Action and Research: A Soft Systems approach to Organisational Development

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Abstract
This paper reports on the development of an alternative version of Soft Systems Methodology (SSM). A system of enquiry, action and learning (the SEAL model) was used to introduce the principles of SSM to organisational members. The model was developed from the literature based on criticisms of SSM. The model was then applied to a small regional business as an approach to Organisational Development. The model provides a wider application of the methodology of SSM and is a step toward understanding the transferability, practicability and applicability of SSM in areas other than information systems.

Keywords
Soft Systems Methodology
Organisational Development
Action Research

INTRODUCTION

SSM is a methodology and a set of principles used in action research to apply systems ideas in order to facilitate improvement of a problematic situation (Checkland 1988, Checkland & Scholes 1990, Checkland & Holwell 1998, Davies & Ledington 1991, Dick 1993, Patching 1990, Wilson 1990). SSM emerged from systems thinking as an approach to help understand real world problem situations (Checkland 1981). This understanding is achieved by applying the principles of SSM in order to understand the situation, make positive changes to the situation and learn from the process of using it (Checkland 1987, Checkland & Scholes 1990, Wilson 1984).

SSM is a process for managing whereby researchers, consultants and practitioners think out and implement organised action (Patching 1990). SSM assumes that all individuals see the world differently. These different 'world-views' lead to varying understandings and evaluations of situations, which lead to different ideas for positive action. SSM was developed to enable action by taking these differences into account (Pidd and Winter 2000).

SSM takes a real world situation of concern and provokes thinking about an ideal situation. A comparison between the reality and the ideal is enacted. Models of intended action are constructed and purposeful action is taken to improve the situation. The action is then reflected upon to help improve and learn from the engagement. It is taken as given that no objective and complete account of a problem situation can be provided, but rather a subjective interpretation of each stakeholder is considered (von Bulow 1989).

OD is a strategy to enhance the personal development of individuals and improve the effectiveness of organisations (Porras & Robertson 1992). Attempts to provide coordinated improvement for individuals and organisations often involves obtaining the services of an external consultant (Huse & Cummings 1985). The consultant uses principles of OD to allow participants to understand the situation and facilitate learning in order to bring about some form of positive change (Greenberg & Baron 1997). This process usually involves participation of all employees (Sanzgiri & Gottlieb 1992).

This paper is concerned with evaluating the application of soft systems methodology (SSM) as an approach to organisational development (OD). Evidence suggests that transferring principles of SSM into organisations is problematic (Ledington & Donaldson 1997, Mingers & Taylor 1992). Additionally, SSM has been criticised for being too complex (Patching 1990). Furthermore, the literature suggests that the originators of SSM overvalue the activity of conceptual modelling (Salner 2000) and that past projects of SSM have not been continuously iterative (Holwell 1997). Therefore it is a reasonable initial proposition that SSM is too complex to use as a participatory approach to OD. This paper will address these issues with the development of an alternative version of SSM, a system of enquiry, action and learning, or the SEAL model. The model allows the principles of SSM to be provided to an organisation in a systematic, cyclical process in order to develop, or make improvements to, the organisation.

Most applications of SSM have been used in the area of developing and understanding information systems that mostly begin with a pre-defined problem situation (Checkland & Holwell 1998). However, the literature also suggests that SSM can be used in a variety of applications including organisational development, *without* a pre-defined problem situation (Checkland 1981). Therefore, to challenge this, the author carried out research in a real world situation without a defined problem as an approach to OD. This was achieved by using the SEAL model to introduce principles of SSM to participants in an organisation. The project was carried out and operated using action research.

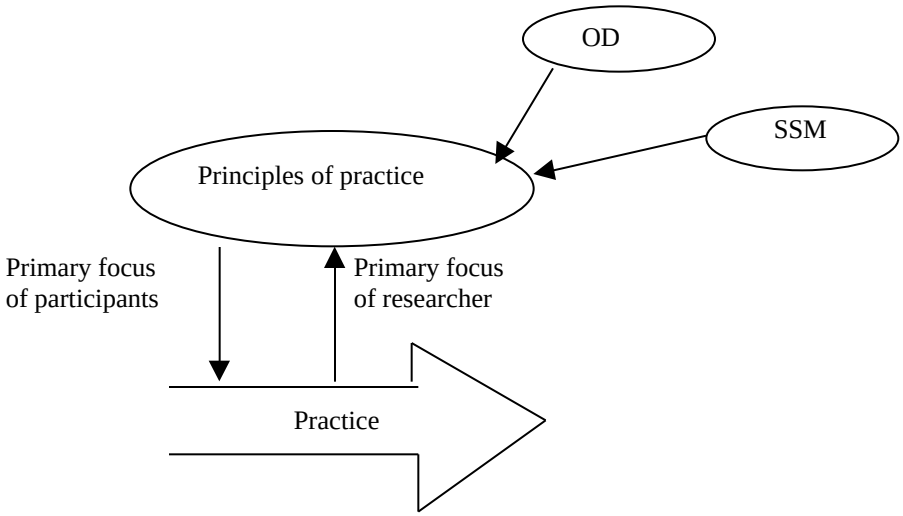
Evaluating Soft Systems & Organisational Development

There are at least six similarities between SSM and OD. Firstly, both have aims of improving individuals and organisations that are involved in some kind of problematic situation. Secondly, both SSM and OD use action research as a cyclical process to capture learning. Thirdly, both are consultant-based. Fourth, both SSM and OD are participative and involve organisation members as co-researchers. A fifth similarity is both SSM and OD aim to help participants understand the situation and learn from the intervention or enquiry. Finally, the nature of the researcher, or consultant, is seen as a process expert rather than a content expert.

The main difference between SSM and OD is the way a system is perceived. In OD, the literature views the organisation as a system (French & Bell 1999) whereas SSM views the organisation as an abstract concept of a system. This is one of the fundamental differences between hard systems and soft systems. Hard systems are descriptions of real entities, which may or may not exist. Soft systems however, are systems of enquiry that attempt to describe, understand and make sense of complex real world situations that are concepts of a system (Checkland 1981).
Addressing these concerns and using SSM as an approach to OD is the research focus of this paper. The primary focus of the researcher is evaluating the effectiveness of using an alternative model of SSM as an approach to OD. The primary focus of participants is the practice of the

organisation. Figure 1 illustrates the interplay between the principles of practice and the practice of participants. The model shows how the theories, or principles of practice, are used to introduce participants to the principles of SSM as an approach to OD for the purposes of improving the organisation. This occurs by using the SEAL model, an alternative model that has been developed by the author from the literature.

Figure 1: The interplay between practice and principles of practice

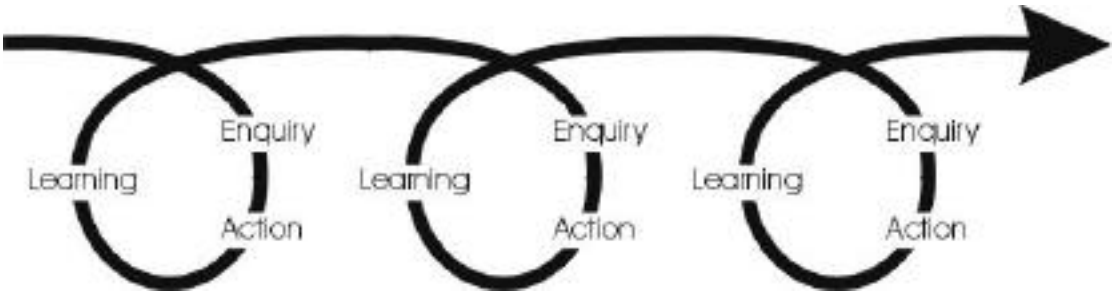


Adapted from Ledington & Donaldson 1997, p.230.

The System of Enquiry, Action & Learning (The SEAL model)

The SEAL model is an alternative model of SSM. The principles of SSM are introduced to participants as an approach to OD. A recent research project carried out by the author of this paper, followed each cycle of the model and reported on the outcomes of each cycle. The model allowed the principles of SSM to be introduced to participants gradually over several iterations to enable purposeful, positive change for organisational improvement. Figure 2 shows the model.

Figure 2: The System of Enquiry, Action & Learning (The SEAL model)



Enquiry: Participative planning to identify problematic situations and formulate action plans
Action: Implementation of action plans developed in the enquiry stage
Learning: Identifying the lessons learnt by reflecting on the action and using the lessons in the next cycle of enquiry.

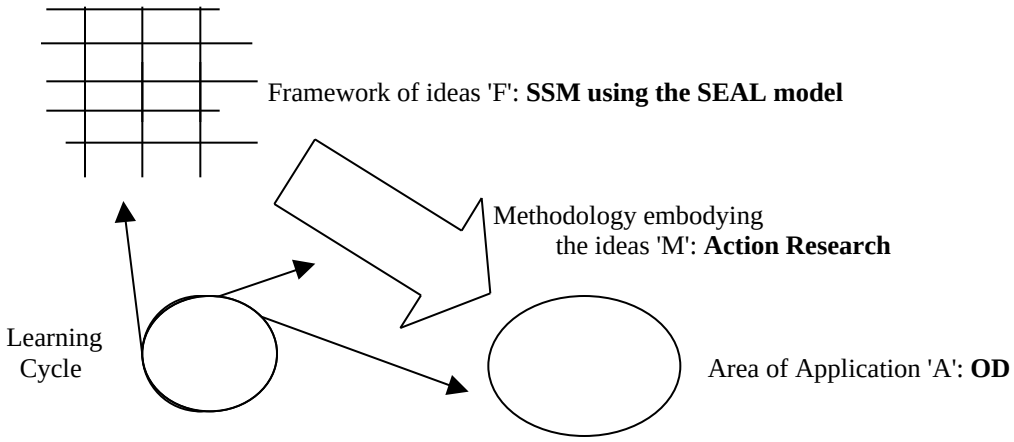
Source: Developed by the author of this paper

In the first stage, an enquiry is conducted to gain an understanding of the current situation. Then, some action occurs as a result of the enquiry. After the action, participants are provided the opportunity to reflect and evaluate the enquiry and action in order to learn from the experience. From this, the enquiry begins again in the second cycle to gain a deeper understanding of the current situation that has changed due to the action of the participants in the first cycle. This process is ongoing and further principles of SSM are introduced during each cycle enabling the researcher to be process oriented, rather than content focused.

THE ELEMENTS OF RESEARCH DESIGN

Fundamental requirements are needed in any piece of research, especially action research, where the researcher is directly involved in a problem situation and lessons can be learned by reflection (Checkland 1981). It is therefore essential to declare in advance an intellectual framework, entailing the elements shown in Figure 3. A particular set of linked ideas 'F' are used in a methodology 'M' to investigate an area of interest 'A' (Checkland 1991). In addition, a learning cycle connects the three elements. The cycle shows that using one element can assist learning about the other elements. The element used in recent research by the author is also provided in Figure 3.

Figure 3: The Elements of Research Design used in this study



Adapted from Checkland 1991

The Framework

SSM is used in this study as a set of principles to guide the action and research. SSM by design uses action research (Patching 1990), therefore, the methodology 'takes up' the SSM framework of ideas. The research presented in this paper introduces models and techniques that have been used for many decades (Checkland 1981, 1987, Checkland & Scholes 1990, Davies & Ledington 1988, Ledington 1989, Ledington & Ledington 1997, 1999a, 1999b, Patching 1990, Wilson 1984). As the research progresses through each cycle, the SEAL model enables the intellectual capabilities of SSM to be introduced. The SEAL model helps to simplify the process and engages the practitioners with principles of SSM.

To enable the operationalisation of the SEAL model, data was collected from participants relating to the current situation. Unlike most applications of SSM, the project did not start with a defined problem situation. The model was used to bring to the surface any issues of concern within the organisation. The researcher introduced the principles of SSM to participants in order to develop action plans for purposeful change. This concept was acknowledged as a potential advantage for use of SSM as an approach to OD (Checkland 1981).

After data was collected, discussions were enacted to express the current situation. From here, a picture or description of the situation was produced and the process was kept simple. Participants were then asked to draw/describe the ideal situation, in other words what they would like to see the situation look like in the future. A comparison and debate between the current and ideal situations followed. From this, problem situations were defined and an action plan was developed by participants in an attempt to create positive changes. The first cycle of the model was used to introduce the concept of comparison and debate to participants, a hallmark of SSM, so that the participants gain an early understanding of the principles of SSM. Further principles were then transferred to participants by the researcher during each successive cycle of the model.

From the action, participants were asked to reflect and evaluate their enquiry and action to create an opportunity of learning from the process. The results of the learning were taken into the next cycle of enquiry and the researcher introduced further principles of SSM. This cycle continued and ideally the process should never end. The author of this paper used three cycles of the SEAL model over a period of twelve weeks. The research concluded only to allow the results of the project to be recorded.

The Methodology

Action Research is the methodology used in this study**.** Action research is a cyclical process where the researcher initially selects a real world situation, negotiates the respective roles of the researcher and the people in the problem situation and begins unfolding the situation with a view to making improvements (Checkland 1991). At the same time, researchers and participants start making sense of the situation using the declared framework and methodology. This process may be repeated as the researcher continually rethinks the earlier stages. Eventually, the researcher exits the situation and reports on the findings. The exit from the problematic situation is essentially an arbitrary act since the situation is never completely solved and human situations continue to evolve through time.

There are at least three different types of action research. Each type has different aims, roles and relationships between the researcher and the practitioners (Carr & Kemmis 1986). Table 1 shows the three different types of action research. The type of research used by the author in this paper is *practical*, as opposed to technical or emancipatory.

Table 1: Types of Action Research

Type of Research	Aims	Facilitators role	Researcher/participant relationship
1. Technical	Informing	Expert	Participant dependent on researcher
2. Practical (interpretive)	Understanding	Participation	Process-oriented consultation
3. Emancipatory	Transformation	Moderator	Collaboration to expose injustices

Adapted from Carr & Kemmis (1986)

The Area of Application

The area of application in this study is o**rganisational development**. That is, the researcher entered the organisation to conduct action research using principles of SSM as an approach to OD. The researcher applied the framework of ideas (SSM using the SEAL model) and the methodology (action research) to the area of application (organisational development).

Data collection methods

The data collection methods used in the research were informal discussions, survey feedback and group discussions. These methods have been used by various applications of SSM and OD over the past two decades. Each method of data collection will now be explained.

Informal discussions are used in both SSM (Hirschheim, Iivari & Klein 1997) and OD (French & Bell 1999). Informal discussions allow data to be collected during the day to day operations of the organisation. Informal discussions were carried out three times per week throughout the research project during each cycle of the SEAL model. Notes of each discussion were captured in a field book, which was later used during the data analysis stage of the project.

Survey feedback is an OD intervention used to collect research data (Abrahamson 1991). This method was used to help practitioners begin to understand the strengths and weaknesses of the organisation. Questionnaires are used to collect the data and the results were provided as a summary of all participants. Given that outside consultants usually conduct the survey feedback (Greenberg & Baron 1997), this method of data collection was deemed appropriate by the researcher in this project.

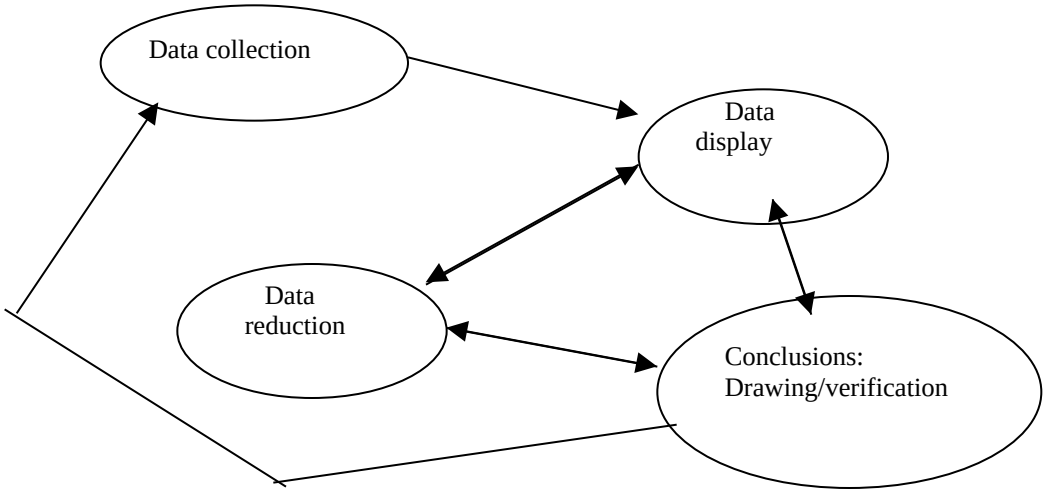
Group discussions are another data collection method used in studies of OD (Beer 1980) and SSM (Hirschheim, Iivari & Klein 1997). In this research project, discussions were held weekly. An informal agenda was followed according to the survey feedback mechanism. The discussions provided an opportunity to enquire about a problem situation and to learn and reflect on the enquiry and action. The meetings also allowed the researcher to introduce the principles of SSM during each cycle of the SEAL model.

Data analysis methods

Qualitative data analysis methods were used in this research project. The data analysis consisted of three flows of activity and is shown in Figure 4. They are data reduction, data display and

conclusion drawing/verification. Data reduction is the process of selecting, simplifying and transforming the information from the field book of notes. Data display uses an organised assembly of information in the form of matrices, charts and graphs to permit conclusion drawing and action. Finally, conclusion drawing/verification draws out findings during or after the research and verifies the findings either by a re-examination of the field notes, or by an exhaustive review of the available information. These findings, or meanings, then need to be tested for plausibility, confirmability and validity (Miles & Huberman 1994).

Figure 5: Components of data analysis - an interactive model



Adapted from Miles & Huberman 1994, p.12

Analysis of the process

During the study, the participants developed a set of problem situations that were identified as problematic and requiring attention. The analysis of the process is a complete summary of all cycles of the SEAL model during the research project. Each problem situation is presented and discussed separately.

Background of the organisation

The organisation that enabled the study to be carried out was a small regional motor vehicle dealership consisting of less than twenty employees. The Dealer Principal was also the owner of the dealership who recognised that the problematic situation within the organisation could not be easily recognised. The dealership was a multi-franchise retailer of new cars, as well as a retailer of used cars. The dealership also operated a Parts-Service department and an Administration department.

Problem Situation (a): Customer service in the Parts-Service department

The first cycle of enquiry identified a need for extra staff to be employed in the Parts- Service department. This situation was made clear by providing participants the opportunity to discuss their situation. Participants were active in the comparison and debate stage and used the

opportunity to raise issues of concern. Prior to the implementation of the project, the participants commented that they were not given the opportunity to work toward resolving issues within their department and that extra staff would not be employed in the department in the foreseeable future. However, as a result of discussion and debate arising from the enquiry, it was decided that the action of employing an extra staff member would bring about improvement to the department. Consequently, participants agreed to the change and convinced the Dealer Principal to employ an extra staff member for the department. It was also agreed that this action was to occur within a period of two weeks.

The action of employing an extra person followed. This process was carried out jointly by both managers within the department. During the two weeks of action, informal discussions continued and the researcher observed that both managers were feeling positive about the action. At the group discussion in week five, all participants within the dealership recorded that the situation in the Parts-Service department had improved. The Sales-Admin department recorded that phone calls, communications and interaction with the Parts-Service department had noticeably improved. The learning stage prompted participants to reflect on their enquiry and action. The learning that resulted from the stages of enquiry and action was the need for planned change and the benefits of group discussions.

The second cycle of enquiry of problem situation (a) in week six resulted in the need for an extra office to be created. The department was carrying out functions of customer service and administration in a common area. However, after consideration of a desired future state, or ideal situation, the participants decided on creating a separate office for the administration function. Again, they set of period of two weeks to complete the task and the action of creating an office followed.

In week eight, the second stage of learning was recorded using a group discussion involving all managers. Problem situation (a) was addressed and it was agreed that the creation of a separate office made remarkable improvements to the operations of the department. This in turn, according to the participants in collaboration with customers, resulted in improvements to the customer service in the Parts-Service department.

The third cycle of the SEAL model witnessed a change of focus for participants engaged in problem situation (a). After the improvements of cycle one and two, attention was drawn to the restructure of job roles and job descriptions. Both managers in the department were actively involved in discussions with all staff to formalise job descriptions and alter the job roles within the department. The result was an action plan to restructure the department. This action followed and a new role was created within the department.

A group discussion was held in week eleven to capture the learning from the third cycle of the SEAL model. All participants agreed, with the collaboration of customers, that the restructure gained improvements to the customer service offered by the department. The parts and service functions were now separated to allow each manager to focus attention to parts and service customers. The separate office for the administration function allowed specialist attention to customers, without interruptions. Participants recorded that the learning achieved was one of confidence that they could identify their existing situation, express an image of an ideal situation, plan for change and be involved directly in the process for improvements. However, participants agreed that the decision making process took longer than traditional methods. The analysis of problem situation (b) will now be considered.

Problem situation (b): Product presentation

The first cycle of the SEAL model revealed that product presentation was a problem situation for the dealership. Participants agreed that this situation could pose a threat to the reputation and future of the organisation. Participants were asked to compare and debate pictures, or descriptions, of the current situation with some ideal situation. This promoted comparison and debate of the description, which resulted in a change of supervisor for the product presentation function. This action followed and the situation improved as agreed by all participants.

The second cycle of enquiry was that the situation had improved to the point that monitoring only was necessary to maintain the standard of the improvement. No further action was undertaken throughout the project other than to comment on the problem situation at each group discussion. The learning that was reported by participants was that comparison and debate about the current situation and some description of an ideal situation prompts solutions that seem easy in hindsight.

Problem situation (c): Managerial expectations

Problem situation (c) emerged after much debate in the first group discussion. The managers believed that they were not given enough responsibility to carry out tasks and formal policies were not in place to clarify the role of managers. Added to this, the dealership did not have clear job descriptions and did not have an agreed upon organisational chart. The desired change to this situation was for the Dealer Principal to delegate responsibilities to managers, enabling the dealership to operate without a single controlling figure. Additionally, it was agreed that the participants would create an organisational chart and define clear job roles for all organisational employees. This action was to take place over a period of two weeks.

No action occurred in the first cycle of the SEAL model of problem situation (c). Participants perceived that the Dealer Principal did not delegate responsibility to managers and hence they reacted by not completing the action as agreed. At the group discussion in week five, participants were asked to reflect and evaluate the action of all parties. It was decided that the managers needed more than a delegation of responsibility. The participants decided that they needed clear ground rules from the Dealer Principal. In other words, the managers wanted to know exactly what was expected from the Dealer Principal. As a result, the second cycle of enquiry concluded that the action would be a ‘special meeting’ with the Dealer Principal.

A meeting to establish the ground rules was held at the dealership. All participants were given opportunity to express the situation. As expected, there were many different perceptions and descriptions of the problem situation. However, the ground rules were established and all participants agreed that they would reflect on the action over the following week. In week eight, a group discussion was held to consider the second cycle of learning as per the timetable. All participants agreed that the ground rules helped to clarify the expectation of managers.

From this, the third stage of enquiry was enacted and a commitment was given to construct an organisational chart to redesign the job roles and functions in the dealership. The researcher observed that the used car manager did not engage in much of the discussion about problem situation (c) during the third stage of enquiry. He offered little comment and when the researcher encouraged input he replied that he did not have anything to add to the discussion. Nonetheless, the action of developing a chart followed and it was agreed that this effort continued to clarify the

job roles of all participants. During the evaluation, all participants except the used car manager agreed that the situation had improved.

Problem situation (d): Computer based information system

Problem situation (d) did not emerge until the second cycle of the SEAL model. During the second cycle of enquiry, the participants added the problem of a newly installed computer based operating system to the project. Participants agreed that the system was installed in the dealership without any participation of employees in the decision making process and there were no opportunities for input by potential users of the system. As a result, the participants agreed that a computer technician was needed to rectify the situation and improve the situation, enabling participants to use the system. This action followed and the situation was seen to improve.

However, the participants noted that this problem situation could possibly have been avoided if they were given an opportunity to comment and discuss the purchase and installation of the operating system. The decision to replace and install the computer based operating system was carried out by the Dealer Principal without any involvement of the organisational members. The participants felt that the question of improving the operating system could have been presented as a problem situation to be analysed as part of this research project. Nonetheless, the situation improved and was monitored in the third cycle of the project.

Discussion

The motivation for this research project was to add to the research base of SSM, based on criticisms contained in the literature. SSM is an established methodology for the creation and design of information systems (Checkland & Holwell 1998). Notwithstanding, the literature suggests that SSM can be applied to a variety of situations where the aim is to improve a problematic situation (Checkland 1981). However, a search of several texts, journal articles and data bases found that there is little reported use of SSM outside the discipline of information systems design and information systems management.

Furthermore, most applications of SSM start with a defined, mostly ill-structured problem situation (Checkland & Scholes 1990). A review of the literature suggested that the application of SSM can be started at any point, without a known problem situation and that the methodology could be useful in this context as an approach to organisational development (Checkland 1981).

Added to this, the literature review found four main criticisms of SSM. Firstly, evidence suggests that transferring principles of SSM into practice has been problematic (Ledington & Donaldson 1997). This is due mainly to time. Introducing new ideas and concepts to organisational practice involves investing more than just a one-day course (Mingers & Taylor 1992). Secondly, the traditional models of SSM are reported as being too complex for organisations to adopt. This complexity inhibits the intellectual capability of the academic side of SSM from reaching the practical hands-on side of using SSM (Patching 1990). Thirdly, the process of SSM needs to be continuously iterative to enable a better understanding of the methodology, based on one of the assumptions of SSM, which is that social reality is continuously constructed (Holwell 1997). The final criticism is the overvaluing the use of conceptual modelling (Salner 2000). The original purpose of conceptual modelling is to initiate comparison and debate (Checkland & Scholes 1990) and therefore users of SSM labour in unnecessary model building (Salner 2000).

Therefore, this research project made attempts to respond to the criticisms contained in the literature, by developing an alternative model of SSM. The system of enquiry, action and learning (the SEAL model) was developed directly from the literature. The design of the model relates to each of the four criticisms that were analysed in the literature and the model has been applied based on declarations made by the originators of SSM. Unless these criticisms are addressed and the declarations are acted upon, SSM could remain in the confounds of information systems research. Challenging this aspect of the literature of SSM makes this research important to the further development of SSM. A summary of the responses to each criticism and declaration is shown in Table 2.

Table 2: Responses to the analysis of the literature – a motivation for research

Criticism of SSM…	*Response…*
Principles are difficult to transfer, due mainly to time.	Research project was conducted over a period of 12 weeks.
Principles are too complex for organisational members	Development of the SEAL model, a simplified version of SSM.
Process of applying SSM needs to be continuously iterative, based on the assumption that social reality is continuously constructed.	The SEAL model is a continuous cycle of enquiry, action and learning and the starting point is arbitrary. 3 cycles were used in this research project.
Conceptual models are over-valued and detract from the original intention of comparison.	Conceptual models were not used in the research project. Descriptions of ideal situations were used to arouse debate.
Declaration made concerning SSM…	*Response…*
SSM can be applied to any situation where the aim is to improve.	The SEAL model was applied as an approach to Organisational Development
SSM can be applied without a pre-defined problem situation	The SEAL model was used to surface problem situations

Source: Developed by the author of this paper

From the responses to the research literature and subsequent development of the SEAL model, the researcher was motivated to conduct the research project in order to evaluate its effectiveness. The project was conducted over twelve weeks, was continuous, started without a pre-defined problem situation and was applied as an approach to OD, resulting directly from the analysis of the literature. This project makes an important contribution to the literature by responding to the pertinent issues contained therein. The next section will discuss the research contributions that can be attributed from this study.

Research contributions

From the research project, the paper makes two research contributions. They are:

1. The development of an alternative model of SSM.
2. A new model of Organisational Development

The literature reveals that the criticisms of SSM were that it is too complex for organisational members to understand (Patching 1990), difficult to transfer (Ledington & Donaldson 1997, Mingers & Taylor 1992) more iterations were needed (Holwell 1997) and the use of conceptual modelling is overvalued (Salner 2000). The SEAL model makes a contribution to the SSM literature in that it responds to these criticisms by simplifying the methodology. The principles of SSM are introduced gradually over several iterations, allowing the principles of SSM to be understood and therefore easily transferred to participants. Additionally, descriptions of ideal situations are used instead of conceptual modelling thereby reducing its complexity. This process does not occur in a one-day workshop. The principles of SSM were introduced over a period of twelve weeks in this research project to assist the transference of principles.

The project also confirms that SSM can be applied to applications other than information systems development and can be initiated without a pre-defined problematic situation. The research has shown that by using the SEAL model, participants engage in the application of the principles of SSM and issues are raised from this engagement and discourse. This occurred in the context of OD, which suggests that SSM is a set of principles that can be applied to areas other than information systems, that aim to develop and improve individuals and organisations.

The SEAL model also makes a research contribution by providing the OD literature with a new model that introduces the principles of SSM. The paper discussed the similarities of SSM and OD and concluded that SSM could make a contribution as an alternative approach to OD. Furthermore, the idea that SSM views an organisation as an abstract concept of a system (Checkland & Scholes 1990) and offers the methodology as a system of enquiry, contributes to the literature of OD.

The result of this research showed that the SEAL model was minimally effective in facilitating organisational development. By introducing participants to the principles of SSM gradually over 3 cycles, they were able to understand their application. By conducting the research and transferring the principles over twelve weeks rather than a one-day workshop the participants began using and comprehending the principles of SSM. Participants used images and descriptions of their current situation and compared this to descriptions of some ‘ideal’ situation. This enacted debate and discussion without having to engage in the complex conceptual modelling activities and action plans were generated. From this action occurred and participants recorded their learning in each cycle. This occurred in the context of OD and without using a pre-defined problem situation. Participants used the model to bring to the surface issues, or problem situations, and used the SEAL model to enact purposeful action.

Limitations

It is acknowledged that the research paradigm and the chosen research elements in this dissertation are well suited. Further, the development of an alternative model from a well

established, credible and proven methodology represented a high degree of difficultly. However, this section will address the limitations of the research.

The limitations that became apparent during the progress of this research were due mainly to time and the issue of relevance versus rigour. After several weeks of conducting the project, the researchers realised that extra time to complete more iterations would further enhance the analytical generalisability of the findings (Yin 1989). Furthermore, in an attempt to maintain rigour throughout the analysis of the process, much reporting of each cycle was carried out. At the same time, the researcher desired to tell the story and extract from the research other lessons that were learnt. To compensate for this, the researcher opted to balance relevance and rigour that is required in pieces of interpretive research (Galliers 1997). Having said this, the limitations do not detract from the significance of the findings. Conversely, the limitations provide opportunities for further research, which are explained in the next section.

Implications for future research

Applying an alternative model of SSM in the context of OD is a step toward understanding the wider application of the methodology of SSM and the importance of responding to the criticisms contained in the literature. Based on the application of the SEAL model, it is clear that the model is still in its infancy and requires a great deal of further research and critical analysis before it can serve the theory and practice of SSM and OD conclusively.

Future research should aim to initiate mechanisms to promote more open and honest dialogue. When participants do not engage in the group discussions, they often are opposing the direction of the planned action. Although group consensus was gained, opposition to the action was raised after the event. This was a constraint that was not recognised until the third learning stage of the cycle. Furthermore, to improve the effectiveness of the application of the SEAL model in future research, the cycles of enquiry, action and learning should be carried out in shorter time periods than those used in this project.

Future research should also focus on the reported negative changes in the situation and respond to the perceived weaknesses of the process. Therefore, future research could look at ways of moving through the cycles faster, thereby ensuring that the planned action is carried out quicker. The researchers also suggest that future research should be conducted over longer periods of time using more than three cycles. Additionally, more than one organisation with different contexts could be used to enable the development of the model.

Reflections on the research project

This research has demonstrated the development of the SEAL model in response to the declarations and criticisms of SSM contained in the literature. The model has been applied in an organisational setting as an alternative approach to organisational development. This experience of developing, applying and measuring an alternative model has raised important issues in relation to the theory and practice of SSM and OD. In relation to the situation, the researcher departed from the organisation with many observations of concern.

The application of the SEAL model by the researcher was unable to promote honest dialogue between participants. The outcome of this phenomenon meant that opposition to planned action

only occurred after the action took place. These issues are important to the development of the theory and practice of interpretive action research, SSM and organisational development.

Using an alternative model of SSM in the context of OD as a response to criticisms and declarations contained in the literature is unique to this research. Therefore, this project plays an important role in extending the use of SSM. Attention must now be turned to the issues that have been raised as a result of this project. Does the organisation have the capacity and resources to continue making changes to the problem situations? If so, what role can the SEAL model play in the future? Was the SEAL model useful in the positive change that occurred in the situation or is there more value in unearthing deeper issues of power transfer, management responsibilities and leadership styles?

These issues raise debate on the nature of SSM and the chosen research paradigms used in this paper. Interpretive action research aims to interpret and understand the situation and implies that humans attempt to make sense of their world. Critical theory on the other hand aims to disclose myths and believes that humans create their own destiny and are restricted and exploited. Additionally, interpretive research maintains social order whereas critical research enacts social change. Therefore, did the application of the SEAL model assist the participants to understand their own situation or did the project expose more pertinent issues that require social change?

Upon reflection, the researcher proposes that future use of the SEAL could take the form of a meta-methodology in order to understand and appreciate the situation. From this, a more specific methodology could be chosen based on the aims of the next stage of the research. This idea may confirm the SEAL model as an appropriate model of interpretive action research. However, future research would be required to substantiate such conclusions.

To expand on this issue further, it could be suggested that the strategies for enacting social change could be transformational or radical. Similarly, strategies for developing organisations whilst maintaining social order could be incremental or first order change. The strategies or objectives of the research would therefore determine the appropriateness of the chosen methodology. Checkland (1981) identifies that usage of SSM could be transformational or incremental, interpretive or critical, because the researcher has the freedom to select relevant models of enquiry or change, based on the expression of the problem situation.

The concept of transformational or incremental change found in the OD literature supports this argument. Bernstein & Burke (1989) confirm that incremental change is an intervention for management practice and procedures whereas transformational change is aimed at leadership and organisational culture changes. Given that the use of the SEAL model in this research did not use relevant systems modelling and made no attempts to change the leadership style and culture of the organisation, the researcher believes that the model is limited to usage as interpretive action research. The participants enacted change in the situation. To engage in critical action research using principles of SSM would therefore involve selecting another use or application of SSM.

Developing the SEAL model from the SSM literature and applying the model as an approach to OD produced issues that were not expected by the researcher. Although the researcher responded to the criticisms and declarations contained in the SSM literature, attention can now be turned to the effectiveness of the enactment of these responses. The researcher proposes that future projects should be conducted using more regular workshops (formal discussions) over a longer period of

time. This would ensure that more cycles of enquiry, action and learning would take place and that action would occur sooner. The researchers propose that this would enable the principles of SSM to be transferred to participants easier.
The researcher however was pleased that the SEAL model was effective in surfacing problem situations without starting with a pre-defined problem. This is not to say that the model could not be used with a known problem situation. However, according to the declaration contained in the SSM literature, the researcher was able to conduct the research by raising issues of concern.

Conclusion

This paper has shown that the SEAL model was minimally effective in facilitating organisational development in areas of job satisfaction, staff morale, quality of customer service, quality of the working environment and increasing the optimism of the organisation. The model however was not effective in promoting honest dialogue amongst participants and increasing the haste of solving problems.

The research contributions were shown to be that the SEAL model addressed the criticisms and declarations of the literature and provided a simplified model of SSM. This is a contribution to the SSM literature in that it is a step toward understanding the transferability, practicability and applicability of SSM and that the methodology could have a use in areas other than information systems development. It was also confirmed that SSM studies do not need to begin with a pre-defined problem situation.

The limitations to the research were provided which formed a platform for the implications for future research. The researcher suggests that the model is in the stages of infancy and would benefit from further studies that involved more organisations of different contexts, a longer time frame and using more cycles of enquiry, action and learning. The researchers propose that future applications of the SEAL model could be used as a meta-methodology in order to understand and appreciate situations. This could confirm the model as an appropriate framework of action research in the area of organisational development.

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