A Qualitative Decision Trail in the Hermeneutic

Analysis Evidence from the Case Study

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Abstract

Qualitative analysis is often reported as an intuitive, personal journey for the researcher. In this case, qualitative research texts are long on discussions of data collection and research experiences but short on analysis. This paper aims to reduce the tension in the qualitative analysis by adopting a decision making trail that is proposed by Clarke (1999). The reason behind this is that a decision trail does provide a clear and agreed analysis processes in qualitative analysis. The case that is utilised to achieve the aims of this paper is that the impact of meta-abilities (cognitive-skills, self-knowledge, emotional resilience and personal drive) in the externalisation and sharing of tacit knowledge. It is found that a decision making trail supports the principles of academic rigour in qualitative research.

Keywords: Qualitative Analysis, Hermeneutic, Analysis Decision Trail, Meta-Abilities, Tacit Knowledge Externalisation

1. Introduction

Qualitative research approaches are designed to help researchers understand people and the social and cultural contexts within which they live (Myers and Avison, 2002). In other words, qualitative researchers seek answers to questions that stress how social experience is created and given meaning (ibid). However, this lead to the view that qualitative analysis is often reported as an intuitive, personal journey for the researcher (Clarke, 1999). In other words, qualitative analysis lack of clear and agreed analysis processes which can be found in the quantitative domain. This thinking remains dominant despite the growth of systematic qualitative analysis that is supported by computer analysis systems (Tesch quoted from Clarke, 1999).

Pollock (1991) summarises how qualitative research texts are long on discussions of data collection and research experiences but short on analysis. Nevertheless, she acknowledges the contributions of Miles and Huberman (1984) and Strauss (1987) in the research data analysis. In addition, she opines that there is a definite need for the researchers to make explicit the methods that they use to facilitate the management of a large amount of qualitative data. Clarke (1999) presents an analysis process with the illustrations from the analysis trail in order to challenge Pollock's (1991) critiques. This paper aims to reduce the tension in the qualitative analysis by adopting a decision making trail that is proposed by Clarke (1999). The reason behind this is that a decision trail does provide a clear and agreed analysis processes in qualitative analysis. The case that is utilised to achieve the aims of this paper is that the impact of meta-abilities (cognitive-skills, self-knowledge, emotional resilience and personal drive) on the externalisation and sharing of tacit knowledge. Meta-abilities in turn are developed through the elements of understanding organisational goals, internal strengths, formal and informal discussions and rational discourse. The case is considered appropriate because it is humanistic in nature.

A theoretical overview of the research questions, study design, tacit knowledge externalisation and meta-abilities are firstly dealt with. The analysis process and the analysis trail from the post-training evidence of respondents are then presented. In the final section, the conclusions and suggestions for further research are dealt with.

2. Research Questions and Study Design

The evidence used to illustrate this paper is taken from a hermeneutic study. To contextualise the evidence it is useful to consider the research question: "How do we include individuals in the learning-based systems development? Why use meta-abilities in order to include individuals in the learning-based systems development?"

The research activity consisted of three stages: (1) understanding the organisation's operational background; (2) the implementation of the training programme and (3) data collection for the research analysis. After completing the process of understanding an organisation's operational background, the process of preparing a training module,

presentation slides and programme outline were commenced. The preparation was undertaken by referring to the inputs from the literature review and practical experience. Thereafter, the training programme was undertaken at the premises determined by the involved organisations. The number of training days was limited to six days due to the policy of the company on industrial training. The participants consisted of 31 engineers and 8 system officers. The engineers were selected as they were the critical group in the plant; therefore the learning process was emphasised on them. Alternatively, the system officers were selected because they provided a platform to evaluate the impact of the framework in IS development.

On the final day of the training programme, the research participants constructed a comprehensive 60 days action plan covering personal development and organisational change issues. This formed the basis of the progress review. For the progress review, the researcher met the research participants individually in order to further develop the elements of understanding organisational roles, internal strengths, formal and informal discussions and rational discourse by discussing their achievements on the targeted actions. This session normally took more than one hour. This was due to the need to discuss the level of development in-depth. Any problems that arose during the developmental period were discussed and tackled in a face-to-face meeting. This meeting was held at the research site in one of the meeting rooms. The data collection commenced one month after the progress review session. A one-month period was given to the participants to enable them to apply the six competency sets in their daily tasks.

The thirty-nine participants were invited to engage in two guided conversations, which were audio-taped and transcribed. The analysis process was designed and tested in an in-depth case study. This paper presents part of the study: the analysis process leading to the generation of major group categories but is not intended to offer the complete findings from the research study.

To understand an organisation's operational background, senior management were interviewed. Senior management were considered to be the most suitable people to be interviewed because they were more familiar with the company's operations. During this stage, a semi-structured interview was employed. This was because this approach allows a great deal of flexibility in asking a pre-determined set of questions or issues that were related to the organisation's operations (Gubrium and Holstein, 2002). An informal conversational interview was utilised during the implementation of the training programme. This is to cope with the activities of the training programme, which required a spontaneous generation of questions in the natural flow of an interaction. This is a strategy similar to that adopted by Zuboff (1988). The feedback also provided relevant data that supported the research analysis.

For the post-training interview, this research employed the open-ended interview method. Open-ended interviews consist of a set of open-ended questions carefully worded and arranged in advance (Gubrium and Holstein, 2002). This type of interview is appropriate for this research because the researcher wanted to collect detailed data systematically and facilitate comparability among all respondents (ibid). The researcher also undertook a second open-ended interview session, which was undertaken four weeks after the first interview session. The aim of the second open-ended interview session was to explore the themes of the first interview in the context of the following questions: "This is what I am understanding, can I confirm this with you?"

3. Analysis Process

This research used the hermeneutics analysis method. Hermeneutics can be treated as both an underlying philosophy and a specific mode of analysis (Bleicher, 1980; Myers and Avison, 2002). As a philosophical approach to human understanding, it provides the philosophical grounding for interpretivism. As a mode of analysis, it suggests a way of understanding textual data.

Hermeneutics is an approach to the analysis of texts that stresses how prior understandings and prejudices shape the iterative process (Denzin and Lincoln, 1994). Hermeneutics is primarily concerned with the meaning of a text or text-analogue (an example of a text-analogue is an organisation which the researcher comes to understand through oral or written text) (Myers, 1997). The basic question in hermeneutics is "what is the meaning of this text?" (Radnitzky, 1970). Taylor (1976) says that:

Interpretation, in the sense relevant to hermeneutics, is an attempt to make clear, to make sense of an object of study. This object must, therefore, be a text, or text-analogue, which in some way is confused, incomplete, cloudy, seemingly contradictory – in one way or another, unclear. The interpretation aims to bring to light an underlying coherence or sense.

The aim of hermeneutic analysis becomes one of trying to make sense of the whole, and the relationship between people, the organisation and the externalisation and sharing of tacit knowledge. For example, when the research participants mentioned that their meta-abilities were improved, it was learnt that the elements of understanding organisational roles, internal strengths, formal and informal discussions and rational discourse could be used to develop other members' meta-abilities. To achieve this, the following research activities were undertaken.

From the above discussions, the first process in the hermeneutics analysis is obtaining a text or text-analogue (Gadamer, 1976). As noted above, to obtain a text or text-analogue, the researcher undertook interviews, observations and document reviews. This process involves hearing and writing the participants' stories. For example, when the participants were asked about the impact of the elements of understanding organisational roles, internal strengths, formal and informal discussions and rational discourse on the development of meta-abilities, the researcher recorded their answers using a Dictaphone. As soon as the aforementioned interviews were completed, the recordings were transcribed. The transcription represented the text that will be analysed in depth. For analysis illustrative purposes, the following text is utilised:

From an active communication programme that I promoted in my unit after the programme, my staff were not hesitant to meet me for any technical or non-technical assistance. I tried my best to assist them and if I thought that it was not under my expertise, I referred them to the right person, but still under my supervision. So...yeah...through asking activities, the work could be undertaken smoothly. Furthermore, we should learn from many experts, not only ones specific to the nature of the problem.

After obtaining the participants' stories, the researcher interpreted them in order to develop their meaning. The stories or texts were interpreted by eliciting the significant statements that could be detected in them. Identifying significant statements was a strategy taken from Colaizzi (1978) and Van Manen (1990). In other words, the researcher produced the themes of the collected data by using personal reflection. For example, the significant statements of the above text are as follows:

(1) Gain confidence to express a problem to the top people

(2) Promote a communication culture in the unit

(3) Remind about late project

(4) Share work-related information actively

After determining the significant statements for meta-abilities, influencing skills and sharing attitudes, the researcher developed the generic themes for them. For example, the generic themes for the above significant statements are as follows:

(1) Highlight an issue in the formal or informal discussion

(2) Interact with others for task improvement

The above generic themes are termed as the first level theme (Clarke, 1999). This is because this research intended to further examine the validity of the first level theme by using second conversation. From the second interview session, the researcher was able to learn the themes through dialogue. At this stage, the first level themes were presented to the research participants to validate their reliability and relevancy. For example, the theme that the participants interacted with others for task improvement was presented to the participants and they were asked whether the developed theme was relevant or not.

As was practised in the first interview, the responses from the participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. The researcher then elicited the significant statements that can be detected from the second conversation text. The themes that are developed from the significant statements of the second conversation text are termed as the second level themes (Clarke, 1999). This is because they are obtained from the second interview. The summary of this process is illustrated in Table 1. Once the second level themes were identified, the researcher developed the generic themes that represent the first and second level themes. In this case, the researcher identified the common concepts that were shared by both themes. As this category represented one participant, it is termed as an individual category (ibid).

In the search for the categories, however, Frank (1997, p. 85) suggests that categories "are not an end in themselves", rather they show the willingness of the researcher to "stay tuned" to the participants and they also aid the researcher to "observe how they adapt and transform new situations, reinventing the meaning of their activities and lives."

The completion of determining individual categories is followed by the construction of major categories. This process involves the incorporation of several individual categories into the major category (Clarke, 1999). The example for the construction of s major category from the three individual categories is illustrated in Table 2.

The major category becomes the basis for the researchers to reflect and consequently validate the theoretical information that is obtained in the literature review. The way in which the above analysis activities relate to each other are illustrated in Figure 1.

4. The Analysis Trail from the Post-Training Evidence of Respondents

As noted above, there were 39 respondents, which resulted in 39 transcriptions (texts) from their one-guided conversations. A total of 461 pages of A4 transcriptions were generated, which represented approximately 100 hours of respondent-researcher contact time (including the training programme).

It is not possible to offer a trail of all the responses in detail. This is because it will lengthen this paper. For illustrative purposes, a brief story of the impacts of the programme on one person, identified as Mr. Yaakop, is presented to allow the reader to appreciate the style and approach taken. He was 40 years old and had more than 15 years of experiences in the field of engineering.

Examples of the text are given to illustrate each stage of the process. Every attempt is made to explicate the impact trail, such that the readers can appreciate how intrinsic values are challenging when reporting a linear approach.

4.1 Hearing and Writing the Story

As mentioned in section 3, the first stage of the hermeneutic analysis process of this research is hearing and writing the story. To undertake this process, each audio-recorded conversation was transcribed to gain a sense of each respondent's story. These actions encourage entry "into the hermeneutic circle properly" (Bleicher, 1980). This is further enhanced through writing the story in one's own words as it encourages a deeper engagement with the research. It also enables researchers to further appreciate their own prejudices. The written story needs to include personal reflections of the event to illuminate the experience and re-capture the conversation. The writing process offers an act of projection; that is, the gaining of a sense of the whole before the detailed analysis, which involves further reflection, assimilation and questioning (Clarke, 1999). Anticipation of the whole may well occur before it is reached but analysing the parts permits checking the prejudices of the whole. The summary of the written stories follows.

4.1.1 The Story of Mr. Yaakop

4.1.1.1 The Story prior to Engaging with Mr. Yaakop

Before a visit to the research sites for the data collection, the researcher called the appointed liaison for this research. The liaison was the company's training officer. The liaisons were the same people who assisted in organising the training programme. The researcher requested the training officers to arrange a meeting with all the respondents. At the research sites, the researcher was given a room to undertake the interview session. The researcher asked the training officer to ask the respondents to come to the interview room. This process was undertaken by using a telephone to ensure that the respondents were prepared for the meeting and could be met at a specified time and without disturbing their daily activities.

4.1.1.2 The First Guided Conversation

When Mr. Yaakop came to the room, the researcher greeted him and asked him to have a seat. The response that was received from Mr. Yaakop was very encouraging, whereby a warm and friendly welcome to the researcher or his facilitator was provided. Normally, the first 10 – 15 minutes were spent discussing the personal affairs and experiences of the study. This was to create a warm environment of mutual respect and trust.

Thereafter, the researcher explained the purpose of this research, which was to conduct interviews regarding the impact of the training programme on his daily activities. Mr. Yaakop was eager to begin narrating his story. After a hot drink was served, the researcher and Mr. Yaakop began the narration process. Before the conversations began, the researcher informed Mr. Yaakop that the conversation was being tape recorded. While the tape recorder was on, the researcher and Mr. Yaakop began to settle into a conversation. For example, the researcher said that "the aim of this interview is to obtain the information regarding the impact of the training programme on the daily operations. For your information, the interview is being tape recorded. However, the information is highly confidential and, for the research purposes only, could you please share with me the impact of the programme on the development of cognitive skills?" Combined with hand signals, body language and researcher's anticipatory or retrospective interjections of words of encouragement for the respondents to accept or reject, both parties progressed forward. For example, Mr. Yaakop said "I am not very happy with my manager." The researcher then stopped the conversation by raising his hand and asked the participant to elaborate: "What are the factors that make you feel dissatisfied with your manager?" Mr. Yaakop elaborated by giving the factors that make him dissatisfied with the manager, such as one-way communication, unfair performance evaluation and others.

Based on the responses, the interview sessions took at least four weeks to complete. In average, each interview took around two hours. However, there were instances when the researcher needed to visit the research sites again. This was to meet the respondents who could not be interviewed during the first visit. The respondents told their story with laughter, determination, patience and humour. More importantly, it was an open, direct account. For example,

Mr. Yaakop said: "My subordinates bypass me and report directly to the boss. This was very annoying." Then the researcher replied: "I face the same problem in the workplace. My research group members did not inform their problems to me. Instead, they expressed their problems to someone else and this tarnished my image. However, I calmed down and had a meeting with them to resolve the issue. So this scenario is normal in the workplace." By conducting an open, direct account interview session, both parties progressed forward. Mr. Yaakop's story is dealt with in the following subsection.

4.1.1.3 Mr. Yaakop's Story

The first time the researcher met Mr. Yaakop, he was very happy and eager to be interviewed. He was not like the other respondents that had been met before. After having a nice chat with him, the researcher began to ask about the impact of the programme on his daily activities. The first and foremost aspect that he highlighted was the confidence to talk to or communicate with others. According to him, before the programme he was very shy and timid and had no interest in interacting with others. In other words, he just did his own work. However, after the programme he gained the willingness and confidence to interact with others and started to participate in the department's activities. This was evident from the following text:

"Before the course, I was reluctant to talk to anybody in the workplace. But after the course, I had the self-confidence to talk to everybody. I admitted to myself that in whatever condition I have to talk and express my views. Without communicating with the others, the organisational task cannot be undertaken easily. In the beginning, I was quite nervous. But it is improving day by day. I shared the ideas in the training module with my staff and colleagues. The elements that were discussed in the programme assisted me with improving my communication skills. By talking to others, I began delegating tasks and persuading others to follow my way more effectively. All this really helped me in coordinating organisational tasks in my unit. The responses from my staff were so positive and everybody started to work together. The values that were shared included good perception to others, self-confidence, best practice application and others. Everybody must put an effort in improving his knowledge and skills."

In addition, Mr. Yaakop said that he experienced a profound development of the ability to consider a range of options in his own behaviour and to make better judgements of what to do. These skills allow him to use other skills and knowledge more flexibly. The ability to communicate with others enabled Mr. Yaakop to improve his decision making skills. Before the programme he was afraid of making decisions due to the risk of making mistakes. This was based on this statement: "Before the course, I did not know how to solve problems in an effective manner. After the course, my mind began to consider planning for the unit, the approach to integrate all members in the decision making process such as through discussion, face-to-face meetings, dialogues and meeting with the senior management. The meeting discussed the problems, their causes and the actions to solve them. In other words, the course gave me smooth guidance on how to tackle problematic situations effectively and efficiently." This value, according to Mr. Yaakop, resulted in the capability to organise tasks more systematic and efficient.

After the course, Mr. Yaakop was also able to control his emotions when dealing with others in the workplace. The largest problem that he faced in the workplace was that other departments always blamed his department when there was no electricity. Other departments always said that the people in the instrumentation department did not do their jobs. However, during the interview session he said "I was able to control my emotions in whatever situations were encountered in the workplace. In addition, I became more open in discussions, where we had to find the best solution to particular problems." In this case, after the programme, Mr. Yaakop was able to control his emotions by calming down and tackling the problem through the medium of discussion. He was also motivated to improve his knowledge and skills in the electrical services area after the course. He stated, "When I now get available time, I read all the mechanical drawings and try to understand them. So, when somebody informs me about any machine breakdown, I can easily determine what part of the drawing I should refer to."

The course also gave Mr. Yaakop valuable inputs on how to effectively manage people and tasks. Before the programme, he was shy when interacting with others, especially with his subordinates and manager. Therefore, his staff were doing what they only wished to do. For example, when he instructed his staff to repair part A of a machine first, they just ignored the instructions and worked on part B. This was annoying to Mr. Yaakop. However, the programme gave him the strength to manage his people effectively. This was evident from this statement: "After the course, I said to myself "How should I manage my staff, improve my relationship with superiors and obtain good planning?" All these thoughts kept circling in my mind." As was stated by Mr. Yaakop, he obtained the feeling of responsibility to manage his unit properly as a result of the programme. By interacting with his subordinates and manager, Mr Yaakop can determine the best solutions to particular problems.

4.2 Hermeneutic Interpretation – Developing Meaning

The hermeneutic interpretation intends to appreciate what has been understood and learnt through writing a story (interpretation) and trying to present the entire narrative through its parts. This involves identifying clusters of significant statements in relation to the impact of the programme on the development of the seven competency sets and, in turn, its impact on tacit knowledge externalisation. The outcome is to discover what is being meant, learnt or misunderstood, and then verified with the respondents. A questioning process is paramount before and during the guided conversations, reading the transcription of the audio recording and during the writing of respondents' stories. Questions included: "What am I learning from them?", "What do they mean, what are they trying to say?", "What are my prejudices in my learning/interpretation?", "How do their stories help me to understand the seven competency sets, tacit knowledge externalisation and OL better?", "Do the themes I have developed reflect the seven competency sets, tacit knowledge externalisation and OL?", "What is still puzzling me?"

As these questions were considered, certain phrases became obvious from the text and offered some answers. The first elements that need to be understood are the development of meta-abilities (cognitive skills, self-knowledge, emotional resilience and personal drive). Therefore, the questions that were posed included: "Could you please share with me the impact of the learning that you gained after the programme? Are you able to experience the development of cognitive skills? What is the level of self-knowledge after the programme? How about the impact of the programme on emotional resilience? What is the impact of the programme on the development of personal drive?" For every meta-ability's term, the definition and examples were provided.

The responses from the research participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. As part of the hermeneutic analysis, the researcher then elicited the significant statements that can be detected from the text. For illustrative purposes, this dissertation illustrates the significant statements that were elicited from the abovementioned text of Mr. Yaakop. The significant statements of the above text are as follows: (1) solve problems collectively and (2) receptive to any ideas. The summary of the significant statements of the respondents is illustrated in the column cognitive skills, self-knowledge, emotional resilience and personal drive of Table 3.

The themes illustrated in Table 3 show that the respondents experienced significant developments in their meta-abilities. These findings, in turn, show that the elements of understanding organisational roles, internal strengths, formal and informal discussion and rational discourse are relevant to develop meta-abilities. The question that could be raised from these findings is "What are the impacts of these changes?"

For the purpose of this research, the impact and development of meta-abilities will be linked to influencing skills, sharing attitudes and inquisitive tendencies activities. This is due to the development of meta-abilities that resulted in individuals implementing significant change within their organisations (Butcher *et al.*, 1997). Therefore, after being questioned about post-training meta-abilities, respondents were asked about their impact on the post-training influencing skills, sharing attitudes and inquisitive tendencies. Questions included: "What can you say about the level of influencing skills after the programme? How do meta-abilities assist you in improving influencing skills? Do you experience an improvement in the sharing attitudes after the programme? What is the role of meta-abilities in improving your sharing attitudes? How about the level of inquisitive tendencies after the programme? Do meta-abilities play an important role in developing your inquisitive tendencies?"

The responses from the research participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. As part of the hermeneutic analysis, the researcher then elicited the significant statements that can be detected from the text. In the case of Mr. Yaakop, the following text was obtained:

The course has changed my behaviour from timid to friendly. Before this I was not very sociable. After delegating the tasks to my subordinates, I would concentrate on my own work. But after the course I always met my subordinates to ask about work progress, problems and internal feeling due to heavy work burdens. In addition, I became confident in facing my colleagues in the meeting and expressed my views if necessary.

The significant statements of the above text are as follows: (1) gain confidence to undertake formal or informal discussion with others and (2) gain knowledge to improve skills. The summary of the significant statements of the respondents is illustrated in the column influencing skills, sharing attitudes and inquisitive tendencies of Table 4. Once these significant statements were identified, the researcher developed the generic themes that represent all the significant statements. In this case, the researcher determined the common concepts that were shared by influencing skills, sharing attitudes and inquisitive tendencies. This theme is termed as the first level theme (Clarke, 1999). This was because this research intended to further examine the validity of the first level theme by using a second conversation.

The interpreted themes (first level theme column of Table 4) are activities that enable the externalisation of tacit knowledge through the medium of ideas, actions, reactions and reflections. However, the validity of the interpreted themes is questionable, since the respondents' actions would be contrary to the researcher's behaviour or prejudices. This broadened the researcher's experience and understanding of a respondent's approach to such tacit knowledge externalisation. This dissonance challenged the researcher into trying to "find common sense between the strange and the familiar" (Weinsheimer, 1985, p. 184). If the researcher encountered meanings that are outside his known prejudice, then he needs to question these meanings and his prejudices to deepen his understanding to widen "one's own horizon so that it can integrate the other" (Bleicher, 1980, p. 112). The researcher needed to further discuss this first level with the respondents during the second conversation, in order to confirm the interpretation through his expanded horizons.

4.3 Learning through Dialogue

Returning to the respondents for the second conversation enabled further dialogue to question the first level themes (first level theme column of Table 4). These themes were still specific to each respondent and had not yet been aggregated or clustered with the other individuals. This dialogical process in hermeneutic research would usually be between interpreter and text but the theoretical justification for returning to the participant is offered by Bleicher (1980). He states that in the dialogical process, "the concepts used by the Other, be it a text or a thou, are regained by being contained within the interpreter's comprehension. In understanding the question posed by the text we have already posed questions ourselves and, therefore, open up possibilities of meaning" (Bleicher, 1980, p. 144).

Therefore, the first level themes can be viewed as questions about the seven competency sets, which the researcher believes are helping to understand the externalisation and sharing of tacit knowledge. Verifying these themes with the respondents allowed for confirmation of meaning or refutation and dialogue for a further possible meaning to be agreed. Usually the researcher returned to the respondents within a three-week period in order to enable transcriptions of the conversation, to send a copy of the transcript for the respondents (through Human Resource Division), to develop questions and construct first level themes for discussion at the second meeting.

To summarise, the aim of the second set of questions was the researcher's exploration of the first level themes in the context of the following questions: "This is what I am understanding, can I confirm this with you? This is what I have learnt about influencing skills, sharing attitudes and inquisitive tendencies from you, can I determine whether this is what you meant? Can you identify the meaning behind this theme as explaining ideas/actions/reactions/reflections expression, there may be multiple realities from the language of the respondents, is expressing ideas/actions/reactions/reflections the key process in this theme? Does something else arise?" The content and context of an extract from a second conversation follows.

4.3.1 Extract from the Second Guided Conversation with Respondents

Four weeks later, the second conversations took place. As usual, the training officers at both research sites had an important role in arranging the meeting with the respondents. The same rooms in the research sites were used to undertake the second conversation. This meeting, in comparison to previous ones, was a more intimate affair. In this case, the researcher and participants had sessions consisting of laughter, humour, a friendly manner and open-mindedness. At one point, some of the respondents made a cup of coffee, which did not occur in the first meeting. However, the researcher maintained the structured methodology that is described above to ensure that the important information is not lost.

The respondents had read the first transcript of our conversation and agreed with its accuracy, which was an important point due to the challenges posed in the transcribing. The researcher offered the respondents a synopsis of the first level themes he had developed. The respondents expressed their thoughts verbally in order to confirm or refute the themes.

The researcher checked whether the respondents had been "externalising tacit knowledge" in the workplace. This was undertaken by asking the research participants whether they gained strength from actively expressing ideas or views in the workplace. From the feedback, it was evident that the respondents experienced a significant improvement in the ability to externalise their tacit knowledge actively through the medium of ideas, actions, reactions and reflections.

For illustrative purposes, this dissertation illustrates the process that was undertaken on Mr. Yaakop. As noted in the column 'First Level Themes' of Table 4, it was found that Mr. Yaakop had been "highlighting issues in the formal or informal discussions" and had experienced "interacting with staff to develop them and the unit;" both to colleagues and staff. In this case, Mr. Yaakop said that, after the course, he always met his subordinates to ask about work progress, problems and internal feelings, due to heavy work burdens. Mr. Yaakop agreed that he was highlighting these issues in the meeting and interacting with staff for unit development. He elaborated that it was a

significant impact that he gained from the discussion in the research programme. In suggesting that he was trying to externalise the ideas, both of us were able to fuse our horizons of understanding. This led to several first level themes merging into one second level theme of "becoming confident enough to express ideas."

In every case, the researcher and respondents discussed the first level themes, which arose from the respondents' text. Then the two groups met in similar situations where the respondents could determine how the interpreted themes had been arrived at, although they had not always reflected on them in that way. For example, Mr. Yaakop's horizon of understanding was heightened in the researcher's interpretation of his actions in interacting with staff without hesitation. The tentative theme was "Interact with staff to develop them and the unit." He had stated that "I set in my mind that everything that I did was my duty and therefore it is my responsibility to accomplish it for the sake of the company. I should not become so arrogant, annoyed and sensitive to any instruction if it has been agreed in the meeting or is beneficial to my staff and company." In other words, Mr. Yaakop did not want the unit "to face havoc in the operation" and he considered the staff would not be able to "work in a conducive environment." As a result, he had "forced himself to talk to others" and had "given instructions as to what approach should be applied." By comparing the researcher's interpretation with the participant's statement, it can be learnt that both of them were able to fuse their horizons of understanding. Therefore, the researcher's interpretation was able to be verified from the second meeting.

Upon questioning of the respondents' actions, it was concluded from the researcher's point of view that, if a similar situation had occurred, the researcher would be forced to interact with others and utilise the best approach to undertake a task. These actions, in turn, enable the individual to actively externalise ideas in the workplace. For example, Mr. Yaakop's action of interacting with others in the unit suggested to the researcher that he was externalising his ideas for the sake of the company.

Whilst this action described the extract from the second guided conversation with the respondents (through one example), the next subsection will cluster the themes into the constructed individual categories.

4.4 Construction

Once the individual second level themes were established through dialogue, the next stage was to decide what themes could be clustered to construct individual categories. In the search for categories, however, Frank (1997, p. 85) suggests that "categories are not an end in themselves" and aid the willingness of the researcher to "stay tuned" to the respondents and to "observe how they adapt and transform new situations, reinventing the meaning of their activities and lives." The second conversation served to assist this process.

From the aforementioned discussion, it can be learnt that the researcher and respondents discussed the first level themes, which arose from the respondents' text. As being practised in the first interview, the responses from the participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text.   The researcher then elicited the significant statements that can be detected from the second conversation text. The summary of the significant statements of the respondents is illustrated in the column second level themes of Table 5. Once the second level themes were identified, the researcher developed the generic themes that represent the first and second level themes. In this case, the researcher identified the common concepts that were shared by both themes. This type of generic theme is termed as an individual category (Clarke, 1999). This is because the developed generic themes represent the themes for a research participant. The individual category for every research participant is illustrated in the column individual category of Table 5.

Individual categories were completed for all 39 respondents and then examined collectively to construct three main categories. This process is illustrated in Table 6. From Table 6, it is shown that there are three constructed major categories, which are as follows: (1) the confidence to express ideas; (2) the ability to determine and define actions and reactions and (3) the ability to reflect a problem.

5. Conclusion

Qualitative analysis is a challenging, time consuming and complex undertaking. It demands that the researcher make many decisions concerning copious amounts of evidence that usually begins as dialogue.

This paper has presented one approach to analysing evidence and offered illustrations for clarity of process. The paper began with a man's story relating to his experience of gaining meta-abilities and concluded with the example of a major category related to the externalisation of tacit knowledge. Although only a sample from the whole study has been presented, a decision trail has been established.

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Table 1. The illustration of respondents' themes to categories

First Level Themes	Second Level Themes	Individual Category
Highlight issue in the formal or informal discussion	Became confident to highlight issue in the meeting for unit development	Gain confidence to express ideas for unit development
Interact with others for task improvement	Willingness to face problem acutely and collectively for the sake of the company	Determine action acutely and collectively

Table 2. The illustration of the construction of major category

Major Category	Individual Category
The confidence to express ideas	Participant A: Gain confidence to express ideas in the workplace
	Participant B: Feel responsible to express ideas and concerns for unit development
	Participant C: Gain confidence to express ideas for unit development

Table 3. The development of meta-abilities

Respondent	Cognitive Skills	Self-Knowledge	Emotional Resilience	Personal Drive
Yaakop	Solve problems collectively Receptive to any ideas	Undertake tasks according to the consensus	Confident to talk to others Reduce nervous when dealing with others More patient Not jump into conclusion easily Ignore what people said Console heart and calm down No backbiting	Positive thinking Openhearted feeling Feel responsible to develop the company

Table 4. The development of influencing skills, sharing attitudes and inquisitive tendencies

Respondent	Influencing Skills	Sharing Attitudes	Inquisitive Tendencies	First Level Themes
Yaakop	Reduce timidity or shyness to communicate with others Develop others actively Persuade others Delegate and coordinate tasks smoothly Give advices to staff to improve performance individually Motivate staff to reduce talking silly things Develop trust value amongst staff	Express views in the workplace actively Create cohesion in the unit Talk to others nicely Gain confidence to express workers' issues Share work-related information actively	Gain feedback to improve knowledge Solve problems through the medium of discussion Gain inputs from other units for improving task Do not hesitate to refer to the boss	Interact with staff to develop them and unit Interact with others for task improvement Express views in the workplace actively Gain motivation for learning Interact with others for task improvement Act according to systematic and collective approach Delegate tasks in an effective manner Obtain operational inputs before making decision Refer unsolved problem to the expert Evaluate causal relationship before action Visualise the risk of making mistakes

Table 5. Respondent's themes to categories

Respondent	First Level Themes	Second Level Themes	Individual Category
Yaakop	Interact with staff to develop them and unit Interact with others for task improvement Express views in the workplace actively Gain motivation for learning	Gain confidence to externalise and internalise idea in the workplace actively	Gain confidence to express and internalise idea in the workplace actively
	Interact with others for task improvement Act according to systematic and collective approach	Act according to systematic and collective approach	Determine action collectively and systematically
	Delegate tasks in an effective manner Obtain operational inputs before making decision Refer unsolved problem to the expert Evaluate causal relationship before action Visualise the risk of making mistakes	Evaluate task according to its impact on and risk to the company in a collective manner	Evaluate task according to its impact on and risk to the company in a collective manner

Table 6. The construction of major categories

Major Category	Individual Category
The confidence to express ideas	Abdul Halim: Gain confidence to express ideas for unit development in the meeting
	Abdul Rahim: Gain confidence to express and internalise ideas through collective discussion
	Amran: Gain confidence to express and internalise ideas through collective discussion
	Anuar: Gain confidence to express ideas in the workplace
	Azahari: Feel responsible to express ideas and concerns for unit development
	Azize: Gain confidence to express ideas for unit development
	Azmi: Gain confidence to influence others through sharing idea in the meeting
	Fakhrurazi: Gain confidence to express ideas for unit development
	Hazis: Gain confidence to express ideas for unit development
	Herlina: Gain confidence to express ideas for unit development collectively and rationally
	Ishak: Feel responsible to express ideas for unit development
	Kamal: Gain confidence to express and internalise ideas or concerns for unit development
	Mazalan: Gain confidence to express ideas for unit development
	Md Isa: Gain confidence to express ideas and concerns for unit development
	Mohamed Ridzuan: Experience marginal impact
	Mohd Adi: Gain confidence to express ideas for unit development
	Mohd Azmi: Gain confidence to express ideas and concerns in the meeting for unit development

International Journal of Business and Management

	Mohd Rahmat: Gain confidence to express ideas for argument in the meeting
	Mohd Syafawi: Establish two ways communication to express or gain ideas for unit development
	Mohd Syukri: Gain confidence to express ideas for unit development
	Mohd Wahyudi: Gain confidence to express ideas and concerns rationally for convincing others
	Mohd Yazi: Gain confidence to express ideas for unit development
	Mohd Zulmahri: Gain confidence to express ideas and concerns rationally for convincing others
	Norazlan: Gain confidence to express ideas or issues to the right people for unit development
	Nordin: Gain confidence to express ideas actively for unit development
	Rosli: Express ideas after understanding causal relationship for unit development
	Ruzuan: Gain confidence to express ideas or highlight issues for unit development
	Samsulisam: Gain confidence to express and internalise ideas through collective discussion for unit development
	Shaarin: Gain confidence to express ideas or convince others in the meeting for unit development
	Susi: Gain confidence to express ideas or convince others in the meeting for unit development
	Tg Mahathir: Gain confidence to express ideas or convince others in the meeting for unit development
	Yaakop: Gain confidence to express and internalise idea in the workplace actively
	Yumas: Gain confidence to externalise ideas through discussion for unit development
	Zaini: Gain confidence to express ideas for unit development
	Zainizam: Gain confidence to express ideas or convince others in the meeting for unit development
	Zainol: Gain confidence to express ideas and concerns actively for unit development
	Zakaria: Gain confidence to express and internalise ideas or concerns for unit development
	Zulkipli: Gain confidence to express ideas and issues in the meeting actively for unit development
	Zuriana: Gain confidence to express ideas in the workplace for unit development
The ability to determine and define actions and reactions	Abdul Halim: Determine action according to the consensus and company's norms
	Abdul Rahim: Act according to the consensus and accepted procedures
	Amran: Determine action collectively
	Anuar: Produce good results from the agreed action so that it could be emulated
	Azahari: Determine action collectively
	Azize: Determine action acutely and collectively
	Azmi: Determine action according to mutual understanding
	Fakhrurazi: Determine action collectively
	Hazis: Determine action collectively
	Herlina: Determine action collectively
	Ishak: Produce good results from the agreed solution so that it could be emulated
	Kamal: Produce good results from the collective decision so that it could be emulated
	Mazalan: Determine the action or reaction acutely and collectively

	Md Isa: Determine action collectively
	Mohamed Ridzuan: Interact with others for task improvement
	Mohd Adi: Determine action in a collective manner
	Mohd Azmi: Determine action collectively
	Mohd Rahmat: Determine action or reaction acutely and collectively
	Mohd Syafawi: Became adept at determining action collectively
	Mohd Syukri: Determine action collectively
	Mohd Wahyudi: Determine action in a collective manner
	Mohd Yazi: Determine action collectively
	Mohd Zulmahri: Apply task savvy to determine actions
	Norazlan: Apply task savvy to produce good results from the collective decision so that it could be emulated
	Nordin: Determine action collectively
	Rosli: Determine action collectively and prudently
	Ruzuan: Determine actions collectively
	Samsulisam: Determine action or reaction acutely and collectively
	Shaarin: Determine action according to the accepted procedures and consensus
	Susi: Produce good results from the collective decision so that it could be emulated
	Tg Mahathir: Determine action collectively and systematically
	Yaakop: Determine action collectively and systematically
	Yumas: Determine the accepted procedures in task implementation through systematic and collective approach
	Zaini: Determine action collectively
	Zainizam: Determine action collectively and systematically
	Zainol: Determine action collectively
	Zakaria: Determine action collectively and systematically
	Zulkipli: Determine action collectively
	Zuriana: Know what should be done at every time
The ability to reflect problem	Abdul Halim: Obtain clarification before making decision
	Abdul Rahim: Interpret what is happening and determine action from interpersonal perspective
	Amran: Obtain clarification before making decision
	Anuar: Evaluate the solution for any problem collectively
	Azahari: Feel concern with obtaining relevant inputs for making right decision
	Azize: Interpret what is happening in interpersonal situations
	Azmi: Obtain relevant inputs after interpreting what is happening in interpersonal situations
	Fakhrurazi: Understand problem from a variety of sources before determining action
	Hazis: Feel concern with obtaining relevant inputs for making right decision
	Herlina: Interpret what is happening and determine action from human and non-human perspectives
	Ishak: Refer unsolved problem to the colleagues
	Kamal: Evaluate risks and interpret what is happening in interpersonal situations
	Mazalan: Obtain operational inputs before making decision

Md Isa: Evaluate problem and validate solution based on the interpersonal perspectives
Mohamed Ridzuan: Obtain operational inputs before making decision
Mohd Adi: Read problems and obtain necessary inputs for reliable solutions and task delegation
Mohd Azmi: Interpret what is happening and determine action from interpersonal perspective
Mohd Rahmat: Obtain clarification from others
Mohd Syafawi: Read problems and obtain necessary inputs for reliable action
Mohd Syukri: Obtain and evaluate inputs prudently before determining reliable solution or task delegation
Mohd Wahyudi: Obtain relevant inputs for reliable solutions acutely and collectively
Mohd Yazi: Obtain and evaluate inputs prudently before determining reliable solutions
Mohd Zulmahri: Obtain clarification from others
Norazlan: Obtain relevant inputs for interpreting, comparing and determining actions in interpersonal situations
Nordin: Obtain necessary inputs in a collective manner for evaluating problem
Rosli: Evaluate inputs and causal relationship before determining reliable solutions or task delegation
Ruzuan: Delegate tasks in an effective manner
Samsulisam: Evaluate risks and interpret what is happening in interpersonal situations
Shaarin: Obtain clarification to evade risk of low quality job
Susi: Obtain clarification before making decision
Tg Mahathir: Interpret what is happening and determine action from interpersonal and task perspectives
Yaakop: Evaluate task according to its impact on and risk to the company in a collective manner
Yumas: Evaluate problem through collective discussion
Zaini: Undertake comparison analysis before action
Zainizam: Evaluate task issues from the rational and interpersonal perspectives
Zainol: Evaluate task issues from the rational and interpersonal perspectives
Zakaria: Interpret what is happening and determine action from interpersonal and task perspectives
Zulkipli: Obtain clarification before determining action
Zuriana: Obtain clarification before determining action

Action	Stages
Story presentation	A. Hearing and Writing the Story
Identify significant statements	B. Hermeneutic interpretation
First level themes	C. Learning through dialogue
Second level themes	D. Construction
Individual categories	
Major group categories	
Group conceptual model	E. Conceptual model of phenomenon

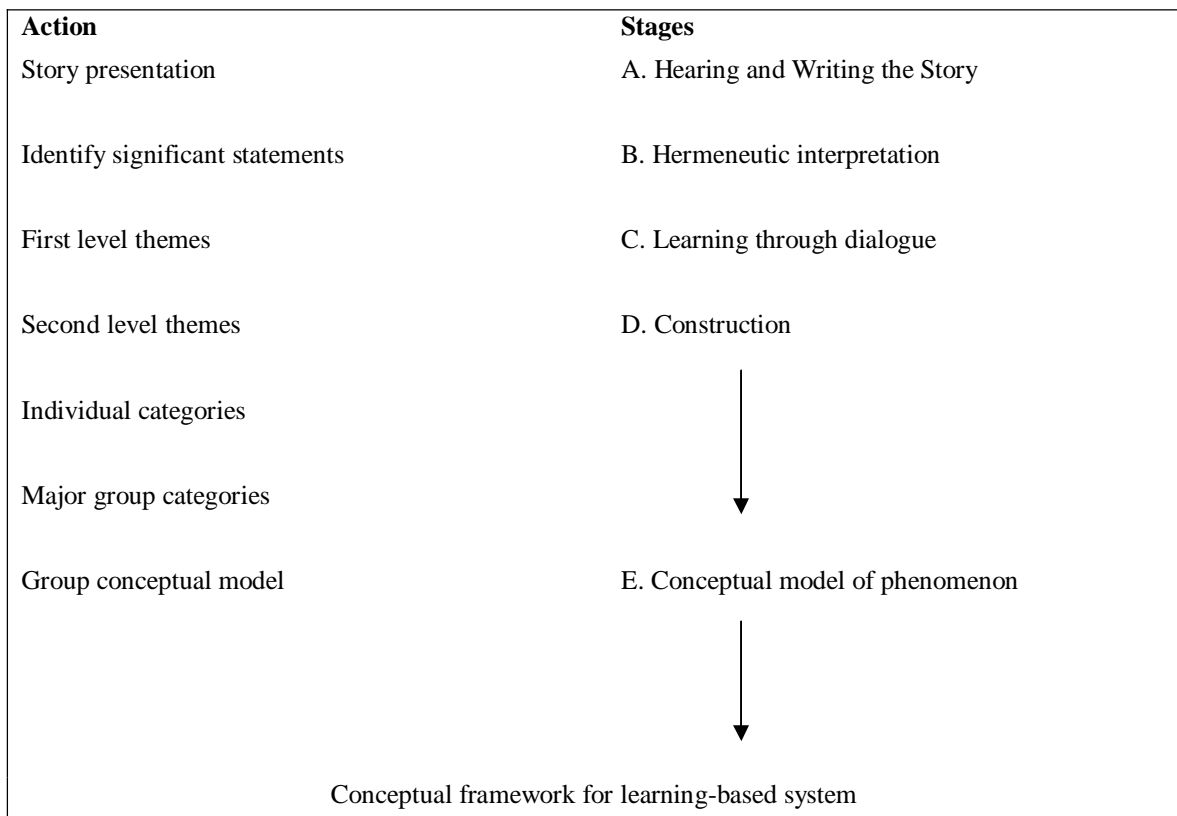Conceptual framework for learning-based system

Figure 1. Diagrammatic representation of analysis process

Source: Clarke (1999)