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Defining Professional Communication Skills for Malaysian Graduates: Evidence analysis using ATLAS.ti

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ABSTRACT:

The complexity of the data analysis process is increased due to the volume of evidence collected as part of a qualitative data research study. The role of computer aided qualitative data analysis software (CAQDAS) in supporting this data analysis process is examined in this paper. While doing so, Lincoln and Guba (1985) posit that trustworthiness of a qualitative research study is important to evaluate its worth. The use of data analysis software like ATLAS.ti raises the issue of trustworthiness–specifically: credibility, transferability, dependability, and confirmability–in defining the Professional Communication Skills (PCS) for Malaysian graduates. In this study, PCS for the workplace is defined by the Malaysian stakeholders: employers of the private sector, the Malaysian government, and academia. ATLAS.ti was utilized to analyze and triangulate data from in-depth interview recordings, annual reports, Human Resource documents, government policies as well as documents from academia. By using ATLAS.ti, meticulous, yet rapid and concise data analysis can be carried out without risking trustworthiness. It is believed that ATLAS.ti has helped to develop the PCS framework in order to help instructors and policy makers of Malaysian HEIs in making a sound judgment in teaching PCS in classrooms. Since ATLAS.ti covers the issue of transferability, a similar study can be replicated from time to time to ensure that the PCS framework is updated, based on the needs of the stakeholders, which then help to develop the graduates' potential to be more marketable employees. It is ascertained that using CAQDAS, especially features in ATLAS.ti, played a vital role in providing a series of trustworthy accounts, focusing on distilling the definition of PCS for Malaysian graduates as required by stakeholders.

1.0 INTRODUCTION

In a qualitative data analysis, researcher seeks to produce a convincing explanation of the phenomena under investigation. The iterative data analysis process requires reflection and interpretation on the researcher's part on several level to determine its trustworthiness. Interpretation includes researcher's understanding, judgement, intuition and ability to highlight issues brought forward by the data in the study, plays a vital role in the process. However, for researchers who are new to the interpretive paradigm, the complexity of the data analysis are often poorly understood and executed. Therefore, this paper will examine the use of CAQDAS, in particular ATLAS.ti (version 7.5.4) in facilitating data analysis process in a trustworthy manner. This study aims to produce an informed, impartial and highly valid Professional Communication Skills (PCS) framework in English to be used, not

just as a reference for the English for Occupational Purposes practitioners, but also as a checklist for the future Malaysian employers to assess their entry-level employees. Having a well-defined PCS Framework will dismiss the discrepancy between the industry needs and the manner in which university students are being prepared for the workforce. Furthermore, the interpretivist paradigm offer the opportunity to develop an in-depth understanding of the PCS required by Malaysian stakeholders, as it facilitated the capture of contextual depth and detailed, nuanced descriptions. In doing so, it is important to have a clearly defined PCS Framework validated by the stakeholders. Having the stakeholders to be thoroughly involved in creating meaning and amending the components within the framework would ensure that the framework is well endorsed by the future employees. The purpose of this validation stage is to ensure that the researcher has taken into account the various needs and the requirements of the Malaysian stakeholders on the essential English communication skills for workplace accurately without enclosing own preconception or wrong interpretation of analysis. Additionally, in making sure that the framework is not only valid but also achievable, a few experts in the field of teaching English in higher education would look thoroughly through the framework. The study aims to create a real-world and hands-on framework which can be practically applied in EOP lessons in Malaysian higher education institutions (HEIs).

This study situates itself in the interpretivist tradition which argues that 'all social reality is constructed, or created, by social actors' (Esterberg, 2002, p. 15). Informed by this theoretical orientation it is assumed that the researcher must gain direct access to the researched participants and their specific contexts to understand how they construct and interpret the meanings of their lived experiences. This is achieved through 'social interaction' (O'Donoghue, 2007, p. 9) between the researcher and the researched participants. Consistent with the interpretive stance of this study, the qualitative approach to inquiry was chosen to facilitate in-depth and detailed understanding (Patton, 2002) of the Malaysian stakeholders' needs for the Professional Communication Skills (PCS) in English, specifically addressing at their requirements for entry-level employee, particularly the Malaysian graduates. Van Maanen (1983: 9) addresses the qualitative methods as: '*an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world*'.CAQDAS packages have evolved and grown in functionality to support the qualitative research process the past 20 years (Carcary, 2011), hence, ATLAS.ti is believed to have an enormous potential in bringing more rigor and *trustworthiness* to qualitative inquiry of this study. Following a discussion of the interpretivist paradigm and the qualitative research methods, this paper explores the value of CAQDAS in supporting analysis of the evidence gathered to define PCS for Malaysian graduates.

2.0 THE INTERPRETIVIST PARADIGM

This study sits within the interpretivist tradition, which argues that 'all social reality is constructed, or created, by social actors' (Esterberg, 2002). It is based on three central premises: *'(1) humans act toward things based on the meanings those things have for them; (2) the meanings of things arise out of social interaction; and (3) meanings are created (and changed) through a process of interpretation*' (Esterberg, 2002, p. 15). Interpretivism recognizes the difficulty in making research value-free and objective. In terms of this view,

each situation is seen as different and unique, and the researcher needs to delve below the surface of its details to understand the reality and the meaning behind the issues. The meaning derived by the researcher is contributed by the people involved and the broad interrelationships in the situation being research (Carcary, 2011, Sauders et al, 2007). Walsham (2006: 325) expressed that '*the researcher's best tool for analysis is his or her own mind, supplemented by the minds of others when work and ideas are exposed to them.'* Informed by this theoretical orientation, it is clear that the researcher must gain direct access to the researched participants and their specific contexts to understand how they construct and interpret the meanings of their experiences. This is achieved through 'social interaction' (O'Donoghue, 2007, p. 9) between the researcher and the researched participants. Consistent with the interpretive stance of this study, the qualitative approach to inquiry was chosen to facilitate an in-depth and detailed understanding (Patton, 2002) of Malaysian stakeholders' needs for PCS in English, specifically addressing their requirements of entry-level employees, particularly Malaysian graduates.

Qualitative research is best suited for this study of the phenomenon of English language workplace literacy practices and PCS of graduates about which little information is provided in the literature (Creswell, 2008). To surmount this deficit, the need for a detailed understanding of the issue from the perspectives of the participants, particularly in the Malaysian context, warrants the use of qualitative inquiry due to its fundamentally interpretive nature (Creswell, 2009). Denzin and Lincoln (2008) write:

> *Qualitative research involves the studied use and collection of a variety of empirical material that describe routine and problematic moments and meanings in individuals' lives. Accordingly, qualitative researchers deploy a wide range of interconnected interpretive practices, hoping always to get a better understanding of the subject matter at hand.* (pp. 4-5)

Van Maanen (1983: 9) defines qualitative methods as:

> *An array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world.*

Within the qualitative tradition, this study acknowledges the significant influence of natural settings on participants' behaviour and experiences (Bogdan and Biklen, 2007). This study is 'a situated activity' (Denzin and Lincoln, 2008: p. 4) that seeks to unfold the reality and knowledge that 'take place in real-world settings and [where] the researcher does not attempt to manipulate the phenomenon of interest' (Patton, 2002, p. 39). This perspective presumes that the participants construct diverse and multiple meanings of their own practices and experiences within their social contexts (Denzin and Lincoln, 2008; Creswell, 2009). Hence, to capture these practices and experiences accurately and 'to make sense of, or interpret [their] meanings' (Creswell, 2009, p. 8), the researcher visits the researched participants' contexts to gain first-hand insights from the "participants' perspectives" (Bogdan and Biklen, 2007, p. 7) or "insiders' perspectives" (Merriam, 2009, p. 14) and gather information and resources personally (Crotty, 1998). This enables the researcher to explore the researched participants' feelings, beliefs and values pertinent to the issues under study (Schwandt, 2000). Aligned with its central aim, this study primarily adopts a qualitative approach to inquiry couched within the interpretive paradigm for data collection and data analysis. The direct

voices of all the stakeholders involved, using the same stage, will be heard. Therefore, to generate understandings of stakeholders' requirements for PCS in English the qualitative case study approach is deemed the most appropriate method given its descriptive, dynamic, and authentic nature. Soft systems methodology will be applied in accomplishing the research objectives.

3.0 QUALITATIVE RESEARCH METHODS

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Aligned with its central aim, this study primarily adopts a qualitative approach to inquiry couched within the interpretive paradigm for data collection and data analysis. In conducting qualitative research, it requires considerable reflection on the researcher's part, and the ability to make a critical assessment of informants' comments. It involves debating the reasons for adopting a course of action, challenging one's own assumptions and recognizing how decisions shape the research study. Mason (2002) provided the following guidelines for the qualitative researcher:

- The research should be conducted rigorously and systematically;

- It should be strategic, flexible and contextual;
- The researcher is accountable for its quality and claims;
- The researcher should engage in critical scrutiny or active reflexivity;
- The researcher should produce convincing arguments.

4.0 THE RESEARCH AND ITS METHODOLOGY

This study sought to better understand the PCS required by the Malaysian stakeholders to improve the current English for Occupational Purposes (EOP) Course in Malaysian higher education institutions. In this study, the direct voices of all stakeholders,which covered a total number of 26 respondents in the following subgroups: 1) human resource managers from multi-national key industries (10 respondents); 2) government executives who recruit entry-level employees for public sectors (6 respondents) and; 3) EOP instructors and HE liaison officers for industrial training from four HEIs (10 respondents) will be heard in order to generate understandings of their requirements of PCS in English language upon graduation.
In defining the PCS in English required by graduates to meet stakeholders' expectations, 26 interview recordings, 4 annual reports, 3 highly confidential human resource documents and Malaysian government policies were reviewed identify the PCS for Malaysian graduates.

Two sampling designs were implemented in this research for different groups of stakeholders. They were judgment and convenience sampling. First, judgment sampling also known as purposeful sampling (Ross, et.al., 2005) was implemented in choosing the participants from companies and Malaysian government ministries, where the researcher actively selected the most productive sample to answer the research questions. Choosing the right participant was based on the researcher's practical knowledge of the research area, the available literature and evidence from the study itself. From the current literature, it was judged that the best information on PCS needed by the stakeholders would be from the human resource managers and also the industrial training liaison officers in academia who gather lots of information right from the source. This was a more intellectual strategy than the simple demographic stratification of epidemiological studies, though age, gender and social class might be important variables (Marshall, 1996). The process of judgment is based on the assumption that the researcher is able to select elements which represent a 'typical sample' from the appropriate target population. Secondly, the convenience sampling technique was chosen because it involved the selection of the most accessible subjects. It was the least costly to the researcher in terms of time, effort and money. Availability was also an issue that had to be considered since many of these people had tight schedules.
Stakeholder 1 – Malaysian Companies: In this research, the first desired target population was the employers from Malaysian companies. Since the number of such employers is vast, the defined employer population will come from the services, manufacturing and agriculture sectors the three key sectors in Malaysia. The components of these three key sectors were reported to be the most important to the country's development by the Malaysian Industrial Development Authority (MIDA).
Stakeholder 2 – the Government of Malaysia: To understand the hopes and desires of the Malaysian government on the issue of PCS, two main ministries were chosen as participants in this research. The Ministry of Higher Education and the Ministry of Human Resources were the two selected to represent the population since these ministries are the link between

graduates, academia as well as companies. In addition, the Public Services Commission of Malaysia was also involved in this research since it acts as the human resource center for all public sector agencies.

Stakeholder 3 – Academia: The population representing Malaysian Academia were lecturers who implement the communication skills syllabi from three universities (2 national and one international). Four out of ten of the lecturers chosen as respondents held the position of industrial training liaison for their faculties.

5.0 ENSURING TRUSTWORTHINESS USING ATLAS.TI

The author agrees with Morse *et al*.'s (2002) arguments that qualitative researchers should reclaim responsibility for reliability and validity by implementing verification strategies integral and self-correcting during data collection process. They emphasized the execution of rigor or thoroughness within each qualitative design, and moved the responsibility for incorporating and maintaining reliability and validity from external reviewers' judgments to the investigators themselves. Tobin and Begley (2004, p.390) write: 'Rigour is the means by which we demonstrate integrity and competence, a way of demonstrating the legitimacy of the research process. Without rigour, there is a danger that research may become fictional journalism, worthless as contributing to knowledge.'

Guba and Lincoln substituted reliability and validity with the parallel concept of "trustworthiness," containing four aspects: Credibility, transferability, dependability, and confirmability. Within these were specific methodological strategies for demonstrating qualitative rigor, such as the audit trail, member checks when coding, categorizing, or confirming results with participants, peer debriefing, negative case analysis, structural corroboration, and referential material adequacy (Guba & Lincoln, 1981; Lincoln & Guba, 1989; Guba & Lincoln, 1982).

Lincoln and Guba posit that trustworthiness of a research study is important to evaluating its worth. Trustworthiness involves establishing:

Credibility	Confidence in the 'truth' of the findings
Transferability	Showing that the findings have applicability in other contexts
Dependability	Showing that the findings are consistent and could be repeated
Confirmability	A degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest.

Table 1: Trustworthiness' criteria (Lincoln and Guba, 1985)

Inthis research ATLAS.ti(version 7.5.4) was used to support the data analysis process. In the discussion of trustworthiness below, some applications of ATLAS.ti will be explained to show how the software helped in producing high quality results.

5.1 TECHNIQUES FOR ESTABLISHING CREDIBILITY

Triangulation

Triangulation across sources required the researcher to develop evidence for an interpretation from interaction with several informants, particularly several types of informants as the purposive sampling plan unfolds (Creswell, & Miller, 2010). Triangulation of sources examined the consistency of different data sources from within the same method. The data was gathered from human resource managers from multi-national key industries (10 respondents); 2) government executives who recruit entry-level employees for public sectors (4 respondents) and; 3) English for Occupational Purposes instructors and Higher Educationliaison officers for industrial training (10 respondents). As a validity procedure, triangulation was a step taken by the researcher employing a systematic process of sorting through the data to find common themes or categories by eliminating overlapping areas. ATLAS.ti was used to provide corroborating evidence collected through interviews and documents to locate major and minor themes. The narrative account was deemed valid because the researcher went through this process and relied on multiple forms of evidence rather than a single incident or data point in the study. In addition, respondents from different fields of expertise and backgrounds were interviewed in order to validate the PCS framework. A method that was used in this study to increase the credibility and dependability of the study was a code-recode procedure. This procedure was done during the data analysis phase of the study whereby Krefting (1991) suggested that after coding a segment of data (for instance Code A), a minimum of two weeks intervalshould be given to the data before recoding it over again (Code B), as if coding it for the first time. It is important to highlight that this study employs deductive coding technique whereby codes were derived from the Communication Competence Model (CCM) by Morreale, Spitzberg and Barge (2007). Results from Code A and Code B were compared and discussed with another. This technique was helpful in auditing own thoughts and judgement during data analysis. The incongruent codes were highlighted and an in depth discussion with an impartial who have experienced with qualitative methods were carried to neglect bias and misjudgement on the researcher's side. Looking at Figure 1 below, it described the agreed codes for the component of 'knowledge of cognition' after going through code and recode procedure. All five components of knowledge of cognition namely content knowledge, cultural competence, linguistic competence, tasking skills and critical skills derived are part of CCM (Morreale, Spitzberg and Barge, 2007). The incongruent codes were discussed with an impartial researcher (for instance 'courtesy' and 'being civil' within cultural competence component) and more pertinent and apt code were generated (in this case, 'politeness'). As shown in Figure 2, the subcomponents below are the agreed codes after undergoing the code-recode process as well the discussion with another impartial researcher.

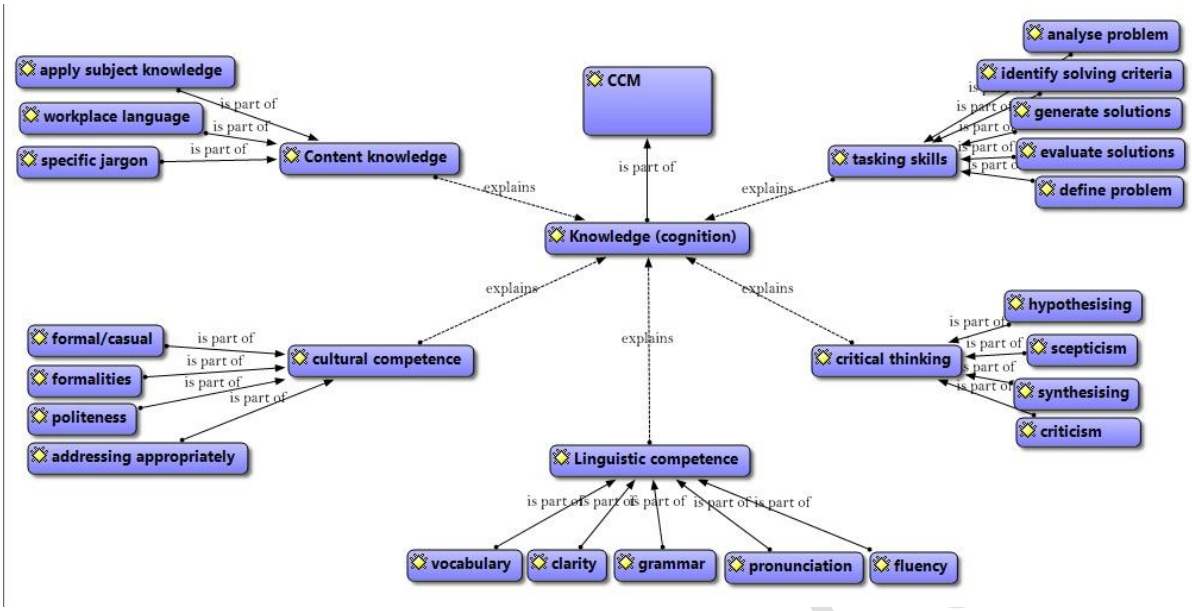

Figure 1: Agreed codes after undergoing code-recode procedure.

In ATLAS.ti. data was stored in written text formats and digital voice recordings. Coding and the triangulation process through the use of ATLAS.ti can be carried out much more systematically and rigorously in comparison to manual coding since interview recordings, annual reports, Human Resource documents, government policies, and documents from academia were compiled together in a single project file or Hermeneutic Unit (HU). According to Lewis (2004), coding is more easily done in ATLAS.ti as compared to other CAQDAS since ATLAS.ti allows all available data to be added in one single HU project file. All data collected from the interview sessions, recordings and transcriptions as well as the annual reports from the stakeholders are defined as "primary documents" (PDs). This action is essential in order to gather and examine as much as possible from all information and learn as much as possible about the problems raised from various respondents, all in one place.

All pieces of data in PDs need to be ordered and managed. This is where coding comes in as a useful strategy. Through coding, segments of the data can be linked together and form thematic groups. In this step, excerpts in interview transcriptions and annual reports (in the form of PDF files) which speak about graduates' workplace literacy problems would be highlighted and coded. With the help of the codes in this coding process, we can see the thematic contours of each group of quotations (Konopásek, 2008).Additionally, codes can be selected, commented, ordered, filtered, moved, renamed, split, and linked to each other and they can be viewed in lists, hierarchies as well as network views (Konopásek, 2008).

By using the coding techniques, the problematical issues highlighted by the stakeholders were arranged and structured, thus proving that the lacking of professional communication skills in English by the current graduates is noticed as a major concern by all stakeholders. Additionally, the respondents were grouped into three distinctive families of stakeholders which are companies, government agencies and academia.

CODES-PRIMARY-DOCUMENTS-TABLE
Report created by Super - 01/02/2015 02:13:37 PM
HU: [C:\Users\Azza Jauhar\Documents\PhD\AZZAPhD.hpr7]

Code-Filter: All [82]
PD-Filter: All [65]
Quotation-Filter: All [634]

	ACADEMIA	COMPANIES	GOVERNMENT	TOTALS:
COGK CONTENT KNOWLEDGE	17	18	14	49
COGK CRITICAL THINKING	5	18	21	44
COGK LINGUISTIC COMPETENCE	22	23	29	74
COGK TASKING SKILL	9	16	14	39
COMM INTERPERSONAL COMM	11	12	23	46
COMM LISTENING SKILL	22	9	12	43
COMM NON-VERBAL	18	10	11	39
COMM PRESENTATION	31	25	24	80
COMM SPEAKING SKILL	82	38	33	153
COMM WRITING	21	50	11	82
TOTALS:	238	219	192	649

Table 2: Need of Professional Development by Stakeholders.

Peer debriefing

A peer review or debriefing is the review of the data and research process by someone who is familiar with the research or the phenomenon being explored. Peer debriefers provide written feedback to researchers or simply serve as a sounding board for ideas. In this study, the set of interview questions were verified with the supervisor a few times in ensuring that the questions would answer the needs of the research. Peer debriefing helped to restructure the overemphasized and under-emphasized points as well to clarify any vague descriptions within the interview protocol. By seeking the assistance of peer debriefers, researchers add credibility to a study (Creswell & Miller, 2010).

Additionally, experts from the fields of TESOL, policy, and assessment in HE were also included for validation process. Meetings with these experts were held after completing data analysis and member-checking process with respondents. Those meetings were held in order to obtain feedback. In amending oversight points, reflecting views on the information given from experts and subsequently, investigating other alternatives in the research process. In this study, three experts from the field agreed to facilitate the validation process.

During this stage, the Memo feature of ATLAS.ti was used frequently in order to reflect and interpret the relationships between codes and the real world. It is also used and created to clarify emerging concepts. Memos included not just notes on emerging concepts, but also memos on the researcher's reflections and experiences, as well as observations made concerning the context and constraints in which research participants had provided with the information. From the deductive and auto-coding processes done earlier with all the PDs, the thoughts and interpretations of experts in the field of study were included, and so were the similarities as well as the differences of own findings.

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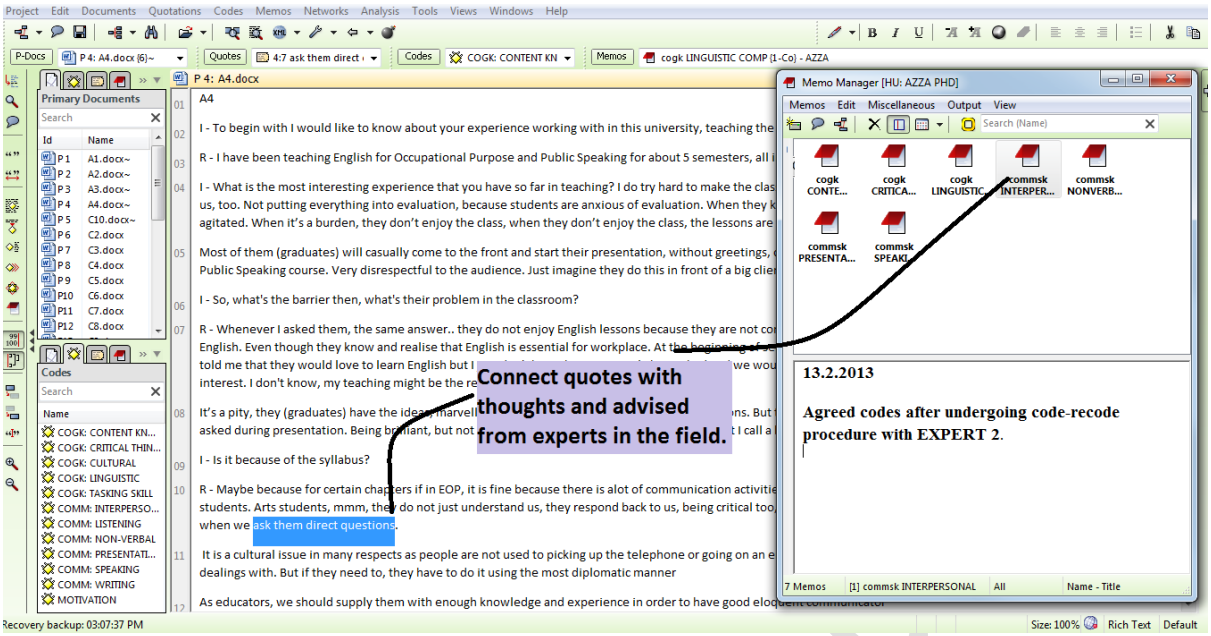

Figure2:Memo used in peer debriefing process.

Member-checking

Member-checking is considered an important process in establishing credibility when data, interpretations, and conclusions are tested with the participants from whom the data were originally obtained. Lincoln and Guba (1985) posit that this is the most crucial technique for establishing credibility since, to them, credibility is to return data to the subjects for verification (Lincoln and Guba, 1985). This process provides an opportunity to give participants opportunity to correct errors and challenge what are perceived as wrong interpretations and also provide the opportunity to volunteer additional information which may be stimulated by the playing back process (Wallendorf & Belk, 1989). In addition, member checking allows respondents to assess adequacy of data and findings as well as to confirm and summarize preliminary findings. Nonetheless, it is worth to mention that amongst the drawbacks of member checking are that the respondents may deny whatever they have uttered during the interview sessions and may disagree with researcher's interpretations. This may lead to confusion rather that confirmation (Morse, 1994).Nonetheless, this does not mean that member checks are of little use for qualitative research; rather, Koelsch(2013) suggested that member check can be a transformational process for both the researcher and participants if it can be a catalyst to improve the situation, especially of the participants'. It is essential for the researcher to highlight the importance of the research project to the participants, to empower them to act by engaging themselves with the study (Koelsch, 2013). True, these member checks are not without fault. However, they serve to decrease the incidences of incorrect data and the incorrect interpretation of data, with the overall goal of providing findings that are authentic and original (Creswell, 2007; Moustakas, 1994).

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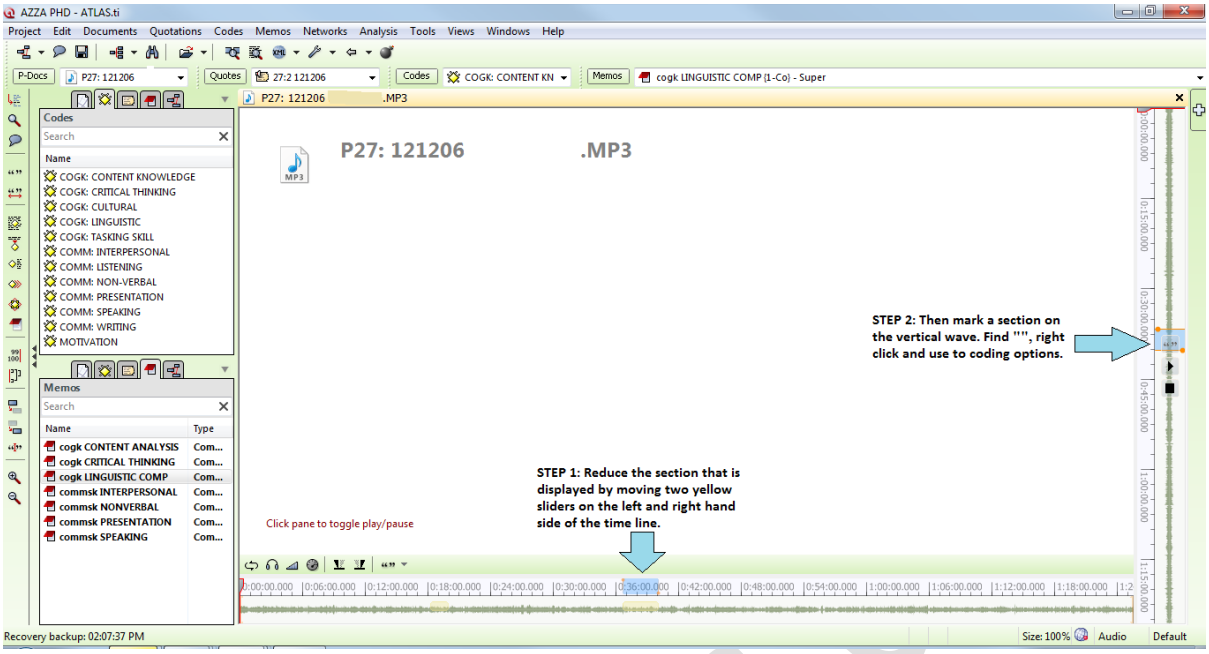

Figure3: Memoing and coding used during member-checking process.

All respondents who had been interviewed were then presented with the first draft of the PCS framework (Refer to Appendix A). Only one respondent was not able to meet face to face, so a Skype meeting was arranged. Respondents gave feedback on the framework–the words or phrases used as well as the display of it. The feedback was not only essential to improve the framework but more importantly is for them to validate their own thoughts and ideas which were expanded in the PCS framework.ATLAS.ti was particularly useful in this stage since the researcher has saved the actual voice recording from the interview sessions in the HU. At times when the respondents were unsure about what was spoken, the recordings could be replayed to them to refresh their memory on the debated issue. Here, they would agree or disagree on the researcher's interpretations of findings, which is the main objective of member-checking process. This shows the versatility of ATLAS.ti as a program for data analysis. In this study, three interview recordings were chosen to be directly coded from the audio files because of time constraint. The member check process needed to be done within a short time period.

5.2 TECHNIQUES FOR ESTABLISHING TRANSFERABILITY

Thick description

Creswell & Miller (2010) evaluate another procedure for establishing credibility in a study by describing the setting, the participants, and the themes of a qualitative study in rich detail. According to Denzin (1989), "*thick descriptions are deep, dense, detailed accounts. . . . Thin descriptions, by contrast, lack detail, and simply report facts*" (p. 83). The process of writing using thick description is to provide as much detail as possible. It may involve describing a small slice of interaction, experience, or action; locating individuals in specific situations; bringing a relationship or an interaction alive between two or more persons; or providing a detailed rendering of how people feel (Denzin, 1989). This is when the combination of 'Codes' and 'Memo' of ATLAS.ti play its role. Similar themes were coded and researcher's interpretation was included using Memo.

Friese (2012;2009) recommended that memos should be used to support the researcher in the analytical work, whereby such use creates spaces for reflection, analysis, integration and interpretation. Another advantage of using memos in ATLAS.ti is that they can be directly linked to the quotations and codes, hence the thoughts were 'captured' within the exact context.

Due to the vast amount of interpretations involved in this qualitative study, a 'reflexivity' process was involved in capturing the meaning of data, and more importantly, in interpreting the real meaning of the data. Guillemin and Gilliam (2004 in Barber & Walczak, 2009) state:

> *'Reflexivity involves critical reflection of how the researcher constructs knowledge from the research process—what sorts of factors influence the researcher's construction of knowledge and how these influences are revealed in the planning, conduct, and writing up of the research. A reflexive researcher is one who is aware of all these potential influences and is able to step back and take a critical look at his or her own role in the research process. The goal of being reflexive in this sense has to do with improving the quality and validity of the research and recognizing the limitations of the knowledge that is produced, thus leading to more rigorous research'.*

5.3 TECHNIQUES FOR ESTABLISHING DEPENDABILITY

Inquiry audit

An audit trail is established by researchers documenting the inquiry process through journaling and memoing, keeping a research log of all activities, developing a data collection chronology, and recording data analysis procedures clearly (Lewis, 2009). Schwandt & Halpern (1988) explain that the external auditor examines this documentation with the following questions in mind:

- Are the findings grounded in the data?
- Are inferences logical?
- Is the category structure appropriate?
- Can inquiry decisions and methodological shifts be justified?
- What is the degree of researcher bias?
- What strategies were used for increasing credibility?

Through this process of documenting a study and a review of the documentation by an external auditor, the narrative account becomes credible. Using ATLAS.ti, the researcher can ensure that all thoughts and experiences were carefully recorded as Memos. During data collection, notes on observation concerning the context and constraints under which research participants were providing their data; and the researcher's thoughts were also meticulously kept on record and used as additional memos in ATLAS.ti in the same Hermeneutic Unit. In this way, the researcher tried to take into account the social and cultural environment under which the research participants provided the data.

While carrying out data analysis, researcher's personal thoughts, interpretations, and beliefs were also written in ATLAS.ti memos for further considerations while developing theory from the collected data. These interpretations would then translated within the PCS

Framework and Malaysian stakeholders involved, as well as the experts in the field would corroborate them during member checking and peer debriefing processes. In principle, researchers are encouraged to reflect on and record their interpretations, and they are reminded that the validity of their interpretations is dependent on being able to demonstrate how they were reached (Mauthner and Doucet, 2003; Mason, 1996). This sort of reflexive actions are vital for maintaining rigor in qualitative social research. Using ATLAS.ti therefore brings its added value for rigor by providing in-built features that could be easy and simple to use.

5.4 TECHNIQUES FOR ESTABLISHING CONFIRMABILITY

Lincoln and Guba (1985) uses inquiry audit and triangulation as the techniques for establish confirmability. These techniques have been explained above. Finally, the emerging categories were classified and arranged in order to analyze the conceptual relationships using the 'Network View' feature in ATLAS.ti. A sample used within this research in explaining one of the main findings is shown in Illustration 5. ATLAS.ti undoubtedly helps researchers to explore the complex phenomena hidden in the data, through analyzing the conceptual relationships (Woolf, 2008).Within this process, it was made sure that the theory was conceptually dense (Strauss and Corbin, 1994). In other words, after coding and auto-coding the data using the deductive analysis, using a strong theory, namely Communicative Competence Model as a basis, the 'Network View' was used as tool to present conceptual relations in developing the PCS framework as required by the stakeholders of Malaysia. Network view of the study aided the process of writing thick description of the research since it showed linkages between data. This network visualizes the findings of the researcher and becomes especially useful in this study which contributes to framework-building. The outcome of the study which has undergone the validation process is complemented with attainable exemplars within the PCS framework in English (See Appendix A).

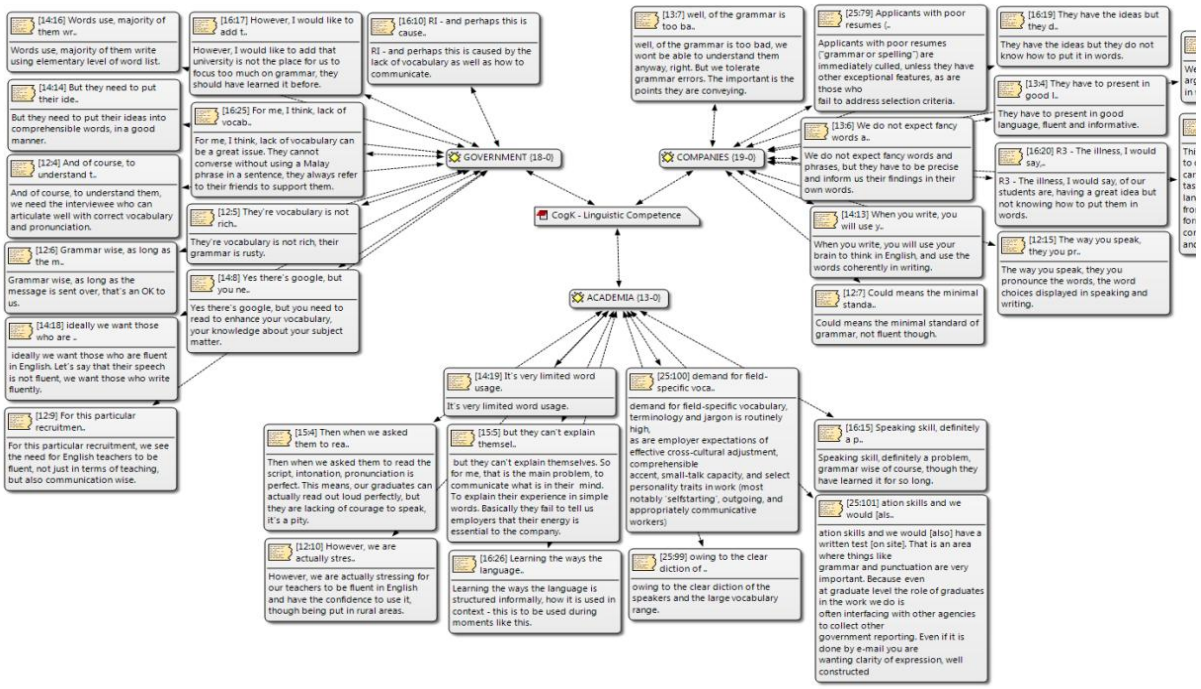

Figure 4: Findings in the study using ATLAS.ti Network View

6.0 FROM ATLAS.TI TO NEW FINDINGS:

The ability of ATLAS.ti to facilitate the processes of cross-examining the data in trustworthy ways as well as incorporating the feature of memo for reflexivity were important steps in creating new meanings and exploring new findings. In the tradition of qualitative research, the data from various sources were read reiteratively and analyzed rigorously through a deductive process of identifying the recurring and salient themes using the Communication Competence Model (Moreale, Spitzberg and Barge, 2007) as the basis. After a categorization matrix has been developed, all the data are reviewed for content and coded for correspondence with or exemplification of the identified categories (Polit & Beck, 2004). Since this study uses an unconstrained matrix, different categories are created within its bounds, following the principles of inductive content analysis. Subsequently, the analysis process and the results should be described in sufficient detail so that readers have a clear understanding of how the analysis was carried out and its strengths and limitations, which has been described earlier as audit trail. It is important to make defensible inferences based on the collection of valid and reliable data (Weber, 1990). To increase the reliability of the study, it is necessary to demonstrate a link between the results and the data (Polit & Beck, 2004). Using the same HU in ATLAS.ti to save all primary documents, codes, network view outputs and memos can ease the member checking and peer debriefing processes. This is because all categories and sub-categories of data analysis can be obtained easily when they are needed and all of the categories are seen in the context of the original documents, transcriptions, voice recordings or photos. Furthermore, thick descriptions will describe the analysing process in as much detail as possible when reporting the results, whereby appendices and tables may be used to demonstrate links between the data and results. To facilitate transferability, the researcher should give a clear description of the context, selection and characteristics of participants, data collection and process of analysis (Graneheim & Lundman, 2004). Demonstration is needed of the reliability of the findings and interpretations to enable someone else to follow the process and procedures of the inquiry. Figure 5 shows the integrations of CAQDAS applications (in bold writing) and trustworthiness techniques applied in the research design.

7.0 CONCLUSION

To sum up, this paper has outlined the important contribution of ATLAS.ti in bringing rigor to qualitative social research project. It described why and how ATLAS.ti has been used in establishing trustworthiness within the qualitative inquiry process. This paper provides the different 'trustworthiness' techniques used in defining the Professional Communication Skills (PCS) for the Malaysian graduates employing different features within ATLAS.ti. In doing so, Lincoln and Guba's (1985) techniques for establishing credibility, transferability, dependability and confirmability were clarified.

As a conclusion, it is believed that ATLAS.ti can be utilized for building trust within qualitative social research, especially through explaining the rigor of the process. Within a qualitative study it is essential that social researchers create a habit of providing extensive description of how data analysis has been executed. Belgrave et al. (2002) stressed that a well-written description of the rigor in research analysis should convince readers that the study findings are credible and trustworthy.

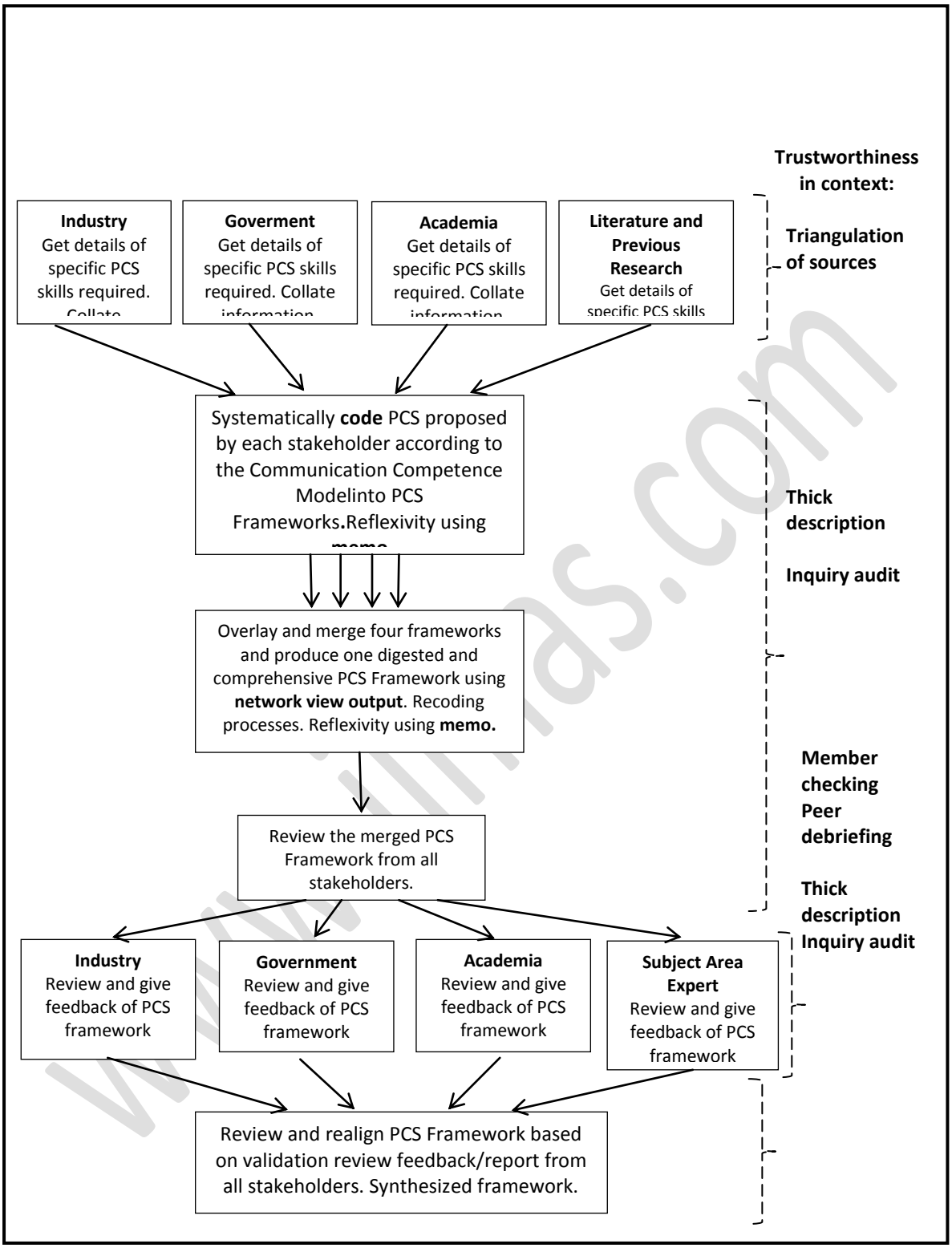

Figure 5: Research design incorporating CAQDAS and Trustworthiness processes.

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APPENDIX A
THE PROFESSIONAL COMMUNICATION SKILLS IN ENGLISH FRAMEWORK

Core Component (Communicative Competence Model)	Sub Component	Requirement for workplace	Exemplars: 'Upon graduation, graduates should be able to…'
Cognitive Knowledge	Content Knowledge	Contribute to on-going improvement and expansion of knowledge in the betterment of workplace operations.	• Build a relevant knowledge base for workplace. • Apply their subject content knowledge at workplace. • Manage own learning in order to maintain and renew attributes throughout working lives. • Use specific work-related jargon appropriately in speech and reports.
	Cultural Competence	Contribute to harmonious relations between superior, subordinates, colleagues and clients.	• Speak and write using the most appropriate register. • Agreeing/Disagreeing with the superior and subordinate in a diplomatic manner. • Adapt with small talks with colleagues, being aware with context awareness.
	Linguistic Competence	Contribute to meaningful and effective conversations using appropriate workplace discourse.	• Organise spoken and written language during a variety of communication tasks at workplace. • Present their speech and written work using appropriate vocabulary and fluency. • Clearly and accurately articulate words during workplace activities.
	Critical thinking	Contribute to constructive criticism while resolving issues at workplace.	• Critically synthesising their thoughts in a professional manner to improve situation. • Identify, analyse and solve problems critically and innovatively. • Give positive feedback and healthy criticism after analysing issues at workplace.
	Tasking skill	Contribute to productive long-term and short-term strategic planning and effective execution of workplace tasks.	• Organise thoughts and solve workplace problems and issues. • Argue politely in generating solutions and alternatives in workplace issue. • Synthesise issues at work and evaluate solutions individually.

Communication Skills	Interpersonal Communication	Contribute to diplomatic and matured communication between superior, subordinates and clients.	• Speak comfortably with employers, not hindered with nerves. • Pay attention to workplace communications activities and do not get distracted easily (with electronic devises). • Attentive in formal or informal workplace communication which can help build rapport with superiors, colleagues and clients. • Well prepared prior to workplace meetings and planned activities in order to express opinions maturely.
	Presentation Skill	Contribute to sharing of ideas and thoughts effectively with superior, colleagues and clients.	• Able to share ideas with colleagues creatively. • Able to persuade clients to accept their ideas by explaining in a simple yet interesting manner. • Inform superiors of new innovative measures in improving workplace. • Keep spectators' attention using range of presentation skill, with the help of IT as a management tool. • Responding to enquiry from the clients.
	Speaking skill	Contribute to productive and appropriate verbal interactions at workplace.	• Inform audience (superiors, colleagues and clients) in an enlightening manner. • Contributing ideas and give opinions in group discussions. • Persuade superiors, colleagues and clients to accept ideas and opinions using well-defined explanations. • Use specialist vocabulary in a correct manner. • Give clear instructions to solve issues at work. • Initiating contact, requesting information on the telephone. • Seeking information from others at work. • Responding to enquiries/problems from superior/clients. • State reasons for disagreeing without

			interrupting the speech of colleagues or superiors • Discussion work schedules and procedures. • Engage small talks with superior, colleagues and clients informally. • Telephone conversations skill – answering inquiries, giving instructions.
	Non-verbal communication	Contribute to the ease and comfort during interactions.	• Appropriately dressed according to workplace occasions. • Be on time in all workplace functions. • Control own nerves in meetings with superior and clients in order to be less agitated. • Ensure their body language is not offensive during conversations with colleagues, superiors and clients. • Wear pleasant facial expression.
Motivation	Positive motivation	Contribute to job satisfaction.	• Aware that communicating fluently and confidently in English language can help secure a job in public and private sectors. • Understand that speaking, listening and writing in good English will benefit them in terms of climbing up the workplace ladder quicker. • Be confident in speak English publicly to superiors, colleagues and clients. • Control own anxiety while speaking to an unknown group of new clients.