A Soft Systems Framework for Online Distance Education- The Case of Saudi Arabia

Thesis submitted for the degree of Doctor of Philosophy by

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<u>Declaration of Authorship</u>

I Sulafah Mohammed S Basahel hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

Signed: ....

Date: 14/12/2016

Abstract

Soft Systems Methodology (SSM) developed by Checkland to adapt the theory in practice to tackle ill-defined issues that are difficult to measure and assess by hard systems thinking like political and social issues. SSM can be defined as a structured approach to understand real-world problems from the multiple perspectives of the people involved, rather than from a single viewpoint. The systems thinking literature acknowledges that SSM-Mode 2 places greater emphasis on the practitioner's interaction and reflection than on their intervention in a problematic situation. This indicates that the goal of SSM-Mode 2 is to enquire about a situation rather than explicitly change it. Additional research is required; however, as the SSM literature contains only a few studies specific to SSM-Mode 2. This thesis assesses the application of SSM-Mode 2 as a learning approach in the Online Distance Education (ODE) context. From a soft systems perspective, ODE is perceived as a problematic situation comprising interrelated and ill-defined issues, the interconnectedness of which can produce additional issues, which are perceived differently by multiple stakeholders involved in ODE practices. This leads to a high level of complexity and lack of understanding of how the system works for decision makers who administer and design ODE systems. In this regard, ODE seems a suitable context within which to apply a soft systems approach to understand the ODE context holistically. Herein, the SSM-Mode 2 approach is empirically employed to explore the ODE situation at King Abdulaziz University (KAU) within the cultural context of Saudi Arabia. The findings of this thesis led to the development of a novel conceptual framework which illustrates the characteristics and activities of the learning process encompassed in SSM-Mode 2, thus contributing to the development of SSM and enabling SSM and ODE practitioners to practice SSM-Mode 2 effectively in any future developments in ODE situations.

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Related Publications

Some of the materials contained in this thesis has been published in the following publications:

Referred Conference papers:

- Basahel, S. and Cordoba-Pachon, J.R. (2015). 'Evaluation of soft systems methodology (Mode 2) toward online distance education improvement - case of Saudi Arabia' Paper presented at 1st International Virtual Conference Social & Business Research Lab (SBRlab), Tarragona, Spain.

- Basahel, S. and Cordoba-Pachon, J.R. (2014). A Systems Approach to Distance Education (DE) - Initial Conceptualisation. In 8th International Technology, Education and Development Conference (INTED).Valencia, Spain.

Referred Conference abstracts:

- Basahel, S (2015). Using a Systems Approach in Information Technology-Distance Education Context. The 2015 International Conference on Information Society (I-Society 2015).

- Basahel, S. and Cordoba-Pachon, J.R. (2014). A Systems Thinking Approach to the Exploration of challenges being faced by practitioners in Online Distance Education. In Operational Research (OR56) Annual Conference. Surrey, the United Kingdom.

List of Abbreviations

AC   Abstract Conceptualisation

AE   Active Experimentation

Bb   Blackboard

CoP   Community of Practice

CSCL   Computer-Supported Collaborative Learning

CE   Concrete Experience

CSF   Critical Success Factor

CSH   Critical Systems Heuristics

CST   Critical Systems Thinking

DELDE   Deanship of E-learning and Distance Education

DE   Distance Education

FL   Flexible Learning

GST   General System Theory

HEI   Higher Education Institutions

ICT   Information and Communication Technology

IS   Information Systems

IT   Information Technology

IM   Interactive Management

IP   Interactive Planning

KAU	King Abdulaziz University
KKU	King Khalid University
KSU	King Saud University
KSA	Kingdom of Saudi Arabia
LMS	Learning Management Systems
MLE	Managed Learning Environments
MOE	Ministry of Education
NCel	National Centre for E-Learning and Distance Learning
ODE	Online Distance Education
OL	Open Learning
OR	Operation Research
RC	Radical Constructivism
RO	Reflective Observation
RSS	Rich Site Summary
SA	Saudi Arabia
SEU	Saudi Electronic University
SSM	Soft Systems Methodology
SAST	Strategic Assumption Surfacing and Testing
SODA	Strategic Options Development Analysis

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Chapter 1: Introduction

1.1 Background to Systems Thinking

The systems approach has gradually become one of the most dominant management approaches instead of the traditional approach (Jackson, 2000). The systems thinking approach proposes that organisations are open to their environment and interact with it, as opposed to the 'traditional approach', which views organisations as closed and neglectful of their environment. One objective of the systems approach is to pay more attention to every part of the organisation as a whole, whereas the traditional approach emphasises the structure of the organisation.

The systems thinking approach is now employed widely to assist management to solve complex problems effectively and efficiently (Senge, 1990; Ackoff, 1994; Checkland, 1999; Jackson, 2000; Jamshid, 2005; Cordoba-Pachon, 2010). Many organisations and societies have encountered different problems that influence performance. The natural science method and reductionist approaches to analysing problems have achieved a degree of success in terms of solving well-defined problems that have specific success criteria and measures, using quantifiable indicators to assess them. However, Bawden et al. (1984) stated that these approaches have difficulties in analysing and learning about problematic situations that include 'Ill-defined problems', which means issues are difficult to define and measure, can be interrelated and may affect management practices within organisations.

Jackson (2000) observed that connectedness between parts can produce "emergent properties", which arise from the organised ordering of these parts and can have either positive or negative outcomes for an organisation. Systems thinking concentrates on

emergent properties, rather than identifiable problems, separating them to achieve a comprehensive intervention in the organisation of each part. Many societies face complex problems comprising cultural and political elements that are difficult to evaluate and study experimentally. In addition, exploring problems and interventions in social systems requires the researcher to encourage people to participate in the intervention process. Different people have diverse beliefs, views, ideas, and goals regarding potential improvements to complex cases. For this reason, systems thinking can help manage problems in organisations overall, and social systems rather than reductionist problem-analysis approaches. In this respect, systems thinking promotes a sense of shared responsibility, relieving the pressure of those at management level.

To understand systems thinking better, Checkland (1999) outlined a set of classifications for systems thinking approaches, dividing them into hard systems thinking and soft systems thinking. In simple terms, hard systems thinking views the real world as a system that includes subsystems that can be engineered to improve the whole system, while soft systems thinking assumes the real world is a complex situation that can be improved by conducting a process of systemic inquiry to structure it and learn more about it.

Peter Checkland and his associates at the University of Lancaster first proposed the Soft Systems Methodology (SSM) as an alternative to the hard systems approach (Checkland, 1981; Checkland and Poulter 2006; Checkland and Scholes, 1990; Pepper and Spedding, 2010). From a soft systems thinking theoretical perspective, Peter Checkland developed SSM to adapt the theory in practice in 1981 (Checkland and Scholes, 1990; Checkland, 1999; Checkland, 2000). SSM can be defined as a structured approach to tackling real-world problems from the multiple perceptions of those people involved in the social system, rather than from a single perception (Checkland and Holwell, 1998a). SSM assumes that a social system is generated and regenerated by human thought, interaction

and action (Checkland and Poulter 2006), as it is intended to improve on a real world problematic situation.

A number of concepts and ideas underpin the process of SSM, making it applicable to most organisational and social situations. These concepts facilitate learning among stakeholders through developing conceptual models, rich pictures and sharing ideas. SSM developed to address and systemically conduct research into issues that integrate human affairs and, in environmental contexts within organisational systems, to taking actions that are systemically desirable and culturally feasible (Checkland and Scholes, 1990; Checkland, 1999; Checkland, 2000). Checkland developed two key modes for SSM: Mode 1 and Mode 2 (Checkland and Scholes, 1990; Jackson, 2000).

According to Jackson (2000) and Checkland and Scholes (1990), the two main modes within SSM are Mode 1, which is concerned with the application of the seven stages SSM for problem-solving in complex situations, and Mode 2, which involves the SSM practitioner internalising the SSM to learn about the complex situation and how it could be improved in the future. Mode 2 places more emphasis on the practitioner's inquiry process through interacting and reflecting, rather than explicitly intervening in a problematical situation. This indicates that the goal of SSM-Mode 2 is to learn about a situation rather than change it (Houghton & Ledington, 2002). However, a review of the existing literature on SSM revealed that not enough studies have examined Mode 2 in real-world situations.

This thesis also suggests that systems thinking needs to be reviewed within dynamic social systems that perceive the use of technology as a challenge for organisations. From a soft systems thinking view, Mode 2 should be employed in an area of interest to the practitioner who is using this methodology to learn about this area. In this case, the

researcher had a personal interest to increase her knowledge of Online Distance Education (ODE) and chose it as a suitable context to demonstrate the application of and improve SSM-Mode 2. This is the case for ODE in HEIs, as it is difficult for people to understand the nature, dynamic, and impact of ODE within different social contexts in both developed and developing countries, as ODE is so different from traditional methods of education and requires many human and technological innovations in order to be successful, whether in educational, human, social and economic terms. So, this study focuses on the use of soft systems thinking and, more concretely, the use of SSM in the field of ODE.

1.2   Online Distance Education as a Problematic Situation

Moore and Kearsley (2012, p.2) defined Distance Education (DE) as a "teaching and planned learning'', in which the teaching occurs in a different place from the learning, necessitating communication using technology with the support of an institutional organisation. In this study, the DE of interest is online and Internet-reliant. This distinguishes it from DE alone, which does not necessarily rely on technology, but can be conducted postally.

Reddekel and Qvist-Eriksen's (2003) conceptualisation of ODE as a subset of DE that is a form of education characteristically based online and delivered at a distance (as opposed to face-to-face). The use of the term 'education' in ODE indicates that both teaching and learning are the key concepts under consideration. Within this arrangement, educators and learners may be separated only by space (synchronous learning), or also by time (asynchronous learning). For a formal and more precise definition, ODE can be defined as "an educational modality that mainly takes place mediated by interactions via the Internet and associated technologies" (Borba et. al., 2010, p. 1).

In practice, ODE initiatives are subject to a several well-defined and ill-defined issues. Examples of the former might include the assessment system or learning materials, while examples of the latter can include political or social issues. Based on the ODE literature, this study classified the challenges in previous studies under the main categories of institutional, technological, cultural, and those relating to learners, representing some of the most challenging situations. ODE literature revealed that ODE includes multiple stakeholders involved in daily practices, such as managers, technical staff, tutors and students. From a soft systems perspective, ODE is perceived as a problematic situation comprising ill-defined and interrelated issues, the interconnectedness of which can produce additional issues, which are perceived differently by the multiple stakeholders involved in ODE practices. This leads to a high level of complexity and lack of understanding of how the system works for the decision makers who administer and design ODE systems.

1.3   Research Problem

It has been argued that the key element within SSM-Mode 2 is the practitioner's learning process (Checkland and Scholes, 1990). This learning process facilitates greater awareness and understanding on the part of the SSM practitioner concerning the problematical situation (Checkland and Scholes, 1990). Previous systems thinking literature has directed less attention to this aspect of learning process within SSM-Mode 2 (Barnden and Darke, 2000; Checkland and Winter, 2006), while studies have focused more on exploring and discussing using SSM-Mode 1 for problem-solving or design-oriented purposes.

Although existing literature about SSM offers some evidence of its utility for exploring learning elements, the majority of the studies focused on SSM-Mode 1 and how it

facilitates learning for the stakeholders involved in and needing to act in problematical situations and for SSM practitioners, through logical application of the seven stages of SSM. The previous literature also lacks clear guidance and explanations concerning successful SSM-Mode 2 as an inquiry process for those SSM practitioners practicing the methodology and seeking opportunities for learning and understanding areas of interest, in order to improve on them. This leads to flexibility when practicing SSM-Mode 2 as a learning tool regarding complex situations, and can be interpreted in various ways by academics and practitioners. Previous studies on SSM have not explicitly identified the learning approach and theory which underpins the learning process of SSM-Mode 2 or guided learning activities which would be employed in order to implement Mode 2 as a learning approach in practice. For this reason, this study employs SSM-Mode 2 in an ODE context to examine and assess SSM-Mode 2 as a learning approach to explore problematic situations in practice.

A normative review of ODE literature identified an absence of use of the soft systems approach in understanding the ODE problematic situations. The previous systems view about ODE was introduced by Moore and Kearsley (2012), who use a hard systems view when designing and managing the ODE environment successfully from the point of view of designers and managers, neglecting other ODE stakeholders' views. Their hard systems view focused on analysing processes separately without consideration of their connections and other stakeholders' perspectives. The multiplicity of stakeholders in ODE education means that there are many participants involved in the implementation of an ODE system, such as system designers, tutors, students, managers, and technical support staff. Consequently, their views must be taken into account wherever relevant and necessary, to obtain meaningful insights into ODE and ODE issues.

The inability of existing systems view (Moore and Kearsley, 2012) to capture the complexity of the ODE system leaves a gap, which can be overcome to an extent by the application of SSM-Mode 2. Specifically, this study will overcome the gap in ODE literature by updating existing systems views with perspectives derived from soft systems thinking. As noted earlier, soft systems methodology uses systems' ideas to address problematic situations with more consideration of human elements involved in situations (Checkland and Scholes, 1990). This soft systems view will lead to enhanced thinking skills and the capabilities of decision makers and designers, which can be applied to future ODE development plans.

Therefore, this study aims to answer the following questions:

- How can SSM-Mode 2 facilitate structured and holistic learning about problematic situation in ODE?

- From a learning perspective, how can learning theory and approach enhance the development of SSM-Mode 2 as a successful learning approach?

- What are the key learning characteristics and activities that would support the success of learning process within SSM-Mode 2?

1.4   Research Aim and Objectives

The aim of this research is to assess SSM-Mode 2 as a learning approach to explore the problematic situation in ODE in HEIs from the cultural perspective of Saudi Arabia. In order to achieve this aim, the research objectives are as follows:

1. To comprehensively review the literature in systems thinking with a focus on its history, its importance in management practices and the development of SSM and its modes: Mode 1 and Mode 2.

2. To theoretically examine the learning process within SSM-Mode 2 from the perspectives of systems thinking and education literature with a focus on the learning process in systems thinking literature in general and SSM literature in particular, including examining learning theories and approaches in the education field that would support the assessment process of inquiry process within SSM-Mode 2.

3. To comprehensively review the literature on ODE in the education field with a focus on its historical background, its issues, approaches used to explore such issues, existing systems views of ODE and ODE situation in Saudi Arabia context.

4. To develop a conceptual framework based on soft systems thinking to explore ODE using SSM-Mode 2 and to guide the empirical work of this research.

5. To test this framework empirically and conduct the research in ODE in the real setting of a HEI in Saudi Arabia.

6. To provide a valuable learning strategy framework of SSM-Mode 2 for SSM and ODE practitioners that supports them in understanding SSM-Mode 2 as a learning approach to exploring ODE problematic situation.

1.5 Significance of the Research

This research makes a number of contributions to the fields of systems thinking and ODE. Firstly, it contributes to the development of SSM by providing an explanation of SSM-Mode 2 and developing a conceptual framework for the learning process within SSM-Mode 2 as applied to a problematic situation in ODE. Although the proposed conceptual framework for the learning process within SSM-Mode 2 bears some minor similarities to the traditional SSM framework (see Figure 2.3 in Chapter 2), the differences between them are remarkable. One common feature of the two frameworks is that they both consider that the key features of SSM are understanding the cultural context of a

problematic situation and engaging different stakeholders during the learning process within SSM-Mode 2.

On the other hand, the proposed conceptual framework for the learning process within SSM-Mode 2 in this study includes structured learning activities that involve more theoretical and practical assumptions regarding the inquiry process of the SSM-Mode 2 practitioner. This framework precisely defines specific characteristics and activities of SSM-Mode 2's learning process. The activities are: engage with ODE stakeholders; reflect on ODE; construct knowledge about the ODE situation; understand the cultural context of ODE; and become aware of issues emerging from the relationship between the social and political contexts of ODE. The characteristics include that the constructivism learning view can enhance SSM- Mode 2's inquiry process, and the fact that SSM-Mode 2 is a reflective learning approach that can be complemented with the Kolb experiential learning approach in practice to achieve better reflection and understanding of ODE in cultural context of Saudi Arabia. The SSM-Mode 2 practitioner can be either internal or external to the problematic situation. The roles of individuals who participate in the SSM-Mode 2 learning process are defined: the SSM-Mode 2 is the constructor of knowledge about the complex situation of ODE and the stakeholders involved in ODE practices are information providers. Also, Information and Communication Technologies (ICTs) can improve interaction and communication between the SSM-Mode 2 practitioner and stakeholders when access is limited to the problematic situation of ODE.

Unlike the systems view put forward by Moore and Kearsley (2012) in the literature on ODE, the proposed conceptual framework for the learning process within SSM-Mode 2 is an intellectual framework that aims to learn about complexity in ODE, whilst placing greater emphasis on the soft elements of the ODE system and the relationships between them. This framework facilitates to understand the relationship between ODE system

and its environment. In addition, the research highlights the issues encountered in ODE which hinder its development, be they well-defined (easy to measure and solve) or ill-defined (difficult to measure and evaluate). This research classifies issues in ODE into four main categories: institutional, technological, cultural, and learners' issues. The conceptual framework relating to the learning process within SSM-Mode 2 in ODE which was developed helps to explore these issues from different stakeholders' perspectives.

Consequently, the proposed conceptual framework relating to the SSM-Mode 2 learning process in the context of ODE can be used as a learning strategy tool in practice for SSM and ODE practitioners who are interesting in learning about the ODE system in order to continue to develop it.

1.6 Outline of the Research

This section presents a brief introduction of each of the eight chapters in this thesis. The structure of this thesis is as follows:

Chapter 1: Introduction

This chapter presents the background to the research, the identification of the research problem, the research questions and the aim, objectives and significance of this study.

Chapter 2: Systems Thinking- Literature Review

This chapter reviews the relevant systems thinking and SSM literature. It includes an overview of systems thinking with of focus on its importance in management practices and it outlines the different types of systems thinking. It also provides an overview of SSM history, development, modes and systems approaches within the education context.

Chapter 3: The Theoretical Assessment of the Learning Process within SSM-Mode 2 and Gap Identification in the Literature Review

This chapter focuses on SSM-Mode 2 and its learning process. It provides a clear integrated theoretical assessment of the learning process within SSM-Mode 2 as presented in both the systems thinking and education literature. It includes an overview of the learning process within the systems thinking literature in particular with a focus on SSM. It also includes an analysis of the general learning process in the education area and an overview of different learning theories and learning approaches. Furthermore, it identifies the gaps and limitations within existing studies which evaluate the SSM-Mode 2 in systems thinking literature and criteria of research environment using Mode 2.

Chapter 4: Online Distance Education- Literature Review

This chapter discusses the origin of ODE, the various definitions of ODE, its key characteristics, the impact of ICT on the education process in ODE and the range of technological tools in use. It also highlights the success factors which have supported ODE development, the issues which have hindered it and the limitations of previous approaches used to analyse these issues in other studies. It also proposes the soft systems conceptual framework that guided the fieldwork aimed at exploring ODE in practice. Finally, this chapter concludes with a review of relevant ODE studies situated within the Saudi context, which focused on exploring the issues facing stakeholders in ODE.

Chapter 5: Research Methodology

This chapter describes the research design process and the philosophy underpinning SSM-Mode2. The study uses SSM-Mode 2 as the main methodology to explore the ODE system used at the King Abdulaziz University in Saudi Arabia. It outlines the three learning stages within SSM-Mode 2, which were implemented in the research: the planning stage, the access stage and the ODE content analysis stage. The planning stage, the data collection methods and possible ethical issues associated with the fieldwork component of the study are described in this chapter, which also presents the essential

principles involved in evaluating qualitative research and the potential limitations of the study.

Chapter 6: SSM-Mode 2 as a Learning Process about ODE at KAU- Empirical Work and Findings

This chapter describes the real ODE setting within which this research was carried out, namely King Abdulaziz University (KAU), which offers ODE courses throughout Saudi Arabia. This chapter presents the analysis of Stage 2 (access stage) which gives a detailed description of the social and political contexts of ODE at KAU and identifies the difficulties faced by the researcher during this stage of the empirical work. It also describes the third learning stages of the SSM-Mode 2 (ODE contents analysis stage) which defines the stakeholder groups involved in ODE practices at KAU, their perceptions, activities and issues. This chapter concludes with a personal reflection by the researcher about the overall learning process about ODE situation at KAU.

Chapter 7: Reflection on SSM-Mode 2's Learning Process- Discussion

This chapter reflects on SSM-Mode 2 as a learning approach to explore the problematic situation arising in ODE at KAU in Saudi Arabia. It includes lessons learned from the empirical work regarding the learning process of SSM-Mode 2 and presents the novel conceptual framework of the learning process within SSM-Mode 2 build upon the evidence gained from Chapters 3 and 6. This framework is presented in Figure 7.1.

Chapter 8: Conclusion and Recommendations for Future Research

This chapter summarises the key findings of the research and discusses its theoretical and practical implications and its limitations. It also presents recommendations for future research.

Figure 1.1 represents the structure of this thesis.

Chapter 1- Introduction

Introduction to the research problem, research aims and questions. Significance of study.

Chapter 2- Systems Thinking Literature Review

Comprehensive review of systems thinking literature with a focus on SSM.

Chapter 3- Theoretical Assessment of SSM-Mode 2 and Gap Identification

Theoretical assessment of the learning process within SSM-Mode 2 from perspectives of systems thinking and education literature and gap identification in the systems thinking literature.

Chapter 4- ODE Literature Review

Comprehensive review of ODE literature: origin, definitions, characteristics, issues, existing systems views, initial refined soft systems framework of ODE and ODE in the context of Saudi Arabia.

Chapter 5- Research Methodology

Research design, SSM-Mode 2 philosophical assumptions, SSM-Mode 2 (3 stages): Stage 1: planning stage, data collection methods, qualitative research principles, limitations and opportunities.

Chapter 6- Empirical Work and Data Finding

Stage 2 (access stage) and Stage 3 (ODE content analysis stage) of SSM-Mode 2's learning process . Description, analysis and reflection of ODE in real setting at KAU in Saudi Arabia .

Chapter 7- Discussion

Reflection on the researcher's learning process when using SSM-Mode 2 to explore ODE at KAU drawing on evidence from the literature and empirical work.

Chapter 8- Conclusion

Conclusions, research key contributions, theoretical and practical implications, research limitations and recommendations for future work.

Figure 1.1 Structure of the thesis.

Chapter 2: Systems Thinking- Literature Review

2.1 Introduction

This chapter aims to provide a complete understanding of the origin of soft system methodology (SSM) within the systems thinking field, by introducing an overview of systems thinking. It then discusses the importance of systems thinking to the management field, followed by an explanation of different types of systems thinking: hard systems thinking and soft systems thinking (Checkland, 1999) and Critical Systems Thinking (CST) (Jackson, 2000). Also, this chapter provides a historic overview and development of SSM in the systems thinking literature and discussing in detail modes of SSM: Mode 1 and Mode 2 (Checkland and Scholes 1990). Finally, it concludes by presenting limitations of SSM and previous researches that used systems views within educational context.

2.2 Overview of Systems Thinking

The roots of systems thinking stem from the general system theory (GST) developed by biologist Ludwig Von Bertalanffy (Von Bertalanffy, 1950). The general systems theory presents an argument against the concept that the scientific study of systems, be they human, physical or organisational systems, involves the dividing of the system into its component parts, which are then analysed individually (Von Bertalanffy, 1968). Instead, the general system theory argues that systems are holistic; that they are open and interactive with their environments; that they are dynamic and that, through their dynamic systems, they are organic and are able to generate new properties (Von Bertalanffy, 1968;

Avison and Fitzgerald 2006). Following the development of GST in the 1950s and 1960s, it has been used in two ways (Cordoba-Pachon, 2010). Firstly, it has been used to study existing complex systems and their features in order to develop a theory that helps in improving these systems, which would include exploring the phenomena of self-organisation such as cybernetics, communication and sociological systems. Secondly, the GST has been used by some individuals as a way of investigating complex systems in order to intervene and improve these systems.

Churchman (1968) is one of the leading systems thinking scholars who contributed significantly and theoretically to the explanation of systems thinking and how individuals use their intellectual capability to understand systems. He claimed that systems are connected to the external environment (i.e. systems are open) beyond their boundaries, and that systems should be viewed from the different perspectives of environmental entities such as politics, morality, religion, and aesthetics. This systems approach promoted by Churchman supported systems thinkers in understanding whole systems through an external lens, rather than just investigating them from a limited internal perspective. Churchman developed five assumptions that systems thinkers should take into account when they consider and seek to understand a system (Churchman, 1968). These assumptions include the entire system's goals and particularly, the measures of performance in the system, the environmental context of the system and its fixed restrictions, the system's resources, the system's elements (including their objectives, activities and measures of performance), and the system's management.

In traditional forms of analysis (reductionism), a system is broken into different parts and then studied. In the case of systems thinking, the parts of a system are analysed according to how they interact (i.e. systems idea) (Checkland and Winter, 2006). The analysts of the system emphasise the inter-relatedness of the constituent parts of a system (Ackoff,

1994; Checkland, 1999). Systems thinking can be used within different subject areas, such as philosophy, biology, management, geography, political science, physics, and engineering (Jackson, 2000). It is important to note that 'systems thinking' generally refers to the use of the systems idea to organise the process of thinking about complex situations (Checkland, 1981). In this research, 'systems approach' refers to an approach that is based on systems thinking.

In addition to system thinking development, systems ideas contributed to the area of cybernetics that is simply defined as trans-discipline study, which aims to control and govern systems (Jackson, 2000; Mingers and White, 2010). Cybernetics as a term was invented by Norbert Weiner (Ramage and Shipp, 2009), referring to use of mathematical models and scientific studies for understanding the control of any complex system (Weiner, 1961). Cybernetics is not concerned with the components of the system but with how the system works, uses of information and models, and the control and organisational processes used to achieve its goal (Heylighen and Joslyn, 2001).

Stafford Beer (1959) is one of the dominant scholars who used cybernetics in management and operational research studies, and defined cybernetics as the knowledge of the effectiveness of any organisation or system (Espinosa, et. al., 2008). Beer claimed management cybernetics is about controlling any system and interaction between its components (Mingers and White, 2010). Heinz Von Foerster also used cybernetics in management and systems studies (Von Foerster, 2003; Ramage and Shipp, 2009), and developed second-order of cybernetics that emphasizes on the relationship and interaction between the observer (i.e. manager or decision maker) and observed system (i.e. organisation or institution) (Von Glasersfeld, 2002). Foerster's cybernetics concept focuses on the human element (the observer), who plays an active role in constructing models about the observed system and interacts with it, instead of focusing only on the system

itself separately from its observer, in order to control the overall system (Heylighen and Joslyn, 2001).

Throughout the history of systems thinking, it has been found that autopoiesis (Maturana and Varela, 1992) and other developments, such as systems dynamics (Meadows, 2008) and the theory of complexity, have made significant contributions to the development of the field of systems thinking (Cordoba-Pachon, 2010; Jackson, 2000; Mingers and White, 2010). The theory of complexity arose from GST and enabled the study of the behaviour of complex human, social and natural systems. It supports the notion of the self-regulating and self-producing of systems. Systems are not restricted to specific rules or structures, and are open to their environment and interact with it; they can change over time. However, to be sustainable, must use pathways to facilitate the self-regulation process suitable to their environment. Systems thinkers can therefore use the properties of complex systems to understand them and potentially alter them (Cordoba-Pachon, 2010).

Overall, the systems thinking approach encourages a holistic learning and detailed analysis of each aspect and the formulation of an action plan to achieve the desired results (Bawden et al., 1984). So, decision makers involved with complex situations should consider the factors critical to success, and the impact of the external environment upon operations. The main objective of systems thinking is to provide a logical solution for understanding the complex behaviours of a business environment, so provide adequate guidance for achieving the desired organisational and social goals (Meadows, 2008).

2.3   The Importance of Systems Thinking in Management

The systems approach has gradually become one of the most dominant management approaches, instead of the traditional approach and human relations theory (Jackson, 2000). The systems thinking approach proposes that organisations are open to their

environment and interact with it, as opposed to the 'traditional approach' and 'human relations theory', in which organisations are seen as closed and neglectful of their environment. Moreover, a further objective of the systems approach is to pay more attention to every part of the organisation as a whole, whereas the traditional approach emphasises the structure of the organisation, whilst human relations theory focuses on people as the means to achieve successful performance within the organisation.

The systems thinking approach is now employed widely to assist management to solve complex problems effectively and efficiently (Senge, 1990; Ackoff, 1994; Checkland, 1999; Jackson, 2000; Cordoba-Pachon, 2010; Gharajedaghi, 2011). Many organisations and societies have encountered different problems that influence performance. These problems are classified as well-defined and ill-defined issues (Mayer, 1999). The natural science method and reductionist approaches to analysing problems have achieved a degree of success in terms of solving well-defined problems with specific success criteria and measures, using quantifiable indicators to assess them (Banathy, 1996). However, approaches to problem analysis have encountered difficulties when attempting to evaluate complex real world problems as experienced by organisations and societies.

If problems are ill-defined problems and issues are difficult to define and measure (Banathy, 1996), this can affect management practices within organisations, and include different interrelated components with greater significance than the parts themselves. Jackson (2000) observed that the connectedness between parts can produce "emergent properties", which arise from the organised ordering of these parts and can have either positive or negative outcomes for an organisation. System thinking concentrates on emergent properties, rather than identifiable problems, separating them to achieve a comprehensive intervention in the organisation of each part. Many societies face complex problems comprising social and political elements, which are difficult to evaluate and

study experimentally. In addition, exploring problems and interventions in social systems requires the researcher to encourage people to participate in the intervention process. Different people have diverse beliefs, views, ideas, and goals regarding potential improvements to complex cases. For this reason, system thinking can help manage problems in organisations overall, and social systems rather than reductionist problem analysis approaches. In this respect, system thinking promotes a sense of shared responsibility, relieving the pressure of those at the management level.

Jackson (2000) classified system approaches to management, partly according to their applicability to fulfilling different aims. The first approach was the functionalist systems approach, in which the concept of systems thinking is governed by functionalism. According to Churchman (1968), functionalism identifies an organisation as an open system, whereby an individual tries to achieve something under strict environmental constraints. This approach aims to intervene in the organisation to improve performance and achieve goals such as efficiency and efficacy. The interventions based on analysis of the relationships between parts in the organisation are based on predetermined measurements identified by an expert. The second approach is the interpretive systems approach, which aims to increase learning and shared dialogue among individuals concerning a complex situation in an organisation, to accommodate their views. By considering the needs of multiple individuals, they are then supported to work together to achieve set goals and resolve difficulties. Desired goals are normally determined through a consensus building process, which ideally could include the opinions of all individuals. This approach is concerned with, or affected by, a situation and it develops conceptual models representing human activities within the situation, created to identify the views of each individual, and to "structure debate about changes which are feasible and desirable" (Jackson, 2000, p. 282).

Thirdly, the emancipatory systems approach is appropriate for use in coercive situations, where inequality of power exists, affecting the exercise of control and authority. This approach helps the system analyst to explore problems to achieve individual liberation in organisations, through analysing the relations between unequal members of an organisation.

Ulrich (1983) developed a practical methodology for an emancipatory systems approach, called Critical Systems Heuristics (CSH), whose meaning can be simplified into three principles: critical, systems and heuristics. CSH is a practical framework to help systems practitioners to explore and understand issues (well-defined or ill-defined) in a social system 'heuristically', through 'critical' reflection and debate, using 'systems' thinking concepts in order to improve the whole system (Ulrich, 2005). This idea of systems-based debate has been further developed by Midgley (Midgley, 1992; Midgley and Pinzon, 2011) in his work on using boundary critique to prevent conflict among people.

The final approach is the postmodern systems approach, which focuses on analysing the social aspects of an organisation. The postmodern approach assumes that an organisation formulates its goals, strategies and operations according to resources obtained from the surrounding society and the benefits that the society expects from the organisation (Jackson, 2000). On the basis of this postmodernist view, White and Taket (1994) employed a practice-based 'rational' solution that emphasizes the textual narrative analysis of stakeholders' perceptions (such as ideas and stories for use in planning and interactions that can be made during an intervention in a social organisation), rather than following prescribed and rigid methodologies. White and Taket argued that this postmodernist view would encourage diversity, flexibility, and creativity in the intervention process within the social setting.

In the context of an information society, which relies on the use of ICT such as ODE, systems thinking is advantageous. Systems thinking can help members of an information society learn more about the goals, activities, products and the nature of social engagement. This could be achieved by conceiving the complexity of such societies as entire systems, including their interrelated components, stakeholders and their needs and problems. Cordoba-Pachon (2010) suggested three patterns of system thinking practices to support development in information societies. Patterns can be defined as "a set of assumptions, beliefs and ideas which inform the thinking behind the definition of any improvement in society" (Cordoba-Pachon, 2010, p.7). The first pattern is "idealist", supporting the transformation process in an information society and using system methodologies to engage stakeholders in defining a vision for implementing transformation. The second pattern is "strategic", supporting different stakeholder participants in the information society, enabling them to create plans and strategies. This pattern can involve the use of system methodologies to help structure debates and encourage the participation of multiple stakeholders. The third pattern is "power-based", allowing people to reflect critically on the ethics operating within societies. System methodologies typically support stakeholders to debate and reflect on ethical issues affecting individuals' relationship to society; determining how to improve situations and act more ethically.

Each of these patterns (idealist, strategic and power-based) can be used alone or together with others, depending on the context of the information society and the issues it faces.

2.4   Hard, Soft and Critical Systems Thinking

The systems thinking approach in organisational management is a holistic process, applied to support exploratory functions, decision-making about problem solving, and intervention to achieve effective improvement within an organisation. This approach

views organisations as whole, open systems that constantly interact with the external and internal environments. To understand systems thinking better, Checkland (1999) outlined a set of classifications for systems thinking approaches, dividing them into hard systems thinking and soft systems thinking. To simplify, hard system thinking views the real world as a system that includes subsystems that can be engineered to improve the whole system, while soft system thinking assumes the real world is a complex situation that can be improved by conducting a process of systems inquiry to structure it and learn more about it. This is represented in Figure 2.1. However, Checkland transfers systemicity to the process of enquiry rather than to the world by developing soft systems methodology as a key example of soft systems thinking.
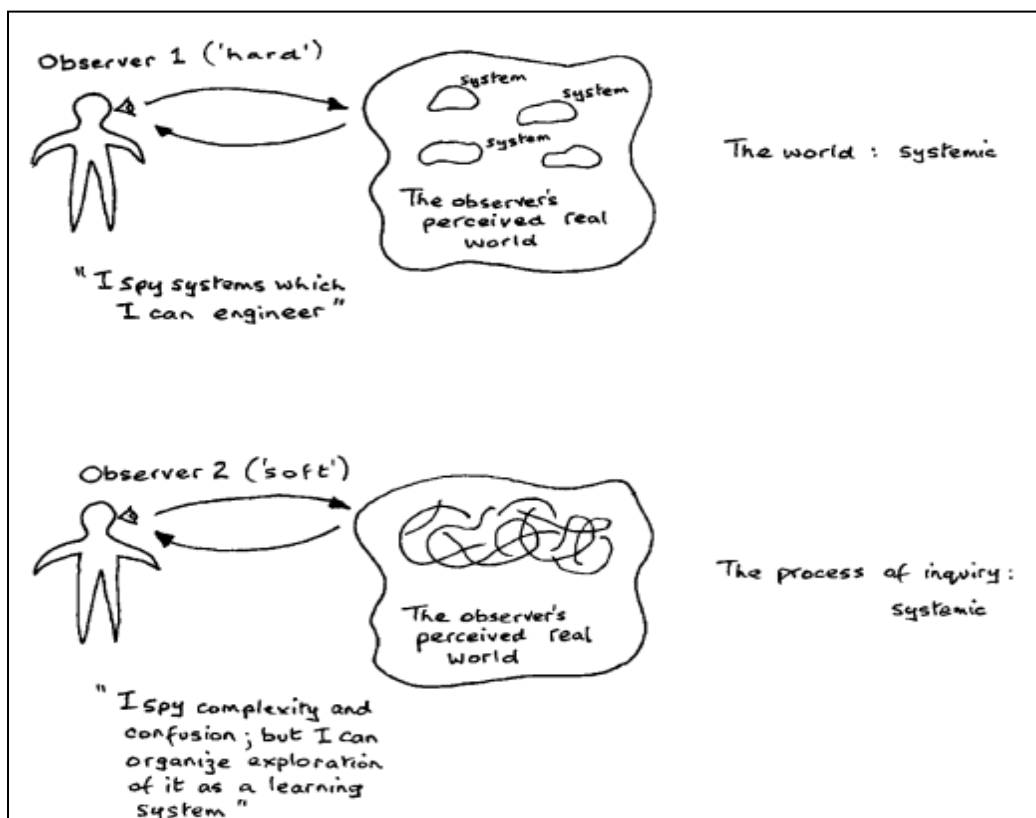
Figure 2.1 Hard and soft systems thinking.
(Source: Checkland, 1999, p. A11).

However, Jackson (2000) claimed there is another classification for systems thinking that could be simplified into three categories: hard, soft and Critical System Thinking (CST). CST was developed as a different systems thinking approach from the hard and soft systems approaches, to deal with their shortcomings in certain situations. CST proposes the use of a combination of different systems approaches (hard or soft) based on the characteristics of the social system that need to be explored and developed (Midgley, 1996; Jackson, 2000; Kogetsidis,2012). However, this thesis focuses only on the Checkland classification, as the study focuses on the evaluation of SSM-Mode 2 as a learning approach to exploring complex situations in ODE systems.

2.4.1   Hard Systems Thinking

Hard systems thinking includes traditional or functionally oriented thinking that can be used to analyse and address the issues raised by an organisation (Checkland and Scholes, 1990; Checkland, 1999). It considers a social system as a separate subsystem or object that exists in the real world. Goal-oriented or well-defined problems can be engineered to accomplish objectives without paying attention to conflicts affecting the human perspective within the social system.

A hard systems approach is goal-oriented. Hard-goal-oriented thinking means that sub-systems in organisations are expected to perform their functions for greater effectiveness and efficiency, based on predefined and measurable indicators intended to determine how each participant can complete their activities. Things can be modelled as systems 'out-there' to be engineered and improved (Jackson, 2000).

Another aspect of hard systems thinking is the use of a single view to improve the situation and define the goal. All subsystems should complete their work properly, to

achieve the organisational goals, without different people participating in these subsystems. This affects how the organisation's goals are defined and achieved.

Much hard systems thinking is governed by functionalism. According to Churchman (1968), the functionalist systems approach suggests that individuals in an organisation must perform their processes effectively and separately in order for the predefined goals of an organisation to be achieved.

2.4.2 Soft Systems Thinking

Soft systems thinking, from a theoretical perspective, suggests that a social system is an open system directly related to its environment. This system is comprised of interrelated subsystems, which create complexity (Churchman 1968, Ackoff, 1994; Checkland, 1999). It also assumes that using a systems approach will assist in organising and structuring the situation, in order to construct additional meanings, by engaging those people involved in the system in the exploration, to learn more about the complexity of the situation (Checkland and Scholes, 1990).

Soft systems thinking can be described as an interpretive system approach (Flood, and Ulrich 1991; Stowell, 1993; Crowe, et. al., 1996). The interpretive system approach seeks to distinguish itself from hard systems approaches, by taking a pluralistic view of the system's stakeholders (Checkland, 1999; Seddon, 2008; Checkland and Poulter, 2010). The pluralistic nature of a soft systems approach makes it highly dependent on stakeholders, particularly in relation to how they think of and perceive the system to create the most desired result.

Jackson (2000) and Skyttner (2005) also described the interpretive systems approach as being in opposition to the hard systems thinking approach, which is more concerned with the functional, objective, tangible, and observable characteristics of a system as seen from

the single viewpoint of the experts or decision makers. On the other hand, the interpretive systems approach is plurality in terms of how the goals of the system are defined to accommodate multiple perspective of the different stakeholders involved in a complex situation in order to improve it.

Soft system thinking places greater emphasis on social-oriented problems in any situation that includes human activities (Checkland, 1999; Cordoba-Pachon, 2010). In many instances, these problems are not easy to define and measure, because they involve various definitions and measurements, and are created by an individual's thinking. These problems could include social and political issues.

Another characteristic of soft systems thinking is that is considered as a knowledge construction approach (Checkland, 1981; Checkland and Haynes, 1994; Checkland and Poulter, 2006). In other words, the approach promotes learning among stakeholders in a complex environment, by providing them with additional knowledge about the current situation, specifically focusing on how it could be transformed to achieve a higher degree of success to enhance problematic situations. Gaining greater understanding about this complex situation with the participation of stakeholders, when defining improvement changes, will help decision makers rethink their visions, strategies and plans for future improvement to accommodate multiple stakeholders' points of view and needs.

Different soft system thinking methodologies exist to implement soft system thinking in practice (Jackson, 2000), as presented in the following Table:

Some soft system methodologies	Philosophical assumptions
1. Warfield's Interactive Management (IM)	• Supports finding solutions for complex situations by encouraging the participation of experts. • It is a three-stage process: planning phase, workshop phase, and the follow-up phase.
2. Mason and Mitroff's Strategic Assumption Surfacing and Testing (SAST)	• Supports the examination of predefined assumptions and alternative options, to resolve interrelated problems. • Allows different groups from different levels within an organisation to debate assumptions and options to improve it. • It is a four-stage process: group formation, assumption surfacing, dialectical debates, and synthesis.
3. Interactive Planning (IP) by Ackoff	• Supports stakeholders to participate in the planning process (participative principle). • Supports organisations to re-define their plans for the future continuously, due to unexpected issues (continuity principle). • Assumes that plans should be comprehensive and includes different components from within the organisation (holistic principle).
4. Checkland SSM	• It supports engagement and structured debate among different participants when organising complex situations. • It supports the accommodation of multiple ideas and goals to improve the situation. • It promotes learning among participants with regard to their complex situation through rich pictures, root definitions and conceptual models.
5. Strategic Options Development Analysis (SODA)	• It enables Operation Research (OR) consultants to work with clients towards improving complex and messy problems. • It focuses on the subjectivity of the views of participants in defining problems through negotiations, modelling and using technologies. • OR consultants require good skills in modelling and analysing the process and content of the messy problems so as to achieve the desired goals.

Table 2.1 Some soft systems thinking methodologies.

Although all the previous methodologies include stakeholders' participation and iterative methodologies, the Checkland SSM has more distinctive features. This is because it can be used as a learning action approach to facilitate the learning process among stakeholders and for its practitioners (Checkland, 2000; Holwell, 2000; Checkland and Winter, 2006). In this respect, SSM links theory with practice through a systems inquiry process (Checkland and Haynes, 1994) in order to gain more insights about complex situations in social systems so as to take the right actions that are systemically desirable and culturally feasible. "Systemically desirable" means that the changes implemented to improve the situation should be desirable, and should accommodate the needs of different stakeholders who engage in SSM, while "culturally feasible" means that the changes should be meaningful to the cultural environment of the problematic situation.

Also, a comparison of SSM to other soft systems methodologies as shown in the above Table 2.1, shows that it has been getting close to the field of Information Systems (IS) and technologies, because it can help organise the IS field by providing meaningful definitions concerning the roles of IS in organisations as well as giving deeper meaning to organisational activities and to the whole of an organisation (Checkland and Holwell, 1998b). The other approaches seem to be more directed to helping soft systems practitioners structure specific problems. For example, as explained later in Chapter 4, it seems that ODE demonstrates several types of ill-defined problems, requiring a comprehensive methodology, so in this case SSM can help identify a wide range of issues.

2.5 Soft Systems Methodology

2.5.1 Overview

SSM has developed over the course of three decades, since Peter Checkland and his associates at the University of Lancaster first proposed it as an alternative to the hard systems approach (Checkland, 1981; Checkland and Poulter 2006; Checkland and Scholes, 1990). The term 'methodology' in SSM should not only be understood as a practical method of enquiring into a problematic situation (Checkland and Scholes, 1990; Checkland, 2000) rather, it comprises set of principles that link theory and practice. General systems theory acts as the theoretical foundation for both hard systems thinking and soft systems thinking, assuming that any social system should be viewed as a whole rather than as separate parts. It is an open system related to the external environment, as it moves beyond boundaries (Avison and Fitzgerald, 2006). However, the main difference between these approaches is that hard systems thinking concerns the need to define the goals of the system, or to offer a single viewpoint to improve upon it, while soft systems thinking encourages multiple stakeholders in the social system to achieve a purposeful human activity as methods to improve the entire system. From a soft systems thinking theoretical perspective, Peter Checkland developed SSM to adapt the theory in practice in 1981 (Checkland and Scholes, 1990; Checkland, 1999; Checkland, 2000) as shown in Figure 2.2. This first version of SSM includes seven stages that can be applied to solve a problematic situation, and distinguishes between stages that refer to the real world situation and stages that refer to systems thinking about the real world situation (Checkland, 2000). The seven stages of SSM will be explained in detail later in this chapter.
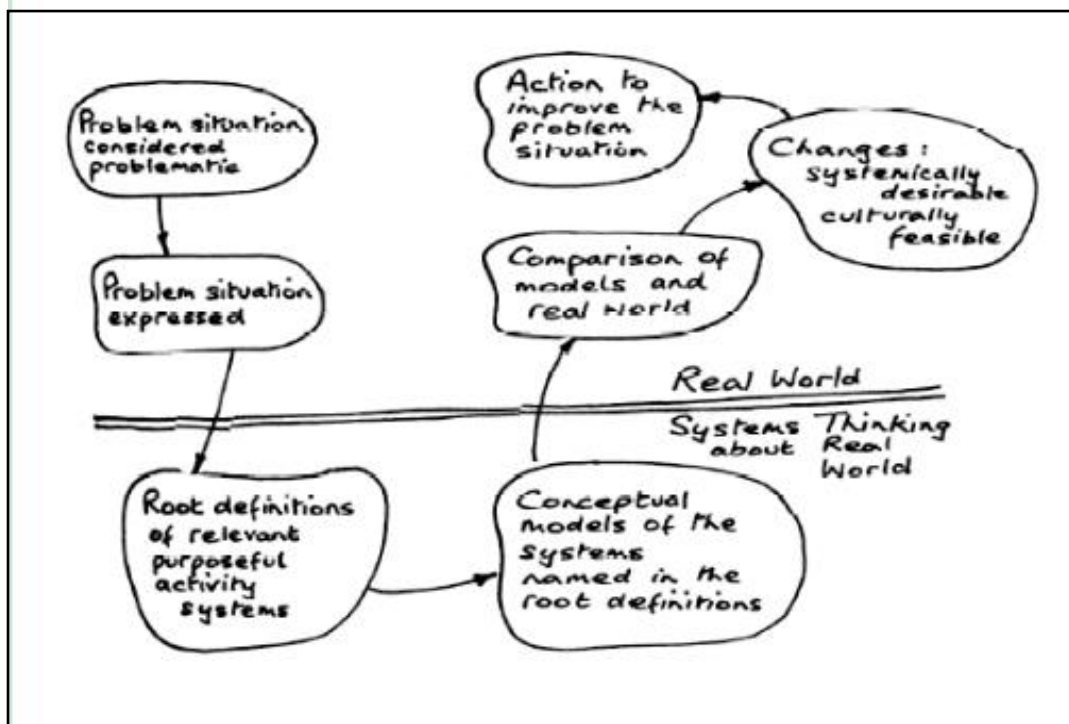
Figure 2.2 First version of Checkland's SSM developed in 1981.
(Source: Checkland and Scholes, 1990, p. 27).

SSM can be defined as a structured approach to tackling real-world problems from the multiple perceptions of those people involved in the social system, rather than from a single perception (Checkland and Holwell, 1998a). SSM assumes that a social system is generated and regenerated by human thought, interaction and action (Checkland and Poulter 2006), as it is intended to improve on a real world problematic situation. A number of concepts and ideas underpin the process of SSM, making it applicable to most organisational and social situations. These concepts facilitate learning among stakeholders through developing conceptual models, rich pictures and sharing ideas.

A conceptual model within SSM represents human activity system. For example, conceptual model building emphasises the thinking and perceptions of those stakeholders involved in solving problems about their situations (Wilson, 2001; Mingers and White, 2010). As mentioned earlier, this contrasts with the hard systems approach, which focuses

on resolving a situation from a pre-defined problem perspective, implying a single solution and a goal. This means that SSM aims to achieve a purposeful activity that accommodate the views of the different stakeholders involved in the problematic situation so as to improve it, instead of seeking to achieve a goal based on a single viewpoint.

Later, towards the end of the 1980s, Checkland developed the second version of SSM (Checkland and Scholes, 1990; Checkland, 1999; Checkland, 2000) to address and systemically conduct research into issues that integrate human affairs, and environmental contexts within organisational systems, taking acceptable actions to improve organisational circumstances, as illustrated in Figure 2.3. This second version of SSM added cultural stream analysis as an important factor, alongside the logical stream (seven stages of SSM) to achieve a purposeful activity that would be more systemically desirable and culturally feasible (Checkland, 2000). This newly developed version will be employed in this study because the aim is to use SSM-Mode 2 as an inquiry process, instead of a problem-solving approach, to gain a holistic understanding about the complex situation under investigation (ODE system) with more consideration of the impact of the cultural context on both the situation and the researcher's learning process. The inquiry process of SSM into a complex situation is informed by the cultural analysis and applies an organised, systems-based process, emphasising the conflicts affecting people's impressions of problematic situations in the real world. Specifically, SSM facilitates a deep and holistic comprehension amongst SSM practitioner and stakeholders so that they can formulate the right participative decision with regard to improving the situation (Checkland, 1989; Checkland and Poulter, 2010).
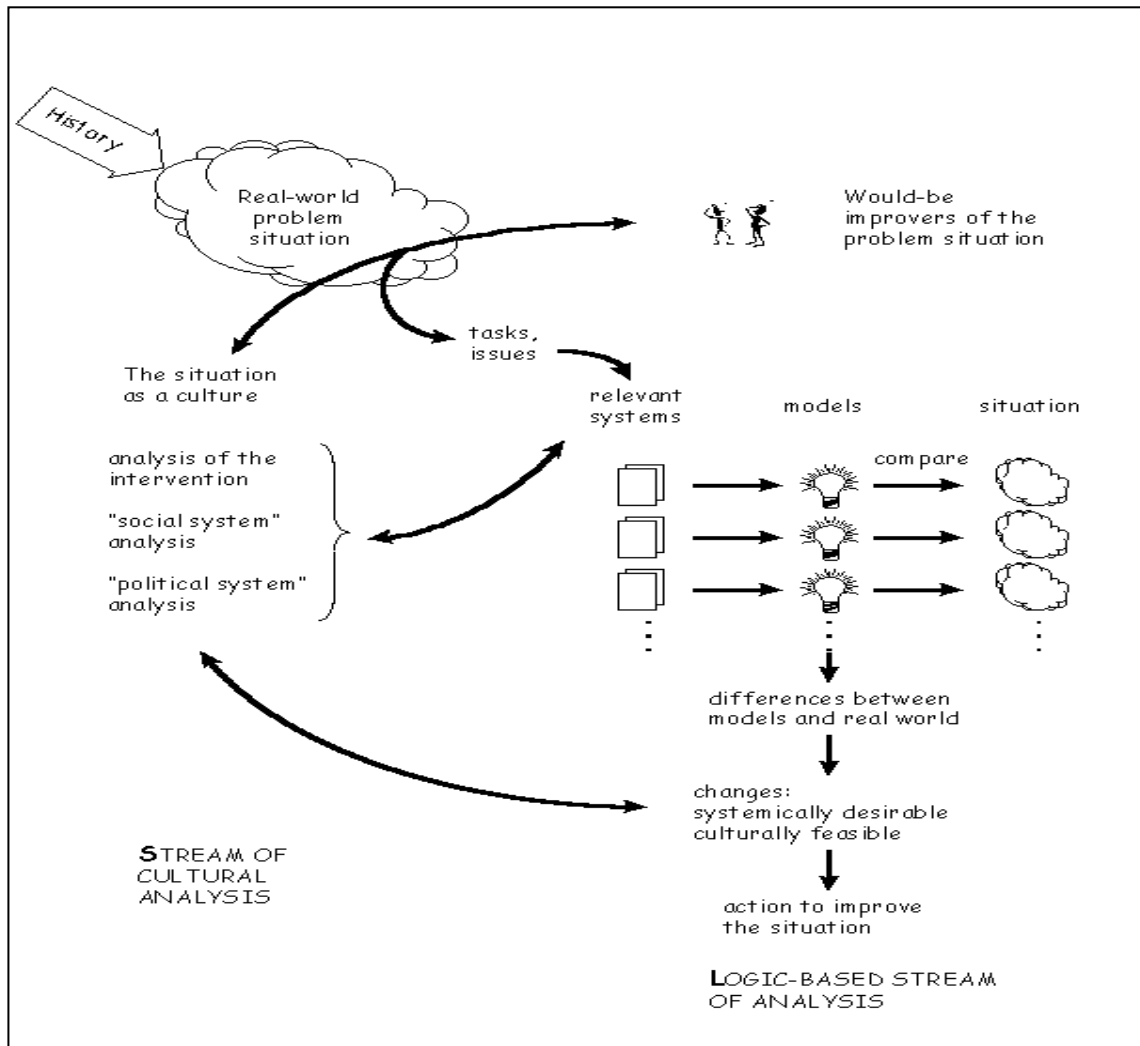
Figure 2.3 Second version of SSM includes two streams: logical and cultural.
(Source: Checkland and Scholes, 1990, p. 28).

SSM allows different issues in the real world to be structured with clear steps, as well as determining the outcomes of changes and actions to improve the situation. Significantly, the methodology has been applied in different areas, such as healthcare, civil services and business systems (Checkland and Scholes, 1990), management and government systems (Wilson and Van Haperen, 2015) information systems (Stowell, 1995; Avison and Fitzgerald, 2006), operational research (Mingers and White, 2010), teaching and learning (Patel, 1995) and military logistics (Staker, 1999), to formulate sound decisions regarding complex situations.

According to Checkland and Scholes (1990) and Cordoba-Pachon (2010), this methodology focuses more on individuals' views, experiences and knowledge of the problem, as well as on the definitions and solutions, relating to improving complex real-world situations. SSM also allows researchers to view organisations from a cultural perspective (Checkland, 1999), as shown in the developed version of SSM in Figure 2.3. This indicates the appropriateness of applying SSM to enhance complex situations in any cultural context, whether small or large environments. The human elements in an organisation can define the features of that organisation and describe their own aims for the organisation, based on their understanding of its situation. Hence, SSM will assist in improving the situation by applying different elements (rich pictures, root definitions and conceptual models) to represent individuals' perceptions of reality, rather than describing the reality itself.

Furthermore, SSM claims to enable a practitioner or managers to learn about a situation from stakeholders' perceptions (Checkland, 1981; Checkland and Poulter, 2006). The learning process is a key feature of SSM (Flood, 2000), as it uncovers both the problematic situation and suggestions to improve it. This learning process is iterative, rather than linear (Checkland and Poulter, 2006); it can start and stop at any point. Once action is implemented in a problematic situation to improve the complex environment, there is potential to achieve change; however, this depends on stakeholders' goals and the learning process recommencing, for additional knowledge about the situation to be acquired. For instance, the conceptual model in SSM would allow participants to learn about what could be done to improve, implement and act purposefully to overcome problematic situations. Comparing a conceptual model with the real world will afford participants greater understanding of the problems that need to be changed. From this perspective, SSM could be seen as a constructivist methodology (Olsson and Sjostedt,

2004; Durant-Law, G., 2005), and participative learning process (Hindle, 2011; Green, 1999), aiding stakeholders in complex situations to construct goals and methods to reconceptualise their situation. Simply put, SSM is an action-orientated learning process that includes the logical seven stages and cultural analysis, both of which support the learning process within SSM, as illustrated in Figure 2.3.

In addition, SSM can be used for transformation; this is another feature of SSM (Cordoba-Pachon, 2010). In a complex situation, transformation refers to the process of achieving purposeful activities to improve on a situation. SSM focuses on understanding the cultural context of a problematical situation, which leads to meaningful action, so that any set of transformations can be framed in context to define culturally feasible and systemically desirable changes. "Culturally feasible" refers to acceptance of the changes produced, based on the cultural rules of the context of the problematical situation, using Analysis One (intervention analysis) of a situation, which aims to analyse the intervention process at hand, by identifying people who perceive a need for it. Analysis Two (social analysis) prompts an intervention process to improve a situation following an investigation of the social reality of that situation in terms of norms, roles and values (Checkland and Poulter 2006). Analysis Three (political analysis) analyses the power structure among individuals in a real situation, thereby indicating the political rules and the possibility of power holders to manage and accommodate diverse interests and the perspectives of all participants. 'Systemically desirable' refers to the connection between all changes, as concluded from the conceptual models developed as being desirable for all participants. SSM may assist transformations for further action or reformulate them in a manner that is more meaningful. This characteristic of SSM supports engaging each person to improve the situation (Cordoba-Pachon, 2010).

Bearing in mind the points made above, a key strength can be associated with SSM. It helps to define and structure complex situations and consequently improve relevant systems (Kingston, 1995). In most situations where organisational and social problems have arisen, stakeholders and system analysts can use SSM tools, including logical and cultural analyses, as a guidance for a holistic and clear structured methodology to improve the situation. A further advantage of using SSM is that it can increase communication, creativity and shared thinking between the stakeholders involved to improve the problematical situation (Mingers and Taylor, 1992). Since it gives stakeholders the opportunity to work together in structuring the complex situation they face; they are able to collaborate and share views and ideas to intervene and improve their situation.

However, case studies, such as that cited by Bergvall-Kareborn et al. (2004), demonstrate that a weakness of SSM is that this methodology relies on the skill of the SSM analyst, which could involve incorrect use of the methodology and inaccurate interpretations of models that would affect the overall changes required to improve the situation. Similarly, a further weakness is that it is time-consuming (Mingers and Taylor, 1992; Kingston, 1995), since the SSM practitioner requires more time and effort when using SSM tools, such as developing a rich picture and building models to acquire an overall image of the problem situation. However, these shortcomings can be overcome with more practice and by gaining experience of SSM of real-world complex situations. Despite its shortcomings, SSM is still used in many studies. For this reason, it is worth reviewing both its potential and the main features of SSM in different fields of research. The current study has chosen to use SSM- Mode 2 in the ODE context.

2.5.2   Modes of SSM

Soft system methodology is one of the key human-centred methodologies, which provides more than one method to solve problems. In the case of SSM, there are two key modes: Mode 1 and Mode 2 (Checkland and Scholes, 1990; Jackson, 2000), each of which uses a different approach to handling complex problems in a social system. These two modes are discussed below, with emphasis on their nature as well as on the instances in which they work best. According to Jackson (2000) and Checkland and Scholes (1990), the two main modes within SSM are Mode 1, which is concerned with the application of seven stage SSM for problem-solving in complex situation and Mode 2, which involves the SSM practitioner internalising the SSM to learn about the complex situation and how it could be improved in the future.

Mode 1

Checkland and Scholes (1990) defined the first mode of SSM as the application of SSM stages in complex situation. The main idea and main aim of this mode is to use SSM to tackle the basic problems and challenges that arise over the course of normal human interactions and organisational activities. A very typical case study approach that can be applied to outline the main ideas behind Mode 1 is using the logical seven stages of SSM, prepared by Checkland and presented in Figure 2.2 above. However, Checkland emphasized flexibility when using these stages (John et. al, 2008), as the SSM practitioner has the option to use all or some stages in a different order. These stages are:

Stage 1: The problem situation unstructured

This stage aims to define the problematical situation of area of concern.

Stage 2: The problem situation expressed

In stage 2, the complex situation will be represented and expressed in a diagram referred to as a rich picture. Rich pictures are considered a good tool to explore and understand any situation (Flood, 2000); they include holistic representations for problematic environments, in terms of participants, their roles, their views about issues facing them, human activities affected by these issues, relationships between all parts and conflicts points that prevent the improvement in the problematic situation (Checkland, 1999).

After stages 1 and 2, the SSM practitioner will shift from the real world to system thinking mode in stage 3.

Stage 3: Root definition of relevant systems

Root definition describes how the potential real world system would be after improvement. It explains how the system will change, the process of change, and the person responsible for change. Root definition outlines reasonable and purposeful change during its transformation (Cordoba-Pachon, 2010).

Stage 4 and 5: Conceptual models and comparison with stage 2

Following the root definitions as stated in previous section, the SSM practitioner develops conceptual models to outline all the human activities in the problematic situation according to a logical flow (Wilson, 2001), representing how communication and interaction works between participants.

At stage 5 the SSM practitioner exits system thinking mode and initiates discussions with stakeholders, surrounding the problematic situation changes. Stage 5 offers a reality check of 'what' is to be done to set up or improve the situation, with 'how' it can achieved in practice.

Stages 6 and 7: Feasible, desirable changes and action to improve

Stages 6 and 7 involve the action that can be taken to eliminate problems in a complex situation. This implies that SSM is a dynamic approach with logical steps for addressing system problems. The ultimate goal of stages 6 and 7 is to implement the required and possible changes in a complex situation. These changes are derived from insightful debates as discussions and could have wider benefits, in the form of technological, cultural, and economic feasibility and desirable for stakeholders involved in the situation. The completion of stages 6 and 7 can yield the following interventions to improve on a problematic situation. The first change type is shift in institutional culture and structures. The second is review of institutional procedures. The third is change in stakeholders' attitudes and interactions, expectations, and sense of responsibility (Checkland, 1981), the latter seeming difficult to achieve.

Overall, Mode 1 seeks to justify the position of accommodation of interests of different stakeholders when dealing with organisational challenges. Some of these key stakeholders include clients, actors and owners, all of whom are expected to engage in a debate guided by an analyst or a practitioner (Gregory, 1993). The presence of a SSM practitioner or an analyst is intended to ensure that there is a brainstorming process during any debate that gathers various root definitions and conceptual models, which can be put together, modified and developed until a desirable outcome is achieved through consensus among the team (Gregory, 1993).

Mode 1 is an intervention process, to which all or some of seven stages of SSM are to be explicitly applied to implement desirable action and interventions in the social system or organisation under investigation. Gregory (1993) mentions that the Mode 1 is recommended when taking action to accommodate the different views of the stakeholders involved in an organisation systemically. Even though debate or the brainstorming

process might make the whole approach time-consuming, the aim of this mode is to establish agreed action based on the very best ideas and solutions. Due to the structured nature of this mode, it is always easier to follow all seven stages in a real world case study. People with very elementary knowledge of organisational and social systems can also use Mode 1 because the seven stages act as a clear guidance using methodology tools of what to do and what to expect.

Mode 2

Mode 2 is the mental use of SSM by its practitioners (Kotiadis and Robinson, 2008; Staker, 1999). This mode is developed with focus on learning by SSM practitioners about every day activities in a complex situation (Checkland and Scholes, 1990; Mingers and Taylor, 1992).

SSM-Mode 2 enables SSM practitioners to apply SSM tools implicitly to avoid being restricted by the explicit application of the rigid and prescriptive nature of the seven stage model (Kumar and Sankaran, 2006). This means that Mode 2 has the strength of allowing greater flexibility and dynamism in its usage (Mingers, 2000). According to Checkland and Scholes (1990) and Salerno et al (2010), mode 2 is ideal when SSM practitioner wants to undertake a parallel stream of analysis called cultural enquiry. In its usage, mode 2 of SSM normally offers a holistic understanding for SSM practitioners about the complex situation revolving around three forms of analysis (Checkland and Winter, 2006) - analysis of intervention, social system analysis, and political system analysis, as follows:

- Analysis one: is known as 'analysis of intervention'. This process aims to improve on existing situations and includes three approaches to doing so. The first role to consider is the person or group of people who are responsible for triggering the intervention, i.e. the 'client'. The second role is assigned to a person or group of

people responsible for applying a methodology during an investigation, i.e. the 'problem-solver'. The final role is assigned to a person or group of people affected by a situation; i.e. they are concerned about or would benefit from an improvement to the situation. These are 'owners of the issue'.

- Analysis two is also termed 'Social analysis'. It focuses on understanding the social environment of the problematic situation (Checkland and Poulter 2006), with the aim if ensuring that the outcome of the intervention is desirable and culturally feasible to those people involved in it.

- Analysis three is also known as 'political analysis'. It aims to analyse the power structures and the processes involved in a real situation (Mingers and Taylor, 1992).

Therefore, SSM-Mode 2 usually comprises the logical stream (seven stages of SSM) and cultural stream analysis in the SSM practitioner's process of learning about the problematic situation (Flood, 2000). In this respect, Mode 2 could be considered to be a situation-driven approach, following the steps of SSM (Checkland, 2000; Kumar and Sankaran, 2006). Therefore, the researcher can apply SSM, and some stages of SSM will be followed in parallel rather than sequentially, as the situation does not require the steps to be completed. However, SSM tools such as rich picture and building models can be used in Mode 2 to make sense in the inquiry process of daily activities in the complex situation (Mingers and Taylor, 1992). In addition, Mode 2 is known as an interactive process (Checkland and Scholes, 1990), which can support the SSM practitioner when interacting with different stakeholders in the problematic situation, in particular when observing and reflecting on their daily activities. Table 2.2 represents the general differences between Mode 1 and Mode 2 of SSM.

Mode 1		Mode 2
Methodology-driven	vs	Situation-driven
Intervention	vs	Interaction
Sometimes sequential	vs	Always iterative
SSM an external recipe	vs	SSM an internalised model

Table 2.2 Differences between Mode 1 and Mode 2 of SSM.
(Source: Checkland, 2000, p. S39).

Another distinction between both modes can be explained using a general conceptual research model (Checkland and Scholes, 1990). This model includes 'F', which refers to the framework of ideas about the perceived world, which will be embodied in methodology 'M' to investigate and enquire in an area of concern 'A' to improve upon it. This model is illustrated in Figure 2.4.
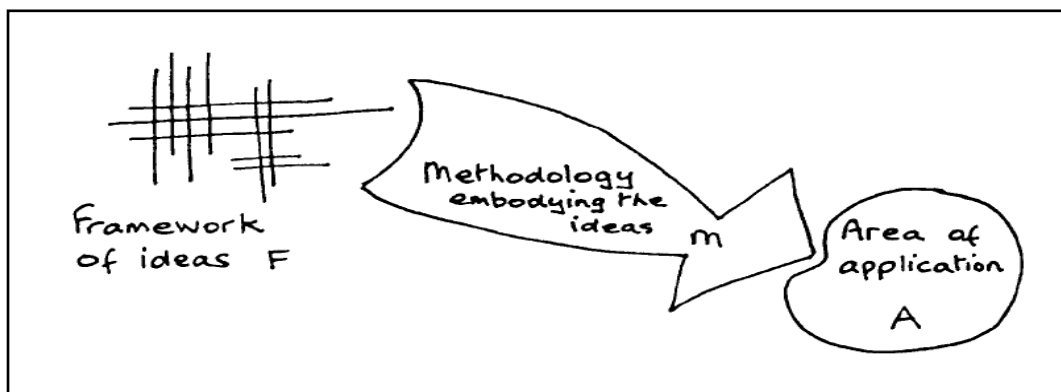
Figure 2.4 A general conceptual research model.
 (Source: Checkland and Scholes, 1990, p. 283).

Mode 1 introduces system ideas (F), on the assumption that the area of concern (A) is complex and includes interrelated parts as the framework of ideas that will be explicitly used in SSM stages (M) to structure the inquiry process about (A). This investigation will propose changes, support implementation of these changes in practice and intervene in

their application. On the other hand, mode 2 uses SSM (logical or cultural streams) as a framework (F) of ideas that can be applied internally by SSM practitioners to reflect on the activities and ideas present in the methodology and area of application (Ko et. al., 2010). This reflection (M) on the situation of concern was developed through interaction with people involved in that situation, leading to the construction of knowledge about the area of application (A), to determine how it could be improved in the future.

Mode 2 places more emphasis on the practitioner interacting and reflecting, rather than explicit intervening in a problematic situation. This indicates that the goal of SSM-Mode 2 is to learn about a situation rather than change it (Houghton & Ledington, 2002). However, a review of the literature on SSM revealed a lack of studies that examine Mode 2 as a learning approach in real-world situations. The literature review discovered that some studies, such as that of Checkland and Winter (2006), made distinctions in the uses of SSM. This review of 30 years of the history of SSM found that most articles refer to Mode 1. So, the next chapter provides a more in-depth review of SSM-Mode 2 by considering some of its features. However, the next section will discuss some limitations of SSM in general.

2.6   Limitations of SSM

There have been several critics of the SSM model, including both Mode 1 and Mode 2. According to Savage and Mingers (1996), in the field of information systems, SSM can be used to identify system requirements, though they indicate that the considerable effort associated with this process can be problematic. They suggest that if data modelling is used with SSM, two outcomes are possible: either it is completed for every conceptual model or a decision must be made to use a data modelling technique at the conceptual level.

SSM is conceptualised through world-views in various different situations and with multiple stakeholders. This subjectivist approach that employs phenomenological epistemology uses the concept of a 'system' to explore different views, which is in contrast to a more independent model of the social world. As subjective meanings can be interpreted in many different ways, there is more chance for human error (Mingers, 1984). In addition, since the interpretivist perspective is required in SSM, there are concerns that it cannot be employed effectively or legitimately (Jackson, 2000).

Jackson (2003) criticised SSM for not accounting for the power that SSM gives to the definition and discussion of improvement changes and models. However, Checkland claimed that SSM includes a cultural analysis stream that focuses on the power factor in developing the models and improving the situation, if the SSM practitioner carried out a good cultural analysis for a problematic situation, the practitioner would propose ideas and models that are systemically desirable and culturally feasible.

Ultimately, Mingers (2000) provides a detailed list of the more common limitations with SSM, including (1) the lack of a structural social theory that underpins the individual learning, (2) an inability to recognize or reflect on the importance of politics and/or power that would affect the implementation of recommendations or changes within organizations, (3) no guidance on facilitation, with a stronger focus on analysis, and (4) issues surrounding the transition from broad agreements to detailed designs in information systems.

Although above limitations have been suggested for SSM in the literature of systems thinking, SSM has been successfully implemented in different management areas in general and information systems in particular (Rose and Haynes, 1999; Barnden and Darke, 2000; Maqsood et al., 2001; Checkland and Winter, 2006; Hindle, 2011; Cundill et al., 2012). Within IS, the main focus was on linking SSM to systems design

methodologies (Checkland and Holwell, 1998b). Once this had been established, SSM was then applied to management science, outlining clearly stated objectives, goals and aspects of strategic choice analysis (Checkland 1999; 2000). SSM is suggested as a perfect methodology that supports development of IS and fulfils the needs of IS stakeholders (Jackson, 2003). As it has developed as an alternative methodology to hard systems methodologies, which consider the organisation as a machine that underpins the processes of IS, Checkland and Holwell (1998b) stated that SSM would help IS stakeholders to gain more learning and understanding of values, meanings and processes for their daily practices, through developing purposeful actions. This understanding would help them then to provide appropriate IS that support implementing the purposeful actions.

In this regard, Mode 2 can improve learning and understanding of decision makers and designers, enhancing the decision-making process for complex situations in organisations and social systems by proposing desirable and culturally feasible actions that accommodate their needs (Checkland, 1981), in different IS management contexts such as construction, healthcare, education and organisational learning.

For the purpose of this research, the next section will examine studies in the literature on systems thinking that employed the systems approach in an educational context.

2.7   Systems Approaches in the Education Context

In the literature on system thinking, there are several studies on the use of systems thinking in the context of education. Some studies used a hard systems view and others, most of which refer to Mode 1, employed a soft systems view.

Studies by Bawden et al. (1984) and Bawden and Packham (1998) found that systems thinking can enhance the design of agricultural learning environments. They developed a

holistic systems model for farming as a human activity system that interacts with its environment. The model aims to support agriculture managers and technologists as learners, so that they can improve their problem-solving skills and learn about the complex agricultural systems.

Bawden et al. (1984) claimed to have incorporated different problem-solving approaches (reductionist science, reductionist technology, the hard systems and soft systems approaches) into their model. This was done to improve the analytical skills, research and practices of learners, so that they would be able to solve a range of issues (well defined and ill-defined issues) by selecting an approach appropriate to the situational context of the complex problem. The soft systems view is considered to be a learning process that facilitates learning among agricultural practitioners through collaboration and the sharing of perceptions, issues (in particular ill-defined issues) and ideas on how they could improve their situation. In addition, they claimed that the learning process for solving problems within the systems approach can be conceptualised by Kolb's experiential learning approach (see section 3.3.3 in the next chapter for more details about Kolb's learning cycle), which requires learners to practice active learning, to reflect and to cope autonomously with problematic situations. Although this study provides beneficial insights into the learning process within systems thinking, it is not specifically associated with SSM.

Banathy (1992; 1996; 1999) is one of the key scholars who contributed to using systems approaches in educational systems. Banathy investigated how far systems thinking could be applicable to radically reforming educational systems when various subjects are offered. In opposed to hard systems views for designing educational systems, Banathy proposed a soft systems thinking perspective to conceptualise educational environments as social systems that includes environmental components. He developed three systems

models (a system-environment model, a functions/structure model and a process model), to improve designing educational systems (Banathy, 1992).

Banathy claimed that these models facilitate viewing and understanding the contents of any educational system in terms of its components, their connections, environment context, interaction and relationships between the system and its environment (Banathy and Jenlink, 2004). This systems view would be applicable to ODE and facilitates investigating it as a dynamic and complex social system. Banathy's soft systems view aims to improve students' learning competence and outcomes by moving from an instruction-focused educational system to a learning-focused one. This soft systems view facilitates holistic learning and understanding about educational systems, so that those systems can be evaluated and new ones designed. However, this systems view neither discusses nor examines the nature of the learning process in soft systems thinking.

Moving on from the work of Banathy, many researchers sought to employ SSM in the educational context. A study by Hardman and Paucar-Caceres (2011) used the SSM logical framework to evaluate Managed Learning Environments (MLE) (also includes Virtual Learning Environments) in UK higher education. According to their published work, MLEs are tools to support and enhance the educational process of teaching and learning. The researchers argued that, despite significant growth in UK MLEs, there is a lack of clarity regarding how these environments can be appropriately evaluated and accommodate different stakeholders' needs. The researchers employed a systemic framework using SSM to understand and evaluate the above mentioned environment and the complexity of the system in an attempt to identify evaluation criteria that would assist in improving system performance. Although this study presents an example of the successful implementation of SSM in an educational environment, its main focus is on

the use of SSM, particularly Mode 1 (explicit usage of 7 stages of SSM,) as an evaluation tool, rather than an approach for conducting an inquiry within an educational context.

Finally, Barros-Castro and colleagues (2014) studied how systems thinking can aid Computer-Supported Collaborative Learning (CSCL) in learning environments that embrace technology. Systems concepts are used to develop an evaluation model to evaluate and improve CSCL situations to achieve better learning outcomes. Their findings will help future educational systems designs benefit from their experience in evaluating CSCL environments in a different context. However, since this study was not based on a specific systems methodology, it lacks any examination of SSM in general.

Although the above-mentioned studies provided useful suggestions to how the systems view can be used in education, they tended to use it as a design and evaluation tool for the purpose of improving educational situations. Moreover, the studies that employed SSM failed to identify the nature of the learning process within SSM. This gap was the motivation for conducting the current study, which explores the nature of learning process within SSM by placing greater emphasis on SSM-Mode 2 as an inquiry process within an educational system. The focus is on Mode 2 because it gives the SSM practitioner the flexibility of using SSM tools internalised during the learning process and the chance to fully engage with it, rather than following the rigid seven stages of SSM to achieve an explicit intervention of changes within the area of concern.

2.8   Summary

This chapter has reviewed the presentation of SSM in systems thinking literature to date. Several topics were reviewed, including the importance of systems thinking for management, and the various types of systems thinking. The differences between hard and soft systems thinking types were clarified based on assumptions and stakeholders' engagement in the process of improving on a problematic situation.

SSM is highly subject to manipulation and change, informing associated conceptual and theoretical underpinnings of the methodology. Based on the notion of flexibility, 7 stages were presented by Checkland in Figure 2.2; the source of Mode 1 for SSM. The first mode of SSM is a problem-solving and intervention process. As the name implies, the main idea and main aim of the real world mode is to use SSM to tackle the majority of the basic problems and challenges that arise over the course of normal human interactions and organisational activities. Both Mode 1 and 2 are learning-oriented approaches. However, in Mode 2, the learning appears to be more internally driven by the SSM practitioner than externally driven. Due to the shortage of studies on Mode 2, the next chapter will discuss the issue of learning and will investigate some ways in which we can better understand learning within SSM and, more specifically, within Mode 2.

Chapter 3: The Theoretical Assessment of Learning process within SSM-Mode 2 and Gap Identification in the Literature Review

3.1   Introduction

There is a gap in the literature on systems thinking and SSM, particularly in the area of research into the SSM-Mode 2 learning process. This chapter will examine the issue of learning within SSM-Mode 2 as understood in systems thinking literature, using learning theories from the field of education. From the literature review, and in relation to SSM, it can be observed that the terms 'reflection' and 'interaction' are frequently used with SSM-Mode 2 (Checkland and Scholes, 1990). This gives some lack of clarity and uncertainty about the type of learning approach within SSM-Mode 2. 'Reflection' can refer to reflective learning while 'interaction' can refer to social learning as interaction occurred between SSM-Mode 2 practitioners and stakeholders in problematic situations. The selected learning theories and approaches were chosen because they may have some similarities with the systems approach, namely awareness of the environment and the view that learning emerges from interactions between learners and environments.

Firstly, this chapter gives an overview of the learning process within systems thinking literature, examining the learning process within SSM, in terms of Mode 1 and Mode 2. Secondly, it discusses the term 'learning' as defined in the education literature, focusing on key learning theories and approaches. Studies taken from the systems thinking literature, discussing the learning process within SSM, will also be presented. Finally, this chapter will discuss the gaps and limitations in existing studies designed to evaluate SSM-Mode 2 in connection with systems thinking literature.

3.2   Overview of Learning Process in Systems Thinking Literature

In systems thinking, which focuses on problem solving as a sum of multiple parts, in particular in soft systems thinking, the notion of learning is cyclical rather than linear (Checkland, 1985; Amagoh, 2008). Systems thinking has made many contributions to understanding learning and the complex systems and situations involved. Von Bertalanffy (1968) developed a general system theory initially in the form of an inquiry-based approach to improve complex social systems. Churchman (1968) also contributed to the systems thinking field, proposing systems ideas to help thinkers understand complex systems as discussed in previous chapter. Until Peter Checkland (1981) introduced the soft systems methodology, however, the notion of learning was not addressed and discussed explicitly in this field, as it will be discussed in detail in the next section.

The field was further developed by Ernest Von Glasersfeld (1984), who approached systems thinking from a constructivist perspective, particularly in the area of cybernetics. Von Glasersfeld suggested that knowing cannot be distinguished from the problem that is being solved. He stated that radical constructivism "breaks with convention and develops a theory of knowledge in which knowledge does not reflect an objective ontological reality, but exclusively an ordering and organisation of a world constituted by our experience" (Glasersfeld, 1984, p. 24). Other pioneering experts in this field of study include that by Jay Forrester (1994), who focused on the advancement of systems thinking in the area of cybernetics and organisational learning. This shift to organisational learning was required, according to Forrester (1994), to allow people the opportunity to assess new ideas related to social systems and to make improvements based upon these understandings. In this approach to thinking, analysis is focused on the interaction between constituents within the system, in contrast with the more traditional approach,

where thinkers separate or break down the problem into smaller components. This method often offers very different outcomes than the more traditional style approach to thinking.

As explained in previous chapter, systems thinking is particularly useful in assisting practitioners dealing with complex problems, as it allows the 'bigger' picture to be examined. Systems thinking tends to work well in areas where an action affects (or is affected by) the environment, or in cases where the solutions to specific problems are not inherently obvious (Aronson, 1996). The notion of learning is complex and it is essential that this complexity be considered within educational research.

Checkland (1981; 1989) built on the systems thinking notion by creating a soft systems methodology. SSM was primarily developed to employ 'hard' systems thinking to 'softer' situations with a more humanistic perspective and to link the theory of systems view with structured stages in practice. The SSM has its own learning process, where there is a requirement for the practitioner to be an active participant in the human situation. By examining a complex problem from a more holistic view (as shown in Figure 2.3 in Chapter 2), SSM assists practitioners to structure complex problems in an ordered way, forcing them to look for solutions beyond the technical or the obvious and to search for the 'ideal' problem solution. The following sections consider the elements of learning from an SSM point of view.

3.2.1   Learning within SSM: Mode 1 and Mode 2

Associated with Mode 1 SSM is the notion of learning for action (Checkland and Poulter, 2006). The dimensions of the Mode 1 SSM type generally include the notion that it is an action-oriented methodology-driven intervention that may be sequential (Checkland and Scholes, 1990). Under this mode, social learning occurs within the following SSM stages: finding out about the situation, building purposeful activity models, comparing models

with real world through discussion between stakeholders and SSM practitioners and taking action to improve the situation. As Checkland and Poulter (2010) stated, SSM is "a process of inquiry which, through social learning, works its way to taking 'action to improve" (p. 192). In SSM-Mode 1, learning is something that is viewed from a researcher's or external perspective, where the SSM practitioner is not a part of the situation - "a Mode 1 use of SSM to investigate from outside a part of the flux using SSM to structure enquiry'' (Checkland and Scholes, 1990, p. 282). Based on this, the practitioner may not have full access to the situation because they may be considered an outsider by internal participants. In this situation, all stakeholders (problem solvers, actors and clients) are involved in the learning process and collaborate with each other, exchanging knowledge through discussions (Checkland, 1981; Flood, 2000). Mode 1 of SSM facilitates learning for SSM practitioners and stakeholders involved in problematic situations to achieve a purposeful activity of action to intervene and improve the problematic situation.

On the other hand, Mode 2 facilitates learning as an action for the SSM practitioner who explores complex situations to achieve greater understanding of them (Checkland and Scholes, 1990). In this mode, SSM practitioners are fully immersed in all phases of the learning process and may be internal to the problematic situation, "making sense of their experiences by mapping them on to the stages of SSM" (Mingers and Taylor, 1992, p. 324). The internal perspective may generate a more beneficial situation for other participants involved in the problematic situation, as well as providing research evidence for the practitioner. This situation-driven and iterative process of Mode 2 as an internalised model offers practitioners opportunities for reflective practice within their own area of study in their own environment. Learning, in this case, is no longer seen as

something to be achieved to understand content, but rather it is an act of performing the learning process itself to understand a complex situation (Checkland and Winter, 2006).

In order to better understand and assess the learning process in SSM Mode 2, it is important to understand the term 'learning', and to understand learning theories and approaches within the field of education. Understanding the main learning theories is very important, as this helps the researcher assess the theoretical learning assumptions that underpin the learning process within SSM-Mode 2. At the same time, examining the relevant learning approaches and practice-based learning frameworks contributes to the evaluation of the learning process within SSM-Mode 2 in terms of understanding its learning type and how it would facilitate learning in practice.

3.3 Overview of Learning Process in Education Literature

3.3.1 Definitions of Learning

In the general sense, learning is taken to mean the acquisition of "knowledge, skills, attitudes or values" via a chosen mode of study, instruction or experience or the "process of acquiring of knowledge, skills, etc.; becoming aware of something, or memorizing something'' (Brockbank and McGill, 2007, p.17). However, despite considerable intellectual debate over what defines human learning, there are marked differences in the definitions provided (De Houwer et. al., 2013) and some ambiguity regarding the concept of learning as related to the situational context wherein an individual learns (Schunk, 2012). As Hansen (2000) points out, the body of literature on education mostly comprises studies that attempt to understand how people learn, with theorists finding it difficult to describe the phenomenon conclusively. To understand the complexity of human learning, it is necessary to map the development of learning theories across decades.

3.3.2 Learning Theories

According to Brockbank and McGill (2007) and Yilmaz (2008), theories of human learning stem largely from three different schools of thought about learning in the field of education, namely, behaviourism, cognitivism and constructivism. These are the dominant learning approaches in this field.

3.3.2.1 Behaviourism

One of the most influential and prevalent theories of learning, behaviourism, suggests that learning is based on stimuli (Pavlov, 1897; Skinner, 1948 cited in McLeod 2013). Within the behaviourist perspective, learning can be understood as a relatively enduring change in the behaviour of the learner, as a consequence of what he or she experiences or practices (Schunk, 2012). Behaviourism assumes that learners are passive and only respond to environmental stimuli (Kahiigi Kigozi et al., 2008). The learner starts out with a clean slate and their behaviour is eventually shaped by positive reinforcement or also negative reinforcement. Both positive reinforcement and negative reinforcement increase the probability that the antecedent behaviour will occur again. The focus is on observable behaviour, with behaviourists suggesting that if a change was not observed then it could be assumed that learning had not taken place, a perspective that largely ignored mental processes that were beyond observation. The reliance of the behaviourists on animal experiments may have disposed them to favour observable behaviour over cognition (Jordan, Carlile and Stack, 2008). According to Schunk (2012), behaviourist theories related learning to changes and events in the environment, excluding the necessity of explaining the acquisition, maintenance and generalisation of behaviour.

3.3.2.2 Cognitivism

According to Shuell (1986), cognitive theorists see learning as "an active, constructive, and goal-oriented process that is dependent upon the mental activities of the learner" (p.415), which contrasts with the behaviourist notion of the learner as a passive subject driven by environmental stimuli. Shuell (1986) sums up the cognitive perspective as one that focuses on the mental processes of the learner, allowing the learner to be actively involved in the learning process and play an active role in the construction of their own knowledge. According to Hartley (1998), learning originates from conclusions, expectations and creation of connections. Consequently, rather than acquiring habits, learners obtain plans and strategies to which prior knowledge is essential. This is what is referred to as Piaget assimilation (Piaget, 1968), which assumes that the learner is in charge of organizing and processing the new information and relating it to what they already know. Vygotsky (1986) and Piaget (1968) observed that thought and language play a significant role in cognition; this is how a learner assimilates and apprehends things and hence prepares themselves to face events in the future.

Cognitive psychology deals with the studies of mental processes, including people's their thinking, perceiving, remembering and learning behaviour, to understand how information acquiring and processing works (Ertmer and Newbie, 1993). While cognitivism represents a significant progression from behaviourism in terms of conceptions of learning, both perspectives suggest knowledge is external to and exists independently of the learner. As Siemens (2005) notes, behaviourism and cognitivism conceptualise knowledge as existing outside the learner, with the learning process involving the internalisation of knowledge.

3.3.2.3 Constructivism

According to Schunk (2012), the essence of constructivism is not that the precepts of learning exist and require discovery and testing, but rather learning is created by its own learners.

Within the constructivist view, learning is not considered to be a case of stimulus-response; rather it is considered to require self-regulation and the creation of conceptual structures through the medium of reflection and thinking (Von Glasersfeld, 1995). The focal points of constructivism are the development of the learner's intellectual and in-depth understanding (Fosnot and Perry, 2005). According to Schunk (2012), the notion of situated cognition is important to constructivism. This suggests that cognitive processes are embedded within the physical as well as the social context and the concept of situated cognition illuminates the interaction between individuals and situations.

This represents a key difference between cognitivism and constructivist notions of learning. In essence, while the former propose that the mind is a "reference tool to the real world" (Jonassen, 1991, p.7), constructivism holds that the "real world is a product of the mind that constructs that world" (Jonassen, 1991, p.10). Additionally, although cognitivists and constructivists shared a view of learners being actively engaged in the learning process, within constructivism the learner was also seen as involved in meaning making through interpretation of the available information (Duffy and Jonassen, 1992).

In the context of education, the constructivist approach has been broadly categorised as either cognitive constructivism or social constructivism (Powell and Kalina, 2009). Cognitive constructionism refers to the work of Piaget (1953), who discussed how the individual learning process depends on active construction of knowledge by the learner and the adaptive function of knowledge acquisition. According to Powell and Kalina

(2009), "Piaget's cognitive constructivism theory incorporates the importance of understanding what each individual needs to get knowledge and learn at his or her own pace'' (p.243).

On the other hand, the social constructivism perspective proposed that social interaction and the cultural context play a key role in the knowledge construction of individuals (Fosnot and Perry, 2005; Adams, 2006). This perspective is rooted in the ideas of Vygotsky (1986), who believed (in contrast to fellow cognitivist Piaget) that learning could not be separated from its social context and that learning served as a process of collaboration and interaction between learners (Powell and Kalina, 2009).

Viewed from the perspective of constructivism, the learning processes can be defined as making meaning out of knowledge based on previous experience and interactions with the world (Koohang et al., 2009). Additionally, in this approach, the learner also plays a more active role than processer of information, becoming the constructor of knowledge and responsible for controlling their own learning process. The constructivist learning approach places greater emphasis on cultural and historical aspects with regard to individual experience (Brockbank and McGill, 2007).

Cunliffe (2008) claimed that approaches to social constructivism in management learning studies are different and rely on the nature of social reality and how it is perceived by individuals. Social reality can be seen as being subjective or objective. Subjective social reality suggests that social reality is constructed via individual interaction in the social environment (Bruner, 1986; Watzlawick, 1984); while objective social reality emphasises objects in the social environment such as social facts and institutional practices (Jun, 2006).

Another perspective of constructivism is radical constructivism (RC), which was developed by Ernst Von Glasersfeld (1984) and which has contributed to research in different fields including education, cybernetics and science (Von Glasersfeld, 1995;1996; 2002; Riegler, 2001). In contrast to the traditional constructivism approach, RC emphasizes the individual's mind and knowledge constructing process through previous experiences (Riegler, 2001). It assumes that the cognitive system (the mind) is closed (Von Glasersfeld, 2002) and independent of reality. It focuses on how individuals construct knowledge and what type of knowledge is acquired. Von Glasersfeld (1995) claimed that knowledge can be constructed by means of reflection and abstraction derived from the individual's experience.

The following Table summarizes the key points from the education learning theories outlined above, highlighting its key theorists, assumptions and emphases.

Theories of learning	Behaviourism	Cognitivism	Constructivism
Key theorists	Pavlov (1897) and Skinner (1948)	Piaget (1968) and Vygotsky (1978)	Piaget (1953), Vygotsky (1986), Bruner (1986)
Assumptions and characteristics	- Behaviourism suggested learning is based on stimuli (Pavlov, 1897; Skinner, 1948). - learner as a passive subject driven by environmental stimuli	- Cognitive psychology deals with the studies of mental processes ranging from thinking, perceiving, remembering and learning behaviour of people to understand how information acquiring and processing works (Ertmer and Newbie, 1993). - The learner is in charge of organizing and processing new information and relating it to what they already know (Hartley, 1998). - The learner is actively involved in the learning process and plays an active role in the construction of their own knowledge.	- Learning processes can be defined as making meaning out of knowledge based on previous experience and interactions with the world (Koohang et al., 2009). - The constructivist learning approach places greater emphasis on cultural and historical aspects with regard to individual experience (Brockbank and McGill, 2007). - Different strands of the constructivist approach were developed, namely: cognitive constructionism (refers to the work of Piaget, 1953); social constructivism (Vygotsky, 1962), and Radical Constructivism (Von Glasersfeld, 1995). - The learner also plays a more active role in this type of approach in terms of constructing their knowledge through social interaction with other individuals and within different environmental contexts.
Emphasis	Cognitive (Individual Constructivist)	Cognitive (Individual Constructivist)	Cognitive (Individual Constructivist) and Social (Social Interaction)

Table 3.1 Key learning theories within the education field.

3.3.3   Learning Approaches

The learning approach refers to a learners' behaviour within the learning process in terms of how they understand and adopt learning tasks to achieve leaning outcomes (Marton and Saljo, 1976; Biggs, 1994). Educational literature suggests that learners use a number of learning approaches. In their useful and insightful study conducted in a realistic setting, Marton and Saljo (1976) found considerable variation in participants' explanations of how they tackled a reading task. Two clearly distinguishable approaches were identified: the 'deep' approach to learning and the 'surface' approach to learning. In the first approach, the learners focused on comprehending the text given to them and in the second approach, the learners were primarily concerned with memorizing the text in order to be able to answer assessment questions. This led to the emergence of the notions of deep learning and surface learning.

Biggs (1987) and Chin and Brown (2000) expanded on how learners use an in depth learning approach by understanding issues and interacting critically with texts, connecting ideas to pre-existing knowledge and experience and analysing the rationale behind arguments, linking the evidence available to the conclusions drawn. On the other hand, the surface approach is assessment-led, relies upon memorization and the uncritical acceptance of ideas and information and is oblivious to underlying patterns or principles.

In current study, the researcher aims to assess SSM-Mode 2 as a learning approach to explore the problematic situation in ODE in HEIs from the cultural perspective of Saudi Arabia. As stated in the introduction to this chapter, in the literature on SSM, the terms 'reflection' and 'interaction' are commonly used when discussing SSM-Mode 2 (Checkland and Scholes, 1990). This leads to a certain degree of uncertainty about the type of learning approach within SSM-Mode 2. 'Reflection' can refer to reflective learning, while 'interaction' can refer to social learning, as interaction occurs between the

SSM-Mode 2 practitioner and stakeholders in a problematic situation. For this reason, both learning approaches (reflective and social learning) will be discussed. In addition, the most important and applicable practice-based learning approaches that facilitate both learning processes - practice-based learning approaches in general, and from a constructivism view in particular - will be discussed in the following sections.

3.3.3.1 Reflective Learning

Reflective learning is a controversial term, given different meanings by learning scholars. It originated from the work of John Dewey (Rodgers, 2002). Dewey defined reflection as an active, recurrent and careful evaluation of any belief or assumed knowledge in consideration of the supportive evidence to it and its implications (Dewey, 1910).

This definition gave primacy to the recurrent examination of pre-existing beliefs or new information and the evidence supporting both, for arriving at justifiable conclusions. In other word, the notions of exploration and experience and their centrality are considered very important to the creation of new knowledge or understandings within the learning process. This was evident in later descriptions of reflection, such as the one offered by Boud et al. (1985, p.19) who defined it as "A generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciation."

With the idea of reflection having become central to the notion of reflective learning, Brockbank and McGill (2007) described reflective learning as a voluntary social procedure which acknowledges context and experience while the learner is an active person, present and interacting with others, seeking challenge, whilst the outcome encompasses transformation and improvement for both the person and their prevailing environment. This description highlighted key elements of reflective learning, such as its

embeddedness within a social process, the primacy of context-led and experiential learning and the idea of learners actively constructing knowledge in interaction with others leading to change and transformation of previous states. In this regard, reflection is a process that entails exploration, examination and comprehension of what is going on in individuals' minds, what individuals feel and learn. An effective reflection process, therefore, requires an interaction of different forms of activities for it to be successful (Murugaiah and Thang, 2010). For one to explore, examine and comprehend whatever is taking place, there is a need for interaction of different aspects which involve a direct observation of whatever is taking place, being in active participation of whatever is taking place and engagement.

Finlay (2008) has categorised reflective learning into two categories - reflective-on-practice and reflective-in-practice. In reflective-on-practice, reflection is done after the experience is completed - the reflective practitioner reviews, analyses and understands the experience, then evaluates it. Reflective-in-practice supports reflective practitioners to reflect and evaluate tasks at the time of practicing the experience, so the reflection is during the experience.

The purpose of reflective learning is to encourage learners to engage in deep reflection of experiences or practices in order to enhance the thinking process. In this way, the learner's schema or intellectual structure is used or changed (Xie et al., 2007). This deep learning contrasts with surface learning, which is essentially a process of memorising facts. Armit et al. (2002) argued that reflective learning is, in essence, related to deep learning, with the reflective process itself serving as a facilitator for the occurrence of the latter. This is because the reflective learning approach entails a combination of knowledge that is produced as a result of the linkage between the learning experience of the learner and reflective activities that include thinking about important events in the learning

experience, expressing positive and negative feelings about the learning experience and then re-evaluating of the learning process (Boud et. al., 1985).

Moon (1999) developed a simplified model, which reflects how learning experience and reflection work in conjunction. The model represents the stages of learning, taking learners from a non-reflective state (i.e. taking notice of new information) and moving them along the reflective continuum, through making sense, making meaning, working with meaning and engaging in transformative learning. Reflective learning requires that learners display reflectivity and develop an awareness of their learning process. In the last decade, reflective learning has become embedded in the higher education curriculum as it offers learners the opportunity to prepare for their working lives by developing the capacity to learn about the process of learning (Rogers, 2001; Bourner, 2003).

Kolb's experiential learning theory is the dominant approach used in many HEIs and organisations to support reflective learning (Finlay,2008) in different areas; systems thinking (Hindle, 2011), management (Vince, 1998; Kolb and Kolb, 2009), education (Abdulwahed and Nagy, 2009; Murugaiah and Thang, 2010) healthcare management (Sharlanova, 2004). The model gets preferred due to its concern with the internal cognitive processes of the learners (Davies, 2012) and its practical focus, which supports learners to practice what they are learning and observing what they have done and experienced (Jones and Jones, 2013).

- **Kolb Experiential Learning Approach**

Kolb's concept of experiential learning is based on Lewin, Dewey and Piaget's learning model and provides a route to learning and development through experience (Kolb, 1984). It links theory with practice. Kolb's Experimental Learning Theory framework provides a clear explanation about the learning experience in action in terms of how the learning

process occurs and how learners construct knowledge through experience. According to Lewis and Williams (1994), the Kolb Experiential Learning framework is valuable because it conceptualises learning as an ongoing process that revolves on the transformation of experience via reflection, abstraction and action. This allows learners to attain "new levels of cognitive, perceptual, behavioural, and symbolic complexity" (Lewis and Williams, 1994, p.9), which are essential to meet the demands of the contemporary workplace. Kolb and Kolb (2005) founded six propositions for Kolb experiential learning framework, which will be outlined below.

The first proposition posits that learning is a process. This implies there is no end goal or outcome, but rather that learners should be engaged in the process and that learning should be a continuing reconstruction of experience. Secondly, experiential learning theory suggests that all learning is actually relearning. Thus, learners are asked to reflect upon their own ideas and beliefs about a topic in order to test them and integrate them with ideas that are newer and more refined. The third proposition suggests that conflicts, disagreement, and differences are essential to the learning process. Learners should therefore engage in experiential learning though both reflection and action. The fourth proposition states that learning is not only an adaptive process, but also one that requires an integrated functioning of feeling, behaving and perceiving. This proposition suggests that learners should use more than simple cognition throughout the learning process. The fifth proposition of the experiential learning theory acknowledges that the learner and the environment are inherently linked. As such, learners must accommodate existing concepts and make room for modifications to support new experiences. The final proposition suggests that the experiential learning theory is essentially constructivist and requires social knowledge that is created and recreated by the learner.

Kolb's learning process has been portrayed as a series of actions that assimilate feelings, perception, thought and function - a four stage learning model (Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualisation (AC) and Active Experimentation (AE), as shown in Figure 3.1.According to Clark and White (2010), the interaction between these four phases of learning is the fundamental basis for the context of learning.
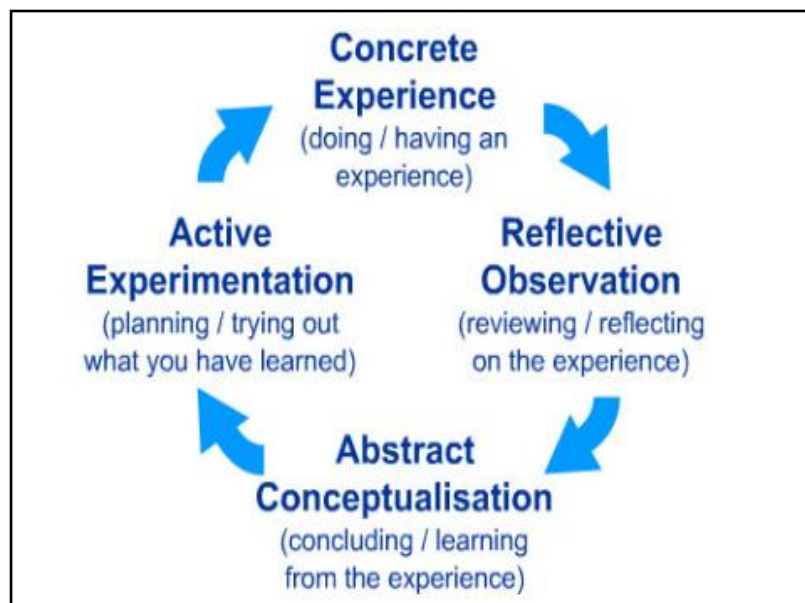
Figure 3.1 The four cycles of Kolb's experiential learning approach.
(Source: McLeod, 2013).

The first stage in the Kolb learning cycle is a concrete experience. This stage involves providing individual, organisation or a team with a task. Therefore, the key to learning is active involvement. According to Kolb's approach, an individual cannot learn through simply reading or watching about something, but need to practice what they learn; hence it is practice-based (Abdulwahed and Nagy, 2009). The second stage is reflection observation. It means taking time and stopping doing the assigned task and reviewing what has been experienced and done. The next stage then is abstract conceptualization; a process of creating a sense of what has happened as well as interpreting the relationships

between the events. Learners in this stage make comparisons with what they have done and reflect on what they already know, using other sources to support their ideas. This means that the Kolb learning framework puts more emphasis on the individual's knowledge construction process, through reflection and using previous experiences (Murugaiah and Thang, 2010). The final stage in Kolb's approach is active experimentation. In this stage, the learners consider how they will put into practice what they have learned. Planning is significant as it helps learners to develop a new understanding and to predict what will happen next (Kolb, 1984).

From a constructivism learning perspective, learners following the Kolb learning approach construct new knowledge from experiences, with more focus on reflection activity (Mughal and Zafar, 2011). Experience can be any real world situation, such as the workplace, or case study experiences, which could include interaction between the learner and the environment (Helyer, 2015). Experiential learning within this framework is shown to be an iterative process of knowledge construction (Beard and Wilson, 2006), which involves the learner in experiencing, reflecting, thinking, and acting while adapting to the learning situation and focus of learning. Experiences serve as the basis for observations and reflections, from which abstractions are then drawn, which in turn provide the testable and guiding implications for action (Abdulwahed and Nagy, 2009).

Although Kolb and Kolb (2005) stated that the Kolb experiential learning approach proposes that the learners and their environment are linked during the learning process, the model concentrates on individuals' knowledge construction process and lacks an explicit clarification concerning how this interaction between learner and environment is accomplished (Mughal and Zafar, 2011). Within Kolb's approach, learners are required to take responsibility for their learning and to become active participants, which can be uncomfortable for those who enjoy an approach to learning that is passive.

Kolb's experiential learning theory embodies the learning process, indicating that learning is a process. Furthermore, it assumes that learners will fall within certain types on a continuum, and engages learning styles to interpret the way learners process and validate information. There are concerns that the specific learning style employed by Kolb's process lack reliability and validity to all circumstances (Manolis et al., 2013).

3.3.3.2   Social Learning

Bandura initiated social learning theory, believing that all observed occurrences could not be explained by behaviourism (Bandura, 1971). Bandura assumes that learning occurs in a social context, in which people observe other people's behaviour and its consequences and modify their behaviour accordingly. This process is called observational learning (Bandura, 1986). In addition, Bandura assumed that the environment and behaviour affected one another, referring to it as reciprocal determination (Mischel, 1973). The theory combines cognitive and behaviourist learning views (Bandura, 1986). The individual can learn to improve personal behaviour through using mental abilities in processing observation of people's actions as well as the impacts that result and responding to environmental stimuli. Vygotsky (1986) proposed that individuals could learn through interaction with other people within a social context where environmental factors can affect the learning process. Social interaction can be through discussion and collaboration between individuals to achieve the learning outcomes.

The previous assumptions by Bandura and Vygotsky of social learning support the process of individual's knowledge construction. Some social learning theorists (Senge, 1990, Lave and Wenger, 1991) conceptualized social learning for a level of a group of people who interact, collaborate and share knowledge and ideas to achieve an understanding that bring advantage to broader society, community or organisation. This view has contributed to the management area, in particular, improving the organisation-

learning process. Substantive discussion and knowledge sharing between learners in a social situation can help them to gain deep learning and understanding according to Cundill (2010), who stated that high level of interaction among students in any situation is imperative to facilitate social learning.

Social learning relies on the collective and shared aim among people who participate in the learning process (Wals, 2007). Developing social and private links helps people take part in the learning process because society has both individual and collective goals as far as learning is concerned. In this regard, social learning can be defined as "a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks'' (Reed et. al., 2010). This definition characterizes social learning as a society-level learning which results from collaboration and interaction among its members to achieve learning outcomes that benefit the whole community.

- **Community of Practice (CoP)**

CoP is one of the dominant practice-based social learning approaches that provides a clear explanation about the social learning experience in action in different areas - systems thinking (Cundill et., al., 2012) organisational learning (Brown and Duguid, 1991), education (O'Donnell and Tobell, 2007; Gannon-Leary and Fontainha, 2007), healthcare systems (Moule, 2006) and management (Bate and Robert, 2002).

CoP is a considered a practice-based approach that explains how the learning process occurs, the role of the learners and the relationship between the context and the learning process. CoPs can be broadly defined as groups of people likely to share similar professions and/or interests (Wenger, 1998). First identified by Jean Lave and Etienne

Wenger in the beginning of 90s, CoPs are largely based on the process of sharing experiences, to enable all group members to benefit (Cundill et. al., 2012).

From the constructivism perspective, CoP is founded on social dimensions, supporting cultural diversity and encouraging the knowledge acquisition of constructivist learners (Brown and Duguid, 1991) regardless of their gender, views, beliefs or cultural background. Since a key feature of a CoP is that it promotes communication, interaction and participation between members in order to share ideas and construct knowledge, CoPs can include actual physical settings or, as described in more recent research, online or virtual communities (Gray, 2004).

A CoP is achieved through several components, the first of these being leadership. A CoP requires internal leadership, or some sort of community coordinator (Wenger, 2000). This community coordinator does not necessarily need to be a specific individual. In larger communities, there would be multiple forms of leadership and the coordinators might shift, grow, or change over time (Wenger, 2000). In addition to leadership, connectivity is an essential component that allows a CoP to function. Connectivity requires that relationships be formed in order for people to communicate and share experiences (Wenger, 1998). Connectivity also assumes that people will use different forms of media to communicate and circulate experiences to a wider audience, to maintain connectivity.

Another component essential to a CoP is the notion of membership. It is essential for a CoP to have a critical mass. Critical mass implies there are sufficient members to maintain interest, but not so many as to over-extend the community (Wenger, 2000). Participation in the activities and practices of the community is an important factor in CoP, leading the new learner to move from a position at the top of the hierarchy to the middle position, referred to as 'legitimate peripheral participation' (Wenger, 1998). This process of 'legitimate peripheral participation' explains how situated learning (which theoretically

assumes the learning process is related to the social context of the situation in which learning is happening) would occur (Lave and Wenger, 1991).

From this angle of 'legitimate peripheral participation', learning is considered a process. In relation to learning, O'Donnell and Tobell (2007) observe that learning is a process of interaction embedded in wider social and historical practices. As such, members of the community are in a position to interact to generate common and valuable practices to support group members. O'Donnell and Tobell (2007) suggest that, once included in a CoP, all participants attain value; learners enter as beginners and gain experience over time, becoming full members of the community. This suggests that learning is a process, rather than a single specific event, requiring people, time, places and activities to occur in order for the community to function and for learning to occur. O'Donnell and Tobell (2007) emphasise that a major point ensuring the value of the central notion of a CoP is that entry into the community is neither guaranteed, nor inevitable.

Participation and engagement in a community's practices gives members a sense of belonging to the community (Wenger, 1998). Each CoP has boundaries, which determine its links with the world, not isolating the community from the environment, but determining whether the community comprises members or non-members.

A final component of a CoP is the learning projects it engages in (O'Donnell and Tobell, 2007). More specifically, in the field of education, there is a need to deepen the mutual commitment of the community by taking responsibility for achieving shared goals (Gannon-Leary and Fontainha, 2007). This is exemplified in the study by O'Donnell and Tobell (2007), which witnesses adult learners transitioning into higher education. The learning projects referenced in their study allow learners to explore the knowledge domain by creating a relationship with the university supporting participation in tasks such as literature searches or conducting research.

While CoP offers many strengths, such as shared discourse, inclusion, the rapid flow of information, and the quick setup of a problem to be discussed (Wenger, 2000), there are also several criticisms of CoPs. Power is viewed as a particularly significant issue for a CoP. Power is broadly defined by Roberts (2006, p. 626) as "the ability or capacity to achieve something, whether by influence, force, or control''; meaning that the expert members of a community have more power than peripheral and late entrants. This can be problematic, as leaders may have the opportunity to manipulate learners in ways that reinterpret the community in a manner not supported by its original design. Roberts (2006) goes on to observe that trust can also be a weakness. Without trust, participants may be unwilling to share information, although too much trust can lead to similar problems, as is the case with excessive power. Finally, Roberts (2006) points to the size and spatial reach as significant issues for growing communities. In the case of large communities that span boundaries, it is almost impossible for the community to function as a whole. As a result, sub-groups break off, as they struggle to align with the overall expectations of the original community.

3.4 Existing Studies in Systems Thinking Literature which discuss Learning Process within SSM

Research relating to SSM within the systems thinking literature is limited with respect to the discussion surrounding learning within SSM-Mode 2. This section presents several studies that make distinctions concerning learning processes within SSM in general. These studies used SSM with a greater focus on its learning process in different areas, including organisational learning (Barnden and Darke, 2000), construction (Maqsood et al., 2001), project management (Checkland and Winter, 2006), teaching modelling (Hindle, 2011) and adaptive management (Cundill et. al, 2012).

Senior managers in different industries often use SSM to assess how employees and teams address complex situations, or how different people respond to complex problems. Barnden and Darke (2000) stated that SSM, in particular Mode 1 within the developed SSM framework (see Figure 2.3 in Chapter 2) that includes both logical and cultural stream analyses, can be an effective approach to facilitate organisational learning. They defined learning processes within SSM as achieving a learning product via the process of acquiring, processing and storing it. Rich picture analysis and three types of analyses (intervention, social and political) of the problematic situation represent the acquisition stage of the learning process, while root definitions, carrying out the CATOWE analysis, developing conceptual models for purposeful activities and the five Es (efficacy, efficiency, effectiveness, ethicality and elegance) establish the criteria for comparing conceptual models with real situations, representing the processing stage of the learning process within SSM.

Finally, desirable and feasible actions and changes taken and implemented to improve the problematic situation represent the storing and production of the learning product as part of the learning process. Barnden and Darke (2000) evaluated SSM as a learning approach within Mode 1 by applying the seven stages of SSM alongside the cultural dimension. Although their study is an example of the successful use of SSM-Mode 1 as a learning approach that supports organisational learning within a complex situation, it fails to discuss the learning process itself and the type of learning process involved.

In order to support knowledge management in the field of construction, Maqsood et al. (2001) developed a learning framework based on both logical and cultural streams within SSM. They explained how stakeholders would learn by using SSM tools. Rich picture creation supports their understanding of the organisation's structure and culture, and helps them to identify stakeholders. Root definitions enable them to identify the main

transformational processes and conceptual models allowing the stakeholders to learn about and identify different themes in knowledge practices. This was implemented in five case studies in the construction industry, in which managers and/or contractors could benefit from undertaking a SSM to ensure that further learning on beliefs, perceptions, structures and processes took place. Although these case studies explicitly identified the key learning outcomes that could be achieved from each SSM tools, this study also refers to Mode 1, which facilitates learning for all stakeholders involved in the methodology, including the SSM practitioner.

While developing SSM, Checkland and Winter (2006) developed two uses for SSM, one relating to the perceived contents of the problematic situation (termed SSMc) and the other to the intellectual processes of the intervention itself (termed SSMp). SSM includes four key learning principles relating to complex situations: specifically determining a problematic situation, developing conceptual models for purposeful activities, comparing developed models with real situations and taking and implementing actions as shown in Figure 3.2 (Checkland and Winter, 2006).These principles are not sequential, and once initiated, the study will prompt action in all four areas simultaneously.
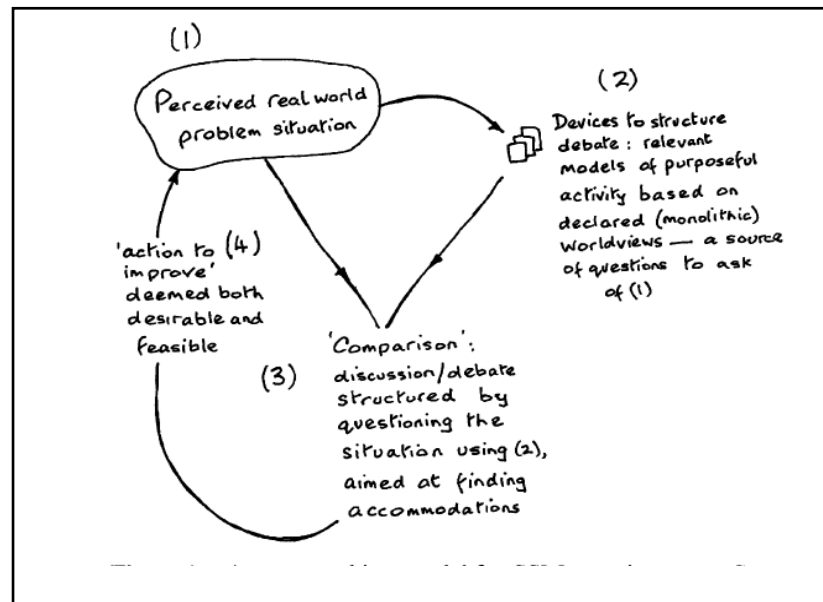
Figure 3.2 Learning principles within SSM by Checkland and Winter.
(Checkland and Winter, 2006, p.1436).

Although Checkland and Winter (2006) did not determine whether the learning principles could be used in both SSM-Mode 1 and SSM-Mode 2, it is evident that the learning principles could support and organise learning processes for SSM-Mode 2 practitioners when addressing complex situations. In addition, they suggested four methods that would help the SSM practitioner to learn about any problematical situation from a cultural perspective when employing SSM tools, with rich picture analysis of intervention, social and political factors in the problematical situation.

Hindle (2011) argued that the learning processes within SSM are considered to be experiential learning cycles. He described how SSM, as a multi-purpose approach, facilitates learning in three steps within a teaching modelling context: firstly, by exploring a problematic situation and structuring it into a rich picture; secondly, by developing conceptual models based on various stakeholders' views to help assure future creative improvements; and, thirdly, by taking action following debate and discussion among stakeholders to improve the situation. This learning process is better suited to SSM-Mode

1 and its logical stream of analysis about problematic situations, with less attention being given to the cultural aspects of the situation.

Cundill and colleagues (2012) argue that social learning theories complement the soft system methodology in adaptive management as they concentrate on the way of individuals interact and learn about their complex situation and the outcome of the learning process by changing norms and values. They suggest CoP as a social learning theory that supports learning for adaptive management. Ongoing interaction defines a CoP and determines how the meanings of what members learn are negotiated and how joint enterprise (e.g. identifying goals and objectives) is defined and redefined over time. Nevertheless, this study claims to integrate SSM with CoP to achieve participative decision making in a problematic situation from a theoretical perspective, with no evidence of empirical work to support their claim. Moreover, they make a general assessment of the learning process within SSM, without reference to any of its modes.

In sum, previous studies in systems thinking literature discussed the learning element within SSM with more focus on Mode 1 without explicitly paying attention to the learning process within SSM- Mode 2. This limitation within systems thinking literature will be discussed in details in the next section.

3.5 Gap and Limitations in the conceptual model of SSM-Mode 2 in Systems Thinking Literature

It been previously argued that the key element within SSM-Mode 2 is practitioners' learning processes. This learning process facilitates greater awareness and understanding on the part of the SSM practitioner concerning the complex situation (Checkland and Scholes, 1990). Previous literature in the systems thinking field has directed less attention to this aspect of learning process within SSM-Mode 2 as discussed in previous section,

while more studies have focused on exploring and discussing using SSM-Mode 1 for design-oriented purposes.

As discussed earlier, SSM-Mode 2 is a 'learning as action' approach that would include different learning activities to support its practitioner in achieving the learning outcomes of their learning experience. However, previous literature of SSM has not explicitly identify learning approach and theory underpins learning process (Mingers, 2000) of SSM-Mode 2 as well as these activities of how Mode 2 as a learning approach would be employed in practice. In the literature review it was observed that the terms 'reflection' and 'interaction' are frequently used in reference to SSM-Mode 2 (Checkland and Scholes, 1990). One of the distinctive features of SSM is the application of action research, in which the researcher participates in the development process (Tsoi, 2004) through interaction with people and reflect on the situation. In case of Mode 2, the researcher (SSM practitioner) practises the learning process as an action. This action learning approach would facilitate reflective learning (Checkland and Holwell, 1998a) when Mode 2 is used to explore real problematic situations.

In Checkland's SSM framework, it is essential to understand the current situation before being able to construct knowledge and then develop a future improvements (Checkland and Poulter, 2006). As explained in the previous section, the learning process within SSM-Mode 1 could be useful for clarifying the nature of the learning process in SSM-Mode 2. However, SSM-Mode 2 can be complemented by Mode 1 when the SSM practitioner uses Mode 2 as action learning approach to putting an explicit and purposeful action in practice. So, SSM-Mode 2 practitioners are advised to use the SSM framework to facilitate and improve their learning process through reflection. According to Checkland and Scholes (1990, p. 284), "the reflective practitioner will always make sure that any serious use of SSM contains elements of both modes.''

In addition, Checkland and Poulter (2010) claimed that SSM facilitates social learning, due to the social interaction that takes place between the SSM practitioner and stakeholders involved in the problematic situation, all of whom have the shared aim of using SSM for intervening in their situation and improving it. However, learning within SSM-Mode 2 can be either social or reflective learning; this will be evaluated and examined after the researcher has completed the fieldwork.

The literature review on this subject claims that SSM can be enhanced by adopting constructivism learning theory (Olsson and Sjostedt, 2004; Durant-Law, 2005). Soft systems thinking assumes systems are socially constructed by human thinking and interaction between individuals and the real world, and systems can be improved by using systemic approach to understand it and improve it (Checkland and Scholes, 1990; Checkland and Poulter, 2010) that is similar to constructivism view (Vygotsky, 1986; Cunliffe, 2008; Koohang et al 2009). Constructivism learning perspective would allow SSM-Mode 2 practitioner to achieve in-depth understanding about a complex situation through understanding the cultural context and interpretation of stakeholders' perceptions in ODE situation.

Although existing literature on SSM offers some evidence of its utility for exploring learning elements, as explained earlier in this chapter, the majority of these studies concerned SSM-Mode 1 and how it facilitates learning for action for stakeholders involved in problematic situations and SSM practitioners, through the logical application of the seven stages of SSM, to achieve a purposeful activity of action and intervene in the situation. In addition, previous literature lacks clear guidance and explanations of the successful use of SSM-Mode 2 as an inquiry process for those SSM practitioners practicing the methodology and seeking opportunities for learning and understanding areas of interest to improve on them. This leads to flexibility when practicing SSM-Mode

2 as a learning tool within complex situations and can be interpreted in various ways by academics and practitioners. As mentioned earlier in Chapter 2. Section 2.6, which discussed the general limitations of SSM, SSM-Mode 2 inherits the limitations already discussed for SSM, in particular that it may make the analysis of power issues more difficult, given that there is no explicit process to follow. In this regard it is up to the researcher to use all her skills to try to investigate power issues. So, it is important for the researcher to document this type of reflection-action set of thoughts and activities. If so, it is recommended that future researchers keep a diary of everything in their field work, including problems identified, strategies used to overcome them and reflections of the researcher on these matters. The limitations affecting SSM-Mode 2 raises some questions:

- From a learning perspective, how can learning theories and approaches enhance the development of SSM-Mode 2 as a successful learning approach?
- What are the key learning characteristics and activities that would support the success of learning process within SSM-Mode 2?

This research will answer the above questions to evaluate SSM-Mode 2 from a learning perspective and to contribute to SSM theoretical and practically development. Furthermore, it will help future SSM practitioners to practice of SSM-Mode 2 successfully by supporting their decisions and enabling them to take appropriate action to determine and realise improvements for complex social systems.

3.6   List of Criteria for a Research Environment using SSM-Mode 2

Within the field of systems thinking and the SSM framework, the Mode 2 application requires criteria that are practice-based, trans-disciplinary, and socially-distributed in order for knowledge creation to occur. A research environment where the SSM Mode 2

framework could be tested, applied, and advanced would require, firstly a 'real world' problem situation that includes messy and ill-defined issues that can be difficult to define and measure by the traditional approach of problem analysis or hard systems methodologies (Mingers and Taylor, 1992).

Secondly, as Mode 2 aims to increase its practitioners' understanding about these problematic situations which could be of interest to a Mode 2 practitioner (Checkland and Scholes, 1990). This complex situation can occur in any field of study, such as education, healthcare, management and information systems.

In addition, according to Flood (2000), SSM in general could be best applied through action research, which would be possible to allow Mode 2 practitioner to engage and interact with stakeholders and then learn about the problematic situation and how it could be improved in the future.

In this regard, ODE seems a suitable area of interest to the researcher to use SSM-Mode 2 as a learning approach. From a soft systems perspective, ODE is perceived as a problematic situation, comprising interrelated and ill-defined issues such as social and political issues, the interconnectedness of which can produce additional issues, which are perceived differently by multiple stakeholders involved in ODE practices. This leads to a high level of complexity and lack of understanding of how the system works for decision makers who administer and design ODE systems. Also, previous ODE models fail to provide a full appreciation of political and social analyses, so here SSM would help the researcher to understand these aspects in practice. This problematic situation of ODE will be explained in more detail in the next chapter.

To sum up the above discussion, a possible list of criteria for research using SSM-Mode 2 could be:

- A complex set of issues requiring practice-based transdisciplinary and socially-distributed research for knowledge construction.

- An interesting and challenging research environment for the SSM-Mode 2 practitioner.

- Research that enables researchers to be inventive and flexible to circumstances.

3.7 Summary

This chapter has provided an evaluation of the learning process in the systems thinking literature, by focusing on its crucial element, that is, the learning process for SSM-Mode 2 practitioners. To improve understanding of the nature of learning process, this chapter has given a general overview of the learning process in the education field, including an outline of the definitions, learning theories and approaches. Three key learning theories were identified: behaviourism, cognitivism and constructivism (as shown in Table 3.1).

SSM-Mode 2 is claimed to be a constructivist methodology that supports its practitioner to construct knowledge through interaction with stakeholders and environmental factors in the problematic situation. However, this requires empirical examination. In the SSM literature, the terms 'reflection' and 'interaction' are commonly used when referring to SSM-Mode 2 (Checkland and Scholes, 1990). This leads to lack of clarity on the type of learning approach in SSM-Mode 2. In light of this uncertainty, this chapter examined reflective and social learning approaches. The suitable learning approach can be driven by the situation context that would shape the learning process of the SSM-Mode 2 practitioner. The analysis of different learning theories and approaches in this chapter will help the researcher to evaluate SSM-Mode 2's learning process, once the fieldwork regarding the practical implementation of SSM-Mode 2 in a real world situation has been completed. This chapter also set out some research questions that will guide this research and contribute to the development of SSM-Mode 2.Finally, this chapter outlined some

list of criteria for any research environment where SSM-Mode 2 can be utilised like ODE context.

Chapter 4: Online Distance Education- Literature Review

4.1   Introduction

This chapter will start with an exploration of the 'context' of this research, namely Online Distance Education (ODE). This will be achieved by reviewing the literature on ODE, with particular focus on Saudi Arabia. It will highlight that the systems thinking view has been applied in the existing literature on ODE (Moore and Kearsley, 2012), but this view has some limitations that require more attention and further research. It identifies the origin, different definitions and key characteristics of ODE, and then highlights the impact of ICT on the education process in ODE, and the variety of technological tools in use. The review will not cover online distance business training, which is outside the scope of this study.

The chapter also examines the factors that determine success in ODE, the issues that impede ODE development and the limitations of the reviewed studies with regard to their exploration of issues associated with ODE. This will be followed by a formulation of the framework of ideas (F) via a refined systems view for ODE and a detailed description of the area of concern (A), which will be presented by reviewing the Saudi Arabian ODE context. It is important to note that the review of the learning process in this chapter refers to that of ODE students, whereas the previous chapter discussed the learning process of SSM-Mode 2 practitioners.

4.2 Origin of ODE

According to Gatewood (2014), a clear definition of the nature of Distance Education (DE) is not only important to guide meaningful debate and research into pedagogy but also beneficial to stakeholders, including teachers and students. However, consensus regarding definition and terminology in the field has yet to be achieved (Lowenthal and Wilson, 2010). This lack of consensus has been attributed to the rapid transformation of DE, from education by correspondence to technology-mediated learning (Gatewood, 2014) and to the swift development of learning technologies and related fields (Moore et. al., 2011). Generally, DE could be defined as a special form of education, in which the teacher and student are physically separated (Shale, 1988).

Historically, DE has been defined by different DE scholars (Schlosser and Simonson, 2010). For example, Fleming and Hiple (2004) pointed out that earlier conventional definitions of DE were applied to contexts where there was physical distance between the tutor and the student requiring them to use a method of communication that could bridge time and/or space. However, with the advance in technology, subsequent definitions became characteristic of some added criteria and finer distinctions.

Perraton (1988) defined DE as a process where most of the instruction was carried out by an instructor separated spatially and/or temporally from the student. However, a definitional shift, incorporating growing focus on the mediating role of new communication technologies, is detectable in Keegan's (1996) conceptualisation of DE. Keegan definition of DE is characterised by emphasis not only on the conventional separation of teacher and learner and of the learner from other learners, but also on the electronically-based and bi-directional nature of communication within a pedagogical context to support communication for the learner with teacher and other learners.

According to Rekkedal and Qvist-Eriksen (2003), ODE may be considered a subset of DE, derived from an adaptation of Keegan's (1996) definition of DE. Reddekel and Qvist-Eriksen modified Keegan's definition of DE by adding computers and computer networks to support communication between teacher and learner and delivering of the course' contents. Also, they suggested use of two-way communication tools via computer networks to enable interactive discussion for learners during the online course. This definition identifies the use of two-way communication tools via computer networks as a different use of ICT in education.

Simonson (2003) produced a more finely-tuned definition of DE as an institution-based and formal learning activity, characterised by the separation of a learning group, wherein learners, teachers and resources could be connected using interactive telecommunication technologies. Reinforcing the key elements of this definition, Moore and Kearsley (2012, p.2) defined DE as a ''teaching and planned learning'', in which the teaching occurs in a different place from the learning, necessitating communication using technology with the support of an institutional organisation. These definitions all include the following aspects: the physical and temporal separation of teacher and learner, courses are institutionally planned, learning is supported, learners are self-regulated, and interactive learning is achieved by utilizing a range of communication technologies.

4.3   Definitions and Terms Associated with ODE

ODE shares similarities with open learning, because it usually removes barriers to learning, supports flexible learning and is typically arranged around the geographical, time and social constraints of individual learners (Bates, 2005). Hence, there may be variations in the degrees of openness and flexibility, while the extent and impact of the constraints could also differ. According to Nipper (1989), cited in Bates (2005) and Aoki

(2012), in general DE has passed through three generations based on technologies used for instruction delivery, as summarised in the Table below.

Generation	Features	Main form
First	• Main use of print texts of educational resources such as books and newspapers • Lack of direct student interaction	Print-based correspondence education
Second	• Integrated print texts with broadcasting media such as television and radio	One-way communication tools
Third	• Main use of Internet-based technologies such as video conferencing and text chat • Supports more interactivity: student-content, student-tutor and student-student interactions	Two-way communication tools

Table 4.1 Three generations of DE.

The above table places the focus of the study into context; demonstrating that the ODE under consideration is a third-generation internet based DE, characterised by two-way communication tools. In addition, in recent years of ODE development, new generations of technologies have been added. Eby and Yuzer (2015) identified additional generation of ODE approaches that are based on Web 2.0 technologies which facilitate student-centred learning that is more participative and includes interactivity, simulation, and gaming as part of the educational process.

ODE can take place in several different ways: e-learning, distributed learning, mixed mode, and blended or hybrid courses. To ensure clarity, terms commonly associated in the discourse within which ODE is embedded are explained in the table below:

Open Learning (OL) (Bates, 2005)	• Open learning is majorly a goal, or policy of education. • An important feature of open learning is the elimination of hindrances to learning (including acquired qualifications and the support for disabled learners) • Ideally, it should be universally accessible. Thus it must have flexibility as well as the ability to be scaled. • Relevant technologies need to be available for the facilitation of OL.
DE (DE) (Tomei, 2010)	• A generic term entailing various teaching/learning methods employed by open universities, correspondence colleges, distance departments of common colleges/universities as well as corporate providers' distance training units. • A term depicting the education of persons who intentionally avoid schools, colleges and universities of the world and instead study at home or the workplace.
Flexible Learning (FL) (Bates, 2005)	• FL entails learning flexibly, constructed on the socio-geographical and time limitations of the individual learner instead of those of the educational institution. • FL might include ODE, as well as offering face-to-face training at the workplace or having the campus open for longer hours/ organizing schools during the weekend or summer
Online Education (Tomei, 2010)	• An internet-based educational approach where students access online services and communicate with their instructors and peers through computer-based communications.
E-learning (Tomei, 2010)	• Allows ODE via web-based and networks of communication. It encompasses the usage of network/internet technologies to formulate, deliver and assist learning at any time and place. • It allows for the delivery of complex, personalized and all-inclusive and dynamic learning content in real time, helping in the growth of knowledgeable communities and connecting learners and practitioners to experts

Table 4.2 Terms commonly associated with ODE.

According to Guri-Rosenbilt and Gros (2011), there is a confusing multiplicity of terms describing the use of emerging technologies in pedagogical settings. These include:

''Internet mediated teaching, web-based education, online education, computer-mediated communication (CMC), computer assisted learning, e-learning, virtual classrooms, information and communication technologies (ICT), open and distance learning (ODL),

distributed learning, web-based learning, technology-enhanced learning, instructional technologies, virtual learning, etc.'' (p.2).

These terms add to confusion rather than the clarity on what ODE means. As Table 4.2 shows, the meanings of the terms discussed are slightly different, and do not encourage the interchangeable use of apparently conflated terms, as each implies a specific approach or methodology and has many distinguishing elements, although there are certain overlaps. One particular source of confusion is the conflation of e-learning and DE, which encompasses ODE (Guri-Rosenblit and Gros, 2011). E-learning, which is related to instructional technology (Larremendy-Joerns and Leinhardt, 2006,) is not totally aimed at distance learners (Guri-Rosenblit and Gros, 2011). Many higher institutions employ modern technologies to improve classroom discussion instead of adopting a distance teaching approach (Guri-Rosenblit, 2009). So it is reasonable to surmise that while ODE can be part of e-learning, it does not refer to e-learning itself, or vice versa (Bates, 2005).

Within the context of this study, ODE will be defined as an internet-based educational approach where students access online services and communicate with their instructors and peers through computer-based communications at any time and place (Tomei, 2010).

4.4 Characteristics of ODE

As mentioned earlier, Reddekel and Qvist-Eriksen's (2003) conceptualization of ODE as a subset of DE is taken as the departure point from DE in this study. This form of education is characteristically based online, and delivered at a distance (as opposed to face-to-face). The use of the term 'education' in ODE indicates that both teaching and learning are the key concepts under consideration. Within this arrangement, educators and learners can be separated either only by space (synchronous learning), or by time (asynchronous learning). In this study, the ODE of interest is online and Internet-reliant.

This distinguishes it from a DE alone, which does not necessarily rely on technology, but can be conducted via postal correspondence.

It is important to note that an ODE can be a component of an online learning (i.e. e-learning) course or of classroom learning (as in a blended (i.e. combined) learning arrangement) (Figure 4.1). Thus, ODE is more flexible than traditional education, as it offers students the potential to learn whenever and wherever they want. This flexibility means that students from many cultures and locations all over the world can participate in an ODE programme. For a formal and more precise definition, an ODE can be defined as an educational modality often mediated interactively or through the internet and related technologies (Borba et al., 2010).
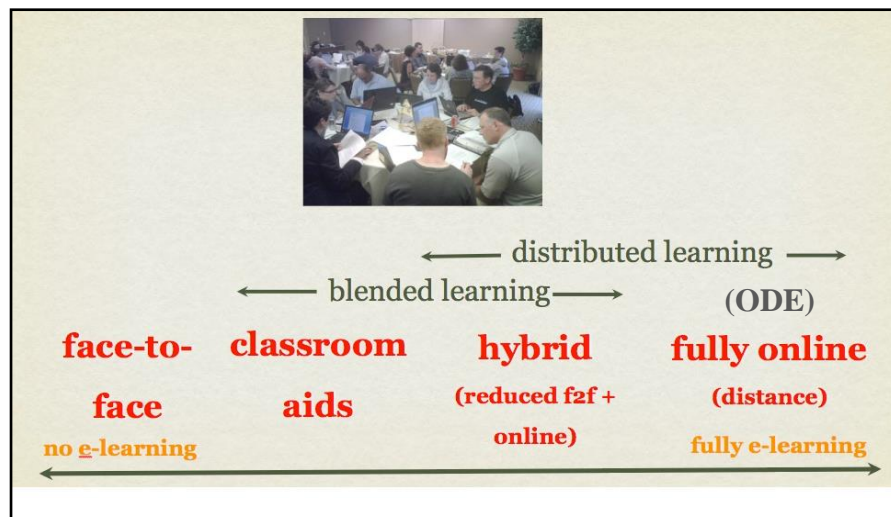
Figure 4.1 Continuum of technology-based learning.
(Source: Bates, 2012).

The physical separation in an ODE between the tutor and learner and the use of technology combine to create an environment where there is necessarily active involvement from the learner and learner autonomy (Nikolaki and Koutsouba, 2012), as the learning that takes place in an ODE is typically self-regulated.

However, an ODE is also characterized by interaction, collaborative learning, the exchange of information and ideas between geographically dispersed students, and students being in the process of discovering ways of learning to suit their preferred learning styles or to address subjects from different perspectives (Istifci and Kaya, 2011). One of the benefits of ODE is that it promotes learner-centred and collaborative learning, which is connected with the social constructivist position (Huang, 2002). Many ODE courses are designed on principles derived from social constructivist theories of learning (Zhang and Kenny, 2010), which helps students to communicate, collaborate, explore and reflect (Lebow, 1993).

4.5   The Role of ICT in ODE

4.5.1   The Impact of ICT on the Education Process in ODE

Information and communication technology (ICT) plays a significant role in ODE, because it provides the essential means to make it possible. It is also becoming revolutionized due to development of the Internet (Bates, 2005). ICT has made several features of ODE possible; these are listed below (Hanover Research, 2011):

- It allows for self-paced instruction;

- It enables the incorporation of text, graphics, audio and video;

- It allows for high levels of interactivity;

- It can provide a written record of all discussions and instructions;

- It could allow for worldwide access; and

- It could be inexpensive.

In the Philippines, for instance, ODE has been shaped by successive generations of technology. Thus, there is a perception that society is becoming increasingly information-based, inter-connected and globalized (Dela Pena-Bandalaria, 2007). Furthermore,

instructional design methods are also influenced by technology. Universities' entire organisational structures are being re-shaped to support ODE courses arrangements. In terms of the student's role, there has been a noticeable shift from students being passive recipients of knowledge to becoming active learners. Moreover, as noted by Igwe (2012), the fundamental change benefitting learners has involved giving them flexibility by enabling them to choose how, when and where to learn.

4.5.2   Types of ICT in ODE

A web-portal and connection to the Internet are essential technological components of ODE. The learning material itself can comprise not only text based materials, but also audio and video resources (Rashid and Elahi, 2012). In addition to the computer, ODE in general is also promoted with the assistance of radio and television broadcasting, telephony and satellite technology. ODEs can involve online digital libraries, wikis and blogs. The United Kingdom Open University for instance, employs a range of technologies, including online resources, email, e-messages, SMS, and Second Life (Kelly and Stevens, 2009). In their case, the presentation of information and resources is accompanied by e-communications and interactive activities with the aim of reducing distance between participants in the education process.

Online wikis, blogs and podcasts are all examples of Web 2.0 technologies (Solomon and Schrum, 2007). Wikis provide opportunities for streams of conversation, and blogs can comprise regular posts from both educators and students, and podcasts can also be offered via web sites, RSS (Rich Site Summary) feeds and multimedia players (Downes, 2001). Other popular Web 2.0 tools, which can be integrated into ODE are social bookmarking, photo sharing/editing, video showcasing and virtual environments. 'Second Life', is a virtual world in which avatars are created enabling users to navigate around a virtual online environment (Burgess and Caverly, 2009). However, the programme differs from

wikis and blogs, in that it allows users to submerge themselves in synchronous interactivity. Within the virtual environment, information is disseminated via text chat, note cards, e-mails, simulations, or bodily actions. In ODE, these virtual online environments provide opportunities for considerable social interactivity among members.

A recent study has showcased the innovative and latest use of existing and emerging technologies to facilitate ODE. The study (Forbes and Khoo, 2015) employed podcasting as a learning tool amongst distance learners studying in a teacher education programme. Their findings showed podcasting tasks can help teachers and students to learn from one another and exchange ideas, encouraging them to explore technologies for further integration into their learning and teaching.

4.6   Success Factors of Development of ODE in Higher Education Institutions

HEIs are made up of several sub-organisations, such as faculties and administrative departments. In identifying Critical Success Factors (CSFs) to guide ODE development, Volery and Lord (2000) suggested these categories: technology, teacher, and previous use of technology by learners. In more recent research on ODEs, Puri (2012) identified five success factors: pedagogical (teaching and learning in ODE), institutional-administrative affairs (administrative, academic and student support), technological (hardware, software and infrastructure planning), evaluation (learner assessment and program evaluation), resource support (offline and online support), and interface design (visual structure and design of online course).

Indeed, in terms of interaction, Stodel et al. (2006) highlighted learner's interest when interacting with others, when getting to know others, when learning to be online learners, and when establishing the value of a dialogue online. This desire for interaction indicates a need for a more social and interactive learning approach and framework for ODE, which

also considers the quality of interaction with tutors (Swan, 2001). Hence, it is evident that successful ODE programmes will provide opportunities such as collaboration and frequent interaction (Schrum and Hong, 2002). However, there is a significant body of literature that supports the critical importance of pedagogy (Ascough, 2002), technology (Haddad et. al., 2014), evaluation (Osuji, 2010), resource-based support (Zawacki-Richter, 2004), and course design) CSFs (David and Glore, 2010).

An ODE program should be guided by an overall vision and plan (Baghdadi, 2011) in which advanced planning is critical (Gellman-Danley and Fetzner, 1998), while strategic planning can make it more successful (Stone et al., 2001).

4.7   Issues Affecting Development of ODE in Higher Education Institutions

In practice, ODE initiatives are subject to a number of well-defined (that have specific success criteria and measures) and ill-defined issues (that are difficult to define and measure). Examples of the former might include the ODE systems' quality and design issues (Boettcher and Kumar, 2000; Bates, 2005; Alkhalaf et al., 2010; El-Mansour, 2011; Tseng et al., 2011), while examples of the latter include organisation culture and teachers' and learners' issues (Blum, 1999; Berge and Muilenburg, 2000; Alkhalaf et al., 2010 ; Forsyth et al., 2010 ; Bulajic et al., 2014). Table 4.3 presents some previous research, on ODE. As mentioned earlier, ODE is considered as a subset of DE. Therefore, the following table presents issues that related to either ODE or DE.

Study title	Reference	Findings
Barriers to DE as perceived by managers and administrators: Results of a survey.	Berge and Muilenburg (2000)	This study identified 64 barriers to ODE, of which the ten listed below represent the strongest barriers or challenges to successful ODE programmes. • Increased time commitment • Lack of money to implement ODE programs • Organisational resistance to change • Lack of shared vision for ODE in the organisation • Lack of support staff to help course development • Lack of strategic planning for ODE • Slow pace of implementation • Faculty compensation/incentives • Difficulty in responding swiftly to technological changes • Lack of technology-enhanced classrooms, labs or infrastructure.
From distance education to e-learning: lessons along the way.	Bower and Hardy (2004)	The study pointed out a number of challenges confronting ODE: • Not all stakeholders will support ODE. • ODE requires changes in classroom teaching • ODE requires innovation in student support services • Faculty must gain technological expertise • ODE May change institutional culture.
Distance education in an Era of e-learning: Challenges and Opportunities for a Campus-Focused Institution.	Forsyth et al. (2010)	This study found there were key interconnected issues, which needed to be addressed to implement the ODE effectively as follows: • A key challenge was university governance and organisational culture, which could be addressed by creating institution-wide mechanisms for systematic planning and quality in ODE. • The second issue, connected with the first, was that of providing appropriate infrastructure for effective student enrolment, resource development and provision for ODE across the board • The third issue involved arranging appropriate training for online distance educators, including those teaching at a distance themselves. Such training would include not only technical skills but also expertise in engaging students at a locational distance.

Study title	Reference	Findings
Why some distance education programs fail while others succeed in a global environment.	Rovai and Downey (2010)	This study found that the factors identified below represent key challenges and explain the failure of many ODE programmes: • Planning • Marketing and recruitment • Financial management • Quality assurance • Student retention • Faculty development • Online course design and pedagogy
DE challenges: Teacher and student-related issues.	Bulajic et al. (2014)	This study categorised challenges confronting ODE as being teacher related or student related as following: Teacher issues • Preparing and delivering materials in the digital form • Communication overhead • Resistance to technology changes • Technology misuse Student issues • Accreditation and degree recognition (validation issues) • Financial issues (affordability) • Study program requirements (on campus time) • Technical platform issues (software issues, connectivity) • Support issues (technical support to cater to different time zones and asynchronous communication) • Social issues (mediation of technology can prove challenging to older learners) • Personal issues (self-organisation)

Table 4.3 Some issues identified within ODE Literature.

As Table 4.3 shows, the issues highlighted cannot be categorised precisely, and many fall within more than one category. Each researcher has a distinct way of categorizing a problem, which is consistent with Checkland and Poulter's argument (2010) that highlights how problematic situations are shaped by the respective worldviews of those considering the problem. Khan (2005) has identified eight interrelated factors (see Figure 4.2) for e-learning, which are; institutional, pedagogical, technological, interface design, evaluation, management, resource support and ethical. Bates (2005) and Tomei (2010) stated that ODE can be a part of e-learning. In this regards, Khan's framework of e-learning issues can be useful for addressing ODE problems.
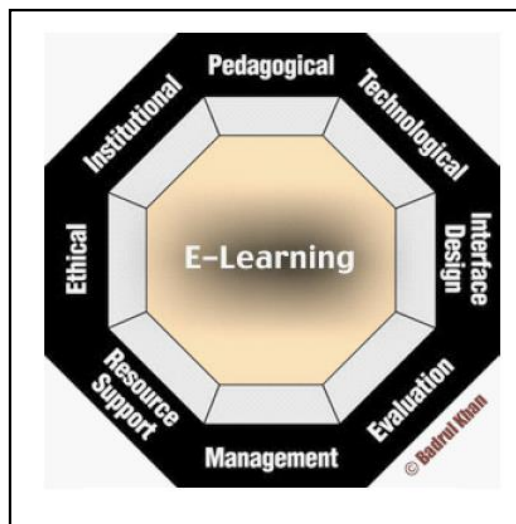
Figure 4.2 Khan's Framework for categorizing issues in e-learning.
(Source: Khan, 2005, p.14).

Although khan's framework looks like a system it is more oriented to classify issues that can assist designers to "create a meaningful learning environment" (Khan, 2005, p.14). The table below (Table 4.4) provides details of issues within Khan's framework.

Dimensions in E-Learning	Issues
1. Institutional	The issues affecting administrative, academic and student affairs associated with e-learning.
2. Management	Dissemination of information as well as the maintenance of the learning setting.
3. Technological	Issues to do with technology infrastructure within e-learning environments, such as planning of infrastructure, hardware and software.
4. Pedagogical	Issues related to teaching and learning, including content analysis, analysis of the audience, goals, media, the design approach, organisational and learning methods.
5. Ethical	Socio-political influence, bias, diversity in geography, learners, the digital divide and legal issues.
6. Interface Design	The general look of e-learning programs, the page and design of the site, content, navigation, accessibility and usability testing.
7. Resource Design	Online resources and support to give meaningful learning.
8. Evaluation	Assessment of learners, instruction evaluation and the learning environment.

Table 4.4 Dimensions of E-Learning issues by Khan (2005).

For the purposes of this study, the above classifications of issues have been reformulated in light of their relationship to stakeholders and situational context. ODE issues have enough thematic similarity to be attributable, with a degree of relevance, to institutional, technological, cultural, and learner themes.

4.7.1 Institutional Issues

As stated previously, 'institution' refers to any HEI that comprises different sub-organisations such as faculties and administrative departments. Institutional issues are those that can pose a barrier to advancement of ODE, specifically with respect to available facilities and the necessary personnel for managing the systems (Alkhalaf et al., 2010). Inadequacies in leadership and management, the skills and professionalism of tutors, and the quality of learning materials can pose considerable institutional problems.

- **Inadequate Leadership and management**

The role of leadership and managerial supervision is important, because otherwise participants can develop low confidence, as many educational stakeholders expect the presence of strong administrative roles to address any difficulties that may arise (Isik and Guler, 2012). Additionally, if leadership is weak, funding problems tend to occur, which can lead to the ODE becoming a peripheral activity that fails to support organisational goals (Luo and Shenker, 2011). Financing for ODE is more of a problem in developing countries; however, experiences can vary between programmes, as ODE can bring cost-savings in comparison to formal education (Rashid and Rashid, 2011).

In addition, learning content and assessment criteria can be affected, especially when there are communication and coordination gaps between the HEI faculty and employees; this can increase operational costs and cause lead times to rise even further (Garrison and Anderson, 2003). Providing online courses requires close collaboration between several people, including administrators, curriculum designers, teachers and technical specialists, covering a diversity of interests and expertise (Baghdadi, 2011). Therefore, strong and reliable leadership and management guided by a vision for success is essential to support communication and coordination and to ensure quality content and assessment. Given the non-formal nature of ODE, organisations offering ODE should ensure the continued maintenance of high standards, which can be a challenge faced by all institutions offering ODE globally (Rashid and Rashid, 2011).

- **Inadequate Tutors skills and training**

As tutors are usually required to deliver the ODE courses, their skills and professionalism are critically important. It is not uncommon to find many instructors are unable to keep pace with developments in technology to successfully provide ODE (Al-Kandari and

Gaither, 2011), and the continual advances in technology exacerbate this situation (Mitsuishi et al., 2002). It is therefore mandatory for organisations not only to ensure instructors have the required skills to manage ODE courses, but also to provide regular and updated training. Through continuous training, ODE instructors can update their knowledge and maintain high standards, while improving content delivery and eliminating any remaining challenges affecting ICT skills (Stein and Harman, 2000).

A study by Maurino (2007) highlighted the need for additional instructor involvement in ODE, given that most current research tends to focus more on students and their perceptions and outcomes. This finding involved an analysis of 37 studies on ODE, with respect to the development and promotion of critical inquiry, in depth learning, presence and interaction. Many of these skills are described in the literature, although there is limited evidence of their practical application. To support critical inquiry skills and ensure in depth learning, it is essential that instructors actively engage when delivering online courses at a distance, just as when delivering traditional face-to-face courses.

- **Inadequate learning materials Quality**

Teaching material can also be affected by the learning approach. Content quality can only be maintained by ensuring adequate reviews and by employing appropriate skills and approaches (Al-Asmari and Rabb Khan, 2014). This is important, because otherwise quality issues can slow learners down, especially those who may have been struggling to interpret and understand content and meaning (Stansfield et al., 2009). This could have cost implications for learners. For such learners, it is important to offer frequent feedback, to ensure that understanding and assessments are not compromised and that the course structure remains relevant and does not retard cognitive development (Marshall, 2000). Although most ODE courses tend to be flexible, steps should be taken to guarantee that

even theory-based courses contain some audio-visual or interactive content to reinforce learning (Moodley, 2002) in line with what users may expect from an online course.

Regular reviews are essential to ensure materials do not become obsolete, irrelevant, inaccurate, or difficult to understand. This requirement also applies to teaching style and the manner in which material is presented (Khan, 2005). Given possible variety of cultural backgrounds of learners, care must be taken to ensure content demonstrates cultural sensitivity, reflecting the needs of target learners (Stansfield et al., 2009). In this regard, different learning approaches could be employed to support learning materials and teaching styles related to course objectives and requirements. For instance, a social constructivism-oriented learning approach could support online courses that place emphasis on the social nature of learning, and the role of interaction, communication and collaboration in constructing meaning and knowledge, especially where cultural differences exist. Meanwhile a COP learning approach could be more appropriate in a rich media-based learning environment, when combined with practical educational experiences and community participation (Gray, 2004).

- **Inadequate Assessment system**

An organisation offering may be challenged by the need to include examinable content and to ensure supervision, despite the lack of physical contact between instructors and learners (Lauring and Selmer, 2012). Examination and assessment-related needs are important requirements for an ODE to fulfil, to ensure that HEI, potential employers, and others recognise and accept the courses offered (Moodley, 2002); otherwise, learners might drop out over fears about its credibility (Altameem, 2013). Any possible concerns would need to be addressed by management, as only the organisation can ensure they have a sufficiently high quality assessment, grading and reporting system in place (Tseng et al., 2011).

4.7.2   Technological Issues

As ODE is computer-based, technological challenges can affect the learning potential of students. Generally, these can be readily identified and solved. However, they can be barriers, because when technology is affected with problems, this can prevent learner participation and delay adoption of ODE (Alkhalaf et al., 2010). These challenges include the suitability of the technology, system requirements, reliability, incompatibility, access-related issues, and capacity, etc. As Stansfield et al. (2009) observed, issues commonly arise in relation to reliability, accessibility, speed, architecture, and availability of technical support. However, improvements in technology usually overcome the challenges and create further opportunities to facilitate communication (Berge, 2013) and assist learners in developing cognitive skills (Sethy, 2012).

- **Suitability and compatibility**

Suitability and compatibility challenges relate to hardware and system quality, but also to support structures, such as networking and laboratory availability. The quality of these could affect learning and the success of ODE by causing delays; therefore, the technological methods are usually offered to ensure speedy access (El-Mansour, 2011), though even if technology is suitable at the outset, maintaining suitability and compatibility requires upgrades to technology. This ensures that communication is not hampered due to outdated technology (Ting, 2005). Incompatibility can be a major issue in ODE as different learners in different locations may be accustomed to different platforms and use different hardware, operating systems and application software.

Differences in browser preference, network problems, and the quality of an individual's web interface might mean they need additional administrative help to continue with ODE. Thus, it is essential to prevent delays and possible low morale among learners (Alkhalaf

et al., 2010). The web interface provided should enable user navigation and good usability; otherwise time will be wasted as learners gain familiarity with it (Bates, 2005). Redecker et al. (2009), Eby and Yuzer (2015) also identified that while Web 2.0 technologies generally support ODE needs, such as online collaboration, posting and editing tasks, they require more stringent authentication, causing security challenges.

- **Reliability, capacity and maintenance**

Reliability is a critical factor in an ODE because a system 'crash', i.e. technological breakdown, can cause severe disruption to the learning process (Bates, 2005) and adversely affect ODE initiatives. More often however, reliability issues are a consequence of student-end factors, such as hardware or software incompatibility issues, or problems with Internet connections. However, administrators should be available to offer advice and assist learners. Hardware capacity is another potentially challenging area, especially when attempting to ensure a successful ODE system (Bates, 2005). In ODE, data needs to be stored and retrieved without complication or delay. Robust servers, however, tend to be costly for many institutions, not only in terms of initial outlay but also running and operational expenses. Furthermore, staff members must be trained to manage servers. Also, in the event of problems, lack of technicians for maintenance tasks can increase operational costs if external assistance is used (Boettcher and Kumar, 2000).

- **Accessibility and security**

The issue of accessibility arises in ODE because learners are required to verify their identity and access course materials from a remote location. If the normal procedure fails, for instance, due to technological changes or forgetting passwords, administrative assistance is necessary (Tseng et al., 2011). Accessibility is also affected by network and security mechanisms such as firewalls; although using such mechanisms to control access

to course materials is essential due to the need to protect intellectual property. This protection can become compromised, not only during collaboration between learners, but also when hackers attack (Boettcher and Kumar, 2000). If the infrastructure is affected, this can have negative consequences for learners in terms of their ability to communicate, adversely affecting learning performance. An ODE therefore needs high quality technological infrastructure that is secure and resists intrusion (Stansfield et al., 2009).

4.7.3   Cultural Issues

Cultural issues constitute another important dimension in an ODE. These include social and political issues that can affect the way people interact, and how they perceive, embrace, and commit to activities (Liu et al., 2010). These are considered poorly defined issues, because they are difficult to describe and measure, and rely on the thoughts and perceptions of people. Earlier studies related to socio-cultural issues were carried out from the limited perspectives of students in ODE (Luo and Shenkar, 2011). Three major areas where potential cultural issues could arise are gender, communication and language, which affects the learning process hindering improvements to the ODE (Blum, 1999).

- **Gender issues**

Gender issues arise in an ODE environment, because learners of different genders tend to have different preferences with regard to accessing educational material, in terms of what they deem feasible and convenient (Ma and Yuen, 2011). For instance, learning styles can relate to gender, and in some cultures, gender differences can affect an individual's willingness to communicate and collaborate (Blum, 1999). Generally, males tend to be individualistic, whereas females are more comfortable learning by collaborating with others. Thus, female learners usually score higher in partnership-based educational processes, because they are better able to exploit their relationships with other learners,

and they tend to be more compassionate and active during the collaboration process (Barrett and Lally, 1999). These characteristics suggest females are likely to be more in familiar to the requirements of an ODE, and so are more likely to be receptive towards it (Blum, 1999).

Gender determines how far an ODE instructor might expect a learner to participate and be satisfied with an online course. This assertion was supported by Gonzalez-Gomez et al. (2012), who demonstrated that females were keener than males about preparing to learn online, and by Barrett and Lally (1999) who showed females were more proficient at solving questions using an online platform than males. However, some studies on gender patterns in online distance education show females take longer to complete certain tasks than males (Astleitner and Steinberg, 2005). However, this might be explained by the fact that many learners who take online courses are working people, and women find it more challenging to balance family and work with learning pressures (Al-Fahad, 2009), which can have a negative effect on their performance and ability to complete their work (Barrett and Lally, 1999), because females may have additional duties to complete and so are less flexible with their study time; for this reason, they might be less inclined to enrol on an ODE course (Al-Dosari, 2011). The challenge, whether the learner is male or female, is to allow learners sufficient flexibility to complete the course in their own time.

- **Communication issues**

Gender differences can also be linked to communication issues. Pedagogies based on social constructivism theory highlight the central importance of communication and interaction in learning situations. A study by Kaveie (2011) confirmed these differences, explaining that females are usually more adept at completing communication tasks than males (Barrett and Lally, 1999). The challenge is to ensure that all students, irrespective

of their gender, are able to communicate effectively with the instructor and amongst themselves, to increase their chances of success on their courses.

- **Language issues**

Closely related to communication is language, the means of communicating knowledge. Language issues arise especially when there are cultural differences (Stansfield et al., 2009; Elango et al., 2008). A study by Zhang and Kenny (2010) revealed that language proficiency and previous education both strongly affect learning. Non-native English speakers require much more time to read content and post responses. I this particular case study, which involved three international students who registered in an ODE program offered by a university in Canada, lack of familiarity with the learning culture and the informal language made it difficult for them to follow the course discussions; moreover, they tended to avoid socialising.

Even in English speaking countries, a variety of languages may be spoken, due to the multicultural background of students. It is quite common to have students who are not as literate and fluent in English as their peers. Thus, the challenge is in ensure the language used in online courses is appropriate and matches the students' level and command of the language, so that they can comprehend their work and interact easily with others to discuss the programme content. Designers of online courses should be aware of the particular needs and expectations of students with possible language issues, and investigate the possibility of incorporating, for instance, non-verbal signs instead of merely giving lengthy texts. Language-related challenges are important, as language, which is essentially "a potent intermediary between instructor and students and among students themselves" (Hannan, 2009, p.1), can become an obstacle to effective online learning. The challenge then is in make the language work for rather than against the learners; a goal with implications for quality of instruction and instructional techniques.

4.7.4 Learners' Issues

Individual learners engaged in ODE experience challenges related to contact with their tutors (De Brujin and Leeman, 2011), course assessment, insufficient training to use the system (Hung et al., 2010), lack of technical support (Stansfield et al., 2009), and isolation (Oncu and Cakir, 2001). The following issues are based on the limited views of students engaged in ODE that report the mode of deliver affects their learning progress.

- **Contact between learners and tutors**

For learning to be effective, contact and interaction with a tutor is essential. The quality of interaction, and the ability to engage in active discussion was identified as a direct CSF (Swan, 2001). This requirement is especially important for anxious learners, and those with low self-confidence, for whom connection with a tutor can be extremely helpful (De Brujin and Leeman, 2011). In fact, according to Malik and Khurshed (2011), this is a challenge for all online learners, because compared to traditional learning situations, these students have fewer opportunities to communicate with and develop interpersonal skills through interactions with their teachers, or to develop their moral judgment and critical thinking. Contact times are usually pre-arranged and take place via online communication tools such as chat, video chat and discussion board, weekly or even daily as required (Prinsen and Terwel, 2007). For some students, self-evaluation may be enough, although for others, opportunities to contact tutors are crucial. As Stewart (2004) stated, a stable communication link between tutor and learner must be sustained to aid learners to connect the ODE experience with real life.

- **Academic services, support and training**

Inadequate support services are a common complaint from ODE learners (Stansfield et al., 2009), because ODE students often need more support to guide their learning, and

need assistance to overcome technical issues, when compared to learners studying in a traditional learning environment (Janes, 2006). Training may also need to be provided to learners enrolled in an ODE course, as many enrol without training, and HEIs often assume that learners will be able to simply follow instruction manuals posted on their websites without further assistance (Stansfield et al., 2009). However, many learners do need individual training (Hung et al., 2010). Training is not only necessary to gain further expertise, but also for critical tasks, such as those relating to security, trouble shooting, protocol access, etc. (Stansfield et al., 2009). Online distance learners may already have some basic computer skills, but many learners still report facing challenges immediately after enrolling on an online course (Al- Harthi, 2005).

To date, most of the issues identified in the ODE literature have been explored from the perspective of stakeholders involved in ODE; whether managers, technical staff, tutors or students. Table 4.5 below summarizes the generic issues and categories that stakeholders face in ODE.

Institutional issues	Technological issues	Cultural issues	Learner issues
• Inadequate leadership and management • Inadequate tutors skills and training • Inadequate learning material quality • Inadequate assessment system	• Lack of suitability and compatibility • Lack of reliability, capacity and maintenance • Lack of accessibility and security	• Gender issues • Communication issues • Language issues	• Lack of Contact between learner and tutor. • Lack of Academic services, support and training

Table 4.5 Summary of generic issues that stakeholders encounter in ODE.

As the previous discussion illustrated, the challenges to successful implementation of ODE programmes are many and interrelated. Although some are well-defined, some are less so. The implication is that taking a standard approach to solving all the issues in ODE is unlikely to deliver successful outcomes. Previous ODE studies tend to demonstrate lack of coverage of 1) issues that affect human activities in ODE, 2) connectedness between the different issues, to 3) participation of multiple stakeholders in defining issues. Examples of research that does not adequately allow for the complexity and interconnectedness of the challenges posed by ODE include studies by Blum (1999), Stansfield et al (2009) and Rashid and Rashid (2011).

This makes it difficult to understand the exact nature of ODE system, with the result that making appropriate decisions is challenging. Traditional approaches to analysing existing problems treat challenges to ODE as separate. This signifies that challenges are addressed in a largely superficial way, with little interest in attaining a holistic view of the problem; in contrast with the depth of consideration when using systematic approaches (Moore and Kearsley, 2012) to tackle complications. In the following section, Moore and Kearsley's systems view will be examined in greater detail.

4.8   Systems View in ODE

A systems view of ODE was proposed by Moore and Kearsley in 1996 (Moore and Kearsley, 1996). They advocated making several important decisions with respect to what is to be taught and learned, and then advised devoting a considerable amount of time and expertise to preparing and administering the course (Moore and Kearsley, 2012). This included determining a suitable combination of technologies and media to deliver content. The advantages of a systems view are that it can significantly affect how resources are used and how teaching is carried out. Several important decisions must be made by organisations such as those relating to access, quality, capacity, cost, and so on,

so a systems view is beneficial because it can cover a range of human and technical resources, and is helpful to each part of the study, not only the system as a whole.

A model of a systems view of provision of ODE was presented by Moore and Kearsley (2012), as shown in Figure 4.3. This highlights the traditional thinking of management and delivers an understanding of how different functions in the sub-dimensions of ODE should be processed. It proposes ODE as a machine, with sub-parts associated with specific functions that should be functionally performed to accomplish the goal of efficiency for the entire system. This hard systems view considers how each process in each department should be properly executed, to achieve the main defined goal of the ODE, with the absence of connections between parts. For instance, in Figure 4.3, the model clarifies how processes of identifying 'content sources', 'program/course design', 'delivery', 'interaction' and 'learning environment' should be separate to understand them from management's perspective. A critique of Moore and Kearsley's model is offered by Shaffer (2005, p.6) '"Although they clearly have a systems view in mind, diagrams of this structure cannot begin to capture the full complexity of the DE system''.
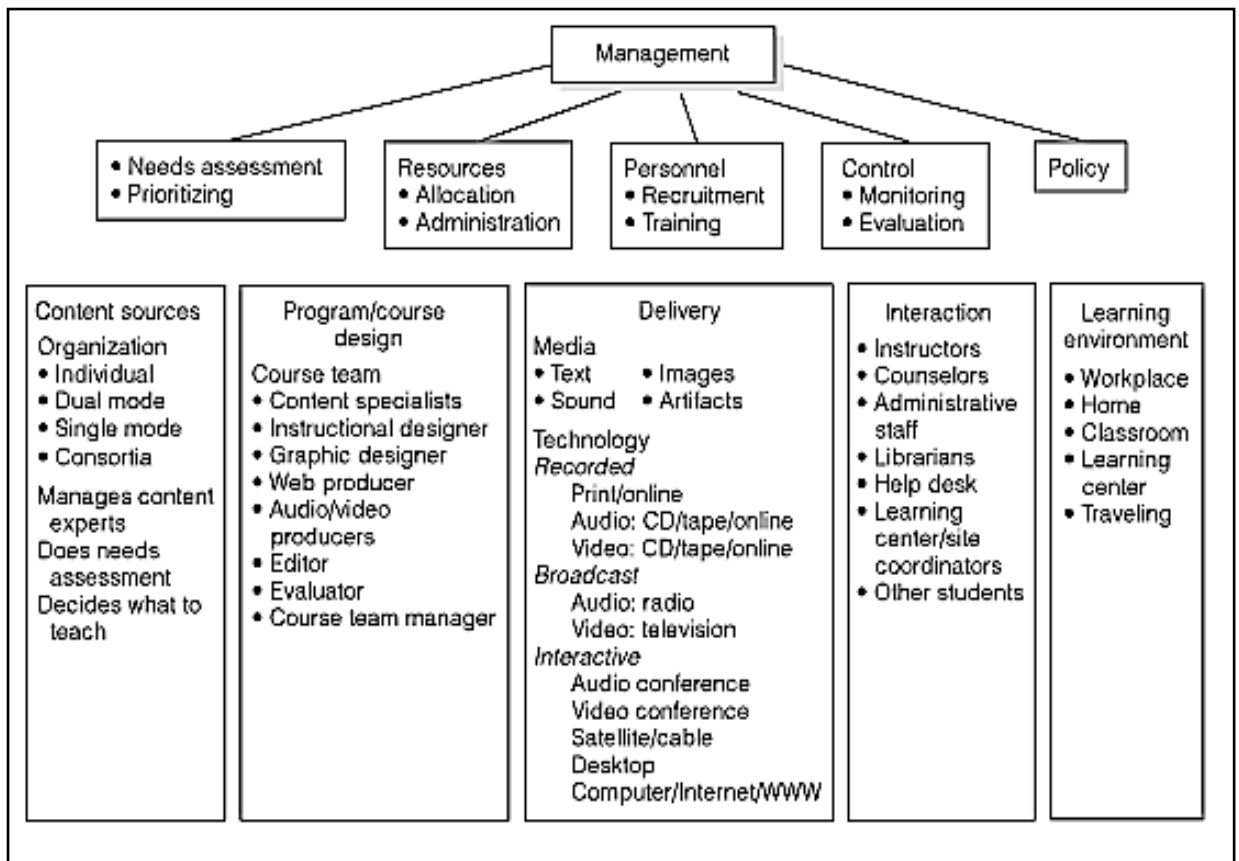
Figure 4.3 A systems view of ODE by Moore and Kearsley.

 (Source: Moore and Kearsley, 2012, p. 14).

However, Moore and Kearsley's systems view has some strengths that can support successful designing of ODE systems (Moller, 1998; Passerini, and Granger, 2000). Firstly, it presents well-defined key components of ODE systems such as assessment, resources, personnel, control and policy elements, which each have detailed and clear sub-objectives (Frantz and King, 2000). Secondly, it presents clearly the goals of ODE systems, the functions required to achieve these goals, and the components and structure to perform these functions (Frantz and King, 2000).

Saba (2012) argued that a system dynamic approach would support ODE decision-makers in HEIs to design and offer ODE learners with personalized courses that meet learners' needs would be more beneficial than using a course-based predefined design-model. In this regard, systems dynamics would increase the suitability of courses for learners and improve their learning experience. Saba's systems view focused on designing aspects of ODE to improve it and achieve better management and learning practices.

While there are some strengths of Moore and Kearsley's model, the diagram in Figure 4.3 does not look much like a systems diagram, as it deals with each issue in separation from the others. So, there is a risk that each issue could be dealt with in isolation from the others, and also that just a few perspectives (usually only those of technology designers or senior decision makers) would be taken into account to build connections. The inability of the existing systems view (Moore and Kearsley, 2012) to capture the complexity of the ODE system creates a gap, which can to a certain extent be overcome by the application of SSM-Mode 2, the aim of this study. Specifically, this study will address the gap in the literature on ODE by updating existing systems views with perspectives derived from soft systems thinking. SSM-Mode 2, which allows the researcher to explore different issues from different perspectives and to include different stakeholders in identifying and understanding the issues.

4.9   An initially Refined, SSM-Mode 2 Based Systems View for ODE

As discussed previously, there is an absence of studies exploring interrelated issues, although some were presented separately in the previous literature, such as organisational and cultural issues. The proposed system view will modify the latest system view, as provided by Moore and Kearsley (2012) for ODE, by drawing attention to issues and the connections between them, and explaining how they affect and are affected by one another, and by multiple stakeholders' perceptions regarding these issues. It will also

promote learning for the SSM-Mode 2 practitioner (this study's researcher) about the difficulties experienced in ODE. Other scholars and researchers who are interested in this area can also gain greater understanding and of the current situation in ODE.

The main objective of the soft systems view is to guide the researcher to achieve the research's aim and answer key research questions. This research aims to understand the complex situations involved in an ODE, affecting human activities by using SSM-Mode 2 in order to evaluate SSM-Mode 2 as a learning approach. Using soft system thinking as a conceptual lens will provide a support structure and manage the learning process of the SSM-Mode 2 practitioner regarding problematic situation in ODE.

The proposed system view applied in this research (Figure 4.4) reverses some of the characteristics of the previous system view developed by Moore and Kearsley (2012), as represented in Figure 4.3. This is an intellectually-oriented framework that supports the SSM-Mode2 practitioner in achieving learning about different issues in ODE instead of solving problems and designing systems.
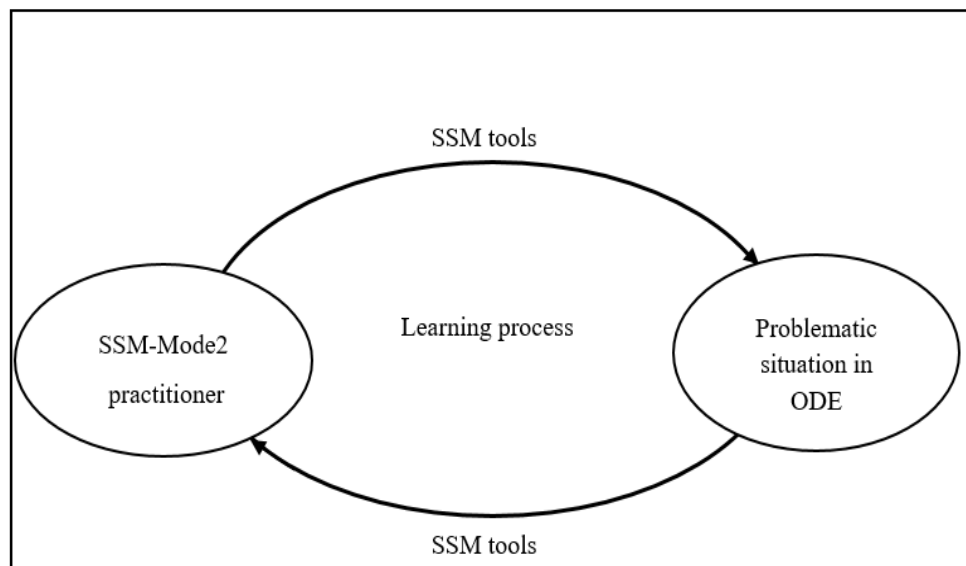
Figure 4.4 An initially refined, SSM-Mode 2 based systems view for ODE.

In the above framework, the first key component is the 'SSM-Mode2 practitioner'. It represents the researcher, who has the role of SSM practitioner, and who used SSM-Mode 2 as an inquiry process to investigate problematical situations in ODE. The second component is a 'complex situation in an ODE' that includes ill-defined issues, connections between them and different stakeholders' views.

The existing systems' views (Moore and Kearsley, 2012) in Figure 4.3 represent a hard systems approach, and do not indicate any involvement from stakeholders. Generally, human beings are diverse and therefore their views, perceptions, and attitudes change, altering their activities in ODE. The conflicts affecting stakeholders' views in ODE could hinder the improvement process for the entire ODE environment, in cases where they are ignored or did not include definition of goals and ideas to improve the ODE. Thus, if stakeholders are to be involved, there should be at least some indication of how this can be achieved. In such cases, stakeholders are a major component of the proposed framework. Understanding issues and the relationships between them will be crucial to the overall success of ODE. Interrelations between issues are usually more important than the part itself, because they can generate emergent outcomes, which can have positive or negative impacts on human activities in ODE. It is often difficult to explore and analyse emergent issues by applying a traditional analytical approach. It is important to understand the nature of the issues that arise, in particular, the reasons behind them and connections between them. In depth understanding of issues will assist stakeholders in ODE to learn more about them and rethink any future improvement plans for ODE.

The third component is the 'learning process' for the SSM-Mode 2 practitioner. This involves knowledge construction through interaction between SSM-Mode 2 practitioners and stakeholders in the context of ODE. It represents an active component in the proposed framework in Figure 4.4. As discussed in the previous chapter, this study will examine

and evaluate this learning process, to identify its theoretical learning assumptions characteristics and activities. For this reason, the focus will be on improving this component of the learning process within the framework (Figure 4.4).

The basic notion of the underlying approach is that the process is iterative yet progressive, in terms of its ability to understand problems and their interrelationship from various stakeholders' views. An iterative approach can be more appropriate when the learning objective is to enhance an individual's understanding of the issues, rather than to find answers through traditional approaches to analysing problems and the hard systems approach (as represented in existing systems views in ODE literature). This iterative framework (Figure 4.4) is important where issues are not well defined and where learning about them is used as a contributing factor to improve the complex situation in the ODE. A hard systems approach can be useful when a problem is well understood and defined, and the hard systems approach is used as a problem-solving tool. An iterative approach to the process of learning about ODE gives the SSM-Mode 2 practitioner a better and more in-depth understanding of the situation.

The arrow from the 'SSM-Mode2 practitioner' element to the 'problematic situation in ODE' element represents the process of gathering information through interaction with stakeholders and reflection on ODE situation. The arrow from the 'problematic situation in ODE' element to the 'SSM-Mode2 practitioner' element represents the process of constructing knowledge and understanding by the SSM-Mode 2 practitioner, to create understanding about problematic situations in ODE.

Figure 4.4 shows the term 'SSM tools', representing SSM tools such as rich picture and conceptual models used by SSM-Mode 2 practitioner, used in the processes of gathering information and constructing knowledge, in order to structure, facilitate, and improve the learning process regarding the ODE. These representations will help the researcher to

answer the research questions and achieve the main aim of the study, which is to evaluate SSM-Mode 2 as a learning approach, and to explore complex situations in ODE from the cultural perspective of Saudi Arabia.

4.10 The Area of Concern (A): ODE in Saudi Arabia

In recent years, the ODE sector in Saudi Arabia (SA) has rapidly expanded (Al-Shehri, 2010; Aljabre, 2012; Hamdan, 2014). In 2006, the Saudi Ministry of Education (MOE) directed the implementation of ODE systems in the Kingdom, ensuring the application of information and communication technology to realize educational goals, especially at tertiary institutions. Various universities in the country followed the directive to pilot ODE methods (Alenezi et al., 2010). These efforts were applauded by King Abdullah Bin Abdulaziz towards the end of 2011, when the first such system in the country launched at the Saudi Electronic University (SEU) (Hamdan, 2014). The developments at SEU attracted $3.6 billion from the government budget to boost capacity and training at HEIs (US-Saudi Arabian Business Council, 2013a). SEU learning systems seek to address the needs of the Saudi job market, while adhering to the legal frameworks that aim to reverse the need for foreign expatriates (US-Saudi Arabian Business Council, 2013a).

This section will provide an overview of the current status of ODE in Saudi Arabia (SA) and issues affecting its development. It will start by providing an overview of the status of higher education in SA and reasons why ODE is needed in SA. This is followed by a summary of the government investments and initiatives that led to the establishment of the National Centre for E-Learning and Distance Learning (NCel). It will conclude by highlighting recent studies associated with issues relating to ODE in SA.

4.10.1 Higher Education in Saudi Arabia

Before introducing ICT in education in SA, most HEIs used classroom and physical contact methods to lecture learners and deliver knowledge. This involved maintaining learner attendance trends, discipline, completion of assignment and library research and the usual measurement and evaluation requirements. However, the Ministry of Education was reorganized in 1975 (Ministry of Education in Saudi Arabia, 2016), to create an independent Ministry whose domain was exclusively post-secondary education. By 2016, the Kingdom of Saudi Arabia had over 27 public universities. These universities were established via royal decrees (Ministry of Education in Saudi Arabia, 2016).

In conjunction with ICT, ODE has become an important component of higher education in many countries. In SA, many HEIs have adopted ODE systems because the strategy has proved successful both economically and socially in realizing the goals of the education sector (Elyas and Basalamah, 2012). The fact that HEIs are open to the use of ODE to meet the need of the changing times improved collaboration (Becket and Brookes, 2008). At SA's HEIs, ODEs follow the syllabus for specific courses of interest to learners. This implies that ICT determines how people interact and relate at both the academic and social levels (Al-Shehri, 2010) and ensures that advances in ODE keep pace with modern educational trends in Saudi society (Alkhalaf et. al., 2010).

Saudi public universities began implanting ODE in 2006. Leading universities offering ODE programs include King Abdulaziz University (KAU), King Saud University (KSU) and King Khalid University (KKU) (Aljabre, 2012; Al-Asmari and Rabb Khan, 2014).

4.10.2 The Need to Adopt ODE in Saudi Arabia

There are many reasons for offering ODE in SA. Firstly, an ODE is a modern system of learning that encompasses innovativeness, creativity, collaborative skills, and customization of content to meet multiple course objectives. Moreover, ODE offers a

promising opportunity to offer education that is unhampered by the cultural and practical barriers inherent to traditional modes of education (Alkhalaf et. al., 2010). Hamdan (2014) described some of the positive impacts that the use of ODE in SA has had, and some motivating factors behind the adoption of ODE. Firstly, the nature of the ODE learning mode helps SA students to move from being passive learners to becoming more active and participative learners with tutors and peers. In most educational institutions in SA, the traditional mode of study treats the student as a passive learner, who merely relies on the tutor as the main information resource and does not interact during the learning process. Many students found that ODE improves their thinking, their communication skills, and their learning and time-management skills.

The proportion of the population in Saudi Arabia seeking access to higher education has grown over time. However, the infrastructure is unable to accommodate the numbers (Al-Harbi, 2010; Aljabre, 2012). So, HEIs in SA receive significant financial resources, as government support for the implementation of ODE systems under the Ministry of Education is expected to meet the standards of other global academic institutions (Aljabre, 2012). In 2010, about $36 billion was spent on education and training (Lindsey, 2010), with an increment to $40 billion by 2011, reflecting 46% of the SA budget (US-Saudi Arabian Business Council, 2013a). The statistic remained stable until 2012, as in 2013, $54.4 billion was spent on the ODE system (US-Saudi Arabian Business Council, 2013b). This shows the efforts of the SA government to provide educational access to students that cannot be accommodated at HEI campuses (Al-Shehri, 2010).

ODE in SA enables many learners to save the cost of accommodation at physical facilities on campus and limits travel times. Data shows that SA University admissions expanded by 62% between 2003 and 2006. The admissions figure has continued to rise and ODE has become useful for covering admission gaps (Quraishi, 2012). In addition, the ODE

system has been recognized as leading the Saudi knowledge economy, encouraging the development of students' skills so that they can prepare to participate in the global community. Nevertheless, the process of implementing ODE has resulted in challenges, leading to considerable delays in terms of realizing this ultimate goal (Al-Harthi, 2005).

ODE advances in the SA offer considerable opportunities for development, especially amongst HEIs. SA students appreciate these new flexible opportunities, to access support systems. Learners have choice of semester and calendar of study and enjoy a diversity of technology, as multimedia tools are available to enrich learning (Quraishi, 2012).

Another essential reason for adopting ODE in SA is to increase female enrolment in higher education (Aljabre, 2012; Hamdan, 2014). A special consideration of the social benefits of ODE relates to women seeking higher educational qualifications, who are then constrained by the conventions of society (Azaiza, 2011). In SA, women are subject to social restrictions in terms of travelling and mobility around the country. However, the ODE system delivers classes in real time to the Saudi women with the support of materials from databases (Quraishi, 2012). ODE can also accommodate the requirements of Saudi homemakers and mothers prevented from accessing education on campus. People seeking to further their education, yet constrained by work or geographical distance from universities can also enrol to take any program of their choice, proceeding to completion without prejudicing their commitments at home (Azaiza, 2011).

4.10.3 The National Centre of E-learning and Distance Learning

To support HEI initiatives to expand ODE, the Ministry of Education (MOE) in SA launched a nationwide initiative to explore the various prospective uses of technology for e-learning and ODE, under the direction of the National Centre for e-Learning and Distance Learning (NCel) (Al-Harbi, 2011; NCel, 2016). According to Altameem (2013) NCel aims to establish an integrated educational system, maximizing use of modern

technologies in e-learning and ODE, paralleling and supporting educational processes in HEIs. NCel roles include (NCel, 2016):

- Promoting ODE for maximum participation to achieve economies of scale by coordinating stakeholders in the ICT industry in educational projects;

- Reviewing ODE issues including quality assurance;

- Establishing rules and regulations for participation in the ODE systems; and

- Publicizing ODE activities and opportunities

NCel has encouraged HEIs to participate in ODE systems and utilize web-based Learning Management Systems (LMS) to facilitate online education process. LMS is "a software environment that enables the management and delivery of learning content and resources to students. It provides an opportunity to maintain interaction between the instructor and students and to assess the students by providing immediate feedback on the online quizzes'' (Martin, 2008, p.138).

LMS can improve teaching and learning processes by giving tutors and students effective better access to learning materials, e-assessment and e-attendance tools (Kennedy; 2009; Cigdem and Topcu, 2015). LMS increases interaction between tutors and students by using communication tools such as discussion boards, forums, video conferencing, and instant messages (Kennedy, 2009; Findik and Ozkan, 2013). LMS products include Blackboard (Bb) and Moodle (Martin, 2008; Cigdem and Topcu, 2015).

Most leading universities, such as KAU, KSU and KKU, use modern technologies that support interactivity practices and provide access to learning resources, such as the Blackboard management system (KAU, 2016a; KSU, 2016; KKU, 2016). According to Aljabre (2012), the Blackboard system has improved the educational process within ODE in SA because it supports tutor-student and student-student interaction through discussion boards, the exchange of files and learning materials, the use of voice and text chat, and

the ability to access records and track students' grades and progress. Although ODE has significantly improved in SA, it still faces issues that hinder its development. These will be discussed in the next section.

4.10.4 Issues of ODE in Saudi Arabia

There are several documented studies on the status of e-learning in Saudi Arabia, a few of which specifically discuss the status of ODE. As mentioned earlier, ODE can be a part of e-learning, so any issues encountered in the e-learning context in the literature on ODE in SA are also considered to be issues affecting the development of ODE system. In SA, specific issues exist, alongside the general issues presented in Table 4.5 that were discussed earlier in relation to the development of ODE.

As formerly mentioned, the field of ODE is characterized by complexity. Issues related to ODE within the SA context are associated with more than one of the dimensions identified in the Table 4.5. For instance, there are questions about the low level of readiness of students in SA to participate in ODE, because of their inability to learn independently, proficiency in the English language, and cultural differences in case of interaction with students from other countries (Chanchary and Islam, 2011). There is also evidence of a digital divide in SA. The internet in SA has not yet reached all potential users. The availability of computer hardware is not uniform, because while those who are technologically well informed are able to access and use tablets and other mobile devices, others are still trying to acquire desktop computers. This disparity has implications for the socialization of learners, some of whom may be pursuing the same courses (Chanchary and Islam, 2011).

As the concept of ODE is receiving wider recognition in SA society, a recent study by Al-Kandari and Gaither (2011) has established there are still skills gaps affecting tutors who previously attended training in a traditional classroom environment. Some tutors are

resisting conforming to online distance education requirements as they lack proficiency in the use of computer applications. However, this gap can be bridged by in-service training, whether self or government sponsored.

The above discussion provides overview of some key issues arising from a review of the literature on ODE in SA. These issues relate to the attitudes of both students and teachers towards the implementation of ODE and to technical issues. Table 4.6 summarizes some recent studies associated with ODE area in SA and conducted during the last recent years in chronological order. However, the majority of these studies have not addressed or examined the challenges encountered in ODE implementation holistically, from multiple stakeholders' perspectives.

Study title	Reference	Stakeholders' perspective	Methodology	Findings and Challenges
An Empirical Investigation Into the Role of Enjoyment, Computer Anxiety, Computer Self-Efficacy and Internet Experience In Influencing The Students' Intention To Use E-Learning: A Case Study From Saudi Arabian Governmental Universities	Alenezi et al (2010)	Students' perspective	• Quantitative study aims to study factors affecting students' intention to use ODE. • 480 questionnaire targeted students in five Saudi universities.	The study revealed the following factors affecting students' learning experience: • Student enjoyment • Computer anxiety • Students 'attitude • Computer self-efficacy • Usefulness and ease of use of LMS.
E-Learning in the Saudi tertiary education: Potential and challenges	Al-Harbi (2010)	Students' perspective	• Quantitative study aims to explore about issues affecting successful ODE. • A questionnaire technique targeted 503 students in one university.	The study highlighted the following perceived issues affecting acceptance of ODE system: • Student gender and attitude includes intention, individual norms, decision, computer self-efficacy and experience. • ODE features such as lack of accessibility, usefulness, ease of use and interactivity. • Lack of university support for ODE students.

Study title	Reference	Stakeholders' perspective	Methodology	Findings and Challenges
E-learning in Saudi Arabia: 'To E or not to E, that is the question	Al-Shehri (2010)	Tutors' perspective	• Qualitative approach using focus groups that targeted 30 tutors from all Saudi universities who enrolled on a training course relating to ODE.	The study presented an optimistic view about the future of ODE and highlighted the following issues within ODE that should be considered in future plans for ODE development: • Lack of understanding about the nature of ODE due to inadequate management support. • Lack of collaboration and organisation between units within ODE in each university, and among universities in SA. This is preventing the successful implementation of ODE on a national level. • Lack of adequate technical infrastructure and support. • Lack of a participative strategic vision and plan between SA universities, NCel, and the MOE. • Lack of consideration of students' perspectives when making plans for the future development of ODE.
Is KSA ready for e-learning? A case study	Chanchary and Islam (2011)	Students' perspective	• Quantitative study aims to study readiness of Saudi learners for ODE. • Case study with questionnaire targeted three groups (based on year of study) of undergraduate students who study using traditional face-to-face learning.	The study revealed that low level of students' e-readiness for ODE systems, this examined as an effective measure of the construct quality of ODE in HEIs in terms of the following factors: • Most students within the sample have a good level of technological skills when using the computer and internet but a low level of independent learning capability in ODE. Therefore, they prefer classroom learning. • English language and cultural differences are key issues for Saudi students when interacting with students from different countries as part of ODE. • There is also evidence of a digital divide in SA. The penetration and speed of internet adoption in SA has not yet reached all potential users.

Study title	Reference	Stakeholders' perspective	Methodology	Findings and Challenges
E-Learning System on Higher Education Institutions in KSA: Attitudes and Perceptions of Faculty Members	Alkhalaf et al. (2012)	Tutors' perspective	• Quantitative study aims to assess the organisational impact of ODE on the performance of ODE tutors. • Questionnaire targeted 39 tutors in two universities in SA.	The study revealed that the use of ODE has a positive organisational impact on academic tutors, as it can: • Improve their job performance • Support universities to use modern technologies in the educational process • Improve their technical skills.
What Drives Successful E-Learning? An Empirical Investigation of the Key Technical Issues in Saudi Arabian Universities	Altameem (2013)	Administrative and technical staff's perspective	• Qualitative study aims to explore the main technical issues facing ODE practitioners in SA. • Semi-structured interviews conducted with participants from three key universities in SA.	This study revealed the following key technical issues affecting ODE development in SA: - Lack of adequate technical infrastructure. - Low security level within the ODE system during the exchange of files leads to a low level of system credibility. - Lack of an adequate accessibility feature in the ODE system - Poor internet connection - Lack of adequate IT support to ensure that the ODE system functions correctly.

Study title	Reference	Stakeholders' perspective	Methodology	Findings and Challenges
E-learning in Saudi Arabia: Past, present and future	Al-Asmari and Rabb Khan (2014)	Students' and tutors' perspectives	• Qualitative study aims to explore the current state of ODE, issues, and possible future developments. • Document analysis of ODE literature.	This study revealed that the issues affecting the development of the ODE system in SA can be classified into the following themes: - Technical issues, including disconnection during online courses, inadequate technical infrastructure, unqualified technical experts, and low accessibility, especially for rural students. - Material and financial issues, including insufficient financial resources for some SA universities. This prevents them from acquiring new hardware, laboratories and equipment, therefore the course materials will be of poor quality. Moreover, the high cost of ODE courses and internet services are significant obstacles to some students. - Organisational issues, including inadequate support from management for tutors, lack of awareness among tutors about the nature of ODE nature, and an unwillingness to accept using a technology-based teaching mode, and unclear rules and strategies regarding ODE at an organisational level. - Lack of a participative and clear strategy for ODE implementation from the MOE for all Saudi universities that offer ODE courses.

Table 4.6 Some recent studies about ODE issues in SA from the literature.

The majority of the above studies relied on survey methodologies, with only two studies using data from case studies led by interviews and focus group, and one being based on a review of the literature. Most of the studies examined students' attitudes to ODE rather than tutors' perceptions of ODE systems. Just one study examined the views of administrative and IT staff towards issues facing them in ODE. A number of these studies reviewed and examined the well-defined technological issues associated with ODE adoption without considering the ill-defined issues of cultural and political environments of ODE and their impacts on ODE development.

There is also a clear absence of an understanding of the relationship between any issues arising in ODE, as most of the studies examined the issues separately. Given the heavy investment in ODE by the Saudi government, it is surprising that an identifiable focus on e-learning with emphasis on ODE was missing from these studies. A more obvious gap is lack of research applying systems thinking, or soft systems methodology, to identify issues in ODE context.

However, there is notable similarity between the generic issues in Table 4.5 and SA specific issues hindering the development of ODE. Table 4.7 below summarizes and highlights the shared and differing ODE issues in global and Saudi contexts.

Issues	Global context	Saudi context
Institutional issues		
- Leadership and management	✓	✓
- Instructor skills and training	✓	✓
- Quality of learning materials	✓	x
- Assessment system	✓	x
- Resistance from some tutors as they lack proficiency in computer applications	x	✓
- Financial issues	✓	x
- Lack of understanding about the nature of ODE due to inadequate management support.	x	✓
- Lack of collaboration and organisation between units within ODE in each university, and between universities in SA.	x	✓
- Failure to consider students' perspectives when planning future ODE developments.	x	✓
- Unclear rules and strategies regarding ODE at the organisational level	x	✓
Technological issues		
- Lack of suitability and compatibility	✓	✓
- Lack of reliability, capacity and maintenance	✓	✓
- Lack of usefulness and ease of use LMS	✓	✓
- Lack of accessibility and security	✓	✓
Cultural issues		
- Gender issues	✓	✓
- Lack of Communication among students	✓	✓
- Language issues	✓	✓
- Family commitments for female student	✓	x
- Political regulations by governmental bodies such as the Saudi ministry of education: - Lack of participative strategic vision and plan between SA universities, NCel, and the MOE. - Lack of a participative and clear strategy for ODE implementation from the MOE for all Saudi universities that offer ODE courses	x	✓
Learner issues		
- Lack of interaction between learner and instructor.	✓	✓
- Inadequate academic services, support and training	✓	✓
- High withdrawal rate from ODE programs	x	✓
- Low level of independent learning capability in ODE	x	✓
- Lack of computer related anxiety, computer self-efficacy and enjoyment	x	✓
- Students' intentions and behaviour	x	✓
- Digital divide among rural and urban students	x	✓

Table 4.7 Summary of common and different ODE issues in global and Saudi contexts.

4.11 Summary

The review of ODE literature revealed that while ODE programs provide access to higher education for many learners across the globe, several challenges remain to ensure the successful implementation of ODE programs in the future. While some well-defined issues readily emerge and can be addressed using formulaic solutions, ODE literature provides evidence that several ill-defined issues stem from the complexity of the ODE environment. This chapter provided a clear evidence of lack of studies comprises different ODE stakeholders' perspectives about issues in order to develop ODE system. Hence, a soft systems approach, with a capacity to accommodate the complexity and unpredictability of ODE, was found to be useful for addressing and highlighting ODE issues in the area of concern in SA higher education context.

This chapter proposed an initial refined soft systems framework (Figure 4.4) as a viable approach to conducting empirical research in SA context. In the context of this study, ODE in SA was found to be impeded by various issues that are both common to and differ from issues that arise in ODEs in the global context, as shown in Table 4.7. It also emerged that attempts to resolve issues by applying standard solutions were likely to create additional problems, preventing effective implementation of ODE programs. The next chapter will explain the detailed methodology used within the current study.

Chapter 5: Research Methodology

5.1   Introduction

This chapter presents the research methodology for this study, which is SSM-Mode 2 used as a learning approach to explore the ODE system at King Abdulaziz University (KAU) in Jeddah city in Saudi Arabia. The aim of SSM-Mode 2 is to enhance the researcher's knowledge about the complex situation in the ODE system from different stakeholders' perspectives. This chapter also explains how the methodology design was intended to provide greater insight into the usefulness of the preliminary conceptual framework (see Figure 4.4 in Chapter 4). In general, SSM is a holistic approach that includes philosophical principles, methods and tools that helped the researcher to explore ODE and analyse it (Checkland, 2000). This chapter discusses these components of the methodology.

The structure of this chapter is as follows: firstly, it will present the research design for this study; secondly, it will discuss the philosophical principles of SSM-Mode 2 in terms of its ontological and epistemological assumptions; thirdly, it will present the stages of the SSM-Mode 2 learning process within this study. The first stage of the research inquiry process, which is known as the 'planning stage', will be discussed. Subsequently, the data collection methods and SSM tools that used for collecting data during the fieldwork will be presented. In addition, data analysis process and the potential ethical issues associated with the fieldwork component of the study will be presented. Finally, some essential principles for evaluating qualitative research, and the potential limitations of the methodology, will be introduced.

5.2   Research Design

The first step in an empirical research method is the research design process, as shown in Figure 5.1. According to Yin (2003, p.19), research design can be defined as: "... an action plan for getting from here to there, where here may be defined as the initial set of questions to be answered, and there is some set of conclusions (answers) about these questions." Consequently, the design stage commences by highlighting the research problem, aim and question, followed by a review of the systems thinking field in SSM and identification of the gaps in the literature.

Subsequently, it involves reviewing ODE education literature and conceptual models based on systems thinking perspectives, until a theoretical framework (see Figure 4.4 in Chapter 4) has been developed, enabling the researcher to employ SSM-Mode 2 for empirical research. Finally, SSM-Mode 2 is employed in the ODE setting at KAU in Saudi Arabia, leading to reflection and assessment of SSM-Mode 2 as a learning approach towards exploring problematic situations in an ODE context. This research design provides the researcher with good control and a manageable process for collecting qualitative data (Cassell and Symon, 2004).

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│ exploration   and │   │ develop ideas to fill  │   │ is perceived as a │
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│ approach      for │◀──│ and identify its       │──▶│ system views about│
│ problem   analysis│   │ complexity             │   │ ODE systems and   │
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Chapter 5                          │
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    │ Saudi Arabia) and main data collection method (semi-       │
    │ structured interviews) and SSM tools                       │
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Chapter 6                          │
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    ┌─────────────────────────────────────────────────────────┐
    │ Description and reflection on the learning process by the  │
    │ researcher, using SSM-Mode 2 on the ODE system at KAU in    │
    │ Saudi Arabia                                               │
    └─────────────────────────────────────────────────────────┘
Chapter 7                          │
                                   ▼
    ┌─────────────────────────────────────────────────────────┐
    │ Reflection and assessment of SSM-Mode 2 as a learning      │
    │ approach in reference to ODE situation at KAU, and develop a│
    │ conceptual framework that identifies key activities and     │
    │ characteristics of learning element within SSM-Mode 2 for   │
    │ future SSM-Mode 2                                          │
    └─────────────────────────────────────────────────────────┘
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Figure 5.1 Research design for the study.

5.3   SSM-Mode 2

5.3.1   Philosophical Principles

The research philosophy describes the underlying epistemological assumptions that guide a research study (Myres, 1997; Orlikowski and Baroudi 1991; Creswell, 2009). Epistemology refers to how people perceive the world, and the nature of knowledge needed to provide an in-depth understanding about a problem under investigation (Creswell, 2009). Epistemology describes how people think about the world around them, which leads to their ontological understanding of the nature of reality (Creswell, 2009). The soft systems methodology relies on soft systems theoretical principles. As discussed earlier (sections 2.4.2 and 2.5.1 in Chapter 2) SSM is described as an interpretive approach.

The philosophical principles of SSM-Mode 2 are categorised as an interpretive approach (Flood and Ulrich, 1991; Rose and Haynes, 1999; Checkland and Poultar, 2010). The epistemological view of SSM-Mode 2 assumes that the real world is perceived as a complex situation of interrelated parts that requires a systemic process in order to understand it (Checkland, 1999). On the other hand, the ontological view of SSM-Mode 2 assumes that the systems do not exist in the real world but are socially constructed (Rose and Haynes, 1999). The construction of understanding and meaning regarding the systems within SSM-Mode 2 is achieved through understanding the cultural context of the systems and the interpretation of the thinking and interaction of people (Checkland and Poultar, 2010). Thus, SSM-Mode 2 emphasises the plurality in terms of how the goals of the system are defined to accommodate the multiple perspectives (interpretation) of the different stakeholders involved in a complex situation to improve it.

There are three types of generic research philosophies relating to the Information Systems (IS) context: positivist, interpretive, and critical (Mingers, 2004; Orlikowski and Baroudi, 1991). Table 5.1 illustrates the research philosophies common to the social sciences, linking them to their epistemology and ontology.

	Research philosophy		
	Positivist	**Interpretive**	**Critical**
Ontological view	• Assumes that social reality is independent and objective, with measurable features that are independent from individuals.	• Assumes that reality is subjective and is socially constructed by the actions and interactions of individuals.	• Assumes that social reality is a historical construct.
Epistemological view	• It supports improved comprehension of phenomena by theory testing. • It achieves results using a sample to test propositions, quantifiable variables, and hypotheses about a phenomenon.	• It supports increasing understanding of a phenomena through interpretation and explanation of the views of individuals about the phenomena under investigation.	• Can lead the researcher to view certain social, political and cultural aspects of an IS and determine their capacity to change. • Concentrates on disagreements and conflicts in society, with a necessity to understand the language of individuals as constrained by time and place.

Table 5.1 Research Philosophies in the Social Sciences.

According to the interpretive perspective, the researcher perceived ODE as a problematic situation developed by human thinking, interaction, and action, while knowledge (understanding about issues occurred in ODE) can be constructed by understanding the cultural context of ODE and interacting with people who working in ODE and interpreting their views. Interpretive research philosophy helps to promote collaboration between the researcher and participants by enabling participants to express and describe their views and experiences (Walsham, 1993), allowing the researcher to more fully understand the participants' actions (Klein and Myers, 1999).

In comparison with the positivist and critical philosophical views, Irani et al. (2006) stated that the interpretivist stance aims to understand phenomena from the perspective of participants involved in a situation under investigation, while the positivist stance emphasises quantifiable data or information with a high level of impact on these phenomena. In the case of the current study, there are no quantitative variables, formal propositions or hypotheses to be tested; therefore, the adoption of a positivist philosophy is inappropriate. In contrast, positivists believe that facts exist in the world and are independent of values (Walsham, 1995). SSM-Mode 2 includes some ideas and models (such as rich picture and conceptual model) that are not objects in the real world, but accepts respondents' opinions concerning particular situations. In contrast, critical philosophy considers the notion that concepts and meanings are objective and exist in the real world (Bhaskar, 1997).

5.3.2   Qualitative Approach

According to Rose and Haynes (1999), the interpretive philosophy in SSM is "focused upon qualitative issues; it can also be participative in nature.'' (p. 207). SSM-Mode 2 allows the practitioner to understand ill-defined issues that are difficulty understood by the quantitative and scientific approach (Checkland, 1989). In this regard, SSM-Mode 2, as the main methodology share common features with a generic type of qualitative research. Denzin and Lincoln (2011, p. 3) declared that the qualitative researcher needs to "study things in their natural setting, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them". The qualitative approach facilitates collection of qualitative data using different methods, such as interviews, observation and documentary evidence for effective comprehension and explanation of phenomena (Myers, 1997). SSM-Mode 2 allows its practitioners to explore and

understand qualitative data through using SSM tools such as rich pictures and conceptual models. This leads to analysing the research findings in words rather than numbers.

On the other hand, the quantitative approach is based on statistical analysis, and is therefore not so appropriate when exploring opinions or work experience, and work processes in organisational contexts (Cassell and Symon, 2004). For cases involving statistical data, Creswell (2009) proposed a quantitative approach, enabling the researcher to conduct a cause and effect investigation, such as studying the impact of factors on output, or the advantages of interventions. Since this study integrates human activities, including managing, designing, teaching and learning, the SSM-Mode 2 offers a suitable methodology that is equivalent to the qualitative approach. The study involves stakeholders in the ODE system, including administrative and technical experts, academic teaching staff and students.

SSM-Mode 2 is employed in this research to assist the researcher's understanding of problematic situations in ODE. The learning and understanding achieved by the researcher will help her to evaluate the benefits and limitations of SSM-Mode 2 as an inquiry process. After completion of the fieldwork, this knowledge will enable the researcher to develop SSM-Mode 2 by adding valuable modifications to improve its suitability as a learning approach.

Saunders et al. (2009) stated that a research approach can be either inductive or deductive. Determining the appropriate research approach is an essential component of the research design process (Walsham, 1995; Miles and Huberman, 1994). Theoretical considerations can also determine which approach is suitable for a research. In the inductive research approach, new theories or concepts are developed by exploring phenomena, to gain understanding or observe people in the target situation. Meanwhile, a deductive approach emphasises attaining findings by testing hypotheses developed from existing theory

(Saunders et al., 2009). However, this research does not include any hypothesis testing. SSM-Mode 2 is used as an inquiry process to promote learning to achieve the research aim and answer the research question, so this research study is considered to be inductive.

5.3.3 The Stages of Learning Process within SSM-Mode 2

This research employs SSM-Mode 2 as its main methodology, providing an organised learning approach to structure the researcher's thinking when developing the necessary data to construct knowledge about problems affecting the ODE system. This research focuses on exploring ill-defined issues, their connections and different stakeholders' views on the ODE system, causing the researcher to perceive the ODE system as a complex situation. SSM-Mode 2 is based on the SSM framework shown in Figure 2.3 in Chapter 2. This mode of SSM is ideal when a practitioner (the researcher in this case) needs to undertake stream of analysis, termed cultural enquiry, which includes exploring ill-defined issues, such as social and political factors that affect human activities in the ODE.

In Mode 2 usage, systems thinking normally offers a logic stream for cultural enquiry that revolves around three forms of analysis: analysis of intervention, social system analysis, and political system analysis, as explained in Chapter 2. Mode 2 provides the researcher with more flexibility in using SSM stages, because it is a situation-driven approach that directs the SSM steps. The researcher can therefore apply SSM so that some stages of the SSM are performed in parallel rather than sequentially, as the situation does not require the systematic completion of all steps. In addition, Mode 2 ensures interaction to support the researcher to gain more knowledge and understanding about the ill-defined issues affecting the ODE system by interacting with those stakeholders using it.

Checkland and Winter (2006) proposed four ways to explore a complex situation from a cultural perspective; use a rich picture that represents the situation, do social, political and intervention analyses. The intervention analysis in this study is the researcher's learning process with regard to the ODE system at KAU from a cultural view of Saudi Arabia. As the research aims to evaluate SSM-Mode 2 as an effective learning approach for the researcher to find out about ODE system, this study will pay more attention to intervention analysis. The researcher's inquiry process using SSM-Mode 2 employed in this study in three stages (as shown in Figure 5.2). Moreover, Figure 5.2 refers to the central component of the 'Learning process' within the initially refined conceptual framework in Figure 4.4 in Chapter 4.
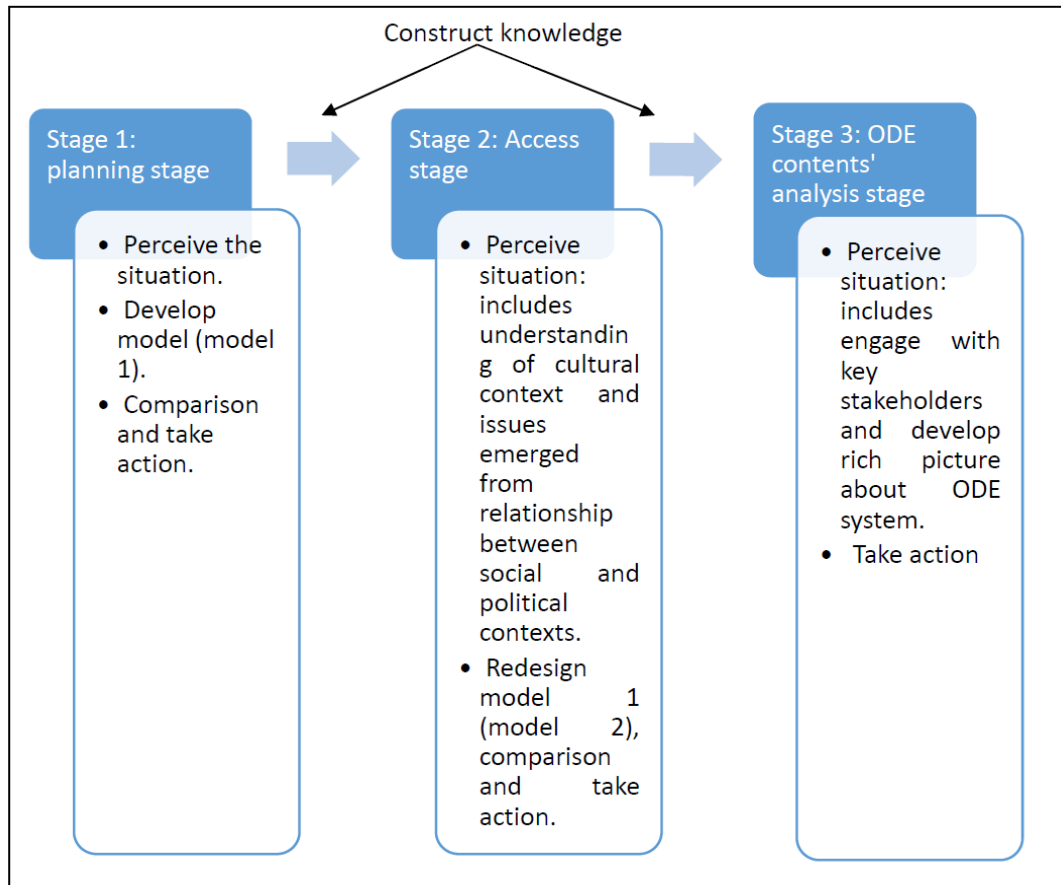
Figure 5.2 The three stages of the researcher's inquiry process into the ODE system at KAU using SSMp and SSMc within SSM-Mode 2.

The researcher used both SSMp and SSMc (Checkland and Winter, 2006) to structure the researcher's learning process with regard to the ODE system at KAU and to distinguish the nature of each stage from other. However, before starting a learning process, a researcher needs to learn how to plan for it because the situation regarding KAU ODE was completely unknown. For this reason, the researcher started the 'planning stage' in stage 1 before carrying out the learning process about ODE system at KAU.

Stage 2, the 'access stage', describes the process of accessing the ODE system at the HEI under investigation, and stage 3 the 'ODE contents analysis stage' describes the contents of the ODE system. Rich picture, social and political analyses are used in stage 2 to complete the learning process by the researcher about the ODE system at KAU. In

addition, rich pictures are used in stage 3 to support the researcher's highlighting of issues and concerns from different stakeholder perspectives.

Also, the researcher used the four learning principles (Checkland and Winter, 2006) as shown in Figure 3.2 in Chapter 3, to structure her thinking and learning for completing stages 1, 2 and 3 of the inquiry process about ODE system. After completing each stage, the researcher will construct knowledge about the situation and how to perform the next stage and this step representing by label 'construct knowledge' in Figure 5.2. However, due to the scope and aim of this research in exploring and discovering more about ODE systems, without explicitly improving its contents, the third stage will end with some proposals for improvements for ODE development at KAU in the future.

5.3.3.1   Stage 1: Planning Stage

-   **Perceiving the Situation**

Understanding the ODE system created a complex challenge for the researcher, and so it was important to explore it and learn about it in a structured way, as explained in the previous chapter. After doing so, it was then important to structure the intervention (learning about ODE system) by identifying the roles of the clients, problem owners and problem solvers. A client is the person who prompts the study, while the problem solver refers to a person aiming to improve a complex situation and carry out a structured approach for possible interventions. In this study, the researcher took on the roles of client and problem solver (Checkland and Scholes, 1990).

This research represents the purposeful activity of the inquiry process by the researcher in regards to the problematic situation in the ODE system as an intervention process. The researcher carried out the study to theoretically intervene and add a valuable contribution to the systems thinking field. As stated before, the research aims to evaluate SSM- Mode

2 as a learning approach, to help SSM practitioners gain a comprehensive understanding of complex areas such as the ODE system.

Personal interest also motivated this research into the ODE system. Indeed, the primary motivation in conducting this research was the author's ultimate aspiration and desire to work in the ODE field. Moreover, the study was initiated by the need to attain a deeper understanding of formerly ill-defined issues encountered when implementing ODE, and their causes from the perspectives of different stakeholders. SSM-Mode 2 places more emphasis on the cultural environment affecting a problematic situation, which influences stakeholders' thinking and perceptions about the difficulties they encounter (Checkland and Scholes 1990). Thus, the researcher decided that conducting a structured learning process to investigate an ODE system within the cultural environment of Saudi Arabia would be most appropriate, because she has in depth understanding and awareness of the Saudi cultural context of HEIs in Saudi Arabia. In addition, Saudi Arabia is an interesting case, because of the unique cultural environment of gender separation that dominates public HEIs and business organisations.

Hence, the researcher chose to conduct the empirical study at KAU in Jeddah city, which is one of the leading universities in Saudi Arabia. KAU was the first public university to implement an ODE system in Saudi Arabia in 2006 (Aljabre, 2012; Al-Asmari and Rabb Khan, 2014). However, as a formal procedure when collecting data at KAU, the researcher had to first gain an access permission letter from the relevant department at the university. The next stage of the researcher's learning process about the ODE system at KAU is described when discussing the process of accessing the university in the next chapter.

The problem solver can select individual(s) to include in the role of problem owner (Checkland and Scholes, 1990). This list can be an excellent source of intellectual ideas

that might facilitate the learning process in a real situation. In this case, the problem owners will be stakeholders involved in the daily activities of using and administering the ODE system at KAU, and they are identified during the fieldwork, as will be explained in the next chapter. Since, the researcher perceived the ODE system as suffering from problems, there is a need to identify interrelated ill-defined issues that do not have specific definitions of success proposed by different stakeholders who have diverse thinking and perceptions of their situation.

- **Developing models**

The main purposeful activity in this stage involves learning about the problematic situation affecting the ODE system at KAU. However, this learning should be organised and planned, to enable the researcher to acquire maximum knowledge about the ODE system at KAU. Thus, the researcher uses SSMp (process mode). In addition, the researcher uses SSM tools, such as cultural stream analysis (including intervention, social and political analyses), and rich picture (Checkland and Winter, 2006; Checkland and Scholes, 1990), to achieve further learning about the ODE system at KAU. Figure 5.3 represents this model of initial practical activities for the planning stage shown in Figure 5.2.
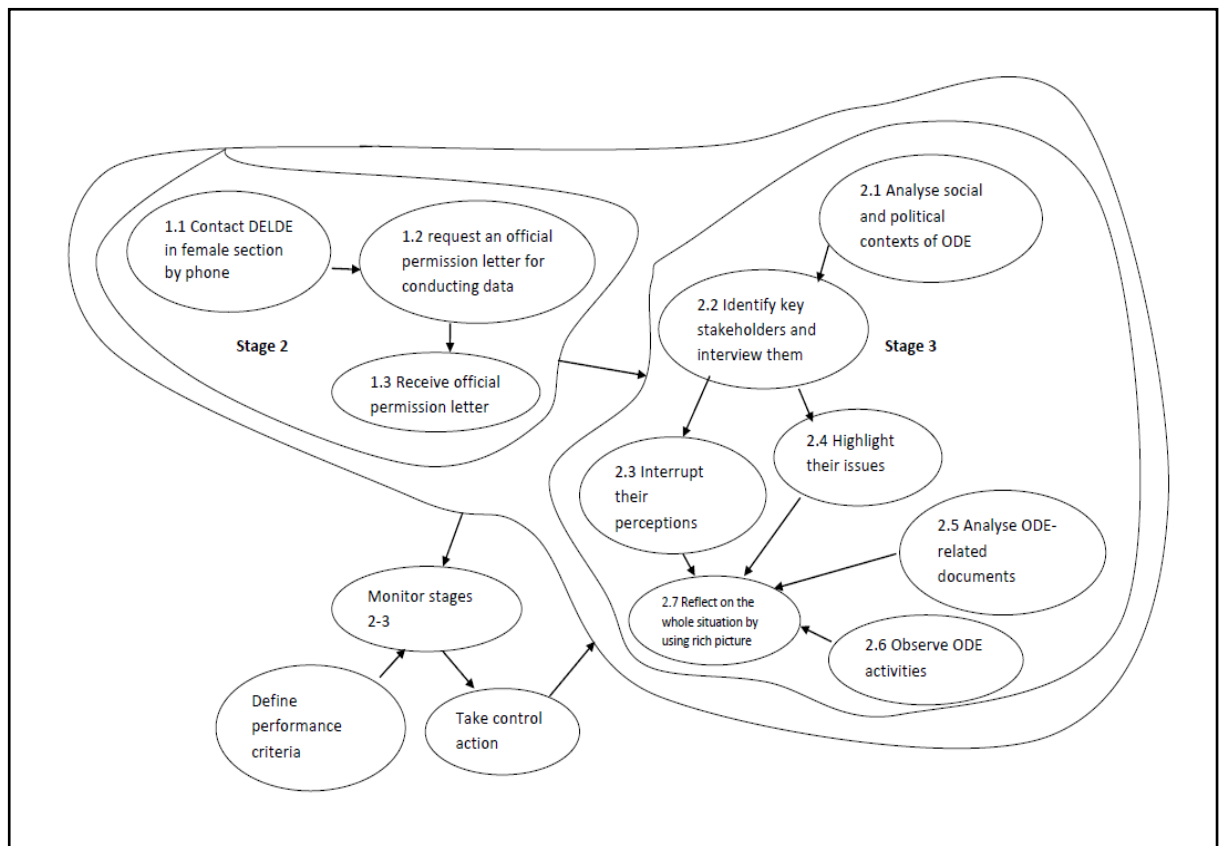
Figure 5.3 The conceptual model of the planning stage of the researcher's learning process about ODE at KAU.

The above model includes two main stages, which are required to complete the current learning process regarding the ODE situation at KAU. Hence, this study aims to understand ill-defined issues affecting the ODE situation without solving them in practice; it also uses some of SSM tools that will assist the researcher to perceive the ODE situation. The second stage (SSMp) of the researcher's learning process about the ODE system at KAU describes activities planned to facilitate obtaining the official permission letter for access to the university to interact with ODE stakeholders to conduct the research. It includes different activities that are labelled from 1.1 to 1.3. The third stage (SSMc) is directed toward understanding the contents of ODE in terms of stakeholders' perceptions, main activities and issues face them in KAU ODE. This consists of various activities labelled from 2.1 to 2.7 that facilitate the researcher's acquisition of data about the ODE system content by interacting with ODE stakeholders and by analysing ODE-related documents provided by stakeholders, as well as by conducting direct observations of ODE activities at KAU.

- **Comparison and Take Action**

The conceptual framework in Figure 5.3 is a part of the developed theoretical framework in Figure 4.4 in Chapter 4, which the researcher compared it with other system models that existed in ODE literature, such as Moore and Kearsley's systems view (see previous Chapter), that provide design-oriented models for the development of an ODE system. The model in Figure 4.4 is a learning-oriented framework that generates the researcher's understanding through interaction and engagement with different ODE stakeholders. However, the validity of this framework (Figure 4.4), based on SSM-Mode 2 will be evaluated after completion of the fieldwork.

Moreover, the researcher entered into discussions with other experts in the systems thinking field, including the lead research supervisor Dr Jose-Rodrigo Cordoba-Pachon

for this research, who contributed his experience with the proposed methodology. In 2015, Professor Checkland, the developer of SSM, also contributed his experience by positively supporting and encouraging the use of SSM-Mode 2 in relation to learning in the ODE context (see Appendix 1). Hence, an in depth analysis of SSM-Mode 2 could prove useful for SSM researchers and practitioners. In the middle of 2014, a structured discussion about this planning stage was conducted in the School of Management at Royal Holloway, University of London, including the supervisory team and director of the PhD programme. The discussion's conclusions favoured the advancement of the implementation of the planning model in practice.

5.4   Data Collection Tools

Since this study adopts SSM-Mode 2, which is considered a qualitative methodology, various data and information collection strategies were deemed appropriate during the fieldwork for this research. The benefit of using multiple data collection for both primary and secondary data is to eliminate bias when single methods are adopted. Primary data is data collected by the researcher using different tools, such as SSM tools, interviews, observations and questionnaires. This is complemented by secondary data, which is collected by other researchers, such as academic journal articles, annual reports, magazines and newspaper reports (Wilson, 2010). In this study, the researcher reviewed education literature concerning the ODE, and systems thinking literature, to gain additional knowledge about recent studies regarding the context of ODE.

In addition, the researcher used multiple qualitative data collection methods to gather primary data from different stakeholders in KAU in Saudi Arabia for the purpose of this study. These participants include the Deanship of E-learning and Distance Education (DELDE) staff members, academic teaching staff and students from both the male and female sections involved in the ODE system at KAU. Those stakeholders were classified

into these groups during fieldwork after completing stage 2 of the researcher's learning process concerning the ODE system at KAU. The perceptions of these stakeholder groups is discussed in the next chapter in section 6.3.2. The reason for employing multiple data collection instruments is to ensure that as much information as possible is captured, thereby enriching the findings as each finding validates the other, especially where there is corroborating evidence of findings (Cassell and Symon, 2004). This also allows the researcher to engage and interact with participants to perform an in-depth analysis of ODE context to gain rich findings about the ill-defined issues that affect ODE activities.

The following Table, 5.2 illustrates, each method used to conduct primary and secondary data for this study with focus on strengths, weaknesses and applicability in the researcher's learning process stages with regard to using ODE system SSM-Mode 2 at KAU. However, interviews will be the main data collection method for the primary data, as discussed later in this chapter.

Source of evidence	Strengths (Yin, 2003)	Weakness (Yin, 2003)	Employment in this study	Applicability to the researcher's learning process
Documentary	➢ Ease of accessing theories and literature for quick cross-referencing before building conceptual frameworks. ➢ Documentary evidence is a source of exploratory information if the project is novel.	➢ Lack of rigorous scientific tests, as they tend to be very descriptive in many cases.	➢ In this study, documentary evidence was applied when understanding literature backgrounds and theories. ➢ The documentary evidence used to collect secondary data from academic journals articles in the ODE. ➢ Documents related to the ODE system at KAU used for understanding more about some stakeholders' activities, such as ODE course design and development and policies of teaching and assessment. ➢ Web-based content analysis is used to evaluate ODE materials available on the KAU website.	➢ Stages 1 and 3
Interview	➢ Ability to conduct either structure or unstructured to achieve appropriate feedback. ➢ Additionally, interviews are best when gathering information that is not quantifiable due to the clarity of the questions.	➢ Feedback can be extensive and correlating and with coding it is time consuming to achieve consensus.	➢ Semi-structured face-to-face interviews were used to gather qualitative evidence and information from DELDE staff members and teaching academic staff at the female campus. ➢ Phone interviews were used to gather qualitative evidence and information from DELDE staff members and teaching academic staff in male campus. ➢ Skype interviews were used to gather data from male and female students using the ODE system to understand their views about it and issues facing them. ➢ Group interviews were done with three department heads from DELDE at the female campus. Their perceptions helped further the researcher's understanding about the situation regarding the ODE system at KAU.	➢ Stages 2 and 3
Direct Observation	➢ Opportunity for researcher to review and reflect on the real situation and context.	➢ Situation would lead to a different reflection and biases. ➢ Researcher engages in selective observation of the situation. ➢ Very time consuming.	➢ In this study, direct observations took place during 'access stage' in terms of getting official permission letter to conduct data in the university. ➢ On the other hand, observation seemed useless during stage 3 'ODE contents analysis stage' due to limited access power that the researcher had it.	➢ Stage 2

Table 5.2 The different data collection methods used in the study.

5.4.1   SSM tools

Various SSM tools were used to help the researcher during the learning process about KAU ODE. These tools included cultural analysis (intervention, social and political), rich picture and conceptual models. Cultural analysis and conceptual models are used in both stages 1 and 2, rich pictures in stages 2 and 3. These tools were explained in section 2.5.2 in Chapter 2. For example, in the planning stage in the previous section, the 'intervention analysis' tool was used to identify and understand the roles of participants who will be involved and participate in the learning process.

In addition, the conceptual model tool was used during the planning stage to structure how the researcher thought about the initial learning activities for stages 2 and 3 that would be achieved in the fieldwork. The following table presents each SSM tool used in this study, focusing on the purpose of using it and applicability in the researcher's learning process stages with regard to using SSM-Mode 2 to explore KAU ODE. However, SSM strengths and weaknesses will be included in the discussion of evaluation of SSM-Mode 2 as a learning approach (see Table 7.2 in Chapter 7).

SSM tools	Employment in this study	Applicability to the researcher's learning process
Cultural analysis (intervention, social and political)	➢ To provide a structured understanding about key participants in the learning process of the researcher. ➢ To provide a holistic understanding about the environment context that dominates ODE system at KAU.	Stages 1 and 2
Rich picture	➢ To provide better understanding and make a sense about the 'access' process into ODE at KAU. ➢ To provide overall representation and understanding about the current ODE situation at KAU with more focus in identifying stakeholders' issues.	Stages 2 and 3
Conceptual models	➢ To provide an understanding about proposed learning activities during the researcher's learning process.	Stages 1 and 2

Table 5.3 Different SSM tools used in the study.

5.4.2 Interviews

Yin (2003) states that interviews can be a key source of information, as they provide the researcher with detailed and rich data. The main aim of interviews is to collect data through direct verbal interaction. Interviews are more appropriate for gathering complex data, because they allow researchers to interact with participants who can provide better understanding. Interviews can allow the researcher to spend time investigating important issues by prioritising them as they arise during the interview (Cornford and Smithson, 2006). There are different types of interview - structured, semi-structured and unstructured (Myers and Newman, 2007; Bryman and Bell, 2011). Structured interviews include predefined and fixed questions, which are presented in a well-organised manner to attain specific information. Semi-structured interviews include pre-defined questions

but in a flexible order, and can be used to generate a particular question depending on the participants' responses. Unstructured interviews begin with general questions relating to the area of interest and rely on the participants' responses as a guide when posing additional questions to attain more in-depth information.

5.4.2.1   Semi-Structured Interviews

- **Face-to-Face Interviews**

The most suitable interview type for this research was semi-structured interviews. Bryman and Bell (2011) note that discussion during a semi-structured interview can provide insight into a situation and such interviews can take the form of individual or group interviews (Frey and Fontana, 1991). In this study, the researcher conducted individual and group face-to-face interviews with DELDE staff members and teaching academic staff in female campus in KAU ODE. However, the most used face-to-face interview type was individual due to time conflict of participants that prevented group interviews taking place.

This type of interview allowed the researcher to collect as much information as possible about the current situation at the ODE, including information regarding the issues that affect participants. It also helped the researcher encourage interviewees to provide the necessary information by asking more questions based on their responses. Another advantage of semi-structured interviews is that they allow the researcher to seek further explanations of answers to resolve any ambiguity. In this study, the researcher aimed to record the interviews to assist analysis of the data and to develop a rich picture of the ODE system, as shown in Figure 6.4 in Chapter 6. However, the disadvantages of interviews include higher costs (Bryman and Bell, 2011) and time implications (Yin, 2003). Bias can be an issue in interviews, as addressed by Nachmias and Nachmias,

(1996) and Bryman (2001). To limit bias, the sample respondents were selected randomly from the groups of stakeholders directly involved with the ODE system at KAU, to obtain views that would be as diverse as possible.

- **Phone and Skype Interviews**

The researcher used different types of semi-structured interviews to suit the cultural context of KAU. The researcher conducted face-to-face interviews with female DELDE staff members and academic teaching staff at the female campus and telephone interviews with their counterparts in the male section. Meanwhile, Skype interviews were used to gather the views of male and female students regarding the ODE system at KAU. The option of phone and Skype interviews was a benefit to the researcher, as it made it possible to conduct interviews with male participants, which would have been otherwise impossible due to the cultural requirements for gender separation.

Telephone (Mann and Stewart, 2000) and Skype interviews (Lo Iacono et al., 2016) enable a researcher to collect data from people in places that have closed or limited access. In addition, cost is saved when using this method as there is no need for travel, unlike for face-to-face interviews. Such methods can save time for both interviewer and interviewee, as questions are asked directly and answers given very quickly (Bryman, 2001; Gilbert, 2001; Hanna, 2012). Another advantage of telephone and Skype interviews can be a reduction in bias, as there is greater probability that a researcher's presence may alter participant responses in face-to-face interviews (Bryman, 2001). Skype interviews were chosen when interviewing students because the method is as reliable and flexible as telephone interviews, but Skype interviews are lower cost (Lo Iacono et al., 2016).

Telephone and Skype interviews have some disadvantages. Bernard (2000) stated that time could be a limitation for these interviews, as lack of physical interaction can result

in more factual information but reduces the capacity to build on observations based on participants' reactions and feelings (Bryman, 2001; Gilbert, 2001). However, using telephone and Skype interviews with male participants in the Saudi cultural context allowed the researcher to gain the requisite information, as well as to learn and get a better understanding of the ODE system at KAU.

5.4.2.2   Number of Interviews

In total, twenty-four interviews were conducted, in two phases. The initial phase included twenty-two interviews with stakeholders from both the male and female sections; twelve of these were female, ten were males. In the second phase, two interviews were conducted with the main stakeholders who participated in phase one. The number of interviews was determined by a number of factors, as described here. Firstly, the ODE system at KAU is managed by DELDE, which also oversees other e–learning programmes and involves different departments and units, as shown in Figure 6.1 in the next chapter, some of its staff play multiple roles in different departments. The research focus is on the ODE system, and not everyone at DELDE can provide the necessary data. Initial discussion with two participants at the DELDE female campus (see Section 6.2.1.3, Chapter 6) helped to identify those staff members at DELDE who could provide research data. Then, after the researcher gained access permission, discussions with secretaries from both the male and female sections of DELDE allowed the researcher to randomly select participants from the academic teaching staff and student groups to arrange interviews with them. Secondly, as this research focuses on exploring and increasing the researcher's knowledge about the current situation at ODE, the data was collected as the researcher constructed a fuller understanding of the ODE situation at KAU, ignoring sources that did not add any data-value to the research. Table 5.4 below shows the codes of stakeholders (used for referencing interview quotations) who participated in the study,

the type of interview, gender of each stakeholder, stakeholder groups, and the total

number of participants from each group.

Stakeholder's code	Interview type	gender	Stakeholder's group	Total number of stakeholders
Stakeholder (1)	Face-to-face interview	Female	DELDE staff members	7
Stakeholder (2)				
Stakeholder (3)				
Stakeholder (4)				
Stakeholder (5)	Focus group interview.			
Stakeholder (6)				
Stakeholder (7)				
Stakeholder (8)	Face-to-face interview		Academic teaching staff	2
Stakeholder (9)				
Stakeholder (10)	Phone interviews	Male	DELDE staff members	5
Stakeholder (11)				
Stakeholder (12)				
Stakeholder (13)				
Stakeholder (14)				
Stakeholder (15)			Academic teaching staff members	2
Stakeholder (16)				
Stakeholder (17)	Skype interview	Female	Students	3
Stakeholder (18)				
Stakeholder (19)				
Stakeholder (20)		Male		3
Stakeholder (21)				
Stakeholder (22)				

Table 5.4 Details of ODE stakeholders who participated in the study.

The procedure when conducting interviews with stakeholders about the ODE system at KAU is explained in detail in the next chapter, where it elaborates the stage 1 'access stage' and stage 2 'ODE contents analysis stage' of the researcher's learning process regarding the ODE system at KAU in Saudi Arabia.

5.5   Data Analysis

The data collection and its analysis for the current research conducted in Arabic language, which later translated into English. Most of the participants involved in ODE in Saudi Arabia do not speak fluent English. The researcher paid more attention to accuracy and the effectiveness of the translation process when collecting data, to avoid misinterpretation of it (Saunders et al., 2009). Qualitative research findings include very rich and in-depth data that is difficult to manage at the data analysis stage (Bryman and Bell, 2011) when compared to quantitative data. This section will briefly explain analysis of how the researcher engaged with fieldwork data in each stage of her learning process. More details about this stages analysis will be explained in next chapter.

SSM is a holistic approach that includes philosophical principles, methods and tools that helped the researcher to explore ODE and analyse it (Checkland, 2000). As mentioned earlier in Chapter 2, Mode 2 is a more flexible and situation-driven approach (Mingers, 2000) than Mode 1, which relies on the application of 7 stages of SSM. So, Mode 2 can be applied differently from one situation to another and does not have structured learning stages and activities that any practitioner can follow. This means that the Mode 2 practitioner can use innovative learning activities for exploring and analysing a situation, depending on how the situation's context drives and constrains the learning process while Mode 2 is being used.

In the current research, the researcher used different learning stages and activities that helped her to understand and analyse ODE at KAU in Saudi Arabia. The researcher used logical-based analysis according to the four learning principles (perceive the situation, develop a conceptual model, compare the model with the real world, and take action) proposed by Checkland and Winter (2006) (as shown in Figure 3.2 in Chapter 3). This logical-based analysis was used in the first 'planning stage', the second 'access stage' and the third 'ODE contents' analysis stage' of the researcher's learning process about the ODE system at KAU in Saudi Arabia. This assisted the researcher to reflect on the situation and learn how to structure her thinking and analyse the learning process.

Also, the researcher used the cultural analysis stream within Mode 2 and other SSM tools (as presented in Table 5.3) in the second 'access stage' and third 'ODE content analysis stage' of the researcher's learning process, which helped the researcher analyse and reflect on the cultural stream and contents regarding the ODE system at KAU (Checkland and Winter, 2006). So, the first step in analysing the ODE situation at KAU is to understand its cultural context. Deeper understanding by the researcher of the cultural context in Saudi Arabia in general and observation during the fieldwork in ODE at KAU enabled the researcher to analyse the cultural environment, including analysing the social and political contexts that dominates ODE in KAU as explained in the next chapter in Section 6.2.1. These observed data in terms of the social and political contexts of KAU during the second stage of her learning process have been recorded in diary notes of the researcher. Then, the researcher develop a rich picture (see Figure 6.2 in Chapter 6) tool was used to represent and describe the researcher's access process into the university's ODE environment as perceived by the researcher.

At the end of analysis of the second 'access stage', the researcher identified 'access' as a limitation that affected and restricted her learning process in terms of engaging with

stakeholders in ODE at KAU (as explained in Section 6.2 in Chapter 6). The researcher then had to engage with ODE stakeholders only through interviews to gain an in-depth understanding of the ODE situation. However, due to the issue of limited access to the university as a result of interconnection between social and political contexts, the researcher had to use ICTs to communicate with male stakeholders. Some of interviews were recorded, translated from Arabic to English language and transcribed, while for other non-recorded interviews, the researcher made notes about them in her diary.

Then, after the researcher had gained access to the university, her learning process moved to the third 'ODE contents' analysis stage', to analyse the contents of ODE at KAU. In this stage and according to the aim of this research, the researcher focused on analysing stakeholders' views about the ODE situation, the issues that faced them and how ODE could be improved in the future. For this reason, the researcher created categories and themes for the data in transcribed interviews and notes in her diary during the third stage to convey important information to help the researcher construct knowledge and to perceive the ODE situation at KAU, so as to achieve the research aim and objectives, including the themes of stakeholders' perceptions, issues and proposed actions to enhance ODE at KAU in the future.

Also, the researcher used a coding technique for data from each stakeholder who participated in this research as shown in Table 5.4, to identify and analyse any information gathered from them. Quotations from their interviews are used in the next chapter.

At the end of the data analysis stage, after completing the three stages of the researcher's learning process, the researcher reflected on her learning process about the ODE situation and identified lessons learned from her experience (as discussed in Section 7.2 in Chapter 7). These learning lessons helped the researcher to improve the Mode 2 framework as a learning approach toward exploring the ODE context (as presented in Figure 7.1 in

Chapter 7). After the researcher developed this final framework, analysis and discussion of its elements have been included in Chapter 7, leading to the research's main contribution in developing SSM-Mode 2 as a learning approach and in making recommendations for future researchers interested in SSM and ODE areas (as explained in Chapter 8).

Figure 5.4 represents the overall process of how the researcher engaged with data in the fieldwork to analyse and discuss the ODE situation at KAU in Saudi Arabia.
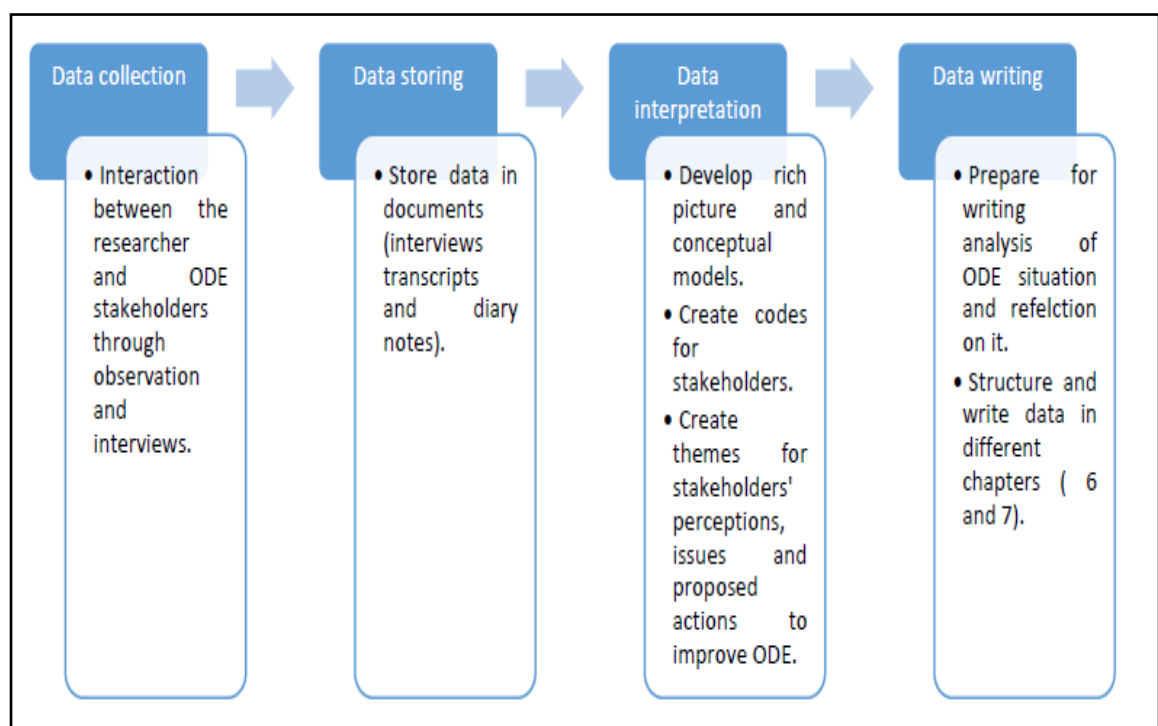
Figure 5.4 The process of data analysis in the research.

5.6 Ethical Issues

Creswell (2009, p.87) defined the importance of ethical issues as follows: "Researchers need to protect their research participants; develop trust with them; promote the integrity of research; guard against misconduct and impropriety that might reflect on their organisations or institutions; and cope with new, challenging problems". The participants in this research were provided with an ethical consent form (see Appendix 2) that

confirmed the confidentiality of their personal information and their perception or views were kept anonymous (Creswell, 2009). The researcher provided copies of ethical consent forms to female stakeholders (DELDE staff members and teaching academic staff) who were interviewed face-to-face at the beginning of each interview. In addition, the researcher provided a copy of ethical consent forms to the secretary for DELDE at the female campus, who circulated and distributed it to female students who participated in the study, and to the secretary of DELDE in the male section who then distributed it to male stakeholders who participated in the study.

In addition, the researcher provided the participants with the aims of the study and the process for response and feedback. Clarification for the participants was expected to lead to collaboration in cases where the researcher needed to discuss details with them further after the data collection stage. The results of the study will be conveyed, because the research was conducted solely for academic purposes.

5.7   Criteria of Qualitative Research

In this study, the qualitative research benefited from useful criteria. It is very important to evaluate the quality of qualitative research and data collection processes. Klein and Myers (1999) suggested seven principles for evaluating interpretive research that includes interpretation of human understanding and views. Frequently these principles are considered appropriate for assessment an interpretive study of SSM-Mode 2 research. Thus, this research followed principles set out by Klein and Myers (1999)

The fundamental principle of the hermeneutic circle asserts that individual understanding of knowledge is attained in the interplay between deliberations and inferences of parts and holistic views, as they structure the full form.

The principle of contextualisation induces thoughts about the social environment and connects with the historical background of the study paradigms. Therefore, the target study group can connect the situation under investigation and the historical process that has evolved during the research.

The principle of interaction signifies the interaction between the researchers and their subjects when conducting the steps for the production of data. This principle seeks to clarify the general awareness of research roles between researchers and their respondents.

The principle of abstraction and generalisation covers the ability to connect ideographic ideas or facts gained from interpretive data analysis and theoretical frameworks.

The principle of dialogical reasoning suggests that the researcher should be sensitive to the possible conflicts between theories underlying the study and associated outcomes.

The principle of multiple interpretations suggests that the researcher should be sensitive to opposing views from respondents when interpreting data. This entails understanding different roles, norms, values and powers among participants in the study.

The principle of suspicion suggests that researchers should be aware of issues of bias and regarding the misrepresentation of data collected from participants, because it renders the outcomes of any narrative process useless if it lacks objectivity.

The following Table 5.5 summarises these principles, explaining how they were followed in this study in the learning stages (stage 1: planning, stage 2: access and stage 3: ODE contents analysis) of the researcher's inquiry process.

Seven Principles of Interpretive Research	How it is achieved	Learning stage
1. The Fundamental Principle of the Hermeneutic Circle	This principle is achieved by understanding the relationship between social and political contexts in the ODE system at KAU, and emergent issues facing the researcher during her learning process and issues facing stakeholders involved in the ODE system at KAU.	Stages 2 and 3
2. The Principle of Contextualisation	This principle is achieved by understanding and exploring of the social and political contexts of the ODE system at KAU.	Stage 2
3. The Principle of Interaction Between the Researchers and the Subjects	This principle is achieved when using intervention analysis within SSM-Mode 2 clarified three key roles in the learning process (client, problem solver and problem owners). Also, understanding political context of ODE at KAU to understand the power disposition among stakeholders.	Stages 1 and 2
4. The Principle of Abstraction and Generalisation	This principle is achieved evaluation of SSM-Mode 2 as a learning approach toward a problematic situation, such as the ODE system at KAU, by relating the key findings in the study with the theoretical framework (Figure 4.4 in Chapter 4) of the study, resulting in developing it.	After completion of stage 3
5. The Principle of Dialogical Reasoning	This principle is achieved by contributing to SSM-Mode 2 development by adding new characteristics for its learning process.	After completion of stage 3
6. The Principle of Multiple Interpretations	This principle is achieved by analysing different stakeholders' perspectives (DELDE staff members, academic teaching staff and students) from both male and female campuses about ODE system at KAU and issues facing them.	Stages 2 and 3
7. The Principle of Suspicion	This principle is achieved by critically analysing different stakeholders' perspectives with diverse positions and social backgrounds in the ODE system at KAU to avoid bias in interpreting their views.	Stages 2 and 3

Table 5.5 Principles for evaluating of qualitative research within the current study.

5.8   Limitations

This section presents some initial limitations regarding employing the SSM-Mode 2 within ODE context at KAU in Saudi Arabia. This study aims to evaluate the success of SSM-Mode 2 as a learning approach toward a problematic situation in the context of an ODE system in Saudi Arabia. The findings from the study will contribute to developing SSM-Mode 2 as a learning approach and identify important characteristics of its learning process. The study is undertaken in a single HEI in Saudi Arabia. The researcher's learning process about the ODE system at KAU is limited to the context of Saudi Arabia and so not necessarily applicable to other countries. However, this limitation may not prove a significant limitation of the study according to Checkland and Winter (2006), as it aims to evaluate a process.

Other limitations are the risks faced by the researcher in terms of cultural limitations, as no face-to-face contact is permitted with male participants. This could have caused low levels of collaboration or trust between male participants and the researcher during the data collection stage. Nevertheless, the researcher used communication technologies to collect data from male participants.

5.9   Summary

This chapter has presented the research methodology and design for the study. The researcher presented the research design in Figure 5.1 and explained the steps for the current research. This research employed SSM-Mode 2 as a main methodology to promote the researcher's learning about the ODE system at KAU. The epistemological and ontological assumptions of SSM-Mode 2 as an interpretive methodology have been discussed. SSM-Mode 2 in this study comprises 3 stages; a planning stage, an access stage, and an ODE contents analysis stage, by using ideas of SSMp and SSMc as shown

in Figure 3.2 in Chapter 3. The planning stage was discussed and concluded with a conceptual model (Figure 5.3) in order to carry out stage 2 (access stage) and stage 3 ODE (contents analysis stage) of the ODE system at KAU.

The preferred data collection method is interviews with stakeholders in the ODE system at KAU in Saudi Arabia, and this has been discussed and justified to provide rich and in-depth information from the participants about the ODE to help achieve the aim of this research and answer the research questions. Furthermore, various SSM tools were used to help the researcher during the learning process. In addition, the processes of analysis of the data gathered in the fieldwork were presented. Some of qualitative research criteria and the potential limitations for this study have been explained. The next chapter will present and describe the second and third stages of the inquiry process concerning the ODE situation at KAU in Saudi Arabia.

Chapter 6: SSM-Mode 2 as a Learning process about ODE at KAU- Empirical Work and Findings

6.1 Introduction

The primary aim of this study is to investigate the viability of utilising SSM-Mode 2 as a learning approach to increase the awareness of the researcher (SSM-Mode 2 practitioner) about the ODE system and to improve decision-making with regard to future ODE system development. This chapter describes the learning process of the researcher as it applies to the ODE system at King Abdulaziz University (KAU) in Jeddah city in SA for the academic year 2014-2015. This inquiry process aims to explore issues from different stakeholders' perspectives with more emphasis on ill-defined issues that are difficult to define and measure. This chapter also explains how the researcher used SSM-Mode 2 to explore the complex situation surrounding the implementation of the ODE, within a Saudi cultural context. SSM tools, including intervention, social and political analyses, rich picture and conceptual models, will contribute to this comprehensive review of the current situation concerning the problematic situation of KAU ODE in Saudi Arabia. This chapter describes stages 2 and 3 of the researcher's learning process about ODE system at KAU as shown in Figure 5.2 in Chapter 5.

The structure of this chapter is as follows: firstly, it describes Stage 2 (SSMp) of the 'access stage' when obtaining relevant data for the research at KAU. This stage starts with an explanation of the social and political environments at KAU based on the researcher's in-depth understanding of these contexts in general in SA and as observed in the KAU setting in particular. These are the most important aspects of the steps involved in the fieldwork for this study. The issues encountered by the researcher during the access

stage are clarified in order to provide an understanding of what occurred in the early stages of the empirical work. This meets the researcher's expectations concerning relevant decisions and the suitability of the SSM-Mode 2 for use in the Saudi context. Secondly, this chapter describes Stage 3 (SSMc) of the learning process, the 'ODE contents analysis stage', which describes the contents of the ODE system in use at KAU, key stakeholders' perceptions, activities and issues. This stage concludes with the provision of several proposed actions that would assist in the development of KAU ODE.

Finally, this chapter ends with a personal reflection on the researcher's overall learning process concerning the problematic situation experienced by KAU ODE.

6.2 Stage 2: Access Stage

The researcher used SSMp to learn more about this stage by using the four learning principles within SSM as shown in Figure 3.2 in Chapter 3. These principles helped the researcher to structure, reflect and understand the process of access stage to KAU for collecting relevant data for the thesis in more organised way.

6.2.1 Perceive the Situation

By reviewing existing ODE literature in the context of Saudi Arabia, the researcher discovered that the most prestigious universities offer ODE programmes. KAU is one of the most famous universities and was the first to implement ODE (Aljabre, 2012; Al-Asmari and Rabb Khan, 2014) as mentioned in the previous chapter. To collect initial data about KAU ODE, the researcher searched the DELDE on the KAU website and analysed its contents to find information about its history, departments, structure, current online distance education programmes and contact details for both male and female staff members. The next section describes the cultural context of KAU ODE, including both social and political environments, which dominate ODE performance.

6.2.1.1 Social Context of ODE at KAU

The Kingdom of Saudi Arabia is situated in the Arabian Peninsula. Arabic is the primary language used by the population, English is also spoken as a second language. The Kingdom is mostly conservative, founded on deep-rooted traditions and strong religious views. Religion plays a significant role in the daily life and work of all Saudis and defines the culture of the kingdom. Saudi Arabia is the land in which Islam originated, and Islam is the dominant religion there. Islam defines Saudi culture at the personal and societal levels and religious values are reflected strongly in people's homes, the workplace, in educational institutions and in public organisations.

In adherence to Islamic Law, KAU is divided into separate campuses for male and female students, each with its own faculties and departments. The Deanship of E-Learning and Distance Education which is responsible for the ODE system at KAU, abides by the organisational structure that governs the entire university, as shown in Figure 6.1.
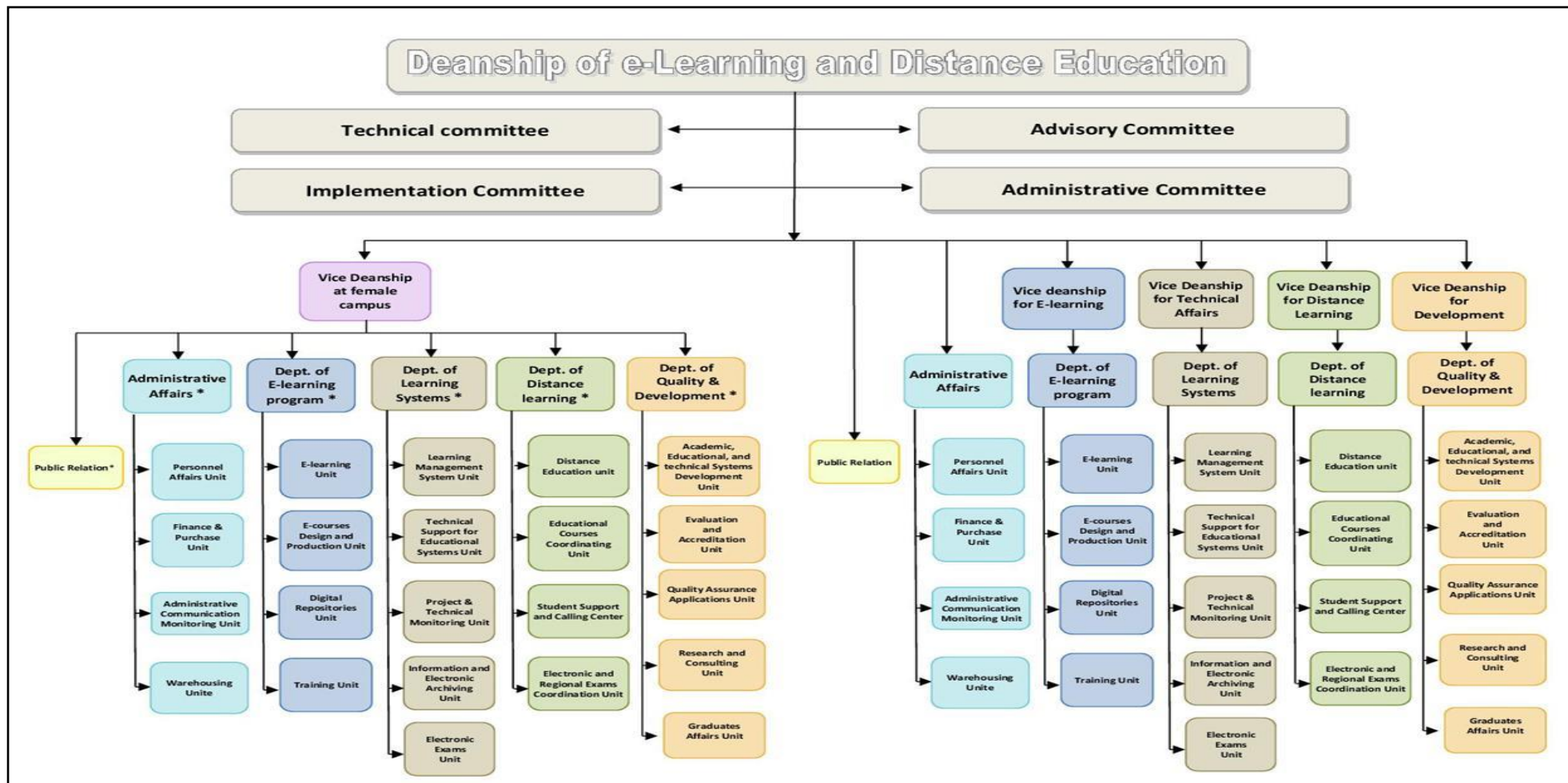
Figure 6.1 Organisational structure of the DELDE at KAU.

(Source: KAU, 2016b).

The university's staff is occupies two campuses (referred to as sections) by gender. Male staff head departments in the male section, and female staff the departments in the female section. Men and women occupy separate geographical locations at the same institution, to avoid physical interaction with each other. Both campuses follow a similar curriculum. Each campus has its own sporting and social facilities. Members of the separate campuses communicate with each other via emails, telephone calls, and video conferencing.

This separation of genders could be advantageous as it provides privacy, especially for the staff who are familiar within Saudi cultural environment. In the KAU environment, separation is not acknowledged as an issue affecting how stakeholders perform their tasks in their own sections, because it ensures a comfortable environment in which individuals can freely express themselves, thus ensuring they succeed academically and in terms of their careers. However, it can be a challenge when tasks and responsibilities require the cooperation of both sections, such as with the ODE system. For example, the minimal contact between the sections can slow down response rates, thereby affecting overall workflow and performance. In addition, gender separation can result in cost implications, as additional funds are required to establish separate campuses within a single institution (Abouzahra, 2011). There is also a need to train staff in duplicate, to ensure that male and female staff members occupying the same position on their respective campuses are at the same level. However, the Saudi government currently provides adequate funding to run HEIs in this way, to suit the country's social environment.

Gender separation also led to challenges for the researcher in the research process. Gender separation meant that as a female researcher, she was not permitted to visit the male campus to conduct face-to-face interviews with male stakeholders, so, it was impossible

to observe the daily interactions between the male stakeholders directly, which meant that the researcher was unable to determine their work processes.

6.2.1.2 Political Context of ODE at KAU

Generally speaking, under Saudi social regulations, respect for one's elders is encouraged. To ensure this, hierarchies are established and acknowledged in various places, including in homes, educational institutions, workplace, and businesses. When an individual engages in a conversation, a particular protocol is followed that is determined by age, status, family, gender, or one's position in the society. In most cases, older individuals tend to influence the decisions about what takes place within society.

In business organisations and education institutions in SA, hierarchy is generally a characteristic adhered to in organisational structure. KAU has its own established policies and regulations. It operates in the same way as other educational systems and is strongly affected by factors associated with a distribution of power. This is particularly apparent in the DELDE organisation structure, as shown in Figure 6.1. The power factor usually relates to the decision-making process within Saudi organisations. For example, it was observed in the fieldwork that members occupying higher positions within the ODE system have greater power and authority than those holding lower positions. As explained later (Section 6.3.3.1: institutional issues), hierarchy causes several issues to arise. In the political context of the ODE system at KAU, a sizeable gap was found between people at different levels within the organizational structure and stakeholder groups. This gap creates barriers to knowledge-sharing and participation, as top managers rarely welcome ideas and opinions from other staff members.

Saudi society is oriented towards masculinity; men are responsible for the key areas of planning and decision-making. In organisations where male and female counterparts are

necessary, females defer to males in decision-making. As explained in the next section, the political rules and regulations at KAU created challenges for the researcher, particularly those affecting decision-making on access throughout the university and the collection of data when conducting fieldwork.

6.2.1.3   Initial Contacts

The researcher established contact with individuals involved with the ODE system both informally and formally between July 2014 and June 2015. This included consulting one of the main administrative staff members (stakeholder (1), Table 5.4 in Chapter 5) from the female section of DELDE in early July 2014, who volunteered to participate in the research. The researcher asked whether she could visit and collect data from the university for her study. The participant informed the researcher of the need to acquire an official permission letter from the Vice Presidency for Graduate Studies and Scientific Research from the male section.

For more clarification about the access policy, in all female public HEI campuses throughout Saudi Arabia, there are strict regulations regarding outsiders entering the female campus. All female staff members and students are only allowed entry after showing identity cards, and all visitors must first arrange for a visiting appointment with a staff member. Therefore, the first step for the author was to request a meeting at the female campus with the female participant (stakeholder (1)). In August 2014, there was an informal meeting between the researcher and two department heads (stakeholder (1) and stakeholder (2)) in the female section of the DELDE. These meetings highlighted the work processes and methods of communication and interaction between the female and male sections. The meetings provided background information regarding the activated female units, as not all units had been activated, as shown in Figure 6.1.

In addition, conversations with these two stakeholders allowed the researcher to identify and classify stakeholders included in the study into different groups that are directly involved in the ODE system at KAU, as explained in Section 6.3.1.4 (Stakeholder Perceptions). At this time, the researcher visited the Vice Presidency for Graduate Studies and Scientific Research in the female section and enquired about the process of acquiring an official approval letter to obtain data about the ODE system at KAU. However, the process of seeking approval took more time than planned, as approval was not granted until September 2014. This delay was due to the Ramadan holiday, when most of the university's employees were either annual leave or away for Ramadan. Additionally, given that the researcher is a female, she had to first contact administrative staff members from the vice presidency for graduate studies and scientific research from the female section, who contacted their counterparts in male section. During this time, the researcher regularly followed up the permission letter status with the male staff over the phone. After the Vice President of Graduate Studies and Scientific research at the male campus signed the permission letter approving the data collection at the university, a copy was sent to the researcher by email (see Appendix 3, official permission letter from KAU) in September 2014. Fulfilling the stated policies and regulations was a time-consuming process and indicative of the heavy impact of the culture of gender separation on work performance and communication between the staff at both campuses. Communication and interaction between the male and female campuses at KAU required additional steps to ensure coordination. The policy of producing formal letters not only leads to unnecessary delays for outsiders but also for workers at both campuses, due to the absence of clear and predefined rules for performing shared tasks (Researcher diary, 2014).

6.2.1.4 Further Difficulties Regarding the 'Access Stage'

Although the researcher obtained official authorisation to collect the data, she faced further difficulties. A second permission (from the dean of the DELDE) had to be authorised by the male dean before the researcher could conduct interviews with any of the stakeholders involved in the ODE system as informed by the secretary to the vice-dean of DELDE in the female section. Finally, permission was obtained in October 2014 and the researcher was informed by telephone by the secretary of the vice-dean of DELDE in the female section that she could conduct interviews with ODE stakeholders from both the male and female sections. However, despite the permissions granted, interviewing some of the female DELDE staff members proved difficult. Many had busy schedules, performing tasks and activities after the installation of Blackboard, to replace the Moodle system. This change was also expected to cause problems for users (technical staff, academic members and students) directly involved with using Blackboard, as each user had insufficient knowledge about how to use it. However, all users are trained to use Blackboard at the beginning of each term, thereby causing better accessibility and usability for learning materials, as informed by a staff member (stakeholder (2)) from the DELDE in female section. Some female staff played multiple roles in DELDE, resulting in heavy workloads, and the stress made availability almost impossible. When speaking with participant (stakeholder (2)), one of female key technical directors in the DELDE, it became apparent that there was a general dissatisfaction about the change to the new Blackboard system. It was expected that the academic teaching staff and students would report many technical problems once term started. The problem that arose was that although the technical staff are trained to provide technical support to users, there are too few of them to respond immediately to user needs.

After gaining the second permission for access to the ODE system at KAU, negotiations took place between the researcher and a key DELDE staff member over the possibility of attending and observing the key activities involved. For example, the researcher asked if it would be possible to attend a regular managerial meeting usually held between male and female staff members to discuss system performance and related issues. In addition, the researcher asked if would be possible to participate in an online course as an observer to witness the actual educational practices. However, these requests were refused because of DELDE's regulations about privacy, and my status as an external researcher. According to Checkland and Scholes (1990), politics is concerned with power and its disposition. In addition to the political context described in Section 6.2.1.2 (political context of KAU), the above issues occurred in Stage 2 of the learning process concerning the ODE system at KAU. This shows how each problematic situation has a particular political dimension. The politics of the ODE system at KAU involve power-related activities that affect the relationship between the researcher and other stakeholders. The researcher thus had limited power to access the ODE system at KAU due to the social and political dimensions of the ODE system at KAU. The limited access afforded to the researcher influenced the process of learning about the problematic situation of the ODE system at KAU. It also shaped her learning activities and led her to focus more on acquiring knowledge and information through interacting with stakeholders during interviews rather than on reflecting on the situation through direct observations, as shown in version two of the conceptual model of her learning process concerning the ODE system at KAU (see Figure 5.3 in Chapter 5).

Figure 6.2 represents the rich picture of the complex process of 'access stage' involved in fieldwork. It illustrates the processes involved in the 'access stage', which result from the relationship between the social and political environments at KAU and affect

authorisation by the university to carry out fieldwork. These social and political contexts positively supported the researcher's decisions and expectations of the suitability of using SSM-Mode 2 as a learning approach to understand the current situation with the KAU ODE from the cultural perspective of Saudi Arabia, instead of implementing the seven stages of SSM-Mode2.
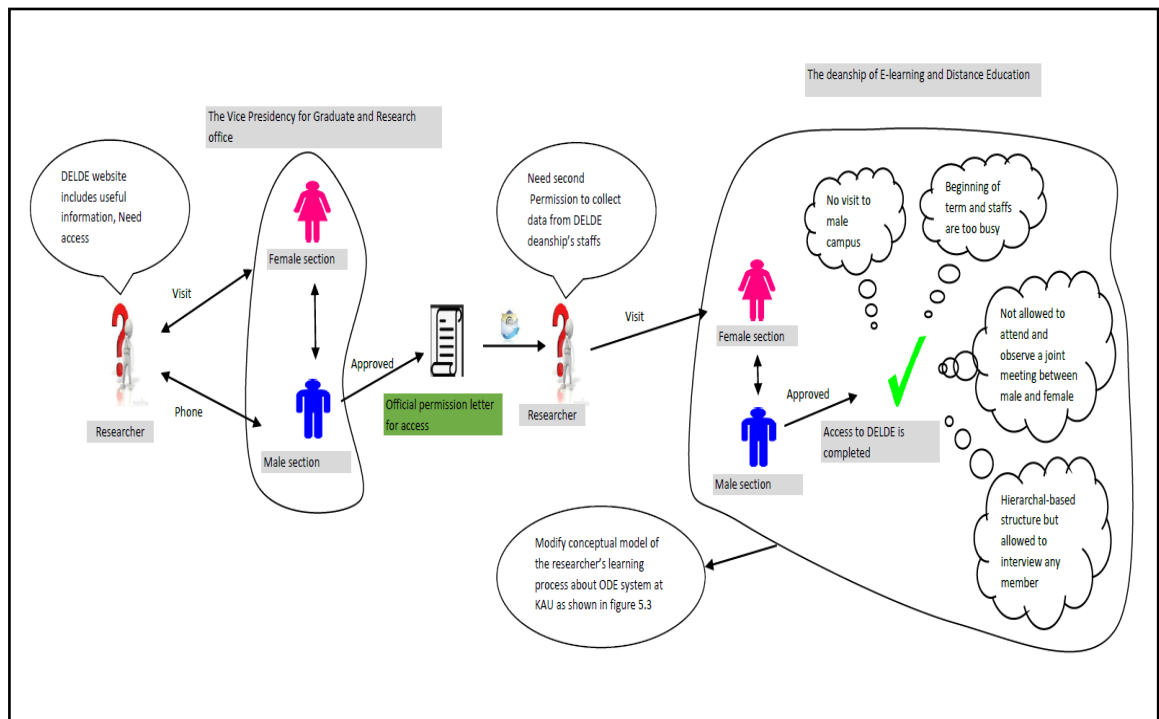
Figure 6.2 Rich picture of the process of 'access stage'.
(Created by the author)*

6.2.2 Developing Conceptual Models, Comparison and Take Action

The researcher altered and developed the first version of the conceptual model for conducting fieldwork, as shown in Figure 5.3 in Chapter 5. The model in Figure 6.3 illustrates how the researcher restructured the learning activities to gain knowledge from male and female stakeholders within the current social and political context of KAU. It clarifies how SSMc (stage 3: ODE contents analysis stage) depends on SSMp (stage 2: access stage). As previously stated, Stage 2 involved difficulties regarding the 'access stage' that emerged from the relationship between the social and political contexts of

KAU, that influences collecting data for the study and learning more about the current situation of the ODE system at KAU. Due to the limited power disposition of access that the researcher had after completing stage 2, the learning process of the researcher about the problematic situation of the ODE system at KAU was affected and reshaped. This led the researcher to modify learning activities with more details about methods of collecting the required data from them within the cultural context of ODE. Hence, acquiring knowledge and information through interacting with stakeholders during interviews seemed more suitable and useful than direct observations. Figure 6.3 includes learning activities labelled from 1.1 to 1.11 involved in the completion of Stage 3 of the researcher's learning process, which aimed to analyse and learn about the contents of the ODE system at KAU. Also, the type and purpose of the interviews were included.
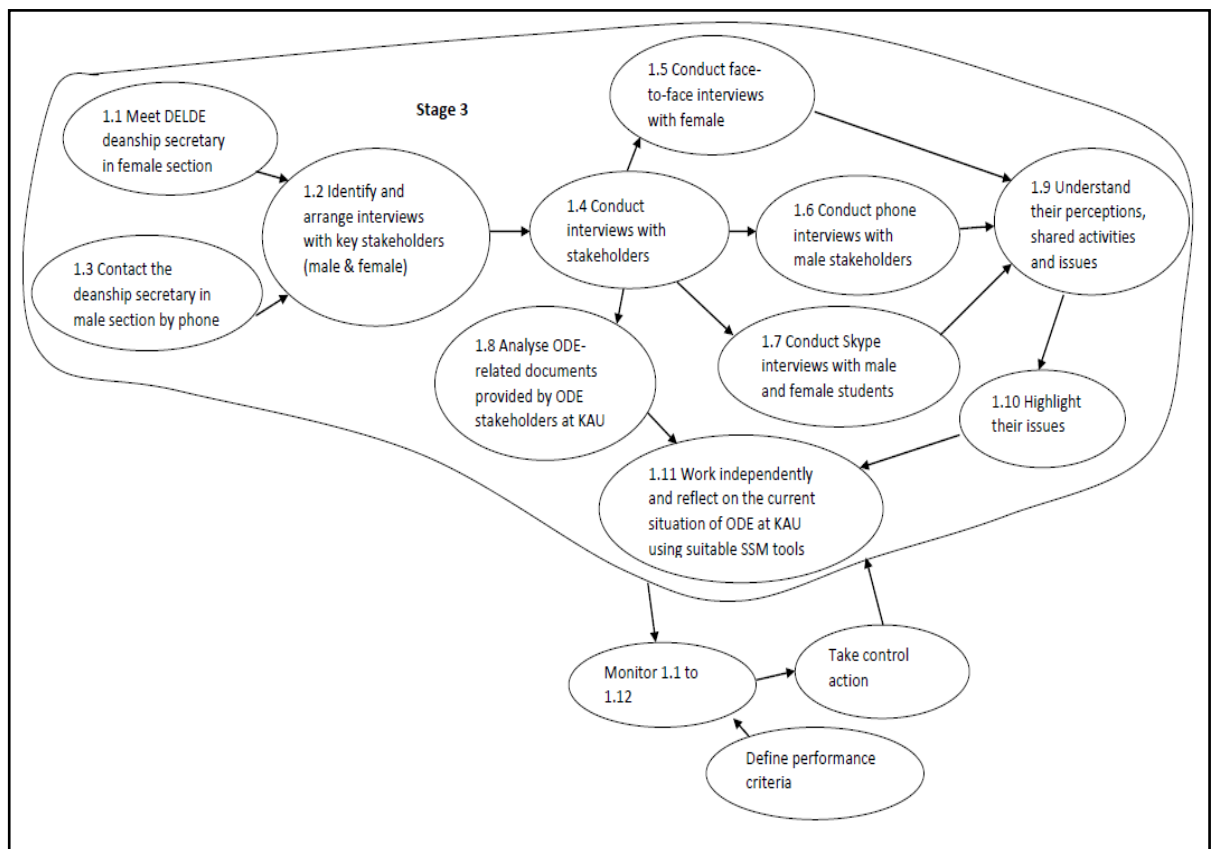
Figure 6.3 Second version of conceptual model of the researcher's learning process regarding the ODE system at KAU in access stage.

6.3   Stage 3: ODE Contents' Analysis Stage

Following the completion of SSMp for the 'access stage', as described earlier, this section describes SSMc and the implementation of learning activities by the researcher, as shown in the conceptual model (Figure 6.3). The use of SSM tools shifted towards a more SSMc mode, as proposed by Checkland and Winter (2006), which helped the researcher reach a better understanding of the scope of these tools when using Mode 2.

This section describes the contents of the ODE system at KAU by classifying the stakeholders involved, discussing their perceptions regarding the current situation of the ODE system, identifying the key shared activities between male and female stakeholders and determining the issues that affect their activities. This section also explains how the researcher interacted with stakeholders involved in the ODE system at KAU to share knowledge to complete this stage of her learning process. The difficulties that occurred during this stage of the researcher's learning process are discussed.

6.3.1   Perceive the Situation

6.3.1.1   Conducting Interviews Procedure

There were differing perceptions regarding the issues individuals face when accessing KAU's ODE system. Figure 6.1 shows the organisational structure of DELDE that governs e-learning and ODE programmes in the university. Also, it shows DELDE includes the Vice-Deanship for Distance Education, which includes sub-departments and units that are responsible for ODE activities in both male and female campuses. To achieve the aim of this study, the researcher targeted for research participation the stakeholders who were directly involved in the ODE system During the fieldwork it was revealed that some staff members of other departments were involved in ODE activities such as the e-courses design and production unit in the department of e-learning programs

and the technical support for education system unit in the department of learning systems, as shown in Figure 6.1.

In October 2014, with the assistance of the female vice-dean's secretary, interviews were arranged with the aim of understanding stakeholders' perceptions, activities and issues. After conversations with participants (stakeholder (1) and stakeholder (2)) in DELDE in the female campus, as described in Section 6.2.1.3 (initial contacts), the researcher classified the stakeholders involved in the KAU ODE into three groups: DELDE staff members, academic teaching staff, and students. The findings from the stakeholders' interviews helped the researcher to increase her understanding of the currently ill-defined issues facing stakeholders in the ODE system at KAU. The researcher presented the proposed plan for interviewing female DELDE staff to the female vice-dean's secretary, who then formally introduced the researcher to the key participants, i.e. the female deanship staff, academic teaching staff and students. The researcher arranged introductions to the male participants for phone interviews by phoning the male dean's secretary and requesting an introduction. The researcher regularly followed up on the participants' responses with the male dean's secretary by phone. The interviews conducting procedure began at the end of October 2014 and ended in December 2014.

The outcomes from these interviews, ODE-related document analysis, and DELDE website contents analysis are discussed in the following sections. The analysis of the ODE documents concentrated on the educational and organisational aspects of the ODE system at KAU. These aspects include teaching regulations, the processes involved in training academic teaching staff, student assessment and evaluation, and the procedure for developing the institution's ODE courses, as explained later in this chapter. In addition, the stage 2 'ODE contents analysis stage' incorporated the researcher's diary notes.

The researcher conducted semi-structured interviews classified according to stakeholder groups with interests in the KAU ODE system, with each interview having two sections. The first comprised general questions about the situation with the current ODE system in terms of their roles, the activities and relationships between stakeholders in both the male and female sections, while the second examined the views of each on current issues and possible improvements. During the interviews, all participants were informed that they were not required to answer any questions and that their permission was required to record the interview. The researcher assured the participants that the recordings of the interviews would remain confidential and that she would delete them after completion of the research. None of the respondents refused to answer any of the questions, but some objected recording the session, so in those cases the researcher made notes in her diary. This refusal may have been due to participants' mistrust of the external researcher, or to a concern to avoid any future adverse impact from the research on their positions.

Each interview lasted between 15 and 40 minutes. After completion of interviews, the recorded interviews were translated into English, transcribed, and analysed, together with the information and notes recorded in the researcher's diary. This process facilitated a clear understanding of the current ODE system situation at KAU and of various ill-defined issues inhibiting stakeholders' activities.

6.3.1.2 Further Difficulties Regarding the 'ODE Contents' Analysis Stage'

All the interview sessions with the female DELDE members and academic teaching staff were conducted face-to-face, but the researcher was not permitted to visit the male section, due to the aforementioned gender separation in Saudi public HEIs. So the researcher had to conduct phone interviews with members of the male section of DELDE (staff members and academic teaching staff). This activity was challenging and it was time consuming to arrange the interviews given the male staff's busy schedules,

especially as the research required participants from the top level of management in the DELDE at KAU. The interviews with male and female students all took place over Skype.

Although the interviews with the female section's vice-dean were central to this research because she has a full understanding and knowledge of the current situation of the ODE, in particular in the female campus, it was difficult to meet with her due to her busy schedule. The interview was postponed several times. However, despite the challenge arranging the interview, the vice-dean seemed genuinely interested in the research and was supportive during the interview; providing invaluable information. Some administrative staff, technical staff and academic teaching staff responded slowly to requests for an interview. It became necessary to seek intervention from the secretaries for the male and female sections in DELDE to encourage their participation.

Although DELDE as a department has both male and female sections, it was impossible to observe the male section directly, because of the gender separation. Despite the challenges encountered, the researcher is grateful for the help, patience and consideration of all the ODE stakeholders at the university that participated in the study.

6.3.1.3 Rich Picture

The rich picture summarises the complex situation that increases understanding for the researcher, as represented in Figure 6.4. The researcher found developing a rich picture an especially effective way of representing issues and problems with the ODE system at KAU. The researcher developed the rich picture in parallel with the interviews with stakeholders, so its contents were regularly updated.

The current situational structure includes members from different levels of management (top, middle and low) and key stakeholders (DELDE staff, academic teaching staff and students) who are directly involved in the ODE system at KAU and represent problem

owners, while the researcher represents the client, and problem solver for the problematic situation of ODE system at KAU, all are represented as 'human' symbols in Figure 6.4. In addition, the rich picture shows the different processes that occur as part of the KAU ODE, including communications and interactions between stakeholders, funding and educational practices.

Thought bubbles represent points of concern in the rich picture, while scissors represent the conflicts between stakeholders that result from their differing perceptions of the ODE situation and the issues these individuals face. The detailed picture in Figure 6.4 includes external entities on the university's boundaries, presented in 'italic' font, who interact with the stakeholders involved in the KAU ODE as informed by stakeholder (1) in DELDE in the female campus. These entities are not usually directly involved in the daily activities of the ODE system at KAU. Saudi Arabia's MOE provides predefined policies and regulations to govern online educational practices. The Ministry of Finance is the financier for the ODE system at KAU. The NCel provides research and development events related to ODE development and delivery. The Saudi community is an important factor in the success of ODE in terms of promoting awareness of the ODE system as an alternative education approach to the traditional face-to-face mode, among people and employers in the labour market. Internet providers are instrumental in delivering the technological infrastructure to assist data transfer within the ODE system via the internet.
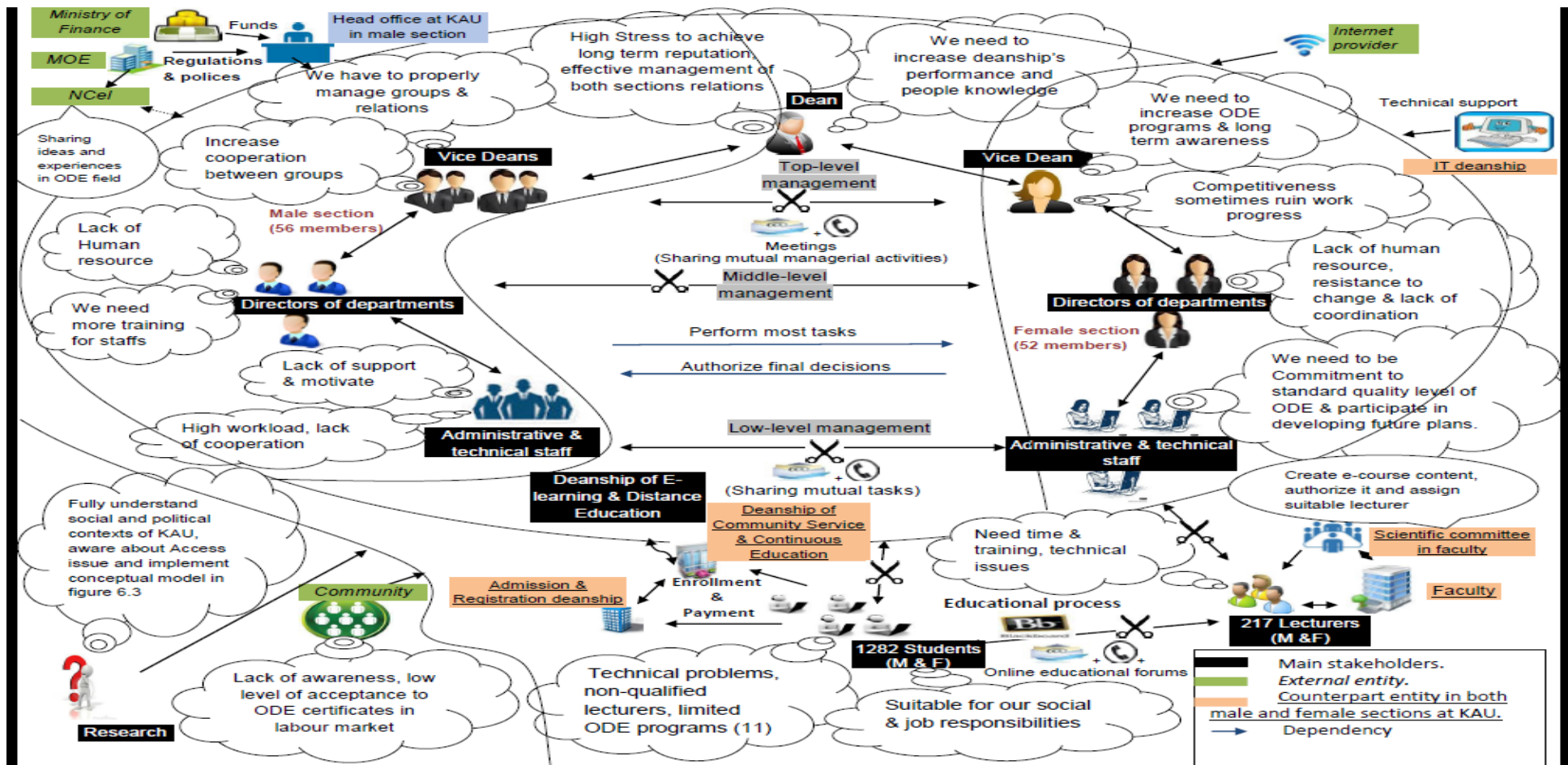
Figure 6.4 Rich picture of ODE contents at KAU.
(Created by the author)*

The detailed picture shows the internal entities (underlined) at KAU known to interact occasionally with ODE stakeholders by performing predefined activities. They are not involved in daily ODE activities, such as enrolment and registration, delivering cooperative training courses for stakeholders, and supplying additional technical support when needed. These activities are provided respectively by the Deanship of Admission and Administration, the Deanship of Community Services and Continuous Education, and the Deanship of Information Technology, as stated by stakeholder (1).

Due to the scope of this research and the issue of limited access for the researcher into the ODE system, as explained before, the complete processes, structures and relationships between stakeholders in each section will not be discussed or described. This research focuses on describing the overall situation between both sections as regards the ODE to understand and highlight the stakeholders' issues and to explain how the researcher constructed knowledge using SSM-Mode 2 and its associated tools. Some of issues raised concerning mutual activities between stakeholders in both sections emerge from the relationship between social and political contexts of ODE. For this reason, mutual activities between both sections will be described to provide more understanding about the way of performing these activities within the cultural environment of KAU ODE.

6.3.1.4 Stakeholders' Perceptions

This section explains the current ODE situation at KAU, based on perceptions of stakeholders involved in ODE daily practices. It gives further details about the structure and organisation of the information gathered from the rich picture (see Figure 6.4).

- **Deanship of E-learning and Distance Education (DELDE) Staff**

   Overview about DELDE

The KAU ODE system is supported and directed by the DELDE. A staff member at DELDE stated that the ODE uses Blackboard as the learning management system to offer access to students, academic teaching staff and live support systems. The KAU ODE has won several prestigious national awards, including the Khalifa Award for Education, the Abha award for and e-learning website, a Digital Excellence Award, and various international accreditations (KAU, 2016c).

The DELDE's objectives for the ODE system at KAU include offering students the opportunity to get an education that meets approved standards and to implement the most up to date technological solutions to enhance the educational process. Other objectives include increasing educational staff member's ODE proficiency and meeting quality and performance indicators at ODE, to align with international best practices (KAU, 2016d).

DELDE makes a crucial contribution to the ongoing development of educational opportunities at KAU, by integrating modern technology into the learning process. Typically, DELDE is involved in processes such as managing ODE course quality development, ODE course content evaluation, ODE course and e-exam design, maintenance and monitoring, and ensuring ODE users (administrative and technical DELDE staff, academic teaching staff and students) receive support and training. The deanship offers several ODE programmes (KAU, 2016e) as shown in the following table.

Study level/ Faculty	Undergraduate	Postgraduate
Arts and Humanities Science	1. European Languages – Linguistics 2. Arabic Language	1. Geographic Information System 2. Educational Guidance
Economics and Administration	3. Public Administration 4. Management Science	N/A
Business Faculty in Rabigh	5. Marketing 6. Human Resources 7. Law 8. Health Services and Hospital Management 9. Management Information System	N/A

Table 6.1 ODE programmes at KAU at both undergraduate and postgraduate levels.

Table 6.1 shows there are nine ODE programmes offered to both male and female students at undergraduate level and two at postgraduate level. These programmes service three faculties, namely: Arts and Humanities Science, Economics and Administration, and the Business Faculty in Rabigh [the business faculty at the main campus in Jeddah City has a branch in Rabigh City and its ODE programmes are managed by DELDE in Jeddah City]. However, there are limited ODE programme options, which has been raised as an issue by some students interested in development of the ODE system at KAU.

Key Stakeholders in DELDE

Two participants (stakeholder (3) and stakeholder (10), table 5.4 in Chapter 5) in DELDE stated that the total number of staff members in the male section of DELDE is fifty-six, while in the female section there are fifty-two staff members, in the following categories;

- **Dean and vice deans**

The dean and vice-deans are the highest level of DELDE management. The ODE dean and vice-deans oversee ODE management and development. The vice-deans ensure

availability of quality online materials and also coordinate with faculties and colleges in preparing learning materials. DELDE is headed by an overall dean, assisted by five vice-deans from the male section and one vice-dean from the female section.

- **Administrative staff**

The administrative staff category comprises the middle and lower management levels in DELDE. Staff at this level include directors and employees from various departments and units, such as the implementation, technical, advisory and administrative committees. The directors oversee the various functions of these departments to ensure they run smoothly. For instance, the top management of the administrative branch is responsible for managing and controlling the personnel affairs unit, finance and purchasing, warehousing and monitoring administrative communication activities. Interviews with two male and female participants (stakeholder (3) and stakeholder (10), Table 5.4 in Chapter 5) from DELDE revealed that the number of staff in the administrative section of the male section of the deanship is thirty-four, while the female section has twenty-seven members.

- **Technical staff**

The technical staff represent the middle and lower levels of the personnel hierarchy at DELDE. There are twenty-two technical personnel in the male section and twenty-five in the female section, as informed by two male and female DELDE staff members (stakeholder (3) and stakeholder (10), table 5.4 in Chapter 5) during conducting interviews. The role of the technical staff members is to offer technical support to the educational systems unit. They make it possible for students to take electronic exams and ensure the smooth operation of the learning management unit. In addition, technical staff play a significant role in the monitoring unit, training unit, and the information and

electronic archiving unit. In other words, the technical department handles all the technical aspects of the ODE system.

DELDE Staff Perceptions

All DELDE staff members were asked their views on the current state of the ODE system at KAU. They had mixed views, mainly resulting from their different experiences and their positions at DELDE. One participant commented that the ODE system contributes to the success of the university, because every year KAU receives a huge number of applicants, so new students cannot be fully serviced by physical campuses. This mode of education provides them with an alternative way to continue their studies:

'*The online distance education system in the Kingdom of Saudi Arabia has made great strides, and overcome many obstacles. Moreover, the desire to register for this type of education has increased because of its similarity to the traditional education system in terms of the application of year's work marks and regular final exams. And now we can find an increased awareness of the importance of online distance education, especially that it provides the opportunity for those who could not otherwise complete their university education.*' (Stakeholder (1), Table 5.4 in Chapter 5)

A technical staff member from the female section pointed out that the ODE has resulted in many honours for ODE programmes at KAU, such as those mentioned before. These awards and achievements provide staff with motivation to employ better work practices in the future. This participant perceived that it would be necessary and extremely important to improve the quality of the ODE system by offering better training to those in charge of ODE programmes, as well as by developing strategic plans to upgrade and develop ODE programmes. However, a respondent during a group interviews with different department heads (stakeholders (5), (6) and (7), Table 5.4 in Chapter 5) at the

DELDE female campus stated that the training unit in DELDE is successful and considered to be at its core:

> *'Her division (Training Unit) is considered the core of the deanship. All the other divisions have a relationship with the Training Unit concerning all aspects, including technical affairs, when there is a new icon and so on. This unit has relations with all the other divisions. For example, employees from any division can train on Blackboard system'.* (Stakeholder (7), Table 5.4 in Chapter 5)

Both the male and female sections of DELDE offer multiple staff training courses for academic teaching staff and students. The training courses cover technical topics such as ODE course development and design, using the Blackboard system and developing exams for the online environment. Blackboard training courses target both the staff and students of an institution, whereas other courses are aimed at DELDE staff and academic teaching members. These courses can be delivered through formal groups or tutorials in the form of online-based textbooks. Examples of training courses that target the various strata of DELDE staff and academic teaching staff include:

- E-exam training: offering theoretical and practical understanding of aspects of electronic examination facilities, such as their uses, development, design, assessment, and evaluation, as well as of the different types of e-exams available.

- ODE course design training: providing both theoretical and practical understanding of ODE course analysis, execution, design, development and completion, and any software that can assist in the designing of an ODE course.

- ODE course record training: explaining how to record ODE course progress using available software.

However, one individual raised the issue of the importance of increasing the quality of the content of ODE programmes, suggesting that ODE quality concerns could be addressed by measuring the satisfaction levels of students taking the online courses and those of other ODE stakeholders;

'Indeed, students' opinions are very important to the success of the online distance education system. Although online distance education has achieved good success, it needs to improve the programme contents. I think more consideration should be given to this matter, as well as to the increase of collaboration in general between DELDE staff in the male and female section during the development and design of the ODE courses, and in particular between academic teaching staff and technical staff during the evaluation of the ODE courses.'' (Stakeholder (5), Table 5.4 in Chapter 5)

Key Activities in DELDE

The group interview with three department heads (stakeholders (5), (6) and (7), table 5.4 in Chapter 5) in DELDE at the female campus revealed that each DELDE section is responsible for carrying out its own work, but that it often necessary for staff from both sections to collaborate on some tasks. Important predetermined shared tasks that required regular communications between the two sections included decision-making and ODE course development and design. Thus, the following sections describe the communication and interaction across all DELDE staff members concerning decision-making and ODE course development and design, to provide greater clarification on how activities shared between male and female staff members are executed in KAU ODE.

- **Communication and interaction**

From the interviews, it emerged that communication and interaction at DELDE happen at two levels. The first level takes place within each section. The second level is between

the male and female sections (see Figure 6.4). Most male and female stakeholders who were interviewed indicated that they communicate with and interact with their peers in their own section in a more sociable and friendly manner than they did with their counterparts' in the other sections.

Top level management at DELDE (see Figure 6.4) hold regular meetings that include the dean and male and female vice-deans. They communicate using internal video conferencing, using essential equipment set up in the rooms of the university buildings for use by both sections. They also send and receive formal letters through emails. In other deanship levels, staffs in both male and female sections communicate using telephone and emails for activities such as ODE development and design, technical support, ODE evaluation and training courses development. The interviewees indicated that technology plays an important role in enhancing communication among the members of staff at the university within the social context of KAU.

- **Decision-making**

At DELDE, decision-making processes involve management staff at the top level within both the male and female sections, as shown in Figure 6.4. An interview with a staff member in female section revealed that the dean in the male section plays a key role in the decision-making processes of both sections. Due to the political and social context of the KAU ODE, he has the most power and authority over decision-making on activities such as problem-solving, control of DELDE's budget, development of plans and goals, recruitment of new or additional staff for both sections, initiative to establish new ODE programmes and changing the organisational structure. He also carries overall authority for the activities in both the male and female sections.

Conversely, a female respondent revealed that female section staff wish to be more involved in decision-making, especially in matters that directly involve the female section. This would mean that they would not have to refer all issues and decisions to the male section. An example is what happened to the researcher at the 'access stage', when she had to obtain a second permission to conduct data gathering in the female section from the dean of the male section, as depicted in the rich picture of 'access stage' (Figure 6.2). The female vice-dean on the other hand has decision-making authority over activities relating to female staff and student affairs such as female staff training, monitoring performance of ODE at female section, problem-solving, and coordination of relations between the departments and units. This dependency on decision-making is represented in the detailed picture in Figure 6.4 by the arrow that points from the DELDE female section to the DELDE male section.

- **ODE course development and design**

Document analysis and a respondent from the female section of DELDE illuminated the entire ODE course development and design process. The respondent stated that the process mandatorily requires collaboration and communication among all relevant and participating DELDE staff and faculty members from both the male and female sections. Completion of this process takes between 10 and 12 weeks. All communications between the male and female members are conducted through emails and telephone calls. There is only one meeting run in the initial stage of the process and there is no need for staff to meet thereafter. The ODE course development and design process takes place over four stages: (1) preparation and coordination stage, (2) development stage, (3) technical quality and evaluation stage, and (4) the ODE course publishing stage.

The preparation and coordination stage identifies the course objectives, description, and results in an electronic copy containing the course details with approval from the faculty

and the names of the assigned teaching staff. There are usually two academic members assigned to teach each ODE course at this stage. The first academic member teaches the ODE course, while the second stands in for the first if he/she is unable to continue teaching at any point during the academic term due to unavoidable or unexpected circumstances. At this stage, faculty members who participate in this activity are members in Scientific Committee. Every faculty has a Scientific Committee comprised of heads of departments and representatives of the academic teaching staff from both the male and female sections. The role of this committee is to create and authorise the contents of ODE courses, as well as to assign suitable academic teaching staff (see Figure 6.4). During this stage, male and female members meet and communicate through internal video conferencing regarding the contents of the ODE course, while DELDE and relevant faculty members interact and communicate through e-mail and telephone.

The development stage of ODE course provides the two assigned teaching staff access to the relevant training course (ODE course design), to allow them to analyse and prepare for ODE course content and to identify ODE course activities and objectives. The training also enables them to write out ODE course scenarios, create multimedia for the ODE course and lastly add ODE course content to the learning management system (Blackboard). This stage is concluded by cooperation and interaction between the assigned academic teaching staff and staff members responsible for the technical support for the educational system in DELDE.

The technical quality and evaluation stage of ODE course development and design process has the single aim of ensuring that the course meets national ODE quality and evaluation standards set by the Ministry of Education. This stage involves cooperation between the department of quality and development at DELDE and the assigned academic evaluators from the faculties who are usually members in the Scientific Committee.

The ODE course publishing stage is the last stage of the ODE course development and design process. It involves a rigorous review process, culminating in permission to publish the course on the learning management system (Blackboard). The process of course publication is the responsibility of the department of technical affairs in DELDE.

- **Academic Teaching Staff**

Overview about Teaching Process

KAU's ODE teaching staff, at both undergraduate and postgraduate level, comprises 217 individuals. Of these, 158 are male, and 59 are female, representing 73% and 27% of the teaching staff respectively (stakeholder (3) and stakeholder (10), table 5.4 in Chapter 5). The male academic teaching staff can teach both male and female students if there are no appropriate female teaching staff. However, female teaching staff can only teach female students due to the social context of Saudi Arabia. The teaching staff assigned by the Scientific Committee in each faculty are only mandated to teach the ODE course and are not always members of the scientific committee. Their role is delivering the ODE course content to students via the ODE system. Regarding this, one member of the teaching staff said: 'Although I did not participate in developing the ODE course that I teach online - my academic experience and the financial rewards offered for teaching online, motivate me to accept online teaching' (stakeholder (16), table 5.4 in Chapter 5). Another respondent gave a different perspective regarding teaching on the ODE, stating that it was a fascinating opportunity that will give him experience working with other international universities that offer ODE in the future.

Key Activities in the Teaching Process

This section describes the key activities of academic teaching staff involved in the delivery of the ODE system at KAU.

- **Communication and interaction**

The interviews with teaching staff from both the male and female campuses revealed three communication and interaction levels between them and the other ODE stakeholders. Firstly, if they were members of the Scientific Committee involved in ODE course preparation and coordination, which is the first stage in the ODE course development process, they use emails, telephones and internal video conferencing. Secondly, DELDE staff members and teaching staff interactions occur when performing collaborative works during the development, technical quality and evaluation stages of ODE course development and design processes. Also, teaching staff communicated with DELDE staff for receive technical support for any technical problems facing them when teaching online. They communicated through emails or on the telephone at this level. The last level of interaction is between academic teaching staff and students. This is the interaction between the academic teaching staff members and students during the educational process. The interactions at this level can be synchronised during live online lectures using communication tools available in Blackboard, such as text and audio chat. Asynchronous interaction is also available and involves use of emails and the discussion board in the Blackboard system. However, interviews revealed that the communication tools for use at the teaching staff-student interaction level are suitable, and that there are no major difficulties encountered in their interactions with each other.

- **Teaching and assessment**

The results of the document analysis and one interview with a female member of the teaching staff revealed there is a specific strategy for online teaching and student assessment developed by Ministry of Education. This strategy supports teaching staff in course delivery online and ensures selection of appropriate teaching criteria. Usually, the teaching staff are periodically evaluated to ensure that they are meeting the pre-set

requirements once during each term. These criteria are predefined by the Ministry of Education and focus on different activities involved in the delivery of ODE course contents during the term. Some of these activities include adding ODE course contents on time, participating in discussions with students on the discussion board in BB, uploading assignment sheets on time, answering students' messages in BB with no delay, committing to start and end times for online lectures, committing to recording online lectures for the BB system. However, each academic is given some flexibility to choose his/her own preferred teaching approach.

Regarding the assessment strategy, the overall assessment is 100%, broken down into 70% for the final exam and 30% for term activities, such as assignments and discussion board participation.

- **Students**

Overview about Learning Process

Students are at the centre and are the end users of the ODE system. They sign up for courses and interact virtually with the academic teaching staff. According to statistics acquired from DELDE, the total number of students, registered on both the undergraduate and postgraduate programmes for the academic year 2014-2015 was 1282. During this period, 530 (41%) were male and 752 (59%) female (stakeholder (3) and stakeholder (10), table 5.4 in Chapter 5). At the undergraduate level, Economics and Administration programmes were delivered to 331 students, Arts and Humanities Science were delivered to 205 students, and the Business Faculty in Rabigh delivered courses to 606 students. At the postgraduate level, there were 140 students, of which 66 were male, and 74 female, as shown in Table 6.2. This table shows the low number of available programmes within the ODE, which results in fewer students being enrolled than might otherwise be the case.

Gender/ Faculty	Postgraduate Students		Undergraduate Students			Total
	Arts and Humanities Science	Education	Economics and Administration	Arts and Humanities Science	Business Faculty (Rabigh)	
Male	37	29	149	32	283	530
Female	41	33	182	173	323	752
Total	78	62	331	205	606	1282

Table 6.2 The number of male and female students enrolled on the postgraduate and undergraduate ODE programmes in 2014-2015.

Interviews with six students (see Table 5.4 in Chapter 5) from both male and female sections revealed their different views of the ODE system. One female student and a male student agreed that the ODE provided them with a great opportunity to continue their studies while managing other commitments, either home tasks or children as noted by the female student, or job commitments as cited by the male student. However, another student said: 'I do not prefer to study online because I think is not as reliable and effective way of learning as learning on the university campus, but it was the only option for me to complete my study after graduation from high school, due my low grades' (stakeholder (19), table 5.4 in Chapter 5). Online learning options within the KAU ODE appear structured, and learning activities are predefined and clear to both teaching staff and students, as explained earlier and communication and interaction seem the most important activities informing the learning process at present.

Key Activities in the Learning process

- **Communication and interaction**

Communication and interaction are crucial process from the perspectives of both students and other stakeholders. Three levels of communication and interaction exist in the university, to promote effective learning for ODE programmes as shown in Figure 6.4.

The first level is between students and teaching staff. The interaction in this case is largely for educational purposes. Teaching staff are trained to teach ODE courses, so they interact with students mainly on aspects related to course content. The second level of communication and interaction is between students and DELDE technical support staff. Here, communication and interaction revolves mainly around the technical aspects of the Blackboard system. The students mainly consult technical staff when they experience problems with the technology. The last level of communication and interaction is among students themselves. To synchronise communication, students discuss issues related to the ODE course and teamwork assignments through a discussion board, and audio and text chats in Blackboard. They also use emails for asynchronous communication. It is stated that there is no interaction or communication between female and male students within the Blackboard system, but they can communicate and interact in online-based educational forums to exchange knowledge and experiences for study purposes.

6.3.2 Issues

After completing interviews with all stakeholders, the detailed picture in Figure 6.4 highlights the various issues (ill-defined and well-defined issues) experienced by different stakeholders in the ODE system at KAU. Most ill-defined issues emerged from the relationship between the social and political contexts of the ODE system. These issues which affect stakeholders' activities are classified into four main categories: institutional, technological, cultural and learners' issues.

6.3.2.1 Institutional Issues

- **Resistance to Change**

Lack of willingness to change among the staff is a major barrier to attempts to transform the ODE system. As revealed in an interview with a staff member from DELDE; the

transformation from Moodle to Blackboard was a challenge for DELDE staff. Adaptation to change requires countless adjustments and staff must be open to learning new things. In many cases, adjustments are required within a short time span. Typically, unwillingness to change slows down the performance of tasks by staff members.

- **Lack of Participative Decision-making**

Participative decision-making in this situation refers to the engagement of different stakeholders at different levels in ODE, from both the male and female sections, in decision-making regarding future development plans and strategies. Lack of perception about the value of participative decision-making in the development of the ODE system posed serious challenges to the success of the ODE system. The different levels of deanship management do not all play distinct roles in the decision-making process. The higher levels of DDELDE management are involved in independent decision-making that does not account for the views of the staff at the lower levels of management.

- **Lack of Awareness among DELDE Staff about Current Work Situation and Value**

According to a respondent from the top levels of management, it is very important to increase awareness among the staff in both sections about the ODE situation relative to the work of DELDE. For example, running regular workshops about the ODE area and the participation of different stakeholders could increase social interaction and knowledge-sharing about the ODE situation. Participation in various international academic conferences in the ODE field would also increase awareness of the ODE situation and future development. This would reduce competitiveness that may inhibit work progress, and increase cooperation among staff members from both sections, improve self-motivation and lead staff to actively seek for more information and knowledge. This shortage in awareness also includes knowledge about the value of their

work and the need to work as a team to improve motivation and awareness of their operating environment, to increase their performance and productivity.

- **Inadequate Training**

A respondent from the middle level of management pointed out that one guaranteed way to improve the quality of the ODE would be to improve the skills of the technical and administrative staff. Efforts here have been hindered by lack of support from DELDE management, combined with inadequate funds and unwillingness among members of staff from different sections to learn and cooperate. Lack of a training course for DELDE staff members, including academic teaching staff, to enhance knowledge acquisition and learning about the development of work in the ODE system, is a crucial challenge.

Inadequate training has resulted in a lack of effective human resources in both male and female sections, meaning there is a huge workload imposed on the available staff. There are often too many things to be done to run the ODE system efficiently, as there are too few staff members to execute tasks. This leads to stress and pressurises the available staff. It is almost impossible to get the best out of the staff in both sections when they have to multitask and perform duties for which they are not well suited.

From interviews with some DELDE staff members from both the male and female sections, it was found that human resources were lacking in both sections, leading to huge workloads. For example, one DELDE staff member (stakeholder (5), table 5.4 in Chapter 5) in the female section stated that she multitasks; staff members in a department sometimes need help from staff members in other departments. This can lead to tasks in DELDE being performed by unqualified staff. The large number of tasks required to manage the ODE system also means that available staff are often under immense pressure

and stress. Since personnel have to multitask and often perform duties they do not fully understand, it is hard to get the best performance from them.

- **Lack of Motivation and Support from Individuals in Higher Positions**

Interestingly, a respondent from the lower levels of management suggested the quality of the ODE could be significantly improved if all staff received more support and motivation from the senior staff. This could be achieved by paying more attention to staff members' views and needs and through more equal allocation of work among staff in lower positions at DELDE. However, such a change would be unlikely to be implemented due to a lack of cooperation among DELDE staff and an unwillingness of senior staff members to initiate such an initiative. Lack of support and motivation from staff in higher positions continue to hinder the development of the ODE system.

- **Lack of Cooperation between Male and Female Members of DELDE**

This occurs because of the social factor of gender separation and the absence of social interaction between them. This leads to several issues regarding how the current ODE system should be developed to address quality issues, increase efficiency and address changing needs. The lack of cooperation between the two sections slows down the completion of shared tasks and inhibits the decision-making processes relating to improvements to the ODE system.

- **Lack of Experience and Knowledge Sharing Among Staff**

Another challenge noted was lack of knowledge and experience sharing among staff members in both sections, which is known to be a serious challenge. In an ideal work environment, staff share important experiences and knowledge with one another. This creates a spirit of teamwork when solving problems, performing tasks, and determining proper to take to meet the overall aims of DELDE. However, two respondents from both

the male and female sections stated that the staff in each section interact better with their peers in their own section that with their counterparts in the other section, which is due to the social context of gender separation.

- **Poor quality of ODE courses**

From an interview with a member of the teaching staff, it was found that certain issues influenced the ODE teaching and learning processes. A participant who teaches an ODE course that he did not develop commented on the poor quality of the ODE course content. There is a lack of cooperation between the teaching staff assigned to teach the ODE courses and the ODE course developers and designers at the ODE course development and design stage. Over time, the processes involved in developing the ODE courses have made it almost impossible for teaching staff to ensure achievement of learning outcomes.

6.3.2.2 Technological Issues

Another issue referred to by both teaching staff and students was that the ODE system depends entirely on technology that breaks down, particularly the Blackboard system. When technical breakdowns occur, they affect communication and interactions between teaching staff and students involved in the online educational process. Interruption to the internet and poor internet connectivity can also make communication difficult.

6.3.2.3 Cultural Issues

Cultural issues include social and political issues in the KAU ODE system. Social issues include gender separation between stakeholders in KAU ODE while political issues include the ODE hierarchical organisational structure as discussed in sections 6.2.1.1 and 6.2.1.2.

- **Lack of awareness in the society and labour market concerning ODE system graduates**

Another social issue raised by different stakeholders is that Saudi society and the labour market generally lack awareness of the ODE system. Consequently, ODE graduates are not given equal consideration to traditional fulltime graduates in the job market. There is a need to raise awareness about the ODE system in Saudi Arabia so that more people can be encouraged to enrol for ODE programmes with the confidence of receiving a job after graduation. This would benefit individuals who cannot enrol for traditional fulltime education due to having engagements that prevent regular attendance on campus.

6.3.2.4 Learners' Issues

Various issues raised by teaching staffs and students that affect the overall learning process for the students. They are listed below.

- **Limited Number of ODE programmes**

The majority of students would like to pursue programmes that are not currently available on the KAU ODE. This limits the number of students enrolling for the ODE programme to pursue their professional goals. The limited number of ODE programmes available at the university means that some people may be unable to pursue studies in their preferred subjects. In this case, they enrol onto the available programmes simply to gain more qualifications, which will help them to get a promotion or a better job. One respondent from the academic teaching staff indicated that the ODE could best be improved by expanding ODE programmes at postgraduate levels (such as Masters and PhDs) by learning from the successful experiences of leading universities worldwide.

- **Lack of Social Interaction between Students**

One student raised the issue of the low level of social interaction among ODE students. The ODE system could be improved by adding more educational processes and opportunities to increase interactivity among students. Increased interactivity was reported to be very important, because of the isolation and lack of physical presence to boost students, especially when completing group assignments. Also, the respondent identified as a failing the lack of modern tools to support social interaction among students, such as social media tools that could also be used to enhance interactivity not only among the students but also between them and the teaching staff.

- **Lack of qualified teaching academic Staff members**

Another interview with a student clarified that the ODE lacked qualified teaching staff. This could be because some of teaching staff assigned to the ODE do not participate in the ODE course development and design process. An issue raised by a teaching staff member and a student is the lack of technological skills (mainly computer literacy skills) among the teaching staff and the students. Computers and Blackboard systems are key components of the ODE. Lack of experience using such technologies is a drawback to the entire educational process, especially for students living in the rural areas.

In addition, lack of appropriate training courses to teach online is another challenge, even for otherwise qualified teaching staff. Some of the present training courses have become irrelevant and no longer meet current needs. Lack of training for teaching staff means they no longer have the skills required to improve the quality learning outcomes.

Table 6.3 summarises the issues facing stakeholders in ODE system at KAU. Once a better understanding of the current situation regarding KAU ODE had been gained,

certain areas that need to be improved were identified, which will be discussed in the next section.

Institutional issues	Technological issues	Cultural Issues	Learner issues
• Resistance to change. • Lack of participative decision-making. • Lack of awareness among DELDE staff about current work situation and value. • Inadequate training. • Lack of motivation and support from individuals in higher role positions. • Lack of cooperation between male and female sections. • Lack of experience and knowledge-sharing. • Poor quality of ODE courses.	• Interruption and poor internet connection. • Breaking down of learning management system.	• Hierarchical organisational structure. • Gender separation. • Lack of awareness in society and the labour market concerning ODE system graduates.	• Limited number of ODE programmes. • Lack of social interaction between students. • Lack of qualified academic teaching staff members.

Table 6.3 Issues facing stakeholders in ODE at KAU.

The above table includes some new issues facing ODE stakeholders at KAU that differ from issues revealed in ODE literature reviewed in this study. These issues face mainly institutional stakeholders and students and hinder many activities in ODE, affecting not only the learning process of students. For example, in Chapter 4, some of issues discussed in the ODE context like gender issues are examined as problems influencing the learning process, whereas gender separation in the case of this study is examined as a challenge for the overall ODE system. The following table summarises these new issues raised in ODE environment at KAU.

Institutional issues	Cultural Issues	Learner Issues
• Lack of participative decision-making. • Lack of cooperation between male and female sections. • Lack of experience and knowledge-sharing.	• Hierarchical organisational structure. • Gender separation. • Lack of awareness in society and the labour market concerning ODE system graduates.	• Limited number of ODE programmes. • Lack of social interaction between students.

Table 6.4 New issues facing ODE stakeholders that emerged from the fieldwork.

6.3.3 Take Action

The aim of this section is to discuss some possible recommendations for improvements to the ODE system at KAU. Since SSM-Mode 2 provides its practitioners with more flexibility for using SSM tools, conceptual models (see Appendix 4) were built individually in order to understand how existing issues in KAU ODE can be improved, without the intention to take actual actions regarding these recommendations due to the limited access. Thus, between March and July 2015, the second phase of interviews was conducted with relevant stakeholders. This phase of interviews was designed to elicit a fuller understanding of the responses given by stakeholders so as to produce recommendations for improving the current KAU ODE system, as proposed by the researcher and stakeholders when conducting the first phase of interviews in stage 2 and at the beginning of stage 3. This second interview phase supported the attempt to learn more about what can be done to improve the current ODE situation at KAU, and about the reactions of stakeholders towards these improvements.

The second phase of semi-structured interviews involved two key stakeholders who participate in the decision making process in DELDE, from both the male and female sections. The reason for discussing the suggestions with these two participants was because after constructing knowledge about the different ideas and issues, the decision

makers could be the only stakeholders who can decide whether there is the capacity for implementing these suggestions in the future, based on the available resources.

The participants involved in phase two of the interviews were questioned about some of the possible changes that could be made to address some of the critical issues facing the ODE system. The interview questions focused on how to improve certain aspects of the system, such as supporting interaction and communication between DELDE staff members. This would be a significant way of improving the performing of shared tasks and the decision-making aspects of the process, as well as managing other important issues, such as the need to increase the number of ODE programmes and the general awareness and understanding of ODE amongst DELDE staff members, the Saudi community, and the labour market in general. The research focused on these factors because they were perceived to be the main reasons behind many of the ill-defined issues relating to institutional members and students. These challenges also emerged from the relationship between the political and social factors that dominate ODE development at KAU. However, changes in political and social contexts would be difficult, yet this study proposes actions that require changes in the thinking and attitudes of stakeholders so as to take the initiative and consider the following actions in their current cultural context.

- **Proposed action 1: decision making process**

The researcher recognised the benefits of the participatory decision-making process, which considers the opinions of different stakeholders at different levels within the ODE system. Integration of multiple views of stakeholders would lead to better decisions relating to the development of future plans and strategies for ODE improvement. Both respondents in this phase of the interviews appeared very positive and supportive of the need to generate a set of ideas from both staff and students in an effort to develop the ODE system, even in cases where there was disagreement surrounding some ideas. Phase

one of the semi-structured interviews with various stakeholders revealed that, although there were multiple perspectives on how various issues regarding development of ODE system can be handled, all the components within the ODE system are interrelated. Therefore, any changes made in one department ultimately affect all the other departments, which effectively creates even more issues.

For this proposed action, it suggested that ODE stakeholders especially DELDE staff need to increase their awareness and knowledge about their environment and how it could be improved. Another idea to achieve participative decision making is to increase the interaction and communication between them to facilitate knowledge sharing, ideas and experiences. However, this action can be limited and is difficult to implement today due to hierarchy-organisation structure of KAU ODE.

- **Proposed action 2: awareness about ODE**

The second proposed change was intended to increase awareness and understanding about ODE among DELDE staff. The first idea mentioned here was the need to run workshops about the ODE system in general. All the stakeholders welcomed this idea, with a respondent from DELDE saying, '*Recently we have run workshops about ODE nature, importance and role of deanship staffs for different faculties to increase awareness about ODE and improve educational practices. In future, we will continue running these workshops and increase their topics.*" (Stakeholder (4), Table 5.4 in Chapter 5).

The second idea concerned the need to attend international conferences and events. However, with both the male and the female administrative staff members in DELDE saying its implementation was already in progress and that it was already running, though on a limited basis as it was restricted by the funds available. In addition, to increase awareness and understanding about the ODE among DELDE staff, all the stakeholders

agreed to the idea of using social media tools such as Facebook and Twitter. Although DELDE had already facilitated social media tools in order to share issues and suggestions among stakeholders and the public, the interaction level among them seems very low, possibly because of the time limit and slow response to stakeholders concerns.

The other area where change was proposed was the creation of greater awareness and understanding of the ODE among the community and employers. The idea raised by the researcher included running workshops about the ODE system in general for employers, and establishing an electronic newsletter about the ODE, its importance, and success to date. The stakeholders welcomed these ideas and it will be considered in the future plans of ODE development. This can be also restricted by time and limited funds.

- **Proposed action 3: interaction and communication**

A number of changes were proposed by the stakeholders interviewed in phase one. The first set of ideas centred on interaction and communication among DELDE members in terms of performing tasks and decision-making. The first idea raised was the need to use internal online communication tools to enable all DELDE staff at different levels to interact and communicate in more social way. The stakeholders gave conflicting responses about the suitability and effectiveness of the internal online communication tools; however, most agreed that time would be the main barrier to success. One respondent, for example, said:

> *'Difficult to use it at the current time at all staff levels in the deanship due to the low level of awareness among them about using these communication tools to exchange experiences and knowledge and time limitation'* (Stakeholder (14), Table 5.4 in Chapter 5).

- **Proposed action 4: the number of ODE programmes**

Another proposal presented was intended to help increase the number of ODE programmes. Two ideas were suggested here. The first idea, which was fully supported by all of the participants in phase two, was the need to increase the communication and interaction between the Quality and Development Department and the Colleges, in order to conduct the field research required to fulfil the needs of the labour market and students. DELDE already has explored this in collaboration with the Computer Science Faculty, as a guide to developing new ODE programmes in the future, as stated by the female administrative staff member in DELDE. The second idea was the need to attend international conferences and events to benefit from experiences at other universities. However, this was constrained by the funds available for the KAU ODE.

6.4   Reflection on the Overall Learning Experience Concerning the ODE system at KAU

The aim of this section is to provide a personal reflection about the overall learning experience throughout the three stages. The aim of the learning process was to understand the current complex situation of KAU ODE from a soft systems perspective. This viewpoint considers KAU ODE as a problematic situation that includes interrelated and ill-defined issues that are perceived differently by various stakeholders within the Saudi cultural context. Therefore, the utilisation of SSM-Mode 2 as a structured action learning approach aided the structure and organisation of thoughts concerning the research, in order to gain an understanding about what is happening in KAU ODE, why it is happening and how it could be improved in the future. Although SSM-Mode 2 helped to improve reflective thinking and practice during the learning experience, it was a time-consuming approach, which would most likely have taken less time if the SSM-Mode 2 practitioner had been an internal KAU ODE stakeholder. In this regard, the practitioner would not need to implement stage 1 (planning stage) or stage 2 (access stage).

Before starting the fieldwork, the situation regarding KAU ODE was completely unknown and unexpected in terms of how the work environment and activities are performed. For this reason, it was important as a learner to develop the initial 'planning stage' so as to plan the learning process before applying it in KAU. Using the learning principles and ideas of SSMp and SSMc suggested by Checkland and Winter (2006) proved very helpful in structuring the three stages of the researcher's learning process.

The main concern during the learning experience related to the rigid policy of accessing the ODE situation at KAU and interacting with the stakeholders. It was a challenging stage because it was initially unclear whether only one permission letter was required to conduct this research at KAU, or whether additional permission was needed from the DELDE. In addition, there appeared to be no predefined strategy for accessing KAU for external researchers interested in conducting research there. For this reason, more time was spent contacting relevant staff members in both sections in KAU to track the status of the first permission letter. Furthermore, access to the problematic situation is an important influencing factor in the learning process of the SSM-Mode 2 practitioner in terms of time and forms of engagement with stakeholders. Accordingly, it is recommended that future practitioners should be aware of the 'access' factor in the problematic situation before carrying out the learning process.

Cultural environment influenced the researcher's learning process in terms of limited access into the problematic situation and engagement with ODE stakeholders. The learning process regarding KAU ODE does not appear to be separate from the cultural context. The constructivism learning view can enhance the interaction between the SSM-Mode 2 practitioner, people and with their environment. In this regard, ICT plays a crucial role in enhancing interaction, communication between SSM-Mode 2 practitioner and stakeholders to achieve better knowledge and understanding of a problematic situation.

In addition, engagement with key DELDE stakeholders regarding discussions about possible future improvements for ODE during the third stage of the learning process provided a better understanding of the impact of cultural context of KAU on the development of ODE. Indeed, cultural factors can drive and shape how people in the ODE behave, interact, construct knowledge about their situation, and improve their situation. It can be used as a positive force to support the development of ODE system. Thus, ODE stakeholders initially need to learn about their situation with more consideration for their environment, in order to work in a more sociable manner that suits their culture, take proper and suitable actions to improve it.

Finally, the learning experience facilitated an awareness for the researcher of the ODE situation in public universities in Saudi Arabia, which will inform future work in the ODE area. Moreover, as learning about the ODE area continued, in addition to an interest in teaching using the ODE system, interest in the development of ODE in terms of developing future plans and strategies also increased. The development of plans that include as many different ideas as possible for improvement from the perspectives of multiple stakeholders, who are directly involved in the daily practices of ODE, especially the students, will improve the performance of the ODE system. More emphasis is placed on the concerns of the students because they are the end users of the ODE system; therefore, fulfilling their needs would increase their motivation to continue learning, as well as their satisfaction and achievements.

6.5   Generalisation of SSM-Mode 2

From the researcher's learning process in using Mode 2 to explore and learn about KAU ODE, some criteria have been identified to help future SSM-Mode 2 practitioners to test,

apply and advance the development of Mode 2 in different research areas. Chapter 3 concluded with some criteria identified from the existing literature of SSM that include identifying complex real world situations that are of interest to Mode 2 practitioners, situations that allow practitioners to be inventive and flexible to circumstances in terms of access to the university and using appropriate learning activities. ODE at KAU was a challenging research environment for the researcher because of the unique social aspect of gender separation and KAU's political context, both of which limited her access to the ODE environment and restricted her engagement with ODE stakeholders, but encouraged the researcher to be more creative and flexible in using learning activities suitable to these contexts. In this regard, the empirical work in the researcher's learning process revealed that 'access' into ODE as a problematic situation is an important criterion that should be taken into account before applying Mode 2. In addition, as mentioned earlier in Section 6.3.3, some proposed actions had constraints that make their implementations more difficult and challenging for ODE stakeholders. So, the feasibility of improvement suggestions could be an additional criterion for SSM-Mode 2 research environment. Some of the issues the researcher encountered during the field work (access, difficulties in full engagement with ODE stakeholders) will be explored further in the next chapter. The below table summarises the list of criteria for a research environment using SSM-Mode 2 that might be generalizable to different areas of management and information systems that fit with these criteria, along with the researcher's personal reflection on these criteria.

List of criteria	Reflection
1. A complex set of issues requiring practice-based transdisciplinary and	A research environment includes issues that are difficult to define and measure, such as social and political issues that

socially-distributed research for knowledge construction.	affect the overall environment, performance and stakeholders' activities. This criterion allows the practitioner to explore and improve issues that are difficult to solve by hard systems approaches.
2. An interesting and challenging research environment for SSM- Mode 2 practitioner.	Any research environment may seem complex to the practitioner who seeks to learn more about it. The practitioner can be internal or external to this environment.
3. Research that enables SSM-Mode 2 practitioners to be inventive and flexible to circumstances.	A challenging research environment allows practitioners to be creative and improve their thinking skills in terms of learning activities and suggest actions to improve the environment.
4. The level of 'access' into a research environment.	Access could be an important criterion that affects the level and way of engagement between the SSM-Mode 2 practitioner and stakeholders who are involved in the environment.
5. Feasibility of suggestions of improvements actions.	Engagement and discussion between the SSM-Mode 2 practitioner and stakeholders can allow the practitioner to propose suitable improvement actions.

Table 6.5 List of criteria that can be generalised to different Management and IS research environments using SSM-Mode 2.

6.6   Summary

This chapter described the researcher's learning process when investigating issues affecting stakeholders in KAU ODE. The process included two stages: SSMp of 'access

stage' and SSMc of 'ODE contents analysis stage' according to the conceptual model of the planning stage of the fieldwork, as shown in Figure 5.3 in Chapter 5. The use of two process and contents modes by Checkland and Winter (2006) helped in identifying different types of learning that could be available to the ODE researcher using SSM-Mode 2. Stage 2 incorporated an analysis of the social and political environments of the ODE system at KAU as derived from the learning process, as shown in the rich picture (Figure 6.4) during the first stage of the researcher's learning process. It showed the influence of gender separation as a major social factor and the university's regulations and hierarchy structure as political factors in the researcher's learning process. This resulted in the researcher modifying the learning process conceptual model, as shown in Figure 6.3.

Stage 3, the 'ODE contents analysis', involved an analysis of documents and a review and semi-structured interview data, conducted with ODE stakeholders to describe the present status of the ODE system at KAU. The findings of the interviews indicated that the ODE system is comprised of key stakeholders' classifications, namely: the DELDE staff (administrative and technical staff), teaching staff and students. These stakeholder groups stated that ongoing issues that hinder their activities should be addressed in the future of ODE development. The issues classified into four categories; institutional, technological, cultural and learners' issues. These issues centre on the decision-making process, communication and interaction, technical problems, lack of qualified institutional staff, poor training courses, lack of knowledge sharing and experience and lack of awareness about the ODE system in the Saudi community and labour market, as summarised in Table 6.3. Also, this chapter highlighted additional issues within ODE literature that affecting its development as presented in Table 6.4.

Towards the end of the learning process exploring the KAU ODE system using SSM-Mode 2, the researcher identified some areas in the system that could be improved, and

recommended some actions. Finally, a personal reflection of the overall learning process regarding exploring the problematic situation of KAU ODE was presented. This inquiry process resulted in learning insights and lessons that supported the researcher to assess SSM-Mode 2 as a learning approach towards exploring a problematic situation, which will be discussed in the following chapter.

Chapter 7: Reflection on SSM-Mode 2's Learning Process- Discussion

7.1   Introduction

As discussed in Chapter 3, the need exists for a deeper understanding of the learning process within SSM-Mode 2 for SSM practitioners. Chapter 3 discussed the theoretical learning assumptions in education field and the learning process for SSM-Mode 2, revealing that the majority of previous studies about SSM-Mode 2 lacked detail concerning the nature and ways of assessing its learning process in practice. This thesis has proposed learning characteristics and activities to help SSM-Mode 2 practitioners in this regard, including the constructivism learning theory that could enhance SSM-Mode 2's learning process and the Kolb experiential learning approach that would complement SSM-Mode 2 to achieve better reflective learning in practice. These findings derived from the systems thinking and education literatures, and empirical work in KAU ODE. The presentation of the empirical data in Chapter 6 identified several learning insights related to key points and arguments presented in assessment of the learning process (Chapter 3) in the context of the ODE system.

The thesis offers a comprehensive understanding to the SSM practitioner of the processes linked to conducting an enquiry into a problematic situation using SSM-Mode 2. This chapter first presents the lessons learned from the empirical work on the KAU ODE system, highlighting the researcher's learning process using SSM-Mode 2. Then, it identifies a number of strengths and weaknesses of SSM-Mode 2 as a learning approach

toward exploring ODE situation at KAU. After that, a revised framework describing the learning process within SSM-Mode 2 will be proposed for use by SSM-Mode 2 and ODE practitioners as a tool to acquire understanding of ODE system. This chapter will then analyse and discuss this intellectual framework, drawing on evidence from the literature and empirical study. It concludes with a summary of the chapter that presents novel features of this proposed framework.

7.2 Lessons Learned from Using SSM-Mode 2 as a Learning Process to Explore Problematic Situation at KAU

This section emphasises the main lessons and findings from Chapter 6, which could enable other researchers interested in SSM-Mode 2 to compare their experiences within the KAU ODE setting. This fulfils one of the objectives of this thesis, which was to understand the current situation regarding ODE, by identifying issues from different stakeholders' perspectives, using SSM-Mode 2 as a learning approach. After considering the literature presented in Chapter 2 (systems thinking literature), some SSM tools were validated empirically. Those tools used in reference to KAU ODE helped increase the researcher's understanding of the current situation in the ODE system. The following points comprise the key findings of the empirical work undertaken for this thesis.

Firstly, since the researcher (SSM practitioner) is and remains external to the ODE system at KAU, and had no previous knowledge of ODE contents at KAU, work environments, performance of activities and stakeholders' issues, SSM-Mode 2 helped the researcher to structure her learning process and learn about the contents of KAU ODE using the ideas of SSMp and SSMc proposed by Checkland and Winter (2006). It helped the researcher to act, reflect and increase her knowledge about the ODE context at KAU in a more structured and organised way than the traditional analysis of problems.

For example, as a result of a normative review of ODE literature, this thesis identified the issues (both well-defined and ill-defined) which hinder the development of ODE and classified them into four main categories namely: institutional, technological, cultural, and learners' issues (summarised in Table 4.7 in Chapter 4). However, in previous ODE studies, each category is explored separately from different stakeholders' perspectives without any consideration given to their connection to each other and the reasons behind them. The SSM tools include cultural analysis (intervention, social and political analyses), rich picture and conceptual models used as learning tools to help the researcher to act, reflect and increase her knowledge about the KAU ODE context holistically.

Analysis one enabled the researcher to identify the key stakeholders involved in problematic situations by identifying client(s), problem solver(s) and problem owners, as explained in Chapter 5. Analyses two and three enabled the researcher to define and understand interrelated ill-defined challenges that dominate the ODE situation and the relationship between them, namely gender separation (social context) and the ODE hierarchical organisational structure (political context). The interconnections between these contexts seemed to be causing issues which face KAU ODE stakeholders and which affect their activities, as summarised in Table 6.3 in Chapter 6.

The relationship between these two contexts had an influence on the researcher's learning process. Social and political analyses of the KAU ODE system, as discussed in sections 6.2.1.1 and 6.2.1.2 in Chapter 6, resulted in identification of the issue of '**access**' into the university at the beginning of the fieldwork, as analysed in section 6.2 and shown in the rich picture in Figure 6.2 . The social and political contexts dominant at KAU ODE ensure that the use of SSM-Mode 2 in the current study is more suitable than the application of SSM-Mode 1. SSM-Mode 1 is an action-oriented methodology that uses seven stages of SSM to structure, intervene and improve on the content of a problematic situation,

emphasising stakeholders' views (Checkland and Scholes, 1990). By contrast, SSM-Mode 2 allows the researcher to internalise the use of SSM tools with greater flexibility (Mingers, 2000) to support awareness and learn about issues encountered in the ODE situation due to the situation's cultural environment, rather than making an explicit intervention to change it.

Based on the fieldwork, it seems that SSM-Mode 2's practitioners have the flexibility to employ SSM tools within a parallel use of cultural and logical streams. This combination of both streams enabled the practitioner to learn about the situation in a holistic manner and propose actions that are systemically desirable and culturally feasible. For example, during the second 'access stage' of the researcher's learning process about the KAU ODE situation, the researcher used logical learning principles (Checkland and Winter, 2006) within SSM as shown in Figure 3.2 in Chapter 3, in parallel with social and political analyses. In addition, in the third 'ODE contents analysis stage' the researcher internalised the use of rich pictures about the situation during interviewing ODE stakeholders then explicitly developed it to make sense of her learning process to provide an explanation how ODE situation is perceived by the researcher. In this regards, it seems that Mode 2 can be used in combination with Mode 1 to provide better reflection and understanding about ODE situation at KAU. According to Checkland and Scholes (1990) the SSM reflective practitioner is recommended to combine two modes within the use of SSM regarding any problematic situation.

The rich picture tool in Figure 6.4 helped the researcher to gain a comprehensive understanding of problematic situations affecting the ODE system at KAU. It also allowed the researcher to highlight issues that have emerged from the relationship between the social and political contexts of a situation, based on stakeholders' roles in the system, as shown in Table 5.4. Rich picture allows consideration of a situation from

different perspectives. In this regard, a rich picture allows the researcher to understand different issues and ways of thinking, from various stakeholders' perspectives.

Also, developing conceptual models about the researcher's learning process at different fieldwork stages, as shown in Figures 5.3 and 6.3, allowed the researcher to structure her thinking about conducting certain activities, and to understand the relationship between them. It helped her to intellectually perceive and learn how to structure her learning processes prior to experiencing it in practice. However, SSM-Mode 2 requires the practitioner to allow enough time to use SSM tools (three analyses, rich picture and building models), otherwise the SSM framework will be neither valuable nor effective. For example, the development of the rich picture in Figure 6.4 was a gradual process requiring the researcher to allow extra time to consider different stakeholders' perspectives, relationship, activities and issues to achieve the fullest possible understanding of the situation.

The practice of SSM-Mode 2 in an authentic and problematic situation helped the researcher to understand its theoretical assumptions, usefulness, and which tools most benefit the SSM practitioner's learning process. However, although SSM-Mode 2 includes learning activities (Checkland and Winter, 2006) that facilitate learning for the practitioner, considering it as a learning approach can be a limitation, partly due to the lack of studies considering SSM-Mode 2's learning processes theoretically and practically, as mentioned in Chapter 3. These limitations relate to the lack of explicit identification of learning characteristics such as learning theory and approach within SSM-Mode 2, which arise at the end of the process of inquiry into a problematic situation. However, this study revealed some key characteristics of the learning process of SSM-Mode 2 as actions that the SSM practitioner can usefully consider as opposed to SSM-Mode 1 that subordinates learning to action (Checkland and Poulter, 2006).

From the fieldwork it appeared that the learning approach of SSM-Mode 2 seems to differ situationally as claimed by Checkland (Checkland, 2000; Kumar and Sankaran, 2006), according to the social and political context, and the problems that arise within it. In other words, the SSM-Mode 2's learning approach used in the current setting of the ODE system at KAU might be suitable for other situations that share a similar cultural context to KAU, but would not be applicable in different cultural contexts.

Interaction and communication between researcher and stakeholders in KAU ODE seemed very important, enabling the researcher to reflect on the situation. Interacting via discussions and dialogue with ODE stakeholders at different stages, as the fieldwork progressed, increased the knowledge-sharing process and enabled the researcher to reflect and construct knowledge about the current ODE situation, thereby becoming a more experienced practitioner and knowledgeable about ODE environment. For example, engagement with ODE stakeholders in the third 'ODE contents analysis stage' through discussion helped the researcher to construct knowledge about the ODE situation in terms of its activities, issues and possible improvements for future KAU ODE development.

However, if the SSM-Mode 2 practitioner has limited access to a problematic situation, ICT plays a crucial role in enhancing interaction and communication between the practitioner and stakeholders, to achieve better knowledge and understanding about the problematic situation. For example, using telephone and Skype enabled the researcher to engage in discussions with male participants and students in order to understand their perceptions and the issues facing them in the ODE system at KAU.

Also, reflection through discussion with ODE stakeholders is more useful than reflection on direct observation and full participation in ODE stakeholders' practices for constructing the researcher's knowledge in the KAU ODE cultural environment. This was due to the political and social contexts that stopped the researcher participating in daily

ODE practices, observing and reflection on these practices (i.e. because the researcher is external to KAU and had limited access to KAU ODE situation). Reflection through direct observation and participation in problematic situation activities would be more useful if the SSM-Mode2 practitioner were internal to the problematic situation or an external practitioner with full access to and engagement with stakeholders involved in it.

Finally, engagement between the researcher and key stakeholders who showed responsiveness by discussing possible improvements in issues identified from multiple views, demonstrates how the ODE cultural environment influences the development of ODE. Interaction, communication with ODE stakeholders and understanding the cultural context within SSM-Mode 2 seem very important factors that enabled the researcher to construct knowledge about the current ODE situation and propose improvements that are systemically desirable and culturally feasible for KAU ODE.

Table 7.1 presents the key learning insights derived from SSM-Mode 2's inquiry process of the researcher toward exploring problematic situation in KAU ODE.

Learning insights about SSM-Mode 2 from the fieldwork
1. SSM tools include three analyses (intervention, social and political analyses), rich picture and building conceptual models that could support the researcher to act, reflect and increase her knowledge about ODE context at KAU in more structured and organised way than the traditional analysis of problems.
2. Understanding the social, political contexts and interconnection between them allowed the researcher to understand the reason behind different ill-defined issues face ODE stakeholders at KAU.
3. The relationship between social and political contexts also has an influence on the researcher's learning process and caused an emerging issue 'access issue' into the university.
4. SSM-Mode 2's practitioner has the flexibility to employ SSM tools within a parallel use of cultural stream and logical stream.
5. Mode 2 could be combined with Mode 1 for better reflection and understanding of a problematic situation in ODE.
6. The practice of SSM-Mode 2 in a real world situation helped the researcher to understand its theoretical assumptions, usefulness, and which tools most benefit the SSM practitioner's learning process.
7. SSM-Mode 2 could be heavily rely on the cultural context of ODE situation and different from a situation to other.
8. Interaction and communication between the researcher and ODE stakeholders at KAU through discussion was very crucial learning activity that allowed her reflect and construct knowledge about ODE situation.
9. ICTs can play a crucial role in enhancing interaction, communication between the practitioner and stakeholders to achieve better knowledge and understanding about the problematic situation, in case 'access' of SSM-Mode 2 practitioner is limited into the situation.
10. Reflection through discussion with ODE stakeholders could be more useful than reflection on direct observation and full participation in ODE stakeholders' practices, for constructing the researcher's knowledge in the cultural environment of ODE at KAU.
11. Interaction, communication with ODE stakeholders and understanding the cultural context within SSM-Mode 2 could be very important factors that enabled the researcher construct knowledge about the current ODE situation and propose a possible improvements that are systemically desirable and culturally feasible for ODE at KAU.

Table 7.1 Learning insights derived from SSM-Mode 2's inquiry process of the researcher toward exploring problematic situation in ODE at KAU.

7.3 Strengths and Weaknesses of SSM-Mode 2

The theoretical assessment (Chapter 2 and 3) and practical implementation (Chapter 6) of SSM-Mode 2 in the ODE context resulted in identification of a number of strengths and weaknesses associated with SSM-Mode 2. This research helped the researcher to improve her learning skills. Using SSMp and SSMc ideas (Checkland and Winter, 2006)

within SSM-Mode 2 in this study helped the researcher to structure her thinking, analysing and learning activities. In addition, it helped her to look beyond the boundaries of the contents of a problematical situation, such as the social and political contexts that dominant the situation. This methodology supported the researcher to learn more about the importance of engagement, and the participation of different people involved in the problematic situation when thinking about improving it. Different people have different thinking, views and ideas that support understanding about a problematical situation. On the other hand, the empirical work of this study confirmed a key weakness of SSM that is time-consuming (Mingers and Taylor, 1992; Kingston, 1995) and this also applies to SSM-Mode 2, especially for external practitioners, as the researcher requires more time and effort to interact with ODE stakeholders, arranging individual interviews, analysing their perception and representing them in rich picture (see Figure 6.4 in Chapter 6).

As it is a situation-driven methodology (Checkland, 2000; Kumar and Sankaran, 2006), its findings are hard to generalise into other situations. The fieldwork revealed that it is heavily affected by social and political contexts of problematical situations, while their connectedness can negatively influence the learning process. Table 7.2 shows the strengths and weakness of SSM-Mode 2 as a learning process for exploring KAU ODE. Limitations 3 and 4 in the following table seem inherent not only to SSM-Mode 2 but to SSM in general.

Strengths	Weaknesses
1. It provides a deep analysis and understanding of the real situation of ODE from different perspectives. 2. It supports to improve thinking, innovating and structuring the individual learning process about ODE situation. 3. It provides a holistic awareness and learning through understanding the cultural context and contents of ODE.	1. Time consuming for external researcher to the ODE problematical situation. 2. It could include misinterpretation to data in developing rich picture about ODE situation. 3. It is heavily affected by social and political contexts of problematical situation. 4. Its findings would be difficult to generalize into other contexts.

Table 7.2 Strengths and weaknesses of SSM-Mode 2 as a learning process toward exploring ODE at KAU.

7.4 Redesigned Conceptual Framework for the Learning Process within SSM-Mode 2

In the assessment process for the component 'Learning process' within the conceptual framework (see Figure 4.4 in Chapter 4), Chapter 5 developed a framework and included details about the three stages of the learning process as shown in Figure 5.2 in Chapter 5. Consequently, Chapter 6 was written based on empirical evidence related to the application of learning process (Figure 5.2 in Chapter 5) using SSM-Mode 2 in a real world situation. The present chapter reviews the initially refined conceptual framework of SSM-Mode 2's learning process (see Figure 4.4 in Chapter 4) that includes different components; 'learning process', 'SSM-Mode 2 practitioner' and 'problematic situation in ODE', taking into account the empirical evidence presented in Chapter 6 and theoretical evidence in Chapter 3. From this evidences, the researcher proposes a redesigned conceptual framework for learning process within SSM-Mode 2 toward exploring problematic situations in ODE as shown in Figure 7.1.
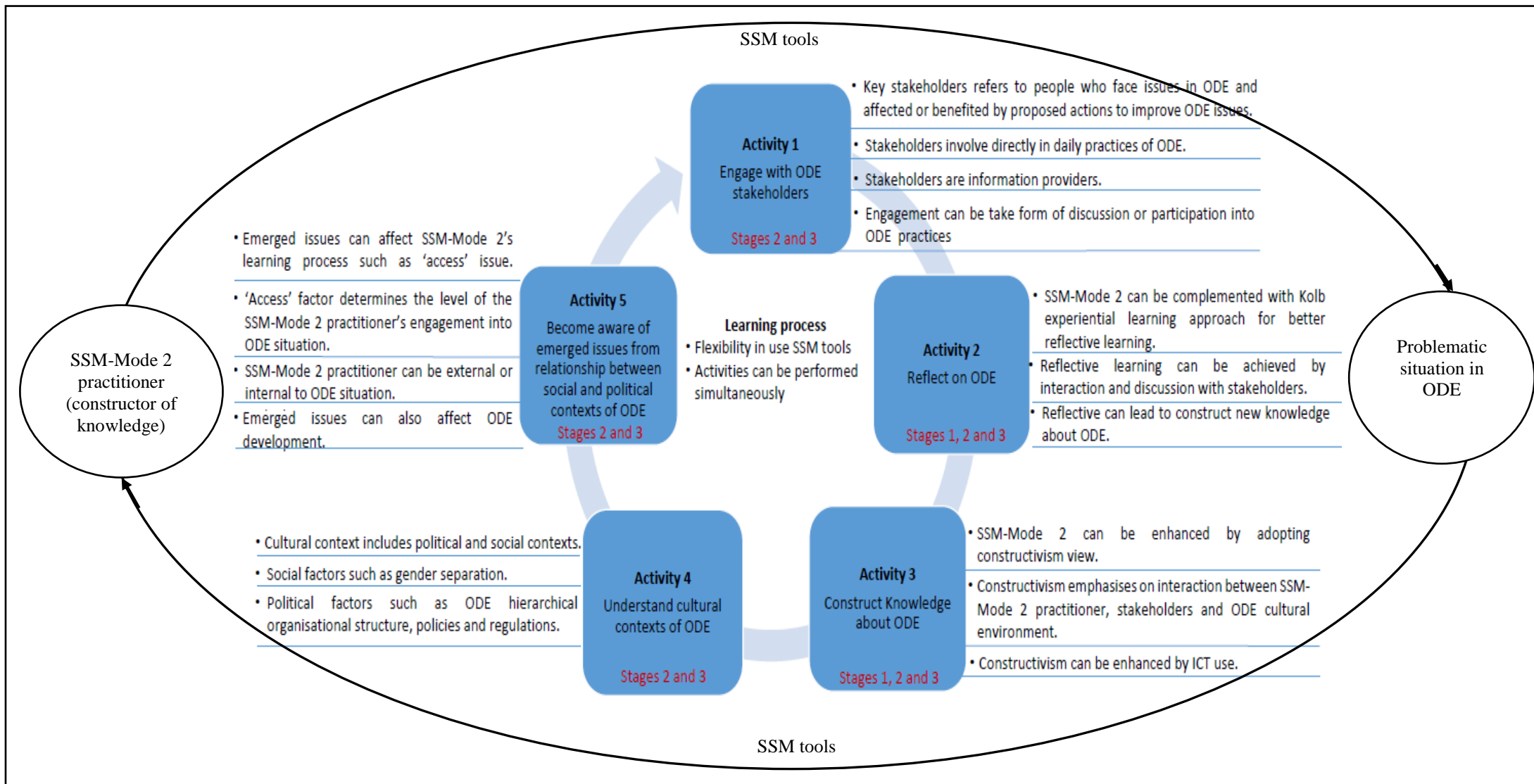
Figure 7.1 Conceptual framework of learning process within SSM-Mode 2 toward exploring ODE system.

The researcher's reflection on her learning experiences concerning the KAU ODE system identified key learning characteristics and activities that contributed to developing the SSM-Mode 2 practitioner's learning process. Figure 7.1 presents these activities, which are: engage with ODE stakeholders; reflect on ODE; construct knowledge about the ODE situation; understand the ODE cultural context; become aware of issues emerging from the relationship between the ODE social and political contexts. The activities are labelled from 1 to 5 to distinguish between them. Learning within SSM is iterative rather than linear (Checkland, 1985; Checkland and Winter, 2006). In the fieldwork, the researcher had three learning stages, each concluding with an action that guides the next stage. The first 1 'planning' stage ended with an action to implement the conceptual model (see Figure 5.3 in Chapter 5) in stages 2 and 3 in the real setting of KAU ODE. The second 'access' stage ended with an action to implement the conceptual model shown in Figure 6.3 in Chapter 6 that guided the third 'ODE contents analysis' stage.

The learning activities in Figure 7.1 can be performed simultaneously rather than sequentially during the inquiry process into the ODE problematic situation. For example, activities 2, 3 and 4 are performed in parallel during the second 'access' stage of the researcher's learning process about the KAU ODE situation. The framework presents the various stage numbers for the learning process of the researcher regarding KAU ODE, to identify that these learning activities occurred at the same time within these stages during the fieldwork.

Figure 7.1 presents some specific characteristics of the learning process within SSM-Mode 2. Firstly, SSM-Mode 2 could be enhanced by adopting a constructivism learning perspective, which helps the SSM-Mode 2 practitioner to construct knowledge through interaction with environmental factors and people in the ODE situation. Secondly, in the current context of the study, SSM-Mode 2 facilitates reflective learning for the researcher.

Moreover, SSM-Mode 2 can be complemented with the Kolb experiential learning theory in practice, so as to help the practitioner to construct knowledge (constructivism) through reflection about the cultural context and the perceptions of people regarding the ODE situation. In addition, the SSM-Mode 2 practitioner can be an external to ODE problematic situation and should be aware of the 'access' level and engagement with stakeholders in the ODE situation. Figure 7.1 also includes another feature of the SSM-Mode 2 learning process - a definition of the roles of the people participating in this inquiry process - with the SSM-Mode 2 practitioner as the constructor of knowledge and the ODE stakeholders as the information providers.

Figure 7.1 presents a novel intellectual framework to help explore problematic situations in ODE in particular using SSM-Mode 2 as a learning process. This framework can be used as a learning strategy tool by SSM and ODE practitioners seeking to understand ODE's complex environment in order to achieve better decision making that accommodates the views of different stakeholders and successful system's design. Further details on the characteristics and activities of the proposed conceptual framework for the learning process within SSM-Mode 2 in ODE situation will be given in the next section.

The framework in Figure 7.1 is proposed in order to take into account the strengths and limitations outlined in Table 7.2, except weaknesses 3 and 4, given that SSM-Mode 2 is as incapable as SSM-Mode 1 of dealing with them. SSM was criticised by Jackson (2003) for not accounting for the power factor in developing models and improvement actions. However, the issue of power is difficult to address; but there is a need for further research on these issues. A possible way forward is to use some ideas of critical systems heuristics (Ulrich, 1983) and Boundary Critique (Midgley, 2000) in further research. The following

table shows these general key characteristics of SSM-Mode 2' learning process that derived from fieldwork (Chapter 6).

Characteristics of learning process within SSM-Mode 2
1. SSM-Mode 2 could be enhanced by adopting constructivism stance.
2. It facilitates reflective learning.
3. It can be complemented with Kolb experiential learning approach to achieve a greater reflection about a problematic situation.
4. The SSM-Mode 2 practitioner can be external or internal depend on the access level into the problematic situation.
5. ICT can improve interaction and communication between SSM-Mode 2 practitioner and Stakeholders when 'access' is limited into the problematic situation.
6. SSM-Mode 2 practitioner represents the constructor of knowledge and the stakeholders in problematic situation represent the information providers.

Table 7.3 Key learning process characteristics within SSM-Mode 2 in the KAU ODE context.

7.5 Analysis of the Learning Process within SSM-Mode 2 in the Proposed Framework: Literature and Fieldwork Perspectives

7.5.1 Learning Activity 1: Engage with ODE Stakeholders

The researcher's learning experience when applying SSM-Mode 2 to the KAU ODE system shows that engaging with key stakeholders is critical for success in applying SSM-Mode 2 process to a problematic situation. Analysis one (intervention analysis) is a key SSM tool used to enable the researcher to identify individuals from the three roles in the learning process: client, practitioner (problem solver) and problem owner(s) as discussed in the first (planning) stage in Chapter 5.

For the purposes of this study, key stakeholders refers to people who are affected by issues, either positively or negatively, and benefit from any actions implemented to improve these issues in ODE. During the second (access) stage of the learning process, the researcher identified key stakeholders involved directly in the daily practices of ODE. Identifying key stakeholders helps the SSM-Mode 2 to structure the learning process and determine who will participate in the learning process. SSM-Mode 2 practitioners are the only beneficiaries from the learning process in SSM-Mode 2. The practitioner represents the individual(s) in the role of problem solver(s), so the SSM-Mode 2 practitioner can be one or more persons conducting the learning process (Checkland and Winter 2006).

This study identified the researcher 'SSM-Mode 2 practitioner' as both 'problem solver' and 'client', who participates and is involved in the exploration of the ODE system in a real world context. Moreover, the researcher's learning experience during the course of the empirical work verified the importance of identifying 'problem owners', i.e. those who own the issues affecting the KAU ODE. The problem owners in this study were ODE practitioners practicing different activities in the KAU ODE system - DELDE staff, teaching staff and students from both male and female sections. They have different perceptions of the ODE system and reference different issues affecting their activities.

The engagement of different stakeholders in the SSM-Mode 2 practitioner's process of learning about a problematic situation and interacting with them are key characteristics of SSM-Mode 2 (Checkland and Scholes, 1990; Mingers and Taylor, 1992; Kotiadis and Robinson, 2008). This is verified by the fieldwork findings. The rich picture (see Figure 6.4 in Chapter 6) shows how the engagement and participation of different stakeholders from both male and female sections of the ODE system at KAU supported the researcher as 'SSM-Mode 2 practitioner' to perceive a holistic understanding of the ODE system from different perspectives. The perceptions of stakeholders in ODE system at KAU as

discussed in the third stage of the learning process (ODE contents analysis stage) in Chapter 6 had a very significant positive impact on the researcher's learning process, providing a clear and organised way of understanding various views and issues.

This thesis proposes new roles for stakeholders in the learning approach of SSM-Mode 2 as the SSM-Mode 2 practitioner (the researcher) was the constructor of knowledge about the ODE system at KAU, while the ODE stakeholders were the information providers (as shown in Figure 7.1). Engagement between the 'constructor of knowledge' and 'information providers' can take different forms such as interaction through discussion and dialogue. This type of interaction was advantageous during the fieldwork and helped the researcher to reflect on KAU ODE situation.

7.5.2   Learning Activity 2: Reflect on ODE Situation

Chapter 3 revealed that the learning approach in SSM-Mode 2 could be either reflective learning or social learning. During the researcher's learning experience when exploring the KAU ODE system, reflective learning was found more useful in helping the researcher structure and construct knowledge during the three stages of the researcher's learning process. Reflective learning was conducted as reflective-in-practice learning (Finlay, 2008), where reflection occurred during the researcher's learning experience.

However, it was not clear from SSM-Mode 2 literature what type of activity is required to achieve reflective learning. Murugaiah and Thang (2010) stated that an effective reflection process requires interaction of different forms of activities for it to be successful, including examination, exploration and understanding of the problematic ODE situation through direct observation, active participation and engagement. Empirical work in this study revealed that reflection can be achieved through direct observation for learning process (stages 1 and 2), the cultural context of ODE (stage 2), engagement with

ODE stakeholders in discussion and dialogue (stages 2 and 3). Furthermore, as previously mentioned, by use of technology the researcher could establish good dialogue and interaction with KAU ODE stakeholders. Thus, reflective learning can be enhanced by the use of technology in cases where the researcher does not have access to, or has an internal role in, the situation at hand. Any type of interaction between the learner and the environment of the learning process within a social situation can be considered as a learning experience, leading to reflective learning (Helyer, 2015).

These several activities enabled the researcher to improve thinking skill (Xie, et al., 2007) so as to achieve deep reflective learning about the learning process itself and the KAU ODE situation. According to Brockbank and McGill (2007), reflective learning is a social process that leads to transformation in knowledge which can be beneficial for both the reflective learner and the social environment where the learning occurs. In this regard, the reflective learning approach helped the researcher link between the learning experience and reflective activities, including how the ODE situation was perceived in the learning experience, expression of positive and negative feelings about the learning experience and then assessment of the learning process (Boud et. al., 1985).

Also, the researcher's learning experience confirms the findings of previous studies in the field of education (Dewey, 1933; Boud et al., 1985; Moon, 1999; Rogers, 2001; Bourner, 2003; Brockbank and McGill, 2007; Xie et al., 2007) that discussed reflective learning as an effective learning approach based on learners' learning experiences.

The next section will discuss how reflective learning can be enhanced within SSM-Mode 2 in the cultural context of KAU ODE, from the perspective of the Kolb experiential learning approach. Also, discussion of the inadequacy of social learning in the current study will be presented from the viewpoint of CoP.

7.5.2.1 Kolb Experiential Learning Approach

SSM-Mode 2 is a situation-driven and iterative methodology (Checkland, 2000) that means that its learning approach can differ depending on the cultural context of the situation. The researcher's learning experience revealed that the access level of the SSM-Mode 2 practitioner to the problematic situation can also drive the learning approach within SSM-Mode 2. Kolb experiential learning theory seemed to be an adequate theoretical lens through which to complement SSM-Mode 2 learning process of the researcher about KAU ODE. The Kolb learning cycle shares features with SSM-Mode 2 in that is an iterative learning cycle (Beard and Wilson, 2006) that enables the SSM-Mode 2 practitioner to become involved in the learning experience, reflecting, thinking and acting while adapting to the learning situation and focus of learning. Knowledge within the Kolb learning cycle is constructed from participating in the learning experience, observing and reflecting, which lead to suitable actions within the learning context (Abdulwahed and Nagy, 2009).

Each stage of the researcher's learning process in exploring KAU ODE (see Figure 5.2 in Chapter 5) represents a learning experience. The researcher reflected and made modifications at the end of each stage to construct new knowledge and improve following experiences. For example, the first (planning) stage (as explained in Chapter 5) was a learning experience that enabled the researcher to plan and structure the learning process before experiencing it in practice. The outcome of this experience was increasing the researcher's thinking skill in planning and preparing to explore the unexpected ODE situation and her awareness about possible learning activities to be used in the fieldwork. That led to the learning experience at the second (access) stage (explained in Chapter 6) as the researcher tried to construct knowledge about the ODE structure, key social and political aspects and key stakeholders expected to participate in the learning process.

During the second stage of the researcher's learning process about KAU ODE, reflection was achieved by observation of the social and political contexts of ODE and by interaction with stakeholders. The researcher had to observe, engage with stakeholders in discussion and intellectually reflect on the ODE situation during each interview. Then, the researcher used SSM tools (rich picture and conceptual models) to explicitly make sense of her reflection activity. This learning experience resulted in progress toward the final (ODE contents analysis) learning stage (as explained in Chapter 6).

During the third stage of the researcher's learning process, engagement with stakeholders was the main activity in perceiving and reflecting on the contents of the KAU ODE situation, as shown in Figure 6.4 in Chapter 6. The process of developing a holistic picture through the rich picture took more time and effort than expected. This is because of ODE social and political contexts that prevented the researcher from observing stakeholders in their daily practices and from holding group discussions or workshops with them, which would have saved time. Instead, the researcher had to engage with stakeholders in discussion and intellectually reflect on the ODE situation during each interview. The researcher gradually developed the rich picture after interviewing each stakeholder to make sense of her reflection. These findings confirm those reported in the previous literature (Checkland and Scholes, 1990; Houghton and Ledington, 2002; Ko, Tiwari, and Mehnen, 2010), which applied the term 'reflection' within SSM-Mode 2 to achieve the learning purpose of SSM-Mode 2 practitioner through interaction with stakeholders.

The action learning approach in SSM-Mode 2 appears similar to the Kolb learning cycle, since it enables the researcher to achieve a deep understanding of the problematic situation in KAU ODE, and increases the capacity for autonomy (Bawden et al., 1984) in terms of being independent in structuring and taking decisions about the learning process during the three stages and then reflecting on the learning experience. Figure 3.1 (Chapter

3) shows the four learning cycles within Kolb experiential learning theory, which represent theoretical assumptions associated with the three learning stages as mentioned above. With regard to the researcher's learning process as presented in Figure 5.2 in Chapter 5, the Kolb experiential learning model is a more useful practice-based learning approach than the CoP when it comes to helping SSM-Mode 2 practitioners who wish to learn and reflect in cultural contexts similar to the KAU ODE.

Kolb's experiential learning cycle occurred in all three stages of the researcher's learning experience. These were concrete experience, reflective observation and abstract conceptualisation and active experimentation. Because the researcher had only limited access and engagement with stakeholders in their daily practices in the KAU ODE system, the fourth activity of Kolb learning cycle 'active experimentation' was done in a form of active discussion with stakeholders in the third 'contents analysis' stage, which included discussion with stakeholders, without implementation of the constructed knowledge concerning the proposed actions made to improve KAU ODE. This leads to the finding that the Kolb experiential learning approach (in four activities) can support SSM-Mode 2 practitioners to achieve better reflexivity through active experience and action implementation. The following table shows how the Kolb experimental learning approach occurred within the researcher's learning experience when using SSM-Mode 2 to explore the KAU ODE system, as shown in Figure 5.2 in Chapter 5.

	Kolb learning cycle			
The researcher's learning process when using SSM-Mode 2 with regard to ODE at KAU (see Figure 5.2 in Chapter 5)	Concrete experience	Reflective observation	Abstract conceptualisation	Active experimentation
Stage 1: planning stage	✓	✓	✓	✓
Stage 2: access stage	✓	✓	✓	✓
Stage 3: ODE contents' analysis stage	✓	✓	✓	✓

Table 7.4 Explanation of the Kolb experiential learning assumptions within the researcher's learning experience with regard to ODE at KAU.

In Kolb's learning approach, learning is constructed through experience within any social situation (Helyer, 2015). Kolb and Kolb (2005) proposed that experiential learning is a constructivist learning approach with emphasis on the link between the learner and environment. The learner socially constructs new knowledge, accommodates it with existing knowledge and modifies it to support the new learning experience. However, more discussion about how the researcher achieved reflective learning within SSM-Mode 2 from a constructivism learning view will be presented later in this chapter.

7.5.2.2 CoP Learning Approach

Lave and Wenger (1991) broadly defined CoPs, as groups of people likely to share similar professions and/or interests. In this study, learning is the researcher's only aim as an SSM-Mode 2 practitioner. The researcher conducted the learning process to learn about the ODE situation to increase her own knowledge about the situation through interaction with other stakeholders involved in the ODE system at KAU. Thus, collaboration and interaction would have been improved if the SSM-Mode 2 practitioner had been an internal member of the ODE, as then her interest in and motivation to carry out the

learning process would have been more fully appreciated and shared with the other ODE stakeholders. This discovery agrees with that reported by O'Donnell and Tobell (2007), who highlighted that a researcher being granted entry into a CoP is not necessarily guaranteed or inevitable.

Communication and interaction between stakeholders are key factors informing the success of a COP when aiming to achieve a shared task (Wenger and Lave, 1991; Wenger, 2000). A greater level of interaction and collaboration will lead to a stronger feeling of belonging to a community. In reference to discussion of 'legitimate peripheral participation' in the process within CoP (Wenger and Lave, 1991), the learning experience of the researcher in the current study revealed that interaction between a researcher and stakeholder can assist in the gradual construction of knowledge about a situation, improving knowledge about the KAU ODE.

For example, in the third (ODE contents analysis) stage of her learning process, she interacted and engaged with different stakeholders (DELDE staff, academic teaching staff and students) from both the male and the female sections of the KAU ODE. These discussions with stakeholders at different levels enabled the researcher to construct knowledge and understanding about the current situation of KAU ODE in terms of stakeholders' practices and issues, and ideas for future improvements of the ODE. As a result, the researcher believes that she became more knowledgeable about the ODE environment in HEIs.

However, the political context of KAU ODE, reflected in the university regulations that limited the researcher's access to ODE practices, presented a challenge to the researcher's learning process. This resulted in the researcher feeling that she did not belong to the KAU ODE community. This feeling is referred to by Roberts (2006) who claimed that the power factor hinders the success of a CoP. This would have been different if the SSM-

Mode 2 practitioner had full access to the ODE community. O'Donnell and Tobell (2007) emphasised the importance of the feeling of belonging among CoP members if it is to be successful. In this regard, CoP would facilitate social learning if the SSM-Mode 2 practitioner is internal and belong to the problematic situation or has full access to the situation. In this case, creating the learning process would be a shared task between practitioner and stakeholders to improve their situation, interaction and collaboration will be more activated that leads to create a community of practice.

7.5.3   Learning Activity 3: Construct Knowledge about ODE situation

As mentioned earlier, Kolb experiential learning is a constructivist learning approach that enables the learner to construct knowledge through social interaction with others and environment (Kolb and Kolb, 2005). The researcher was able to construct continuous knowledge about the situation through reflection on the learning about KAU ODE. Learning within the Kolb learning cycle is understood as a process, not an outcome (Kolb, 1984; Kolb and Kolb, 2005). The researcher's learning experience in the current research was that learning about the ODE situation was a continuous process of inquiry that comprises three stages (see Figure 5.2 in Chapter 5), in agreement with Checkland's claim that SSM-Mode 2 is an iterative learning process for practitioners (Checkland, 2000; Checkland and Poulter, 2006; Kumar and Sankaran, 2006).

From a constructivism perspective, the overall learning experience of the researcher included continuous knowledge construction during the three stages (see Figure 5.2 in Chapter 5). It started with a 'concrete experience' that happened within the KAU ODE situation that could be explored and learned about. This experience included structuring a learning process 'planning stage', reflecting on it and constructing knowledge about the way of carrying it out within the KAU cultural context.

Within stages 2 and 3, 'concrete experience' includes understanding gender separation, hierarchal organisational structure and the relationships between them that produced 'access' issues (access stage), enabled the researcher to construct an understanding about the nature of the work environment of ODE, the interaction and communication amongst ODE stakeholders, and the attitudes and behaviour of people towards ODE practices (ODE contents analysis stage). Furthermore, according to Checkland (2000), how this cultural context drives the performance of ODE and its development and an understanding of the cultural environment, help to provide holistic learning about the situation in order to improve it. Thus, the cultural context plays a key role in the knowledge construction of individuals (Fosnot and Perry, 2005; Adams, 2006). Learning cannot be separated from its cultural context and that learning serves as a process of collaboration and interaction between learners (Powell and Kalina, 2009).

Another factor encompassed within the 'concrete experience' of the researcher is the interaction between the SSM-Mode 2 practitioner (the constructor of knowledge) and the stakeholders (information providers) involved in KAU ODE. This supports Checkland's description of SSM-Mode 2 as an interactive methodology (Checkland and Scholes, 1990; Checkland, 2000; Kumar and Sankaran, 2006). To simplify this interactivity, the researcher chose to use appropriate ICT tools, respecting the social context of gender separation in the ODE system at KAU. The researcher was not permitted to visit the male campus to interact directly with male stakeholders; so, technologies (telephone and skype software) was used to facilitate interaction and extend the learning process. This process of interaction led the researcher to develop a rich picture as a reflection on ODE situation at KAU, as shown in Figure 6.4 in Chapter 6, and to construct new understanding and shed light on the issues affecting ODE from different stakeholders' perspectives, as discussed and summarised in Table 6.3 in Chapter 6.

The researcher began 'reflective observation' by thinking about and reflecting upon actual experiences as mentioned above. For example, during the third (ODE contents) analysis stage of the researcher's learning process about KAU ODE, 'reflective observation' activity included a comparison of what was observed in KAU ODE with previous knowledge about ODE constructed from ODE literature, and then an assimilation of this knowledge. This activity included thinking about the issues facing ODE stakeholders and how they can be improved. This led to construction of new knowledge and insights about the ODE situation and the development of proposed actions to improve the ODE situation at KAU - 'abstract conceptualisation'. Finally, 'active experimentation' was conducted regarding these recommendations, and interactions with the key stakeholders in the decision making process for KAU ODE validated the responses to these actions.

Olsson and Sjostedt (2004) and Durant-Law (2005) claimed that SSM is a constructivist methodology. This study proposes that constructivism learning theory can be adopted to enhance the SSM-Mode 2's learning process and can be facilitated by using ICTs. This agreed with Koohang et al. (2009), Murugaiah and Thang (2010) who described how constructivism enables individuals to construct knowledge by social interaction with others, reflecting on their own experiences, people perceptions and environmental factors.

7.5.4 Learning Activity 4: Understand Cultural Context of ODE

Perceiving and understanding of cultural context including social and political aspects was essential to understand the problematic situation encountered (Checkland and Scholes, 1990; Flood, 2000; Checkland and Winter, 2006; Checkland and Poulter 2006.) Such knowledge helps the SSM-Mode 2 practitioner to achieve comprehensive awareness about a situation and its relationship to environmental factors. The empirical learning process of the researcher showed the importance of being aware of key cultural drivers in

early stage of the researcher's inquiry process (i.e. in stage two: access stage) that would affect her learning approach to KAU ODE.

The researcher's learning experience on KAU ODE explained the impact of the social context on her learning processes, and on how she communicated and interacted with the stakeholders involved in this study context. In the empirical work for the current study, the social context created problems (as explained in Chapter 6), and so an understanding of it was critical to the success of the SSM practitioner's learning process when using SSM-Mode 2. The researcher's awareness about gender separation in the social environment of KAU ODE was considered a driver criterion, one that shaped the researcher's learning process, in terms of identifying a suitable data collection tool that would assist in the collection of information from both male and female stakeholders. For example, the researcher needed to engage with male and female participants involved in ODE practices at KAU. Because of the challenging factor of gender separation, the researcher had to use a mix of face-to-face interviews with female participants (DELDE staff and academic teaching staff), telephone interviews with male participants (DELDE staff and teaching staff) and Skype interviews with both male and female students.

The learning experience of the researcher during the course of the empirical work revealed the impact of political context on problematic situations (as explained in Chapter 6). The political environment includes the ODE's hierarchy and organisational structure, and policies and regulations at KAU for external researchers seeking to conduct researches inside the university. For instance, the researcher needed to gain official permission from KAU to visit the university (university level) and collect her data. In addition, permission was required from DELDE (DELDE level) to engage with stakeholders in the ODE system at KAU. Although the researcher is female, both

permissions had to be authorised by the male section. This shows the impact of a male oriented society on the work processes at the university.

7.5.5 Learning Activity 5: Become Aware of Issues Emerged from the Relationship between Social and Political Contexts

Previous studies in systems thinking literature claimed that problematic situations can encompass ill-defined issues that are difficult to measure and define, and which are related to each other and produce emergent properties that can positively or negatively affect the capacity to resolve a problematic situation (Checkland and Scholes, 1990; Checkland and Poulter 2006; Staker, 1999; Checkland and Poulter 2010). In this regard, the learning experiences of the researcher revealed a significant connection between the social and political environment of the KAU ODE system, one that negatively influenced the researcher's learning process. This connection emerged as a key driver for the researcher's learning process, that is 'access' to the university, as discussed in the second (access) stage of the learning process about the KAU ODE system in Chapter 6.

The rich picture (see Figure 6.2 in Chapter 6) shows the complex process of access to KAU, and the regulations that applied to the researcher's learning process, including the rule of not being allowed to visit the male campus, or to attend and observe a joint meeting between male and female staff working on the ODE. Limited access affected the researcher's learning process, preventing the researcher from full engagement with stakeholders in their daily practices in the ODE system at KAU and from observing them directly which would have given the researcher experience of real practice in the ODE environment.

To overcome this difficulty, the researcher had deep discussions with stakeholders in order to understand and become more aware of KAU ODE practices. Mingers and Taylor

(1992) claimed that SSM-Mode 2 practitioners are internal to the problematical situation when they engage and participate in the daily practices of stakeholders involved in the situation and use SSM tools to make sense of their learning. Based on the researcher's experience of using SSM-Mode 2 in the KAU ODE situation, it is clear that what Mingers and Taylor claim is relevant only when the SSM-practitioner has a full access or is a stakeholder involves in daily practices in the problematic situation. The empirical observations revealed that the external SSM-Mode 2 practitioner is still able to construct knowledge and learning about a problematic situation through using ICT that facilitates interaction and engagement with stakeholders in discussion and knowledge construction.

In addition, the relationship between the social and political contexts of KAU ODE seems to be the a reason behind some ill-defined issues that face ODE stakeholders, in particular, issues concerning activities that requires interaction and communication between male and female stakeholders. For example, the cultural context of KAU ODE produces inequality in performing work tasks as discussed in the previous chapter in terms of decision-making, lack of cooperation and knowledge sharing between male and female staffs. In this regard, this research acknowledges the importance of understanding the cultural environment of ODE before developing it to take actions that suit the ODE culture.

7.6   Summary

The aim of this chapter was to reflect on SSM-Mode 2 as learning process conducted by the researcher when investigating the ODE system at KAU. A further intention was to discuss learning characteristics and activities within SSM-Mode 2. To do this, this chapter redesigned the conceptual model (see Figure 4.4 in Chapter 4) to present the main characteristics and activities for the learning process within SSM-Mode 2 about the KAU ODE system. The conceptual framework in Figure 7.1 is novel in terms of the following:

- According to the literature review in Chapter 3, there is clear evidence of theoretical limitations in regard to the learning process within SSM-Mode 2 and a lack of studies examining it. Therefore, the framework in Figure 7.1 provides a good understanding of the learning activities associated with the SSM-Mode 2 learning process.

- The framework depicted in Figure 7.1 includes key learning characteristics that support the success of the learning process within SSM-Mode 2. Some characteristics were first developed from the theoretical evaluation of SSM-Mode 2's learning process (Chapter 3) and later explored in practice (Chapter 6). This resulted in identification of key learning characteristics to inform the SSM-Mode 2 learning process in practice. The SSM-Mode 2 learning approach can be enhanced by a constructivism learning view, complemented by the Kolb experiential learning approach, in practice leading to improved reflection and understanding of the complex KAU ODE system. ICT can facilitate knowledge construction within SSM-Mode 2.

- An additional characteristics of the SSM-Mode 2 learning approach presented in the proposed framework are that the SSM-Mode 2 practitioner can be an external or internal to the ODE problematic situation and should be aware of 'access' level and engagement with stakeholders in the ODE situation. The roles of the individuals participating in the SSM-Mode 2 learning process must be identified, that is, the SSM-Mode 2 practitioner as the constructor of knowledge and the stakeholders involved in the problematic situation of ODE as information providers.

SSM-Mode 2 and ODE practitioners, academics and decision makers who encounter complex situations such as the ODE system, which includes issues (defined or ill-defined issues), and multiple stakeholders can use this framework to further their awareness and understanding of their situations holistically, and to take appropriate decisions and actions of improvements in the future.

Chapter 8: Conclusions and Recommendations for Future Research

8.1 Introduction

This chapter concludes the thesis and makes suggestions for future studies in the area of this research. Firstly, it will present an overview of the research and a summary of the work done in each chapter. The major findings of this study are then presented, followed by a presentation of the key contributions made by this research. The limitations of the study are then presented and the chapter concludes with recommendations for future research in the areas of systems thinking and ODE.

8.2 Research Overview and Findings

8.2.1 Research Overview

The principal aim of this thesis was to assess SSM-Mode 2 as a learning approach to explore a problematic situation. Since the development of this mode of SSM in 1990 (Checkland and Scholes, 1990) very few studies have examined it in detail. It is clear from reviewing the systems thinking literature that most of the effort and studies aimed at solving complex problems and designing systems were done on Mode 1. Checkland claimed that Mode 2 helps SSM practitioners to learn about complex situations (Checkland, 2000) but neither he nor the scholars who followed explained how Mode 2 could be employed in practice. The reason why previous scholars focused on using Mode 1 more than Mode 2 in real world situations could be because SSM-Mode 1 incorporates clear and structured practical stages (as shown in Figure 2.2 in Chapter 2).

In order to evaluate SSM-Mode 2 in practice, the researcher decided to use it in the ODE context. From a soft systems view ODE perceived as a complex situation. Existing literature on ODE shows that ODE systems face different interrelated issues, which hinder their development. These issues can be perceived differently by multiple stakeholders involved in ODE practices. Issues can be either well-defined (easy to measure and solve, such as technical issues), or ill-defined (issues that are difficult to measure and improve, such as political and social issues). Most recent ODE studies focused on exploring well-defined issues from specific stakeholders' perspectives. These difficulties (different ill-defined issues, their interconnections and the issue of multiple stakeholders) which are inherent in the ODE system result in making it a complex situation that cannot be understood by the hard systems approach proposed by Moore and Kearsley (2012). This complexity of the ODE system presents a key problem to decision-makers who administer and design ODE systems and leads to a lack of understanding of the system. The SSM-Mode 2 can therefore be used to structure the inquiry process about ODE system and understand it in a holistic manner.

8.2.2   Summary of Research Chapters

Chapter 1 starts with defining the research problem and presents the rationale for conducting this research. It also states the research aim, which is to assess SSM-Mode 2 as a learning approach to explore the problematic situation in ODE in HEIs from the cultural perspective of Saudi Arabia. This defines the research questions. Chapter 1 looked at the significance of this study in terms of its theoretical and practical relevance. It provided an outline of how the research is organised.

Chapter 2 provided a comprehensive understanding of SSM as defined in the systems thinking literature. It provided the background to systems thinking in general, highlighting its importance in management and distinguished between hard and soft

systems thinking. Chapter 2 also discussed the emergence of SSM as a methodology for structuring problematic situations, focusing on its history and assumptions made. The chapter concluded by discussing and comparing the two SSM modes: Mode 1 and Mode 2 and presenting systems approaches used within the education context.

In Chapter 3 the researcher focused on issues derived from Chapter 2. The researcher identified a gap in the literature in terms of studies focusing on the learning process within SSM-Mode 2 and its characteristics, underpinning theory, associated learning approaches and practice-based learning approaches that would facilitate the implementation of this learning approach within SSM-Mode 2. Chapter 3 aimed to provide a clear integrated theoretical assessment of the learning process within SSM-Mode 2 drawing upon both the education and systems thinking literatures.

Chapter 4 provided a broad outline of ODE systems in relation to HEIs taken from the education literature. The chapter presented the origin, definitions of ODE and identified the key characteristics of ODE, highlighting the impact of ICT on the education process in ODE and presenting the technological tools in use. It also examined the success factors of the ODE and issues encountered in ODE systems that have impeded its development. Furthermore, Chapter 4 presented the limitations in existing studies of ODE in the education literature in terms of exploring issues and using soft systems approaches. To achieve the aim of the study, this chapter then proposed an initially refined soft systems framework to be used as guidance for the empirical work (see Figure 4.4 in Chapter 4). Finally, it concluded by giving a comprehensive review of the existing literature about areas of concern in ODE in the Saudi context, focusing on exploring the issues facing stakeholders in ODE.

Chapter 5 presented the methodology used to carry out this research, which was the SSM-Mode 2 used to explore the KAU ODE system. It also presented research design process

and the philosophical assumptions underpinning SSM-Mode2. Chapter 5 then outlined three learning stages within SSM-Mode 2 that were carried out within the study, namely: the planning stage, the access stage and ODE contents analysis stage (see Figure 5.2 in Chapter 5). The planning stage is described in detail in this chapter, which concludes with a conceptual model for carrying out the next stage (the access stage) as shown in Figure 5.3. Then, data collection methods and possible ethical issues associated with the fieldwork component of the study were presented. The main data collection methods used were SSM tools and the semi-structured interview. Twenty-four interviews were conducted with stakeholders from both the male and female sections from different stakeholder groups (DELDE staff, academic teaching staff and students) within two phases. Finally, some essential principles for evaluating qualitative research, the possible potential limitations of the study were also presented.

Chapter 6 described the empirical learning process of the researcher about the KAU ODE system. It described Stages 2 and 3 of the researcher's learning process as shown in Figure 5.2 in Chapter 5. It started by describing the first stage (access stage) that presented a detailed analysis of the social and political contexts of the KAU ODE, highlighting the key drivers that shaped the researcher's learning process. These drivers are gender separation, the ODE hierarchical organisational structure and regulations that caused limited 'access' issue to ODE. A description of the first stage concluded with a conceptual model (see Figure 6.3 in Chapter 6), which was used as a guide by the researcher to move from process mode (SSMp) to content mode (SSMc) to carry out the final stage (ODE contents analysis stage) of her learning process about the KAU ODE. Then, Chapter 6 went on to describe the third stage of the researcher's learning process that defined the different stakeholder groups in the KAU ODE system, their perceptions, main activities and the issues facing them. Also, this chapter presented a rich picture (see Figure 6.4 in

Chapter 6) that represented the holistic situation of the KAU ODE from the researcher's perspective. Finally, it concluded by presenting a personal reflection on the overall learning process of the researcher about the KAU ODE situation.

Chapter 7 presented the main contribution of this study. It started by presenting the learning insights derived from the theoretical assessment of the SSM-Mode 2 learning process (as discussed in Chapter 3) and the reflection on the researcher's learning process when using SSM-Mode 2 to explore the KAU ODE system (as described in Chapter 6). An identification of strengths and weaknesses of SSM-Mode 2 as a learning approach is also presented. This chapter then proposed an intellectual framework (see Figure 7.1 in Chapter 7) about SSM-Mode 2's learning process which could be used to understand the ODE system that defines the learning characteristics and activities of SSM-Mode 2. The chapter concluded by discussing these characteristics and activities drawing upon evidence from both the literature review and the fieldwork.

8.2.3 Research Findings

The following findings are derived from the literature review and the empirical work carried out in this study:

1. The review of systems thinking literature revealed that there is a lack of theoretical assessment and framework relating to SSM-Mode 2 as a learning approach. So, there is a need to examine SSM-Mode 2 and develop a conceptual framework for its learning process, firstly to facilitate a better understanding of its nature and application in practice and, secondly, to highlight the characteristics of its inquiry process in terms of its learning theoretical assumptions and learning approach. It is proposed that the assessment and intellectual framework presented in this study be used by SSM

practitioners and soft system thinkers in general as guidance and reference to understand the SSM-Mode 2 theoretically and practically.

2. A review of the normative literature of ODE in the education field highlighted the problematic situation of ODE that is faced by decision makers in connection with initiatives to improve ODE. There exist well-defined (that are easy to measure and solve) and ill-defined issues (that are difficult to evaluate and measure) that affect human activities in ODE. From a soft systems view, ODE perceived as a problematic situation includes ill-defined issues which are interrelated issues and perceived differently by multiple stakeholders involved in ODE practices. The interconnectedness of these issues can produce additional issues. This makes ODE a complex system, which needs to be improved to meet the different stakeholders' needs by using a soft systems approach. Systems views on ODE in the education literature tend to use a hard systems view that analyses ODE components and issues separately when designing the ODE environment taking the point of view of designers or managers. This perspective neglects other ODE stakeholders' views. Consequently, this research provides a soft systems approach to improve the conceptualisation and process of learning about a problematic situation in ODE, using SSM-Mode 2 as a learning approach which takes into consideration the cultural context and different stakeholders' perspectives in order to understand their issues and needs. This would help ODE decision makers and designers to understand ODE situation more holistically and take better actions of improvement.

3. The ODE literature review identifies different issues (well-defined and ill-defined issues) facing ODE stakeholders and hindering their activities. These issues are categorised as institutional, technological, cultural, and learners' issues as presented in Table 4.7 in Chapter 4. Using SSM-Mode 2 as an inquiry approach into the KAU

ODE system identified some further ill-defined issues that fall under these categorisations as shown in Table 6.4 in Chapter 6. Findings 1,2 and 3 answered the first research question: How can SSM-Mode 2 facilitate structured and holistic learning about the problematic situation in ODE?

4. The aim of the research was to fill these gaps in the literature by assessing SSM-Mode 2 as a learning approach to explore the problematic situations that arise in the ODE. The proposed conceptual framework (Figure 7.1 in Chapter 7) of SSM-Mode 2's learning process defines the learning characteristics and activities of SSM-Mode 2. It consists of five learning activities, which help explore the ODE complex situation placing the emphasis on the cultural context of the situation. These are: 1. Engage with stakeholders in ODE; 2. Reflect on ODE; 3. Construct knowledge about the ODE situation; 4. Understand the cultural context of ODE; 5. Become aware of issues emerging from the relationship between the social and political contexts of ODE. These activities can be performed simultaneously within an iterative learning process of SSM-Mode 2 and flexibility in use SSM tools.

5. With regard to the specific characteristics of the SSM-Mode 2, the proposed conceptual framework (Figure 7.1 in Chapter 7) of SSM-Mode 2's learning process includes key characteristics that are derived from the fieldwork. These characteristics are proposed as guidelines' for the use of SSM-Mode 2 and summarised in table 7.3 in chapter 7.

6. The proposed conceptual framework (Figure 7.1 in Chapter 7) of SSM-Mode 2's learning process into ODE situation highlights some key drivers that can shape the SSM-Mode 2 practitioner's learning process within the KAU ODE cultural environment or similar contexts. These include gender separation as a social driver and the ODE hierarchical organisational structure as a political driver. Another driver

highlighted is the limited access for the SSM-Mode 2 practitioner in the ODE situation emerging from the connection between the social and the political context. Findings 4, 5 and 6 answered the second and third research questions:

- From a learning perspective, how can learning theory and approach enhance the development of SSM-Mode 2 as a successful learning approach?

- What are the key learning characteristics and activities that would support the success of learning process within SSM-Mode 2?

7. The proposed conceptual framework (Figure 7.1 in Chapter 7) of SSM-Mode 2's learning process into the ODE situation can be used as a learning strategy tool for SSM and ODE practitioners who are interested in learning about the ODE system in the future.

8.3   Research Contribution

8.3.1   Novel Conceptual Framework of Learning Process within SSM-Mode 2 to Explore Problematic Situation in ODE

The proposed intellectual framework (Figure 7.1 in Chapter 7) presents the main contribution of this research. It theoretically and practically contributes to the systems thinking and ODE fields.

8.3.1.1   Theoretical Implications

Firstly, this framework extends the knowledge provided by previous studies in systems thinking that discussed the learning process within SSM. Checkland and Winter (2006) identified four learning principles within SSM (see Figure 3.2 in Chapter 3) that used SSMp and SSMc to structure learning about the learning process itself and learning about the contents of the problematic situation. Although Checkland and Winter did not determine whether the learning principles and use of SSMp and SSMc could be used in

both SSM-Mode 1 and SSM-Mode 2, this study empirically contributed to Checkland and Winter's (2006) work, by employing the learning principles in all learning stages of Mode 2 (1, 2 and 3) as shown in Figure 5.2 in Chapter 5, and by testing its usefulness for structuring the researcher's learning process about KAU ODE. Furthermore, this study theoretically contributed to their work by providing an explanation of the learning assumptions that could enhance their work in regards using SSM-Mode 2 as a learning approach in practice. However, further research needs to integrate the use of SSM-Mode 2 with Checkland and Winter's (2006) work on SSMp and SSMc.

Previous studies in systems thinking (Cundill et. al., 2012; Hindle, 2011) propose using the Kolb experiential learning theory and CoP learning approaches within SSM to solve problems in real complex situations without giving much detail regarding the use of such theories within the SSM-Mode 2 learning process. Although the proposed conceptual framework for the learning process within SSM-Mode 2 bears some minor similarities to the traditional SSM framework (see Figure 2.3 in Chapter 2), the differences between them are remarkable. One common feature of the two frameworks is the fact that they both consider that the key features of SSM are understanding the cultural context of a problematic situation and engaging different stakeholders during the learning process within SSM-Mode 2.

The framework proposed in this thesis presents a coherent learning approach of SSM-Mode 2 in the ODE context. It includes learning activities about exploring the complex situation of the ODE, placing emphasis on the cultural context of the situation. As mentioned before, these activities are: engage with stakeholders in ODE; reflect on ODE; construct knowledge about the ODE situation; understand the cultural context of ODE; and become aware of issues emerging from the relationship between the social and

political contexts of ODE. These activities can be performed in simultaneously within an iterative learning process.

The framework also helps identify the specific characteristics of the SSM-Mode 2 learning approach, including the constructivist learning theory, which can enhance its inquiry process. It is characterised as a reflective learning approach and can be complemented by the Kolb experiential learning approach within the cultural context of KAU ODE. It also identifies that the SSM-Mode 2 practitioner can be an external or internal to ODE problematic situation, depending on the access level and engagement with stakeholders in ODE situation. ICT can improve SSM-Mode 2 learning process to increase interaction and communication between the practitioner and stakeholders in case 'access' to a problematic situation is made difficult for the practitioner. Moreover, it presents the individuals who participate in the SSM-Mode 2 learning process as the constructors of knowledge about complex situations and the stakeholders involved as information providers. These main characteristics are summarised in Table 7.3 in Chapter 7. However, these could be enhanced via further empirical work.

Although this study supports and confirms the view of SSM as constructivist, it might be advantageous to theorise further about constructivism when 'access' to a problematic situation is made difficult, in which case the degree of interaction is limited. Constructivism could then be improved with a technology-mediated approach in future research.

The proposed learning framework has theoretical implications for ODE literature. Previous systems frameworks of ODE systems (Moore and Kearsley, 2012) were design-oriented, aimed at helping in the design and implementation of the ODE from a hard systems viewpoint that focused on managers' or designers' perspectives and neglected the perspectives of other stakeholders. In contrast, the proposed framework provides a

soft systems view of the intellectual process on ODE systems that incorporates key elements of different stakeholders' perspectives and the cultural context. This learning framework can help facilitate decision makers' understanding of ODE complex situation and accommodate different stakeholders' needs.

8.3.1.2 Practical Implications

On a practical level the framework is useful to SSM and ODE academics and practitioners, in particular ODE managers and designers who have an interest in learning and improving ODE systems. This learning framework can facilitate understanding of ODE systems with a structured and holistic way by understanding ill-defined and interrelated issues, and any issues that emerge from their relationship from multiples stakeholders' views. It highlights some key cultural factors that could affect ODE development and the learning process and which they should consider during the SSM-Mode 2 learning process. These factors include the issues of gender separation, the ODE hierarchical organisational structure and regulations and limited access to ODE. It supports their decision making process and helps them to make the right decision with regard to future improvements that would be culturally feasible and systemically desirable to the stakeholders involved in ODE.

The proposed framework (Figure 7.1) could be used alongside a more explicit version of SSM to gather information requirements, as proposed by Wilson (2001) and learning about values, perceptions and processes by IS stakeholders (Checkland and Holwell, 1998b). It can also be used by 'introvert' IS practitioners who want to find more about ODE situations before designing ODE systems. Furthermore, the framework could contribute to enriching the portfolio of existing frameworks like Multiview (Avison and Fitzgerald, 2006), as it is tailored to include the specific considerations of issues of access, gender and culture. However the use of the proposed framework (Figure 7.1) in IS

situations that are not ODE needs further research, in order to understand the differences between ODE situations and other IS situations.

This research represents an initial and innovative work, which examines and clarifies the learning process within SSM-Mode 2 particularly in problematic situations such as the situation in the ODE in the Saudi Arabian cultural context. Also, this study is one of the few studies that use soft systems views as a holistic approach to analyse and highlight issues encountered in the ODE system from multiple stakeholders' perspectives.

8.4   Research Limitations

This research with its aim to assess and examine the SSM-Mode 2 as a learning approach to explore the ODE system in the cultural perspective of Saudi Arabia was a challenging undertaking for the researcher because of the lack of studies on the subject that could be referred to for a clear explanation of the SSM-Mode 2 and its employment in practice. However, this limitation encouraged the researcher to improve her thinking and innovation skills relating to the use of the SSM-Mode 2 in practice.

Another limitation is that this research was conducted within only one real ODE setting within the cultural context of Saudi Arabia. Hence, it is difficult to say if the proposed framework (Figure 7.1 in Chapter 7) is applicable to other ODE systems or within the cultural context of other countries.

This study revealed that SSM-Mode 2 can be limited and restricted to discussing ill-defined issues within a cultural context that contain power as a political issue and gender separation as a social issue. During the course of the fieldwork some limitations arose due to some policies regarding KAU ODE, for instance, the fact that external researchers are not allowed to have full access and engagement with stakeholders in their daily practices. However, the researcher carried out some interviews with stakeholders, which

helped her understand and become aware of KAU ODE practices. Also, it seems that even if the Mode 2's practitioner is an internal stakeholder in a problematic situation with a power-based organisational structure as in current case of KAU ODE, it will be difficult to employ SSM in general to accommodate different stakeholders' needs and views. In this case also, the 'power' factor can affect the Mode 2's practitioner's learning process due to low level of engagement with stakeholders in top levels of management.

Also, because of the social norm of gender separation within the KAU ODE system it was not possible for the researcher to visit the male section of the university and conduct face to face interviews. Nevertheless, the researcher used ICT including phone and Skype interviews to gain required information from male participants.

8.5   Future Research

A framework for the inquiry process of SSM-Mode 2 (Figure 7.1 in Chapter 7) was developed in this research. This framework was supported empirically by a real world application concerning the KAU ODE in Saudi Arabia. The following are some recommendations for further studies, which arose during the course of this research:

- There could be other varieties of SSM use, in which the issue of access can be considered problematic. In that case, various combinations of Mode 1 and Mode 2 could be devised and tested in future research.

- Increase generalisation of the proposed framework by applying it to other management and information systems contexts that are different to ODE situations. This can be applied by considering the criteria for a research environment using SSM-Mode 2 that have been identified in Chapter 6 (see Table 6.5). This would yield more insights into testing, applying and improving SSM-Mode 2 and into further investigating the

incorporation of the proposed framework (see Figure 7.1) into the domain of IS frameworks that support IS design and implementation.

- To address some SSM-Mode 2 limitation such as the power factor, future research is needed to add some critical systems methodology ideas to enrich SSM-Mode 2.

- Future research could include an internal SSM-Mode 2 practitioner applying this proposed framework to an ODE problematic situation. This would give more insights on the impact of the cultural context on the practitioner's learning process. Also, it would identify if there are differences of cultural impact on the learning process whether the SSM-Mode 2 practitioner is internal or external to ODE situation.

- There are different learning activities and characteristics of the learning process within SSM-Mode 2. Further work can examine and discuss each separately, to gain a better understanding of their impact on the SSM-Mode 2 learning process.

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Appendix

Appendix 1

RE: SSM Mode 2 - Microsoft Edge   — 🗗 X

outlook.**live**.com/owa/?viewmodel=ReadMessageItem&ItemID=AQMkADAwATYwMAItOWM0OC05MjU5LTAwAi0wMAoARgAAA4rydZZLOlxCkSiHeJgVTT4HAPGAniXyDhBMr7Xf84eCyhsAAAIBDAAAAPGAniXyDhBMr7Xf84eCyhsA/

🔄 Reply | ⌄   🗑 Delete   Junk | ⌄   •••   ✕

RE: SSM Mode 2

Bentinck, Gay   🔄 Reply | ⌄

1/20/2015

You ⌄

Photos

Flag for follow up.

📑   Evernote   🔒

Dear Sulafa Mohammad

1. Mode 1 and Mode 2 uses of SSM are not sharply defined. Rather they define the history of a person's use of the approach: many start with the original 7-stage model (Mode 1) than as experience is gained move to a less formal use (Mode 2) in which you remain problem-situation-oriented but continually refer to the basic model of SSM which emerged out of experience. I refer to Figure 1.3 in 'SSM in Action' (Wiley 1990) and Figures 1.4 and 1.5 in 'Learning for Action' (Wiley, 2006).
2. SSM in this mode seems very suitable for your purposes.
3. Good luck with your PhD.

Peter Checkland

Ms Gay Bentinck

PhD Programme Coordinator

Management Science Department

Appendix 2

School of Management

Participant Consent Form

Participant name:

Type of interview:

Date and time:

Title of research: Assessment Of Soft System Methodology- Mode 2 as a Learning Approach to Explore the Problematic Situation Arising in Online Distance Education from the Cultural Perspective of Saudi Arabia.

Name of researcher: Sulafah Basahel.

_____

Participant to complete this section: Please initial each box.

1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I agree to take part in the above study.

4. I agree to the use of anonymised quotes in publications

5. I agree to the interview being audio recorded

_____ _____

Signature of participant   Date

_____ _____

Signature of researcher   Date

Appendix 3:

KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
KING ABDULAZIZ UNIVERSITY

⊠ : 80200, Jeddah 21589
☎ : (+966 2) 695 2015
Fax.: (+966 2) 695 2441

http://gssr.kau.edu.sa

مكتب وكيل الجامعة للدراسات العليا والبحث العلمي
Office of the Vice President for Graduate Studies and Research

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك عبد العزيز

⊠ : ٨٠٢٠٠ جدة : ٢١٥٨٩
☎ : (+٩٦٦ ٢) ٦٩٥٢٠١٥
فاكس : (+٩٦٦ ٢) ٦٩٥٢٤٤١
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سعادة مساعد الملحق الثقفي للشؤون التعليمية والأكاديمية بسفارة خادم الحرمين الشريفين بلندن   حفظه الله

السلام عليكم ورحمة الله وبركاته ...

وكالة الجامعة للدراسات العليا والبحث العلمي تهديكم تحياتها، وتشير إلى الطلب المقدم من الملحقية الثقافية بسفارة المملكة العربية السعودية في لندن بشأن الطالبة/ سلافة محمد سليمان باسهل، المبتعثة من قبل وزارة التعليم العالي لدراسة الدكتوراه في تخصص إدارة المعلومات والتقنية في جامعة رويال هولواي، وترغب في إجراء مقابلات وتطبيق لاستبانتها المتعلقة بأطروحتها للدكتوراه في جامعة الملك عبد العزيز والموسومة بـ:

إدارة التعليم عن بعد وتطويره باستخدام طريقة تفكير النظم لتنظيم وإدارة المصاعب

آمل التكرم..فضلاً.. بالاطلاع والإحاطة إلى أن الجامعة لا تمانع من قيام المبتعثة بتطبيق دراستها بالجامعة، ويمكن لها التواصل مع عمادة الدارسات العليا لتقديم المساعدة عن طريق وحدة الخدمات البحثية وذلك من خلال الايميل التالي:

dgsg.rsu@kau.edu.sa

وتقبلوا خالص تحياتي وتقديري...

وكيل الجامعة
للدراسات العليا والبحث العلمي

أ.د/ عدنان بن حمزة محمد زاهد

Encl : _____   المستفرعات : _____   Date: _____   التاريخ: ٨ /١١/ ٥ ٤٠   Ref# : _____   الرقم :

276

English copy of the above letter:

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Office of the vice president for Graduate Studies and Research

Dear. Mr. Culture attaché Assistant of Saudi Arabian Cultural Bureau in London.

The Office of the Vice-President for Graduate Studies and Research sends its salutations, in reference to the request submitted by the Saudi Arabian Cultural Bureau in London, regarding the student **Sulafah Mohammed S Basahel,** a scholarship student, who was sent by the Higher Education Ministry to complete her PhD as a scholarship student at Royal Hollowa, University of London. She desires to conduct interviews related to her thesis in King Abdul Aziz University. Its subject is:

Developing Management of Online Distance Education by Using a Systems Thinking Approach

Please note that the university has agreed that the scholarship student may apply her research in the university and that she may contact the Deanship of Postgraduate Studies to help her through their research services unit via the below E-mail:

Dgsg.rsu@kau.edu.sa

Best Regards

The vice president for Graduate Studies and Research

King AbdulAziz University
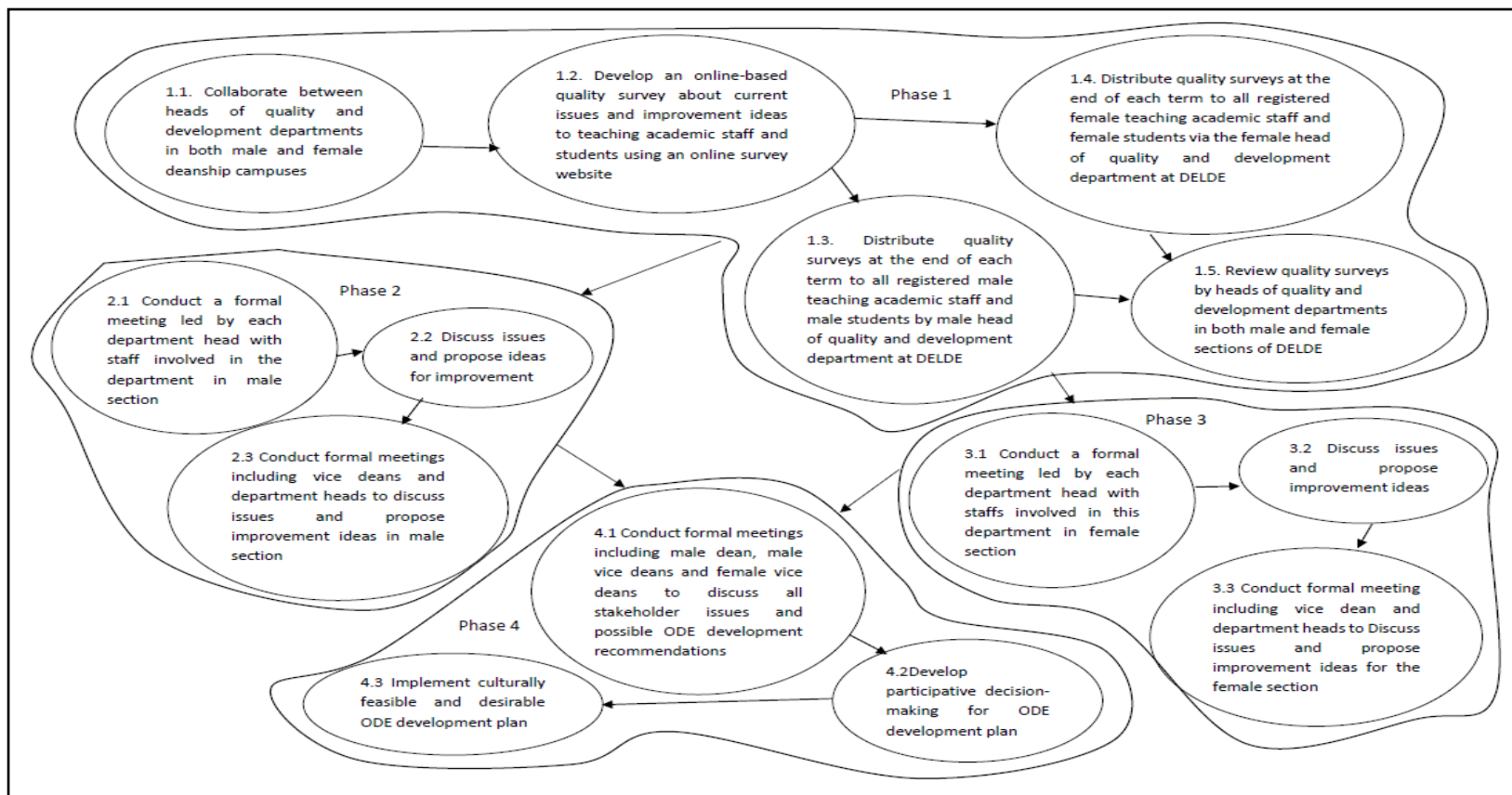
Dr. prof: Adnan Ben Hamza Muhammed Zahed

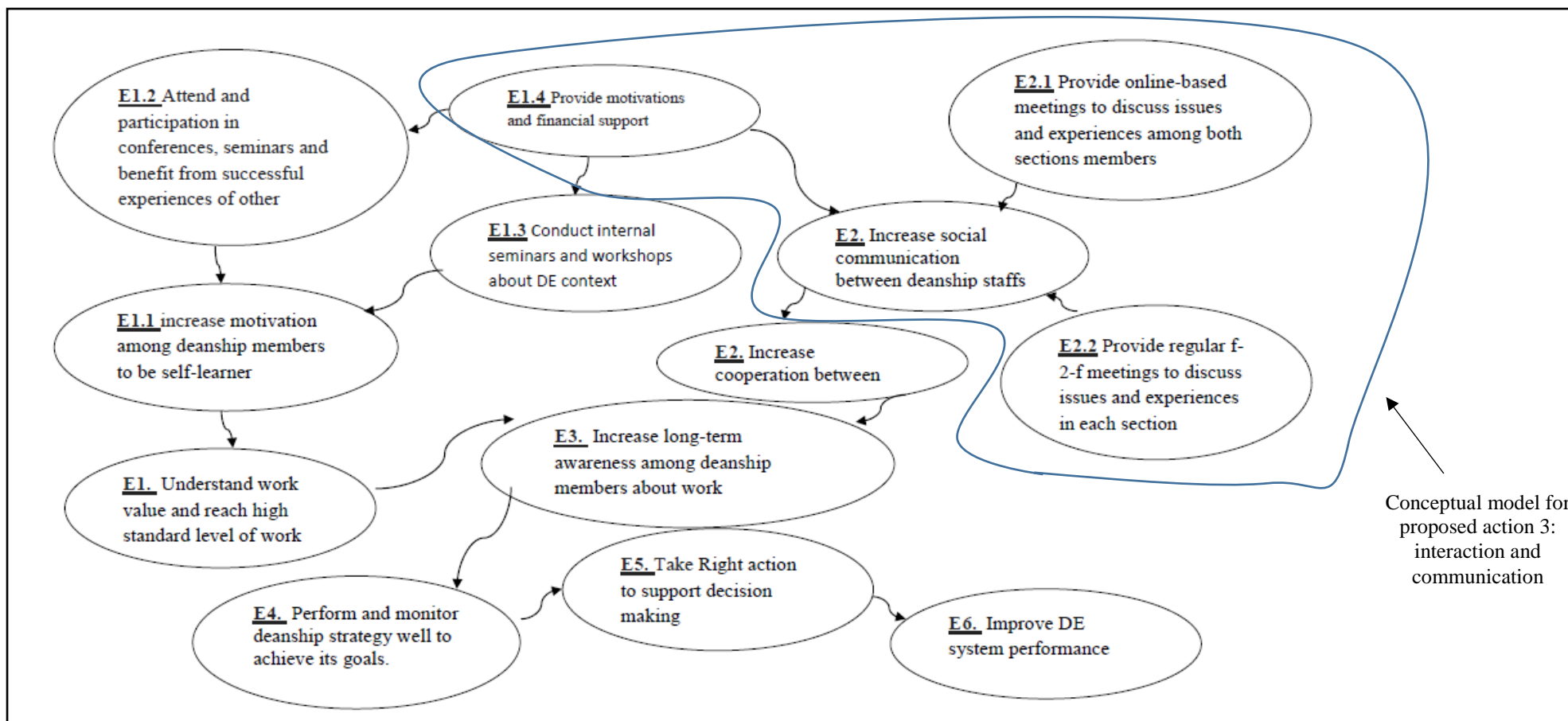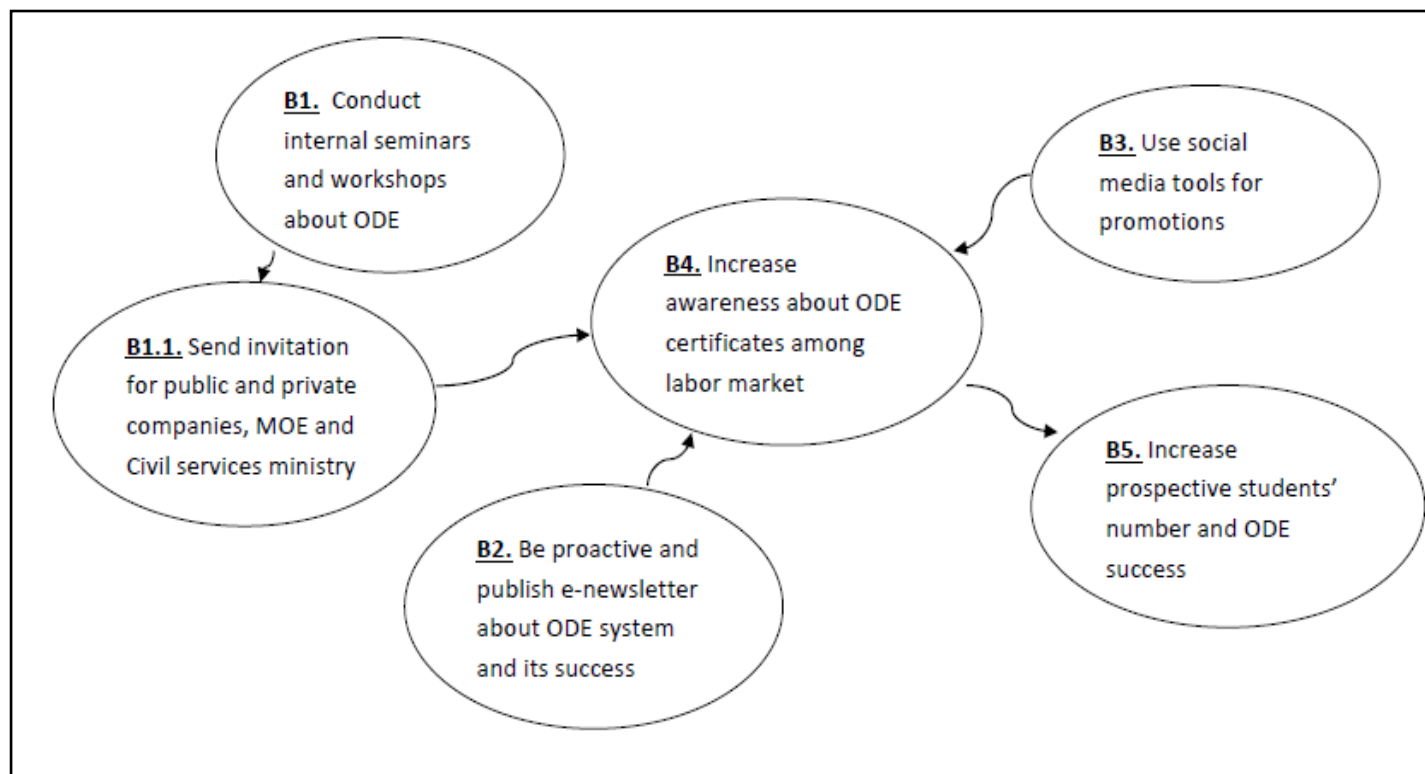Encl.:   Date: 08/11/1435 A.H.   Ref.#: 123402/15/D

Appendix 4

Conceptual model for proposed action 1: decision making process (includes 4 phases)

Conceptual model for proposed action 2: awareness about ODE- deanship level (includes sub model for proposed action 3)

Conceptual model for proposed action 2: awareness about ODE- community level

Conceptual model for proposed action 4: the number of ODE programmes