AN ANALYSIS OF SYSTEMIC THINKING IN DECISION-MAKING PROCESSES IN THE MUNICIPALITIES WITHIN THE PROVINCE OF KWAZULU-NATAL

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Abstract

This paper advocates the adoption of systemic thinking in decision-making processes in municipalities. Most importantly, in this epoch of managing in complex and thought-provoking business environment, decision making is one of the most important skills required by any manager to remain effective. The success of a municipality or any business hinges on how well decisions are taken and implemented. In this paper, I intend to scrutinize decision making processes at strategic management levels in the municipalities within the province of KwaZulu-Natal. In doing that, a mixed method approach of qualitative and quantitative techniques was adopted in gathering data from sixty-one municipalities within the province of KwaZulu-Natal. This was done in order to substantiate theoretical perspectives from different erudite scholars on the discourse of systemic thinking in decision making processes. This notion of systemic thinking is coined upon the universally used rational decision making process model. Thus, the conceptualization of rational decision-making model was also considered in this paper, the possibility of decision failure, the complexity of the municipality, and systemic thinking as the recommended option of dealing with complexity was explored. The results indicates that the theory that underpins the adoption of systemic thinking in dealing with complexity today's business environment is relevant.

Key Words: Complexity of Municipality, Decision-Making Process, Municipality, Systemic Thinking

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Introduction

This paper presents an analysis of systemic thinking in decision-making processes in the municipalities within the province of KwaZulu-Natal. The concept of systemic thinking was best explained in the international conference paper presented by Bartlet (2001). Subsequently, the literature has further revealed that municipalities should consider tempestuous environment as an opportunity rather than a threat (Almahamid, 2013: 10; Atwater et al., 2008: 42). The literature further stated that one thing certain is that tomorrow will not be like yesterday and the future is highly risky, therefore it is more risk to keep the status quo and ignore innovation (Garrison, 2011: 14). It had become evident that managers need to adopt new paradigms and address new challenges arising from the changing social, economic, political and demographic realities of the changing marketplace (Drucker, 2012: 107).The complexity in business environment is unpredictable (Vasconcelos and Ramirez, 2011: 237). Complexity is relative in nature because it depends on the number and the nature of interactions among the variables involved (Gharajedaghi, 2011: 110). Management must be creative and innovative, because the future is no longer anticipated, it is now created. The key concepts now are chaos, conflict, instability, complex learning and dialogue to favour spontaneous self-organization (Olmedo, 2012: 82). McBride, Hall and Okwaro (2013:17) argued that the success of any organisation hinges on how well decisions are undertaken in all levels of the organisation. According to Jackson (2010: 327), systemic thinking would be a better thinking approach to managers to manage effectively in an environment of complexity, change and diversity.

Problem Statement

The findings of the Auditor-General in terms of the Audit Report 2012/13 revealed that the environment of managing municipalities are complex and requires leaders and managers who can apply systemic thinking in decision making processes. Since, systemic thinking is defined as an ability to combine analytical and synthetical thinking in decision-making processes (Bartlet, 2001: 2). The literature reviewed has also revealed that much work has been done on the concept of systemic thinking and its application to other sectors but there is very little empirical evidence to show that a study on systemic thinking

has been conducted in any municipality in South Africa. Worse, to determine the understanding, application and effectiveness of systemic thinking in decision-making processes in municipalities in any province within South Africa. Hence, this paper intended to investigate systemic thinking in the municipalities within the province of KwaZulu-Natal.

Aim and Objectives

Aim

This paper aims to analyse the understanding, application and effectiveness of systemic thinking in decision making processes within the municipalities within the province of KwaZulu-Natal.

Objectives

- To determine the understanding of systemic thinking by senior managers within the municipalities in KwaZulu-Natal.
- To investigate the application of systemic thinking in decision making processes within the municipalities in KwaZulu-Natal.
- To assess the effectiveness of systemic thinking in decision-making processes within the municipalities in KwaZulu-Natal
- To recommend the model of how systemic thinking can be incorporated and applied in the decision-making process.

Literature Review

The Outmoded Practices of Decision Making

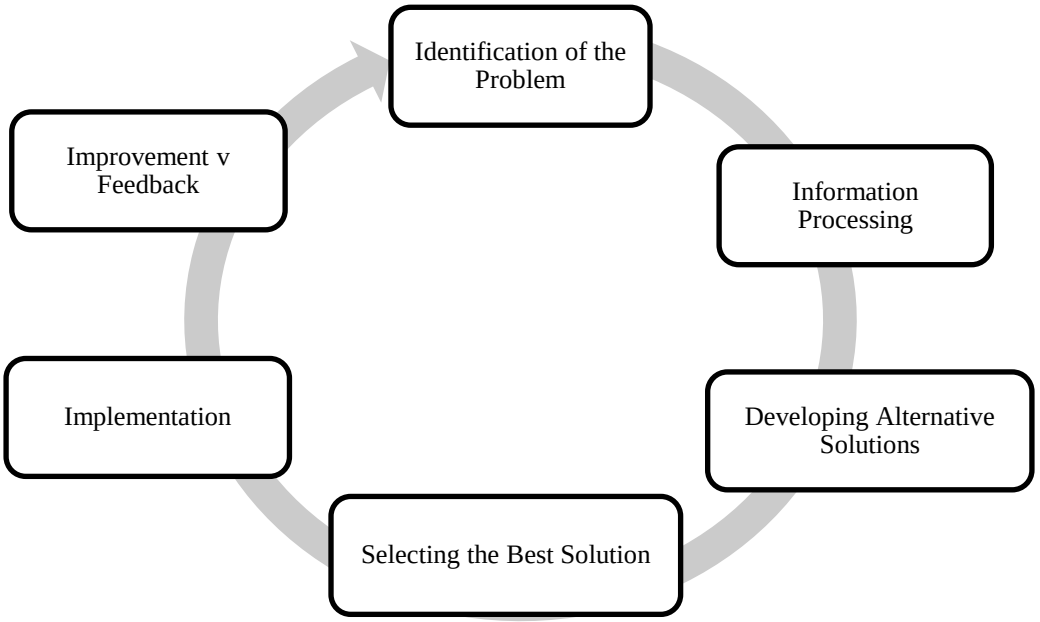
Daft (2012: 26) stated that decision making processes are still charecterised by routine, specialised tasks, and standardized control procedures, and organizations, and are coordinated and controlled through a vertical hierarchy with decision authority residing with upper-level managers, whereas in the new workplace, work is free-flowing and flexible, and structures are flatter, and lower level employees are empowered to make decisions based on widespread information and guided by the organisation's mission and values. Pidd (2004: 27) argued that those who are entrusted with the responsibility of strategic management must accept that, in an unpredictable and changing environment, a fixed plan for decision making is no longer possible, the ideal decision making process must be adaptive, decentralized and self-organising, and allow organisational policies and goals to remain emergent and indeterminate. As a result, in dealing with complexity, Pidd (2004: 28) further suggested that there is need of decision makers to incorporate the culture of systemic thinking in decision-making processes.

Mitchell (2009: 19) agreed with the contention that decision making processes must adapt to complex business challenges , since these challenges that are emerging from complex business environment cannot be fully understood, and their behavior cannot be exactly predicted. This view is confirming the school of thought by Neumann (2013: 81) that only complicated challenges can be understood and predicted but not the complex challenges , and that can only happen if managers have enough time, knowledge and the right tools for dealing with such complicated challenges. Since, today's organizations are characterized by disequilibrium, nonlinearity and emergence, therefore management must adopt a culture of becoming learning , creative and innovative organisation, because the future is no longer anticipated, it is now created (Olmedo, 2012: 82), and that the current key features of today's organisations are chaos, conflict, instability, complex learning and requires a dialogue to favour spontaneous self-organization. The same view is shared by Drucker (2007: 132) that the heart of business success would depend mostly on the willingness of businesses to incorporate creativity and innovation in decision making process. Castillo (2014: 615), contended that managers should not regard rational decision making process model as the only honest, mature and intelligent decision-making process, when in reality it lacks ingenuity, innovation and originality.

Rational Decision Making Process Model

A rational decision making model is a multi-step process of choosing among alternatives in a way that accords with the preferences and beliefs of an individual decision maker or those of a group making a joint decision. The word "rational" in this context does not mean sane or clear-headed as it does in the colloquial sense. In this paper rational decision making model must be contextualized in a sense that it is an approach that follows a sequential and formal path of activities(Doyle, 1998: 1). This path is best illustrated in the diagram on Figure 1.

Figure 1. Rational Decision Making Process Model (Doyle 1998:1)



This model has caught criticism from scholars like Pettigrew (2014: 13) that this rational decision-making model has some limitations. Among the limitations are its assumptions that it requires a great deal of time, a great deal of information, assumes rational, measurable criteria are always available and agreed upon, it further assumes that there is accurate, stable and complete knowledge of all the alternatives, preferences, goals and consequences, and also assume a rational, reasonable, non-political world. Pidd (2004: 36) argued that this model is premised on an assumption that managers have only one problem to look at, and the process of making a decision is one of seeking options with a hope of choosing the best solution. Ferrell, Hirt and Ferrell (2009: 224) affirmed that the reality on the ground is that decisions are often made on the basis of incomplete, insufficient and probably partially accurate information. Also, Pettigrew (2014: 14) went on to argue that while the rational planning decision-making model was innovative at its inception, the model is now controversial and questionable. Benveniste (2011: 134) asserted that the rational decision making process model ignores political influence. Despite these scholarly criticism , positivism, linearity and reductionism still dominate the processes of decision making in management practices even during this era of complex business environment (Olmedo, 2012: 82). Despite these criticism by various academics, it remains pivotal to acknowledge the fact that the success of any organisation hinges on how well decisions are undertaken in all levels of the organisation (Benveniste, 2011; Pettigrew, 2014; McBride et al., 2013). It is important that people learn how to embrace systemic thinking through bringing in the element of creativity and disagreement, since organizations need this creative energy generated by these differences in order to progress (Olmedo, 2012: 85). According to Polasky, Carpenter, Folke and Keeler (2011:398) managing in a period where organisations are operating in complex environment, it requires an ability to gather new information and perspectives to better anticipate future conditions of the organisation . The traditional management principles are no longer relevant in this era, because managers have to manage complexity, in a thin line between order and disorder or, in other words, at the edge of the chaos, which implies a need of revisiting the traditional thinking approach (Paarlberg and Bielefeld, 2009: 247).

The Possibility of Decision Failure

Every decision situation in any business is organized on a scale according to the availability of information and the possibility of failure (Daft, 2012: 240). The problem with the current management practices, in dealing with complex organisational challenges, is that decision making processes are still handled in a linear thinking order (Castillo, 2014: 215). Daft (2012: 239) suggested that management decisions typically fall into two categories. Those two categories of decisions are programmed and non-programmed decisions. Programmed decisions involve situations that have occurred often enough to enable decision rules to be developed and applied in the future, Programmed decisions are made in response to recurring organizational problems , whereas non-programmed decisions are made in response to situations that are unique, are poorly defined and largely unstructured, and have important consequences for the organisations. Thus, Towler (2010: 111) argued that the main challenge of

managing business in this era is that managers are still operating under the impression that decisions are made under certainty, as a result the assumption is that the decision-making process of finding alternatives is still too predictable. Yet, the literature has just revealed that, that can only happen in a perfect world whereby managers would have all the information necessary to make decisions.

Gharajedaghi (2011: 335) contended that neither a problem nor a solution can be entertained free of context, and further indicated that a tendency to define problem in terms of their solutions, and a strong preference for context-free solutions will merely continue regenerating the past, reproducing the non-solution all over again. He went on to say do not use constraints such as time and information or resources to define problems, because in doing so the implication is that a problem is defined in terms of a known solution. The same assertion was also affirmed by Daft (2012: 240) that in reality, some things are unpredictable, thus some decisions fail to solve the current business problems or attain the desired outcomes. To explore further the same views, a litany of literatures(Cole and Kelly, 2011; Daft, 2012; Ferrell et al., 2009) were considered and confirmed that decision-making processes are designed in a rational approach which becomes the greatest challenge in managing business complex situations. As a result, the traditional managed organisations are suffering the most in times of turbulent business periods.

The Changing Landscape of Business Environment

Managers spend a great deal of time confronting complex and difficult challenges of the business world today. Some of these challenges relate to rapidly changing technology, increased scrutiny of individual and corporate ethics and social responsibility, the changing nature of the workforce, new laws and regulations, increased global competition and more challenging foreign markets , declining educational standards and time itself, but such diverse issues cannot simply be plugged into a computer program that supplies correct , easy-to-apply solutions. It is only through creativity and imagination that managers can make effective decisions to benefit organisations(Ferrell et al., 2009: 225). In view of rapidly increasing complex and interconnected business world, Smith, Binns and Tushman (2010: 11) suggested that systemic thinking must be incorporated in decision making processes since it is regarded as the best approach in dealing with complex challenges and it is also perceived as an approach that will become a source of a competitive advantage and a tool to become a pre-condition for success in most organisations.

The same view is affirmed by Olmedo (2012: 88) wherein he clearly articulated that leaders should be encouraged to promote novelty and disequilibrium and the emotional connections with common language and symbols inside simple rules to favour new emergent business environmental behaviors, and be able to recognize the emerging emergent behaviors and be able to interpret the meaning thereof. According to (Bartlett, 2001: 4)systemic thinking can be a solution in dealing with complex business challenges. To test the veracity of that assertion, on the basis of the findings from the literature regarding the view that that profit making business solutions that the private sector has adopted in response to the growing complexity of the business environment could work equally well in the public sector (Hamalainen, Kosonen and Doz, 2012:9), this study seeks to investigate the application of systemic thinking in decision making process in the municipalities within the province of KwaZulu-Natal.

The Relevance of Sytemic Thinking in Today's Decision Making Processes

Systemic thinking enables managers to deliberately and systematically gain significantly deeper insights into challenging situations and complex domains by surfacing the interaction-patterns that underlie, drive and govern complex situations (Johanessen, Olaisen and Olsen, 1999). Reynolds, Forss, Hummelbrunner, Marra, and Perrin (2012: 3) indicated that systemic thinking has got its originality in three traditions, namely-the theoretical perspective of gaining a holistic view of a problem, the practical pursuit of engaging with multiple perspectives each restricted with bounded judgments (pluralistic thinking and participatory practice), and the purposeful pursuit of improving situations (operational research and action research). Doppelt (2012: 76) stated that the strength of dealing with complexity in today's business challenging environment is the ability of a manager to rise above the occasion in decision making processes. Johannessen and Skålsvik (2013: 42) indicated that the challenges of business today cannot be dealt with only in accordance with fixed documented rules, procedures and regulations. Reynolds et al. (2012) argued that systemic thinking challenges the narrow-minded reductionist practices, the rational models of policy-making, linearly assumed causal relationships and experimental evaluation designs which can often inhibit more appropriate or meaningful evaluation. In his justification, Reynolds et al. (2012: 3) indicated that systemic thinking encourages a dynamic, more holistic perspective which influences the ability of evaluators to manage deliberative processes about complex problems in a democratic fashion.

Peter Drucker once warned that one thing certain is that tomorrow will not be like yesterday and the future is highly risky, therefore it is more risk to keep the status quo and ignore innovation (Garrison, 2011: 14). The complexity in business environment is unpredictable (Vasconcelos and Ramirez, 2011: 237).

Since complexity is relative in nature because it depends on the number and the nature of interactions among the variables involved, it needs proper management (Gharajedaghi, 2011: 110). Management must be creative and innovative: the future is no longer anticipated, it is now created. The key concepts now are chaos, conflict, instability, complex learning and dialogue to favour spontaneous self-organization (Olmedo, 2012: 82). Therefore, systemic thinking provide managers with the ability to manage effectively in an environment of complexity, change and diversity (Jackson, 2010: 327).There are different theories and methods in systemic thinking that are each designed to address complex problems in business organisations (Peters, 2014: 2).

The business environments are said to be complex because they involve multiple interacting agents, the context in which they operate keeps changing and the manner in which things change do not conform to linear or simple patterns(Mitchell, 2009: 231). Sometimes elements within the system are able to learn new things, or sometimes create new patterns as they interact over time (Gharajedaghi, 2011: 213). Many of the problems in municipalities are now recognized as complex problems where simple blue print approaches have limited access (Peters, 2014: 2). Municipalities functions in an apparently illogical and paradoxical manner (Olmedo, 2012: 84). Managers must learn to apply systemic thinking approach, which is mooted as the most appropriate approach, in dealing with complexity in business management, because the problems managers face are too complicated and diverse to be handled by anything other than systemic thinking approach (Jackson, 2010: 15).

This approach has challenged the effectiveness of a rational decision making process, that the decision making process should not be merely a linear thinking model but it must be a non-linear approach to accommodate complexity in turbulent environments (Castillo, 2014: 54). Thus, the creation of the ability to continuously match the portfolio of internal competencies with the portfolio of emerging markets opportunities in any business organisation has become the foundation of the emerging concept of new business architecture (Gharajedaghi, 2011: 181). It is therefore imperative that those in management learn to think in a creative way and further allow disagreements, since organizations need creativity which is generated by these differences in order to succeed (Olmedo, 2012: 85).

Notwithstanding the fact that decision making, in most if not all organisations, is often linked with the organisation structure. An organisation structure, in a hierarchical traditional way, determines how rational decision are made, communicated and responded to (Ferrell et al., 2009: 234). Whereas, in a global market economy with ever-increasing levels of disturbance, a viable business cannot be locked into a single structure anymore, success comes from a self-renewing capability to spontaneously create structures and functions that fit the moment. (Gharajedaghi, 2011: 181).

In a nutshell, Jackson (2010: 131) summed the value of systemic thinking to managers succinctly when he contrasted traditional management theory and complexity theory. Traditional management theory advises managers what to do in order to achieve goals in an optimum way. It teaches managers how to organise the parts of an organisation into a coherent structure. It seeks conformity from employees and put in place detailed control procedures to ensure that this is realized , whereas complexity theory teaches managers to change their way of thinking , abandoning mechanism and determinism, and learning to appreciate and cope with relationships, dynamism and unpredictability; that organisations coevolve with their environments, and therefore managing the environment is crucial; that the best mangers are able to intuitively grasp the patterns that are driving the behavior of their organisations and the environments they are confronting. They look for patterns in the whole and seek small changes that can have the maximum impact on unfavourable patterns; that the most successful organisations do not try to control everything. To an extent that managers can trust in chaos and allow the processes operating at the edge of chaos to bring new order through self-organisation, and thus promote learning, diversity and a variety of opinion. (Jackson, 2010: 131).

The Complexity of the Municipality

The Municipalities are faced with a number of new complex challenges that represent a significant reshaping of the sector from its image and decision-making processes (Hutchinson, Walker and McKenzie, 2014: 3) .Increasingly, municipalities are responsible for the delivery of a broad range of services to a diverse set of constituents including other tiers of government, residents and business (Dollery, Wallis and Allan, 2006:111). This expansion in activity and accountability has quite naturally led to research interest in efficacy of leadership, governance and decision-making processes to ensure that they are responsive and relevant to the increasingly diversified nature of the sector (Hutchinson et al., 2014: 3). Whilst being the third tier of government, municipalities are unique in that they straddled both the public and private spheres (Dollery et al., 2006: 112). On the one hand, municipalities are about participation, both in terms of voting and contributing to the community we wish to live in, and on the other municipalities are expected to deliver services efficiently with a shift in operational emphasis to policy and strategic activities that are similar to those of the private sector (Hutchinson et al., 2014: 3). This duality provides a complex leadership challenge for those in

management of municipalities and sets their roles apart from other public sector leaders in that they have multiple stakeholders to answer to and be responsible for South African municipalities and cannot afford to invariably perform poorly because this could ultimately affect public confidence and trust on the part of local inhabitants, thus services to local communities should be provided in a sustainable manner (Johanessen et al., 1999: 17). In order to fulfill this constitutional obligation, municipalities should ensure that institutional capacity is continuously strengthened, systemic and structures are firmly put in place and periodically reviewed with a view to adapt to changing conditions and circumstances and more fundamentally resources are allocated to effectively and efficiently deliver public service .

Research Methodology

A mixed method of quantitative and qualitative approach was used in this paper to collect data from 61 municipalities within the province of KwaZulu-Natal, in South Africa. The targeted population was 183 senior managers in the municipalities within the province of KwaZulu-Natal. However, a response rate of 83% was obtained. A stratified random sampling method was chosen to select the required sample. A stratified random sampling involves a process of dividing population into mutually exclusive groups that are relevant, appropriate and meaningful in the context of the study (Sekaran and Bougie, 2013: 249). Thus, stratified random sampling was adopted in order to create strata on the basis of specialization. Therefore, senior managers who are specialists in finance, corporate services and municipal managers were selected in accordance with their functional areas of operations. The final sample is shown in Table 1 in terms of stratum per districts and metropolitan. In gathering data, a self-administered structured questionnaire and structured interviews were used as data collection instruments.

Table 1. The Distribution of Stratum per Local, Districts and Metropolitan Municipalities in KwaZulu-Natal

Geographical Area per District/ Metropolitan	Frequency	Percentage	Targeted Population
Amajuba District	4	7	12
EThekwini Metro	1	2	3
Harry Gwala District	6	10	18
ILembe District	5	8	15
UGu District	7	11	21
UMgungundlovu District	8	13	24
UMkhanyakude District	6	10	18
UMzinyathi District	5	8	15
UThukela District	6	10	18
UThungulu District	7	11	21
Zululand District	6	10	18
TOTAL	61	100%	183

Questionnaire and interviews were used as measuring instrument for this survey. The main questions are summarised in Table 2.

Table 2. Summary of Key Questions

Research Area	Question
General Information	Current position Alternative Responses: Senior Manager: Corporate Services, Technical Services, Community Services, Chief Financial Officer, Municipal Manager
	Number of Years Occupying the Position Response Alternatives: Less than one year; One to two years; Three to five years; Six to ten years; Over ten years
	Number of Times participating in Strategic Decision Making Processes Response Alternatives: One to two times; One to two years; Three to five times; Six to ten times; Over ten times

Understanding of systemic thinking	Resolving problems according to a fixed set of rules and procedures is always relevant in municipalities. Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
	Systemic thinking would be a better approach in gaining insights into complex challenges of the municipalities. Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
	Every manager is aware of the processes and outcomes of systemic thinking. Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
Application of systemic thinking	Managerial Challenges in running a municipality are unpredictable Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
	Systemic thinking in the decision making process is a time-consuming process. Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
	External factors always play a great role in the decision making process Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
Effectiveness of systemic thinking	Problems that are associated with complexity, change and diversity can always be resolved through a rational decision-making process Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
	Creativity , ingenuity and originality are a necessity in dealing with complexity, change and diversity Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree
	Systemic thinking in the decision making process will improve the performance of municipalities. Response Alternatives: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree

Results and Discussion

Relevant scholarly works, textbooks and journal articles on systemic thinking and decision making processes were considered for additional insight. Statistical tests were conducted to test the probability of independence of each variables and the significance of variables. During the analyses of data through SPSS package, the Chi-square test generated 3 Chi-Square alternatives. i.e. Pearson Chi-Square, Likelihood Ratio and Linear-by-linear association. However, for the purpose of this study Pearson Chi-Square results were used for interpretation. The actual interpretation was that if the $p<0.05$ then we have a Chi-Square value which is significant at the conventional cut off point of 5%. That meant the association found in the sample data is significant and would be regarded as evidence that there is an association between the variables in question in the population from which the sample has been drawn. The main findings were that the response rate was 83% from 183 (n=183) respondents from senior managers in the municipalities within the province of KwaZulu-Natal and the key findings of this research were as follows.

Table 3. Positions Occupied by the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Senior Manager: Corporate Services	53	34.9	34.9	34.9
	Chief Financial Officer	49	32.2	32.2	67.1
	Municipal Manager	50	32.9	32.9	100.0
	Total	152	100.0	100.0	

Table 3 indicates that 34.9% of the respondents were senior managers responsible for corporate services, 32.2% of the respondents were chief financial officers responsible for financial management, and 32.9 % were municipal managers, who are also accounting officers of municipalities, because they are responsible for the overall management of municipalities.

Table 4. Number of Years Occupying the Same Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than one year	3	2.0	2.0	2.0
	One to two years	24	15.8	15.9	17.9
	Three to five years	70	46.1	46.4	64.2
	Six to ten years	35	23.0	23.2	87.4
	Over ten years	19	12.5	12.6	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Table 4 reveals that 46.1 % of the respondents have been operating in senior management from three to five years, 23.2% have been in senior management position from six to ten years, 15.9% in senior management from one to two years, and 12.6% have been in management over ten years, and only 2% were the new comers in senior management level. The overall results indicate that there is profoundness of experience in senior management positions in the municipalities within the province of KwaZulu-Natal.

Table 5. Number of Times participated in Strategic Decision Making Processes

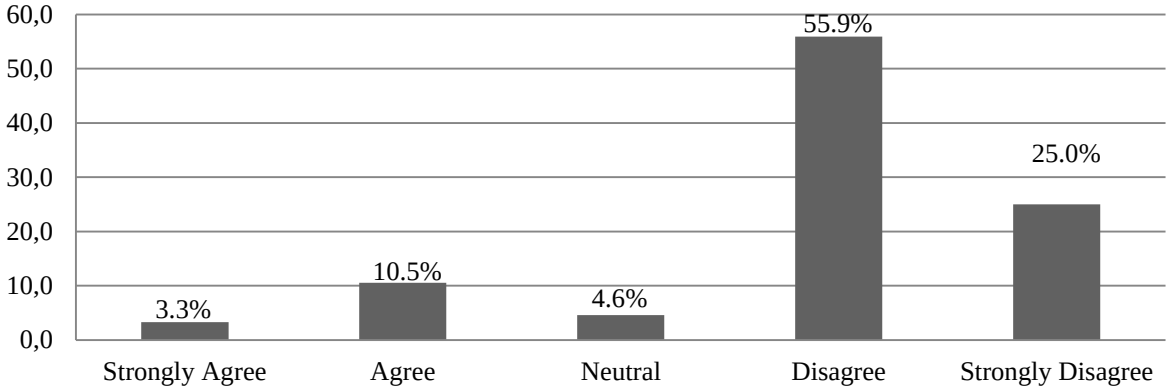
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One to two times	17	11.2	11.3	11.3
	Three to five times	55	36.2	36.4	47.7
	Six to ten times	41	27.0	27.2	74.8
	Over ten times	38	25.0	25.2	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Table 5 shows that 36.2 % of the respondents have participated in strategic decision making processes from three to five times, 27% have participated in strategic decision making processes from six to ten times, 25% have participated in strategic decision making processes over ten years 11.2% have participated in decision making process within a period one to two times. Overall, this result indicates that the majority of senior management have enormous understanding of decision making practice within the municipality.

Table 6. Response on resolving problems according to a fixed set of rules and procedures is always relevant in municipalities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	5	3.3	3.3	3.3
	Agree	16	10.5	10.6	13.9
	Neutral	7	4.6	4.6	18.5
	Disagree	85	55.9	56.3	74.8
	Strongly Disagree	38	25.0	25.2	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 2. Resolving problems according to a fixed set of rules and procedures is always relevant in municipalities



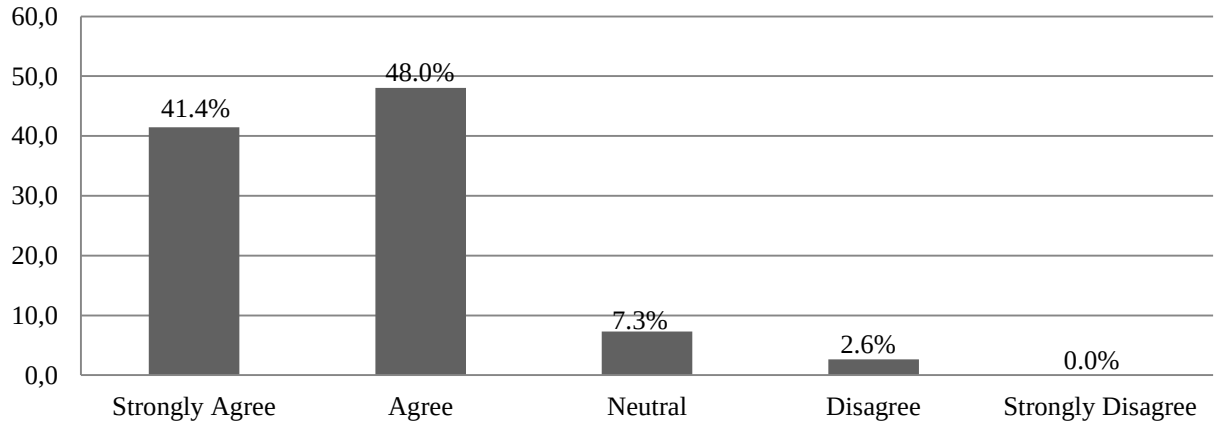
In the 5-item Likert scale question, the respondents were asked whether resolving problems according to a fixed set of rules and procedures is always relevant in municipalities or not? Wherein respondents were expected to indicate whether they strongly agree (1), agree (2), are neutral (3), disagree (4) and strongly disagree (5) with the statement. The results from the respondents as shown in Table 6 and Figure 1 reveals that 85 (55.9%) of the respondents disagree with the statement, 38 (25%) of the respondents strongly disagree with the same statement. Whilst, 16 (10.5%) respondents agreed with the statement, and 5 (3.3%) strongly agreed with the statement, and 7 (4.6%) of the respondents preferred to be neutral on this statement. These results indicated that the majority of the respondents do not believe that resolving problems in municipalities according to rules and procedures is always relevant.

Subsequently , a Chi-Square Test was conducted to test a null hypotheses created that there was no significant relationship between the position occupied and resolving problems according to a fixed set of rules and procedures in municipalities. The results obtained were a Pearson Chi-square value of 53.668 with 8 degrees of freedom and a significance probability of less than 0.0001. Since the significance probability value was less than the accepted norm of 0.05. Therefore, the null hypothesis was rejected. These findings is in corroboration with the research findings by Letiche, Lissack and Schultz (2011:11) that municipality are organisations that are strictly working in accordance with rules, codes and, firm and inflexible boundaries and such arrangements are challenged by the new, the unexpected, and the unknown.

Table 7. Response on whether systemic thinking would be a better approach in gaining insights into complex challenges of the municipalities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	63	41.4	41.7	41.7
	Agree	73	48.0	48.3	90.1
	Neutral	11	7.2	7.3	97.4
	Disagree	4	2.6	2.6	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 3. Systemic thinking would be a better approach in gaining insights into complex challenges of the municipalities



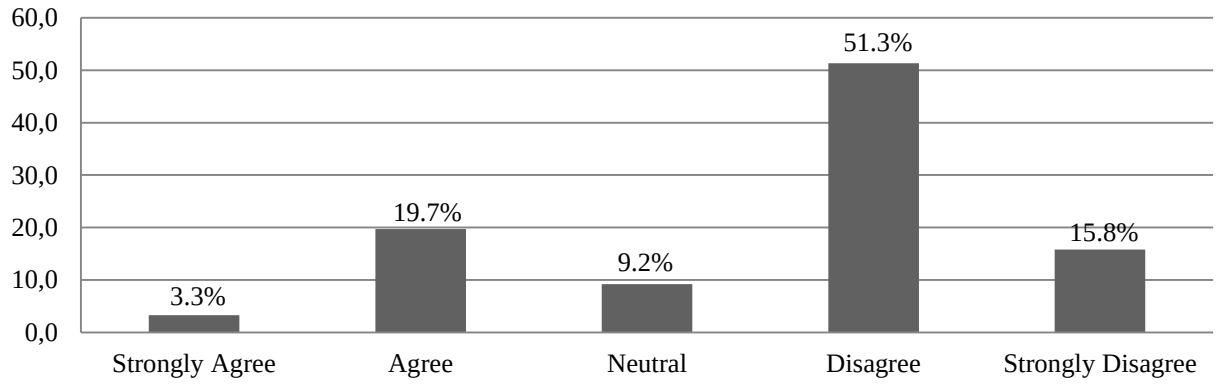
The results from the respondents presented in Table 7 and Figure 2 show that 73 (48%) of the respondents agree with the statement, 63 (41.4%) of the respondents strongly agree with the same statement. Whilst, 11 (7.2%) preferred to be neutral on this statement, and 4 (2.6%) disagreed with the statement. These results indicated that the majority of the respondents were of the view that systemic thinking would be a better approach in gaining insights into complex challenges of the municipalities. The Chi-Square value for the position occupied and systemic thinking as a better approach in gaining insights into complex challenges of the municipalities had a value of 10.595 with 6 degrees of freedom and a significance probability of 0.102, which was a very weak significant result.

Based on the evidence of this data, there is no association between the position occupied and systemic thinking as a better approach in gaining insights into complex challenges of the municipalities. Since the $p>0.5$, there is no statistically significant on these variable, the null hypothesis was rejected. These research findings corroborated with a view by Bartlet (2001), who indicated that systemic thinking would be a better approach in gaining insights into complex challenges. It further affirmed the assertion by Benedetto De Martino (2009: 684) that theories of decision-making have tended to emphasize the operation of analytical processes in guiding choice behavior without considering that more intuitive or emotional responses can play a key role in human decision-making, and that when taking decisions under conditions when available information is incomplete or overly complex, subjects rely on a number of simplifying heuristics, or efficient rules of thumb, rather than extensive algorithmic processing.

Table 8. Response on whether every manager is aware of the processes and outcomes of systemic thinking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	5	3.3	3.3	3.3
	Agree	30	19.7	19.9	23.2
	Neutral	14	9.2	9.3	32.5
	Disagree	78	51.3	51.7	84.1
	Strongly Disagree	24	15.8	15.9	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 4. Every manager is aware of the processes and outcomes of systemic thinking

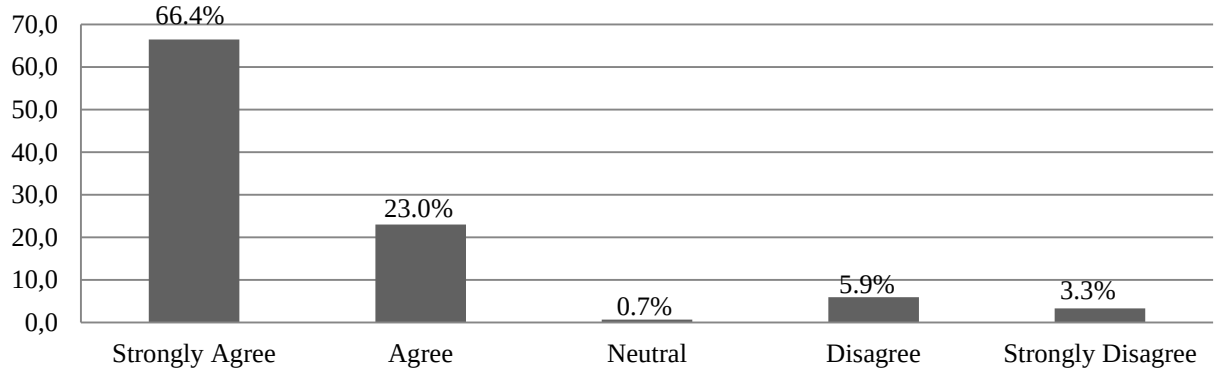


The results from the respondents indicated that 78 (51.3%) of the respondents disagree with the statement, 24 (15.8%) of the respondents strongly disagree with the same statement. Whilst, 30(19.7%) of respondents agreed with the statement, and 5 (3.3%) strongly agreed with the statement, and 14(9.2 %) of the respondents preferred to be neutral on this statement. These results indicate that the majority of the respondents are of the view that it is incorrect to think that every manager is aware of the processes and outcomes of systemic thinking. According to the Cross tabulation findings, the Chi-Square value for the position occupied and every manager being aware of the processes and outcomes of systemic thinking was 10.479 with 8 degrees of freedom and a significance probability of 0.233, which was a very weak significant results. Based on the evidence of this data, the association between the position occupied and every manager being aware of the processes and outcomes of systemic thinking was not statistically significant, because the significance probability value was more than the p-value of 0.05. Therefore, the null hypothesis was rejected.

Table 9. Response on whether managerial challenges in running a municipality are unpredictable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	101	66.4	66.9	66.9
	Agree	35	23.0	23.2	90.1
	Neutral	1	.7	.7	90.7
	Disagree	9	5.9	6.0	96.7
	Strongly Disagree	5	3.3	3.3	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 5. Managerial challenges in running a municipality are unpredictable



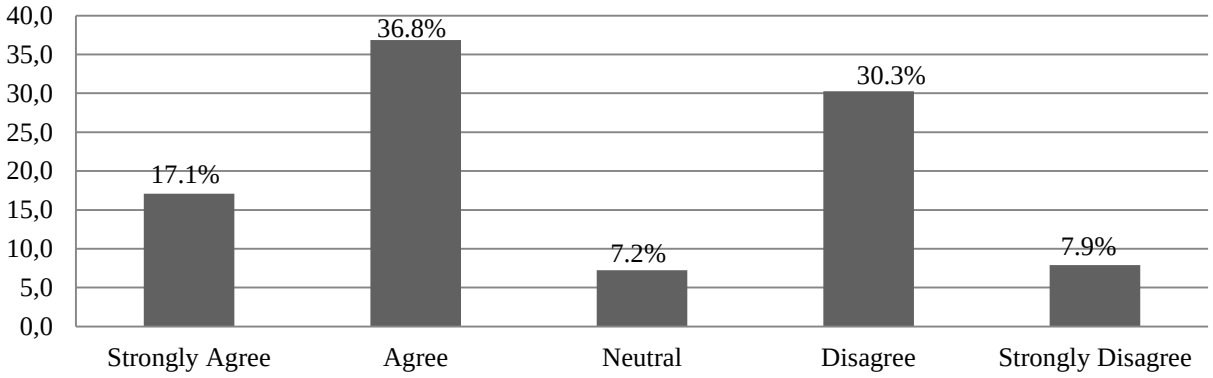
The results from the respondents indicated that 101 (66.4%) of the respondents strongly agree with the statement, 35 (23%) of the respondents agree with the same statement. Whilst, 9(5.9%) of respondents disagree with the statement same statement, and 5 (3.3%) of the respondents strongly disagree with the

statement, and 1(0.7%) of the respondents preferred to be neutral on this statement. These results indicate that the majority of the respondents believe that managerial challenges in running a municipality are unpredictable. These results were found to corroborate an assertion made by (Mitchell, 2009) that managerial challenge cannot be fully understood, and hence their behavior cannot be exactly predicted.

Table 10. Response on whether systemic thinking in the decision making process is a time consuming process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	26	17.1	17.2	17.2
	Agree	56	36.8	37.1	54.3
	Neutral	11	7.2	7.3	61.6
	Disagree	46	30.3	30.5	92.1
	Strongly Disagree	12	7.9	7.9	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 6. Systemic thinking in the decision making process is a time consuming process

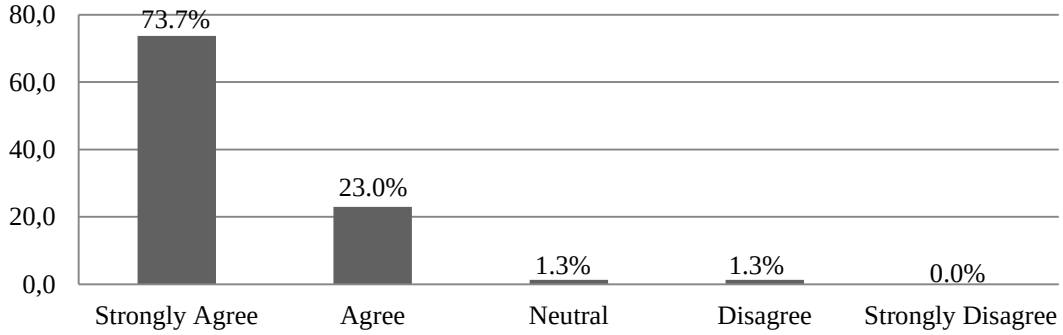


The results from the respondents indicated that 56(36.8%) of the respondents agree with the statement, 46(30.3%) of the respondents disagree with the same statement. Whilst, 26(17.1%) of respondents strongly agree with the statement, and 12 (7.9%) strongly disagree with the statement, and 11(7.2%) of the respondents preferred to be neutral on this statement. These results indicate that the majority of the respondents are of the view that systemic thinking in the decision making process is a time consuming process. These results were found to be in corroboration with Jackson(2010:131)'s view that systemic thinking looks for patterns in the whole and seek small changes that can have the maximum impact on unfavourable patterns and it is time consuming in nature.

Table 11. Response on whether external factors always play a great role in the decision making process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	112	73.7	74.2	74.2
	Agree	35	23.0	23.2	97.4
	Neutral	2	1.3	1.3	98.7
	Disagree	2	1.3	1.3	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 7. External factors always play a great role in the decision making process

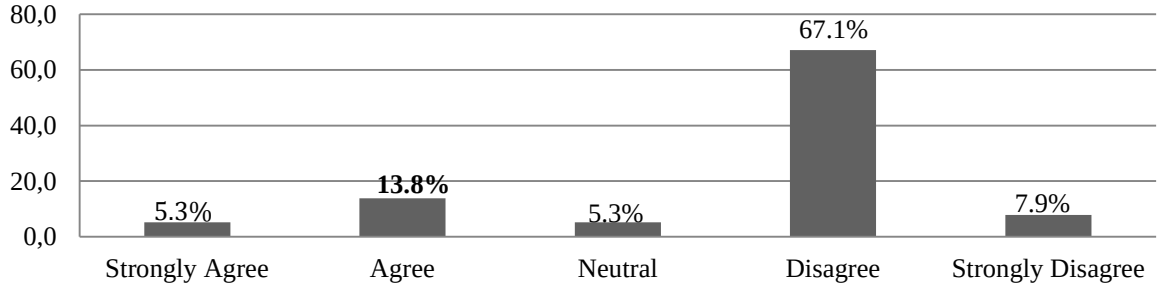


The results from the respondents indicated that 112 (73.7%) of the respondents strongly agree with the statement, 35(23%) of the respondents agree with the same statement. Whilst, 2(1.3%) of respondents disagree with the statement, and 2(1.3 %) of the respondents preferred to be neutral on this statement. These results indicate that the majority of the respondents strongly believe that external factors always play a great role in the decision making process. These results were found to be in line with the assertion made by Benveniste (2011: 134) that the rational decision making process model ignores political influence.

Table 12. Response on whether problems associated with complexity, change and diversity can always be resolved through a rational decision making process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	8	5.3	5.3	5.3
	Agree	21	13.8	13.9	19.2
	Neutral	8	5.3	5.3	24.5
	Disagree	102	67.1	67.5	92.1
	Strongly Disagree	12	7.9	7.9	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 8. Problems associated with complexity, change and diversity can always be resolved through a rational decision making process



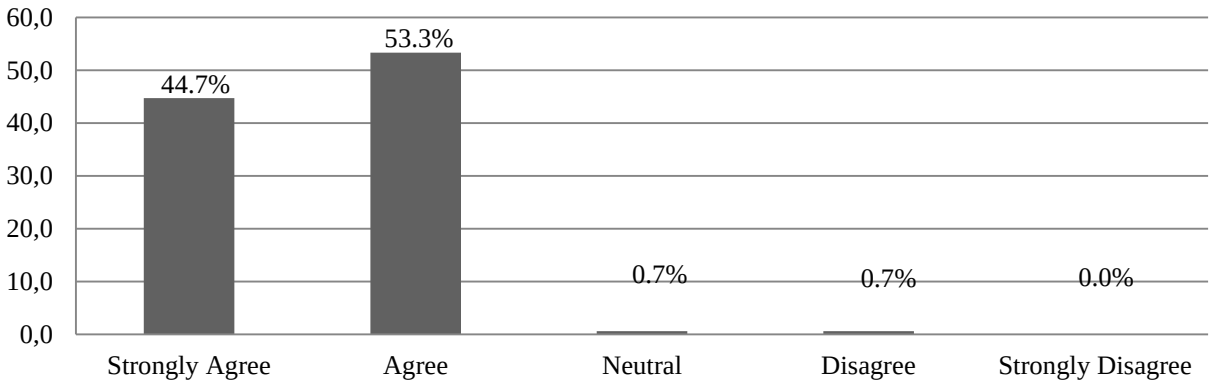
The results from the respondents indicated that 102 (67.1%) of the respondents disagree with the statement, 21(13.8%) of the respondents agree with the same statement. Whilst, 12(7.9%) of respondents strongly disagree with the statement, and 12(7.9%) strongly disagree with the statement, and 8(5.3 %) of the respondents preferred to be neutral on this statement. These results indicate that the majority of the respondents disagree with the statement that complexity, change and diversity can always be resolved through a rational decision making process. These results affirmed by Ferrell et al. (2009: 225) that managers spend a great deal of time confronting complex and difficult challenges of the business world today through rational decision making processes in vain , yet some of these challenges relate to rapidly changing technology, increased scrutiny of individual and corporate ethics and social responsibility, the changing nature of the workforce, new laws and regulations, increased global

competition and more challenging foreign markets , declining educational standards and time itself, but such diverse issues cannot simply be plugged into a computer program that supplies correct , easy-to-apply solutions. It is only through creativity and imagination that managers can make effective decisions to benefit organisations.

Table 13. Response on whether creativity, ingenuity and originality are a necessity in dealing with complexity, change and diversity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	30	19.7	19.9	19.9
	Agree	86	56.6	57.0	76.8
	Neutral	4	2.6	2.6	79.5
	Disagree	24	15.8	15.9	95.4
	Strongly Disagree	7	4.6	4.6	100.0
	Total	151	99.3	100.0	
Missing	System	1	.7		
Total		152	100.0		

Figure 9. Creativity, ingenuity and originality are a necessity in dealing with complexity, change and diversity

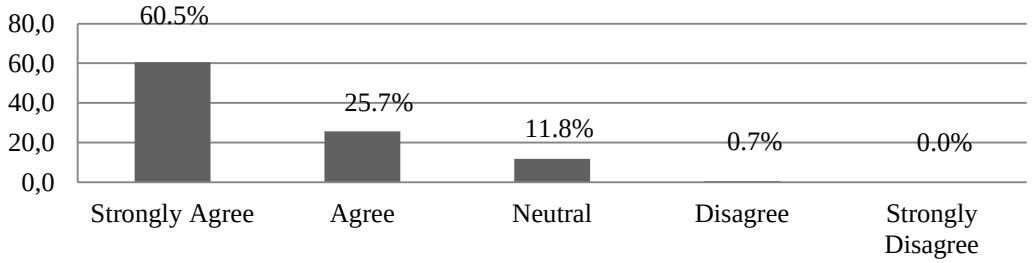


The results from the respondents indicated that 86 (56.6%) of the respondents agree with the statement, 30(19.7%) of the respondents strongly agree with the same statement. Whilst, 24(15.8%) of respondents disagree with the statement, and 7(4.6%) strongly disagree with the statement, and 4(2.6 %) of the respondents preferred to be neutral on this statement. These results indicate that the majority of the respondents agree with the statement that creativity, ingenuity and originality are a necessity in dealing with complexity, change and diversity. These results were also found to be in line with a view by Jackson (2011:131) that the most successful organisations do not try to control everything, but they allow chaos and the processes operating at the edge of chaos to bring new order through self-organisation, and thus promote learning, diversity and a variety of opinion.

Table 14. Responses on whether systemic thinking in the decision making process will improve the performance of municipalities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	92	60.5	61.3	61.3
	Agree	39	25.7	26.0	87.3
	Neutral	18	11.8	12.0	99.3
	Disagree	1	.7	.7	100.0
	Total	150	98.7	100.0	
Missing	System	2	1.3		
Total		152	100.0		

Figure 10. Systemic thinking in the decision making process will improve the performance of municipalities



The results from the respondents indicated that 92 (60.5%) of the respondents strongly agree with the statement, 39(25.7%) of the respondents also agree with the same statement. Whilst, 18(11.8%) of the respondents preferred to be neutral on this statement and 1(0.7%) of the respondents disagree with the statement. These results indicate that the majority of the respondents agree that systemic thinking in the decision making process will improve the performance of municipalities. The Chi-Square value for the position occupied and systemic thinking in the decision making process will improve the performance of municipalities was 30.343 with 12 degrees of freedom and a significance probability of 0.002, which was a very strong significant results. Based on the evidence of this data, the association between the position occupied and every manager being aware of the processes and outcomes of systemic thinking was statistically significant, because the significance probability value was less than the p-value of 0.05. Therefore, the null hypothesis was rejected.

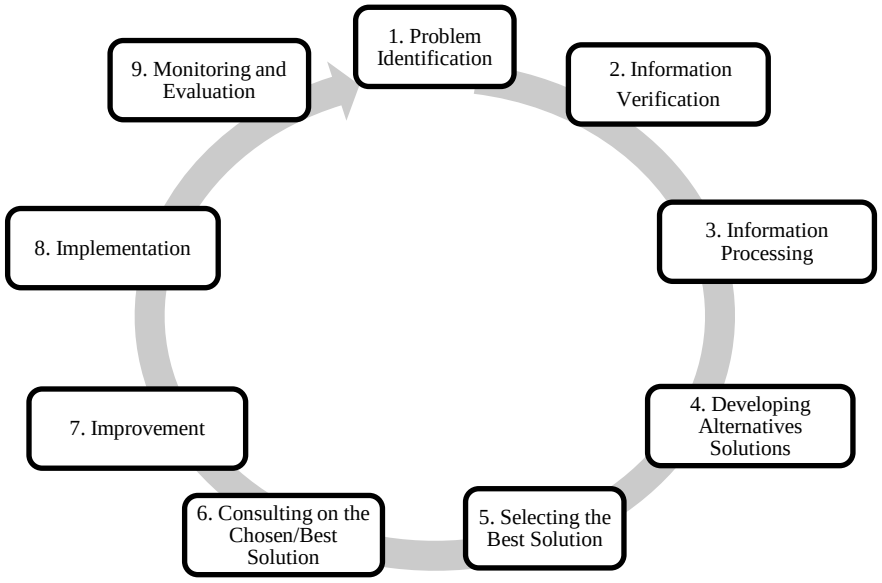
Limitations of the Study

This study focused in the province of KwaZulu-Natal, as a result it excluded other provinces in South Africa and was limited to 61 municipalities within the province of KwaZulu-Natal due to the hugeness and geographical distribution of municipalities in South Africa. Hence, the researcher cannot make a profound inference about the results of this study to all municipalities in South Africa.

Recommendations

It is evident from the findings that the current model of rational decision making process makes it very difficult to deal with issues of complexity and unpredictability in managing municipalities in the province of KwaZulu-Natal. The majority of the respondents in this study believe that systemic thinking would be of great assistance in dealing with complex challenges in decision making processes of the municipalities, due to the fact that it allows creativity, ingenuity and originality in dealing with complexity, change and diversity. Therefore, this study recommends that training on systemic thinking of decision makers in municipalities need to be

conducted in order to equip management practitioners with relevant decision- making skills. It further recommended the expansion of the current rational decision making process model to be as follows



Conclusion

The understanding, application and effectiveness of systemic thinking can only add value if the decision makers are equipped with skills to deal with complex issues as opposed to complicated issues in decision making processes. A lack of understanding and knowledge of the systemic thinking and its importance in running a municipality may have a negative impact in the operation and functionality of the municipality.

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