can be said that there is numerous research which have analyzed general sustainability management issues related to different industries. But when it comes to the telecommunication industry there is a clear deficiency of studies which focus on sustainability management practices. Particularly in the Sri Lanka context this research void is prevailing as there is no research which focuses on the practices taken by the telecommunication operators in Sri Lanka. Therefore this study has analysed the sustainability management practices implemented by the telecommunication operators in Sri Lanka. Through this research it can be stated that practices of sustainability management implemented in 4 out of the 5 operators are at an acceptable level. The operator with the highest TMSI value is Organization B. Organization B also publishes a special sustainability report to create awareness among their stakeholders about the sustainability practices implemented by them and the project/process status. No other organization is publishing such a report to create awareness in society about the sustainability management practices and provide such information. Hence these organizations too could publish a report in that manner which will also have potential to enhance their corporate image as well. One of the most commonly practiced sustainable practice is the use of E-transactions which results in decrease of paper work and paper consumption. Also operators are encouraging their customers to go for this option more and more. Another practice implemented commonly is that of facility sharing. All five organizations are using this practice which results in many positive outcomes for all operators. These positive outcomes result in less building of new towers, reduced energy consumption and reduction of unnecessary emissions. This was also a result of government involvement in stating that new tower construction was to be very strictly regulated. Hence this sustainability management practice can be identified as a very affirmative practice.

Organization E has obtained the lowest score which depicts that it is lagging behind in almost all of the areas considered. Thus Organization E must start focusing on ways and means of improving their sustainability management practices without further delay.

Through the study it can be recommended that all the organizations should take

steps to go towards incorporating sustainability management practices into their operations. Particularly they should look into their lacking areas and formulate policies to integrate sustainable practices. Holistically it can be recommended that the operators should focus on industry wide collaborations for certain areas of sustainability. The development of joint strategies among themselves as well as with other relevant parties such as the Central Environmental Authority, for E- waste management practices and renewable energy usage. Practices related to the two above mentioned areas may be difficult for organizations to implement on their own and may be collaboration among different parties is required. Research and development is another area that is lagging behind in the Sri Lankan industry. Through this study it is recommended that organizations focus more on research and development as it helps to identify potential areas for sustainable practices to be implemented and how such practices can be incorporated to the operation. Certain organizations are working on collaborative projects with universities and other institutes, but it is neither a popular nor an industry wide practice as yet in Sri Lanka.

Additionally the development of sustainability management indexes using various techniques such as the analytic hierarchical process and the differentiated weighted score method can be suggested as further research. Moreover research which focuses on different methods of how sustainable practices can be integrated smoothly into the ongoing operations especially in the areas where the operators are lagging behind, can be undertaken as further research.

Table 3: Telecommunications sustainability index

Dimensions	Weight	Sub-dimension	Weight	Integrated weight	Measure
Economic sustainability	0.142	Sales revenue	0.2	0.029	Level of profit - new service
		Productivity	0.2	0.029	Sales revenue per employee
		CSM	0.2	0.029	Customer value added
		EVA	0.2	0.029	Operating income after tax-capital cost
		Stock value	0.2	0.029	Excess return
Social sustainability	0.142	Partner relationship management	0.5	0.071	Partner relationship management improvement, Partner satisfaction index
		Social responsibility	0.5	0.071	Degree of contribution, Social investment volume, Volunteer activities
Environmental sustainability	0.142	Environmental report	0.5	0.071	Contents of reporting with regard to environmental practices
		Environmental management	0.5	0.071	Environmental policy, Strategy, Preservation activities
Economic-social sustainability	0.142	Research and Development	0.167	0.024	Research and Development system efficiency and performance, Preparedness regulation on new services
		Human Resource Development	0.167	0.024	Human resource development process, Motivation
		Provision of universal services	0.167	0.024	Service and infrastructure provision rate, Universal service obligation
		Contents soundness	0.167	0.024	Inner contents purification system, Contents ethics consultation
		Digital inclusion	0.167	0.024	Company policy for reduction of digital divide, Degree of response to regulatory obligations
		E-disaster	0.167	0.024	Provision of e -disaster service and infrastructure, E-disaster provision obligation
Social-environmental sustainability	0.142	E-waste	1	0.142	Cost saving from e -waste take back ratio and reuse, Response to e -waste take back and reuse obligation, EPR (Extended Producer Responsibility) execution
Economic-environmental sustainability	0.142	E-transaction	1	0.142	E-bill issuing ratio, Paper consumption ratio
Economic-social-environmental sustainability	0.142	Facility	0.5	0.071	Cost reduction from facility sharing, Facility sharing, Energy usage, Regulation for facility
		Renewable energy	0.5	0.071	Eco-friendly facility ratio, Degree of CO2 emission ratio

Source: Developed by the author based on the research of Kang, Ryu, & Kim (2010)

Table 4: Results of TMSI for the organizations

Dimensions	Sub-dimension	Integrated weight	Score (1-10)					Weighted score				
			A	B	C	D	E	A	B	C	D	E
Economic sustainability	Sales revenue	0.029	7	6	7	6	5	0.203	0.174	0.203	0.174	0.145
	Productivity	0.029	7	5	5	3	2	0.203	0.145	0.145	0.087	0.058
	CSM	0.029	6	8	6	5	8	0.174	0.232	0.174	0.145	0.232
	EVA	0.029	5	6	5	3	3	0.145	0.174	0.145	0.087	0.087
	Stock value (excess return)	0.029	5	5	5	6	3	0.145	0.145	0.145	0.174	0.087
	Total							0.87	0.87	0.812	0.667	0.609
Social sustainability	Partner relationship management	0.071	6	5	5	5	1	0.426	0.355	0.355	0.355	0.071
	Social responsibility	0.071	5	7	7	7	1	0.355	0.497	0.497	0.497	0.071
	Total							0.781	0.852	0.852	0.852	0.142
Environmental sustainability	Environmental report	0.071	4	8	5	7	1	0.284	0.568	0.355	0.497	0.071
	Environmental management	0.071	6	8	6	3	1	0.426	0.568	0.426	0.213	0.071
	Total							0.71	1.136	0.781	0.71	0.142
Economic-social sustainability	Research and Development	0.024	6	3	5	3	1	0.144	0.072	0.12	0.072	0.024
	Human Resource Development	0.024	7	6	4	2	1	0.168	0.144	0.096	0.048	0.024
	Provision of universal services	0.024	8	7	6	5	5	0.192	0.168	0.144	0.12	0.12
	Contents soundness	0.024	5	8	5	5	1	0.12	0.192	0.12	0.12	0.024
	Digital inclusion	0.024	8	8	6	9	4	0.192	0.192	0.144	0.216	0.096
	E-disaster	0.024	5	7	7	6	6	0.12	0.168	0.168	0.144	0.144
	Total							0.936	0.936	0.792	0.72	0.432
Social-environmental sustainability	E-waste	0.142	3	4	5	3	1	0.426	0.568	0.71	0.426	0.142
Economic-environmental sustainability	E-transaction	0.142	5	8	9	5	6	0.71	1.136	1.278	0.71	0.852
Economic-social-environmental sustainability	Facility	0.071	7	7	8	8	7	0.497	0.497	0.568	0.568	0.497
	Renewable energy	0.071	1	1	1	1	1	0.071	0.071	0.071	0.071	0.071
	Total							0.568	0.568	0.639	0.639	0.568
Total (Result)								5.001	6.066	5.864	4.724	2.887

Source: Author

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Author's Name	12	Normal	Centre
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Abstract and Keywords	10	Normal	Justify
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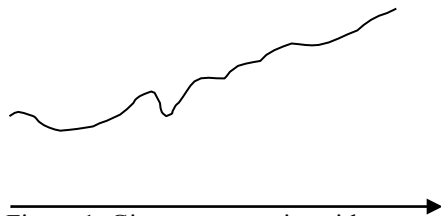


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<http://www.nature.com/nature/journal/v451/n7177/full/451397a.html>
[Accessed 20th January 2015].

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Wittke, M. (2006) Design, construction, supervision and long-term behaviour of tunnels in swelling rock. In: Van Cotthem, A., Charlier, R., Thimus, J.-F. and Tshibangu, J.-P. (eds.) *Eurock2006: Multiphysics coupling and long term behaviour in rock mechanics: Proceedings of the International Symposium of the International Society for Rock Mechanics, EUROCK 2006, 9–12 May 2006, Liège, Belgium*. London, Taylor & Francis. pp. 211–216.

Standard

British Standards Institution (2003) BS 5950–8:2003. *Structural use of steelwork in building: code of practice for fire resistant design*. London, BSI.

Report

Leatherwood, S. (2001) *Whales, dolphins, and porpoises of the western North Atlantic*. U.S. Dept. of Commerce. Report number: 63.

Web page / website

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CONTACT INFORMATION

Dr M M

Jayawardane Editor

– JMSH

General Sir John Kotelawala Defence University

Ratmalana

Sri Lanka

☎ +94-11-2 63 21 47

✉ jmsh@kdu.ac.lk

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