COMMUNICATION APPREHENSION AND TEMPERAMENT: A COMMUNIBIOLOGICAL PERSPECTIVE IN ACCOUNTING EDUCATION

BY

ALEX FOO TUN LEE

MASTER OF PHILOSOPHY (SOCIAL SCIENCE)

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ALEX FOO TUN LEE

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ABSTRACT

COMMUNICATION APPREHENSION AND TEMPERAMENT: A COMMUNIBIOLOGICAL PERSPECTIVE IN ACCOUNTING EDUCATION

ALEX FOO TUN LEE

Oral communication apprehension (CA) is consistently reported among accounting majors over the past two decades. This is disturbing to the accounting profession as communication competence is required in the new era of accountancy practice. As such, the objective of the study is to find out CA levels, discover the difference between demographic factors and CA, and examine the relationship between temperamental predictors and CA. Literature review in accounting education suggested that most research focuses on the demographic studies of CA, while less attention is given to study its cause. This study employs communibiological paradigm, offering insights on how two distinctive neurobiological systems (which underlies temperament) address two important tendencies of CA: the avoidance and anxiety. The research undertakes a survey-based primary data collection in one large Chinese-dominated private higher learning institution in Malaysia. Close-ended survey questionnaires were administered to 1100 accounting and business students using purposive sampling method. The instruments used were adapted from McCroskey's Personal Report

on Communication Apprehension (PRCA-24, 24-item) and revised Eysenck's Personality Questionnaire (EPQ-R, 24-item). Data analysis reveals no significant difference in student's level of CA between accounting and business students, contrary to past findings. Subsequently, student's CA does not differ significantly across age group and year of study. Next, two temperament indicies, namely extroversion and neuroticism, are both moderately correlated with CA. Further regression analysis revealed that temperament based model creates a significant model to predict student's CA. The study discusses the characteristics of CA of being generally enduring across university exposure. Implication of study highlights the prevalence of accountant's stereotype among the students as career requiring minimum communication requirement. Recommendation of the study includes proposal of communication-related subjects in the accounting curriculum. The study concludes with the possibility of accounting profession in attracting people who are not natural communicators.

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APPROVAL SHEET

This dissertation entitled "**COMMUNICATION APPREHENSION AND TEMPERAMENT: A COMMUNIBIOLOGICAL PERSPECTIVE IN ACCOUNTING EDUCATION"** was prepared by ALEX FOO TUN LEE and submitted as partial fulfillment of the requirements for the degree of Master of Philosophy (Social Science) in Accounting Education at Universiti Tunku Abdul Rahman.

Approved by:

_____
(Mr. Paul Gnanaselvam a/l Pakirnathan)
Date:……..
Supervisor
Department of Public Relations
Faculty of Arts and Social Science
Universiti Tunku Abdul Rahman

_____
(Ms. Sim Chzia Poaw)
Date:……..
Co-supervisor
Department of Psychology and Counselling
Faculty of Arts and Social Science
Universiti Tunku Abdul Rahman

FACULTY OF ARTS AND SOCIAL SCIENCE

UNIVERSITI TUNKU ABDUL RAHMAN

Date: _____

SUBMISSION OF DISSERTATION

It is hereby certified that ***__Alex Foo Tun Lee__*** (ID No: ***11AAM06199***) has completed this dissertation entitled "Communication Apprehension and Temperament: A Communibiological Perspective in Accounting Education" under the supervision of Mr. Paul Gnanaselvam a/l Pakirnathan (Supervisor) from the Department of Public Relations, Faculty of Arts and Social Science, and Sim Chzia Poaw (Co-Supervisor) from the Department of Psychology and Counselling, Faculty of Arts and Social Science.

I understand that University will upload softcopy of my dissertation in pdf format into UTAR Institutional Repository, which may be made accessible to UTAR community and public.

Yours truly,

_____

Alex Foo Tun Lee

DECLARATION

I hereby declare that the dissertation is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UTAR or other institutions.

Name ____Alex Foo Tun Lee_____ ___

Date _____

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LIST OF ABBREVIATIONS

AAA	American Accounting Association
AC	Accounting
ANOVA	Analysis of Variance
BA	Business Administration
BF	Banking and Finance
BAS	Behavioral Activation System
BIS	Behavioral Inhibition System
CA	Communication Apprehension
d.f.	Degree of Freedom
E	Extroversion
ENFP	Extroversion, Intuition, Feeling, Perceiving
EPQ	Eysenck's Personality Questionnaire
GD	Group Discussion
H1-H7	Hypothesis 1-7
IFAC	International Federation of Accountants
IP	Interpersonal (Conversation)
ISTJ	Introversion, Sensing, Thinking, Judging
KMO	Kaiser-Meyer-Olkin (Factor Analysis)
K-S	Kolmogorov-Smirnov
MBTI	Myers-Briggs Personality Indicators
MT	Meeting (Interview)
N	Neuroticism

NZ	New Zealand
RQ 1-3	Research Question 1-3
P	Psychoticism
PRCA	Personal Report on Communication Apprehension
PS	Presentation
SD	Standard Deviation
SPCC	Self-perceived Communication Competence
SPSCA	Speaker's Perception of Situational Cause of Communication Apprehension
SPSS	Statistical Package for the Social Sciences
STJ	Sensing, Thinking, Judging
UK	United Kingdom
URL	Uniform resource locator

US	United States
UTAR	Universiti Tunku Abdul Rahman
WCA	Written Communication Apprehension
WCOA	World Congress of Accountants
WTC	Willingness to Communicate

CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter provides an overview about the current issue facing accounting education in addressing the future role of accountants as communicators. Specifically, a narrow focus on communication apprehension (one facet of communication competence) is necessary leading to problem identification of the study. The research gap leads to formation of research objectives and questions, where a portion of writing is dedicated to discussing its significance. Operational definition is laid down to clarify the variables used. Lastly, an outline of research is provided to guide the dissertation flow.

1.1 Accounting Education and Communication Development

Accounting education is challenged by the fast pace of globalization and advancement of information technology (Pathway Commission, 2012). Thus, accountants in the next decade are required to remain relevant as team players in their organizations (World Congress of Accountants, 2010). What is shocking is that the term accountant may be substituted with 'corporate or financial navigator'

in the near future, suggesting a role for future accounting practitioners in delivering both financial and non-financial information to stakeholders. These navigators or interpreters are to be equipped with necessary skills in delivering relevant information, orally and in written, to both internal and external stakeholders of organization. The speculation of IFAC (2002) that the future accountant role will have a strong emphasis upon communication skills is well documented in academic literature (Arquero, Hassall, Joyce, & Donoso, 2007; Gray, 2010; Ramsey, 2007).

In light of the above speculation, accounting education was criticized of its effectiveness in developing requisite skills among undergraduates, for example interpersonal skill (Jackling & De Lange, 2009). Moreover, there is an indication that accounting students fail to perceive the role of an accountant (Jones & Abraham, 2007; Swain & Olsen, 2012). American Accounting Association defined accounting as identifying, recording, and communicating economic events to interested users indeed hinted for the requirement of communication ability in accounting career success. However, recent study by Ameen, Jackson, and Malgwi (2010) revealed that students in general "perceive accounting as a profession that requires little oral communication" (p. 32). Such perception produces an expectation gap the accounting education must address.

Evidences were collected to reflect the gap of expectation between employers and graduates, in terms of desirable skills and attributes. In such context, Kavanagh

and Drennan (2008) found a noticeable gap between employers' expectation and accounting students' perception. From employer's point of view, skills such as communication, team work, and self-management are rated as the most important generic attributes for accounting graduates (Tempone et al., 2012). Hancock et al. (2009) put forth "communication, in all its forms, coupled with teamwork, problem solving, self-management, interpersonal skills and initiative and enterprises were highly sought after in graduates and also made a difference in advancement within the workplace" (p. 70). In another instance, team skills, leadership, and communication are below employers' expectation (Jackling & De Lange, 2009).

From such a stance, communication skill deficiency among graduates is a concern worthy to be studied. As a matter of fact, academics over the past decades had been continually showing interest in this area (e.g., Hassall, Joyce, Arquero, & Gonzalez, 2010; Morgan, 1997; Sneed & Morgan, 1999). The study of communication skill development is timely given that communication is elevated as important skill to succeed in accounting profession.

As is now widely recognized, communication apprehension (CA) can inhibit effective communication and the development of appropriate communication skills and many studies have been conducted to measure CA among students in different disciplines and in different settings. In fact, CA is much appreciated in the literature of accounting education. Research on CA is important as it

addresses one important dimension of communication competence. According to Morreale (2007), communication competence comprises of three dimensions, i.e., motivation, knowledge, and skills. Motivation as the first dimension is further elaborated to positive and negative motivation. Positive being that one is encouraged to communicate as a result of perceived reward derived from the communication process, whereas negative motivation hinders and discourages communication, due to anxiety or apprehension about communicating.

Communication apprehension (CA), or communication anxiety, represents the negative motivation to communicate competently. Often referred to as a barrier to skill development, CA is defined as "an individual level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 27). People with CA tend to avoid communication whenever possible, or suffer a variety of anxiety-type feeling when communication is unavoidable. As reported by McCroskey (1984), approximately one out of five persons residing in US has high levels of CA.

Studies had been carried out in dealing with accounting students' CA and have reported reduction of CA (Borzi & Mills, 2001; Ruchala & Hill, 1994; Sergenian & Pant, 1998). However, Hassall, Joyce, Ottewill, Arquero, and Donoso (2000) suggested that CA treatment by means of techniques attributed to communication development may not be effective. There is indirect evidence, as found in Aly and Islam (2003) and Ameen, Guffey, and Jackson (2000) studies, suggesting that

students' level of CA remained throughout university study. A recent study by Ameen et al. (2010) also yielded the same result, where their study utilized two independent student samples across an 8-year span.

1.2 Problem statement

The relative enduring nature of CA is worth noting as accounting education has to address ways to improve student's communication skills in order to meet the practitioners' expectation. Graduates may face career advancement problem as the employers continued to show concern of their lack of requisite communication skills (Hassall, Arquero, Joyce, & Gonzalez, 2013). Accounting education is one discipline frequently studied by academic scholars, perhaps based on the assumption that the accounting students were generally shy and afraid to speak up. A background review of the literature offers evidence that CA is relatively higher among accounting students. However, less studies are adopting theoretical framework which is essential for advancement of CA research. As a result, the solutions to CA are often shallow and less backed up by empirical findings.

Communication based literature offers two school of thoughts in explaining diversity in individual's communication behavior. First, social learning theory suggests that the social experience (situational, cultural and environmental) plays a major role in shaping individual's ways to communicate. In this instance, modeling, conditioning, learned helplessness, and expectancy learning are among

the drivers in understanding CA. Explication of these nurture-oriented causes are less visible in accounting education literature. Nevertheless, studies on age (Aly & Islam, 2003), curriculum impact (Gardner, Milne, Stringer, & Whiting, 2005) are the few examples exercised in the belief that CA can be altered by nurture-based predictors.

An alternate approach, which is a paradigm shift, offers to explains communication behavior from biological perspective. Communibiological paradigm (Beatty, McCroskey, & Heisel, 1998; Beatty, McCroskey, & Pence, 2009) sets its theoretical framework in understanding the role of neurobiological structures in communication behavior. Under this paradigm of research, few communication constructs are related to biological factors, e.g., verbal aggressiveness, and communication apprehension. The call of perspective shift suggested human temperament as the product of individual difference in neurobiological systems, which in turn disposes a particular behavior, i.e., communication apprehension. They also argued that environment does negligible effect in governing a person's CA.

The direction of CA research is vague due to that the accounting education research has been demonstrating little effort in tapping into the theoretical framework offered in communication literature. As such, not many researchers considered temperament as a major contributor to communication apprehension.

In addressing this gap of knowledge, communibiological paradigm will be adopted as the theoretical framework of the study.

1.3 Objective of study

The objective of the research is three-fold. First, it is necessary to confirm the finding of CA trend in Malaysian setting. The difference of level of CA will be explored and compared among accounting and business students. This is to identify if the sample follows general pattern as reported by past studies, before any further examination. Second, demographic exploration of CA will be carried out, which further supplements the present literature by providing empirical evidence from a developing country perspective. Specific attention is given to variables which suggest CA as an enduring trait (e.g., student's year of study throughout university, as well as their age). This is done to further facilitate discussion in the next objective. Third and last, a temperament based model as anchored in communibiological paradigm will be used. It is to examine the relationship between temperament and CA in the context of Malaysian accounting education.

1.4 Research Questions

Research questions are framed in light of the research objectives set earlier. For the purpose of this study, research questions (or RQ) are set as follows:

RQ1: What is the current profile of communication apprehension among the accounting students?

RQ2: Is there a demographic difference in student's level of communication apprehension, specifically gender, age, and year of study?

RQ3: Is there a relationship between temperament and communication apprehension in context of accounting students?

1.5 Significance of the study

The first and second objective will fill the gap in the literature by demonstrating possible difference in level of CA from Malaysian perspective. Meanwhile, the third objective seeks to explain CA based on communibiological paradigm. Both practical and theoretical implications of the study are further elaborated below.

As suggested by Apostolou, Dorminey, Hassell, and Watson (2013), current accounting education literature has largely acknowledged the importance of communication. Such importance should also be documented in a Malaysian setting, and hence research is needed to address this concern. One practical

implication is that the researchers and educators' attention be shifted to consider oral communication as part of the syllabus implementation in accounting education.

In addition, the research should also highlight the difficulty of accounting educators in dealing with students' communication apprehension, if indeed that the CA is generally enduring. This finding will be useful for classroom instruction, particularly for educators in understanding factors leading to communication apprehension.

It is important to note student's level of CA as pre-existing prior to education exposure. Gardner et al.'s (2005), for example, expressed that the accounting students are, in general, predisposed to above average level of CA in the beginning of university curriculum exposure. Perhaps one reason why accounting students may possess CA is because they self-select into a program that they believe enables them to avoid a lot of communication. Hence, accounting students are possibly made up of people who anticipate less communication requirement.

Cross-sectional inquiry will be used instead of longitudinal study in examining student's CA over three to four years of curriculum impact in university. The reason is that the nature of research question requires a general profile of CA, hence cross-sectional data is useful and cost effective. This study should prove useful to educators in keeping themselves informed of current CA profile

exhibited by accounting students. Additionally, further understanding of how and why CA happens may be explained by a systematic inquiry of temperament-based CA in accounting education.

For theoretical implication, this study attempts to contribute to communication literature by replicating the relationship between temperament and CA in other context. If the paradigm holds true, it is expected that human temperament will provide good predictive power in explaining communication apprehension, even within the context of accounting education. In attempt to differentiate this study from other personality-based CA research, specific attention will be given to how human temperament affects CA in light of communibiological perspective.

Human temperament forms the biological basis of personality. Strong link between CA and temperament, if found, will constitute as empirical evidence in supporting the trait-like CA conceptualization from temperament point of view. Additionally, communibiologist contended that temperament is the product of neurobiological structure, which necessitates a multi-disciplinary approach in advancement of this line of research. Some studies in the infancy of this paradigm had demonstrated link between temperament and CA (Neuliep, Chadouir, & McCroskey, 2003, Jung & McCroskey, 2004). Hence, seeing that communication apprehension plays a role in skill development, within accounting education, it is necessary for a temperament-based inquiry of CA to be extended in that context.

1.6 Operational Definitions

For the purpose of the study, 'communication apprehension' or CA is operationalized as individual's level of communication anxiety scores obtained in four communication context measured using 24 questions in Likert response format, with survey questions adopted from the revised version of PRCA-24. Next, 'temperament' covers extroversion and neuroticism dimension. Extroversion is operationalized as individual's tendency to be sociable, lively, active, assertive, sensation-seeking, carefree, dominant and venturesome. Neuroticism is operationalized as the degree to which a person is anxious, depressed, guilt, low self-esteem, tense, shy, irrational, moody and emotional. Both extroversion and neuroticism are measured using 24 questions in binary format, with survey questions adopted from the Revised Eysenck's Personality Questionnaire (EPQ-R).

1.7 Outline of Research

The rest of the dissertation is structured as follow. In Chapter 2, an overview of the development of generic skills in accounting education is provided, prior to narrowing CA as the focus of study. Then early conceptualization of CA, particularly the trait-like CA, is elaborated, and followed by introduction to communibiological paradigm. Prior research on CA in accounting education is

examined thereafter. Lastly, proposed theoretical framework is presented upon articulation of research hypotheses.

Chapter 3 provides research design and methodology essentially to facilitate data collection. Population and sample are identified, followed by elaboration of sampling strategy and procedure. Next, measurement and operationalization of key variables are selected. Then, data analysis technique which is used to deal with each research hypothesis is discussed. Finally, pilot test result is presented to examine the feasibility of study.

Chapter 4 reports on the sample characteristics of study as well as presenting validity and reliability of two instruments used. Descriptive statistics is followed thereafter. Next, hypothesis testing is conducted with statistical result analyzed, interpreted and discussed in comparison of past findings.

Lastly, chapter 5 presents the discussion in relation to answering research objectives set in first chapter. Implication of research finding is also provided. The chapter concludes with limitation and recommendation of future research in light of communication development in accounting education.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter is dedicated to background and critical review of 'communication apprehension' in accounting education. Essentially, there are four (4) parts in the literature review. The first part (section 2.1) provides an overview justifying the need to narrow down the study. Second part (Section 2.2 to 2.3) reviews CA origin and its conceptualization. Third part (Section 2.4 to 2.6) is dedicated to formation of research hypothesis following each research objective set earlier. Forth part (section 2.7) provides a graphical framework to guide the quantitative, survey-based research method in chapter 3.

2.1 Generic Skills in Accounting Education

2.1.1 Future Accountant's Communication Competence

In its broader sense, challenges facing accounting education are continually addressed (Albrecht & Sack, 2000; De Lange & Watty, 2011), with few specifically pinpointing the need to relook the roles of accountant in this globalized era (Courtis, 2002; Hancock et al., 2009). As a follow-up, a generous

portion of literature is dedicated towards the perception gap between accounting practitioners, educators and students, particularly in generic skills development (Bui & Porter, 2010; Chaker, 2011; Courtis & Zaid, 2002; Crawford et al, 2011; De Lange et al., 2006; Hassall et al., 2005, 2010; Jackling & De Lange, 2009; Jones & Abraham, 2007; Kavanagh & Drennan, 2008; Keneley & Jackling, 2011; Lin, Xiong, & Liu, 2005; Wells et al., 2009) and ways to improve them (Boyce, Williams, Kelly, & Yee, 2001; Sin et al., 2007; Willcoxson et al., 2010).

Among the studies of generic skill development, communication competence in accounting education is particularly viewed as important, as there is evident research direction in such area (Ballantine & Larres, 2009; Evans & Cable, 2011; Gray 2010; Gray & Murray, 2011; Kerby & Romine, 2009; Morgan, 1997; Nellermoe et al., 1999; Schmidt et al., 2009). It implies that future accounting leaders need to be equipped with work-ready communication skill. Also, communication competence is valued highly within the public accounting firms (Stowers & White, 1999), and is regarded as one of the assessment criteria in hiring and promotion decision (Aly & Islam, 2003; Byrne, Flood, & Shanahan, 2009).

2.1.2 Communication Apprehension as Barrier to Communication Development

Accounting profession is often stereotyped as a career requiring minimal demand of communication ability or social interaction (Ameen et al., 2003, Aly & Islam, 2003; Daly and Stafford, 1984). A perception gap exists as such that there is a tendency for prospective students to enroll accounting major so they can 'speak less'. As also pointed out by Ameen et al. (2010), students enroll accounting programme based on the distorted fact that accounting "deals only with numbers, and that oral communication is less important" (p. 34). Joyce, Hassall, Arquero and Donoso (2006) addressed this perception gap as a miss-match in the accountancy.

In addressing this skill gap, it is important to note that accounting work today seeks to move up the value-added chain in the business arena. Greater communication skill is deemed necessary than ever before. As such, attention will be focused in addressing communication apprehension, one of the facets of communication competence (Morreale, 2007).

Communication apprehension, the focus of this study, is one of the hindering factors towards communication development. The problem of CA among accounting students are continually addressed today as authors like Simon and Riley (2014) reported specific focus of CA among the accounting major. Also,

CA needs to be addressed prior to communication development (Hassall et al., 2000). In other words, students with high levels of CA may not benefit from skill based training which aimed at improving their communication ability, as their apprehension is not addressed at the first place.

Accounting educators began to look into the cause and effect of CA. Existing literature revealed a general pattern, where more emphasis is attended to demographic and comparative studies. For instance, gender (Simons, Higgins, & Lowe, 1995, Aly & Islam 2005, Byrne et al. 2009), educational background, academic performance (Aly & Islam 2005), academic self-rating (Gardner et al., 2005), year of study (Aly & Islam, 2003;2005), and major of study (Arquero, Hassall, Joyce & Donoso, 2007; Borzi & Mills, 2001; Byrne et al., 2009; Joyce et al., 2006) are some of the frequently studied constructs among scholars. The trend above provides motivation for this study to conduct a local CA inquiry in light of accounting education context. Hence, subsequent section will provide a detailed review of CA, covering both early work and recent development.

2.2 Communication Apprehension

It is worth investigating the term itself which lasts for more than four decades since its first appearance in scholarly literature. McCroskey (1970) is among the first communication scholars in advancing a term which he called ’communication apprehension’, while most available literature at that point

of time focuses more on stage fright, shyness, social avoidance, and public speaking anxiety. CA was first defined as communication-bound anxiety, but was later reconceptualized from "a broadly based anxiety related to oral communication" to "individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 78).

The term communication apprehension attracts an overwhelming interest among scholars, thus made the construct itself a widely covered area, encompassing other forms of communication, e.g., written apprehension advanced by Daly and Miller (1975), and apprehension about singing (Andersen, Andersen, & Garrison, 1978). Nevertheless, the earlier CA work advanced by McCroskey (1982) is oral focused instead of involving a combination of oral and written element. This verbal-centered CA is very much evolved from earlier constructs such as stage fright and reticence inspired in public speaking literature.

CA is arguably a universal and normally distributed construct. Its universality is reflected as everyone experience CA at different degree across different communication contexts. Also, the normality of CA is reflected where some people are extremely afraid of speaking, while some others are unafraid of speaking. The rest, for most people, fall between the two extremes.

The normality concept explained above is a phenomenon coined by statistician as 'bell-curve' distribution. Common traits such as height and weight fall into such category as well. Given its universality and normality distributed characteristics, CA affects humankind to a certain extent. People who suffer a great deal from CA will likely to face challenges in their life. In the case of accounting students, the problem of being communication incompetent as an accountant is foreseen if CA is not dealt with at the first place. Gardner et al.'s (2005) in a study among accounting students explained that fear may be normal to all, but incompetency to overcome the fear is not.

> (People)…being able to function in the threatening environment and overcome one's fear, even when initially fearful, is (also) normal. Being exposed to threatening situations and being unable to overcome that fear, however, are not normal responses. A recurring pattern of such behavior would warrant a judgment of abnormal response, and hence a diagnosis of being apprehensive (p. 316).

People's experience of fear in communicating may be related to psychological and physiological point of view. Psychological responses generated are often unpleasant (e.g., negative feelings, blank minded, confusion, etc.), as well as physical responses which might range from sweaty palms, short breath, palpitation, stammering to butterflies in the stomach. The fear to communicate may be measurable in terms of its level of manifestation. Compared to that of those with low CA, the people with higher level of CA (strong manifestation of

anxiety) have greater unpleasing psychological experience, as well as greater physiological symptom mentioned above. These experiences tend to lead them to avoid the communication context whenever possible.

Recent research in CA involved communibiological inquiry of CA, due to emerging research indicating a relationship between human neurobiological systems and interpersonal communication trait. Pence et al. (2011) in Communication Research Reports used meta-analysis in understanding specific brain region with CA. Another journal article by Beatty et al. (2011) relates resting alpha range asymmetry in the anterior cortex (a specific brain region) with CA. They used electroencephalograph (EEG), a neurophysiological instrument, and found a moderate correlation between PRCA-24 and 'resting alpha range asymmetry in the anterior cortex'. The empirical evidence provides motivation for interpersonal scholars to consider neurobiology in understanding human communication

Themed issue on communication in accounting education, where CA is one targeted subtheme, is recently published in mid 2014 by Taylor & Francis. (Accounting Education: An International Journal). Follow-up research (Evans & Cable, 2011; Gray & Murray, 2011) also mentioned about the importance of communication among accounting students.

2.3 Conceptualization of CA

In general, communication apprehension is classified as being trait-based or state-like. A trait is "a distinguishing quality or characteristics; it is an individual's relatively consistent way of thinking, feeling, and behaving across situations" (Littlejohn & Foss, 2008, p. 66). Meanwhile, Eysenck and Eysenck (1985) defined traits as "essentially dispositional factors that regularly and persistently determine our conduct in many types of situations" (p. 17). Based on the definitions, the common ground of a trait lies in its relative endurance to change over time. Trait CA, specifically, refers to the communication anxiety which is generally enduring across situations and passage of time and exposure.

In contrast, state-like CA is the type of CA across specific contexts or situations. Scholars believe that a person's CA may differ according to situation, for example meetings and presentations. Both interpersonal communication and public speaking constitute different communication contexts, and people's reaction towards such occasion may differ. As a result, there should be a noticeable difference in CA across each context. The other term for state-like CA is communication state anxiety (CSA), a term coined by Spielberger (1966) as "the reaction experienced during actual communication" (p. 3). Nevertheless, McCroskey contended that anticipated communication leads to CA, too. And that is how CA was defined - the level of fear associated with either real or anticipated communication with another person or persons. (McCroskey, 1977).

Situational CA (a subset of state-like CA) refers to the communication anxiety triggered due to a specific encounter (McCroskey, 1984). For instance, a subordinate might exhibit CA when he or she has to explain the reason for a machine breakdown to a superior. Or, a seasoned lecturer who has no problem giving lectures suffered from CA when it comes to viva-voce of his doctoral thesis defense. Another type of state like CA - audience-based CA – explains that the fear to communicate is triggered due to contact of a specific person (e.g., parents, celebrity).

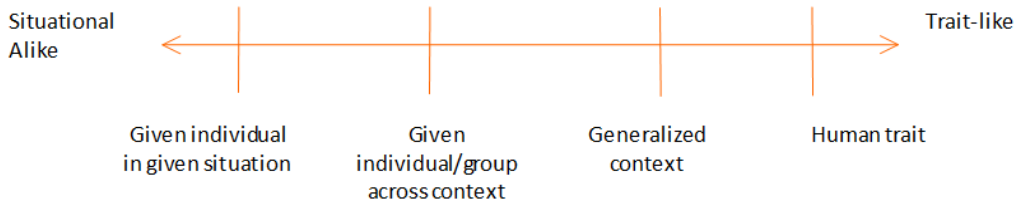


Fig 2.1: CA Conceptualization: A Continuum Based on Daly et al. (2009)

The types of CA can be viewed as a continuum (see Fig. 2.1). Four distinctive elements are firstly suggested by McCroskey (1982). CA is conceptualized (1) as a human trait, (2) in a generalized context, (3) in a given individual or group across the contexts, and (4) in a given individual or group in a given situation. First, CA as a human trait is generally enduring over the course of time; as the pattern of fear is largely consistent across every situation. Secondly, CA in a generalized context describes that people may experience high level of anxiety about communicating in a particular context (i.e., meeting), but have less or no anxiety in other contexts (i.e., interpersonal). The third classification of CA describes those who experience high level of CA when interacting with specific

individuals or groups across communication context. Lastly, people who experience anxiety when interacting with a specific person or group, but is not recurring across the communication contexts due to that "situation" being unlikely to happen. Thus CA does not manifest a person in a consistent pattern.

Having defined four classifications, the literature generally views CA as a trait, specifically, a personality trait (Daly et al., 2009). As communibiological paradigm relies heavily on such a viewpoint, a separate discussion is dedicated to further explain what is 'trait'. In such a case, CA is viewed as a trait which is largely enduring.

2.3.1 Trait-like CA

Trait-like CA conceptualizes that a person's CA is likely to be stable across lifetime. There are disputes concerning the assertion of the trait as being enduring due to that the trait is merely a hypothetical construct. From psychological point of view, traits are operationalized to provide understanding towards human behavior (e.g., verbal aggression, extroversion, emotional stability). Nevertheless, it is interesting to find out if trait does exist as part of identifiable anatomy structure of human brain as scientific point of view.

The advancement of neurobiology subsequently confirmed the work of the psychologist in explanation of communication behavior, particularly the affective

domain. In fact, what impressed Beatty and team before their departure from the nurture perspective of human communication was that the traits are increasingly mapped by psychobiologist. With trait no longer a hypothetical construct, these communication scholars have greater confidence in explaining CA from extroversion and neuroticism perspectives (both of which are initially psychologically rooted), backed up by scientific evidence offered in neuropsychology literature. Given this in mind, it is worth considering to the proposition of communibiological paradigm, two of which suggest that (1) CA is a manifestation of neurotic-introversion, a state which is of genetic inheritance, and that the (2) environment plays a negligible effect in trait development.

The assertion of traits as being enduring over the course of time could be substantiated by the support of empirical studies. For instance, a German study (n=20434) evaluated the stability change of Big Five personality traits (Lucas & Donnellan, 2011). A 4-year gap was determined for a pre-and-post administration of questionnaire among different age groups. This longitudinal study reported that trajectories for neuroticism were mostly flat. Meanwhile, extroversion was found to decline slightly over the life span.

Such evidence is favorable to the viewpoint of CA as a trait. Next section discusses the classification of CA according to four communication contexts.

2.3.2 Context-based CA

Earlier work of communication apprehension concentrated on four major communication contexts, i.e., conversation, group discussion, meeting, and public speaking. It is believed that the level of CA may be different across the communication contexts, with public speaking showing the elevated result in most cases. These communication contexts are also the central idea for the construction of a survey instrument responsible in measuring one's overall level of CA.

Personal Report of Communication Apprehension (abbreviated as PRCA-24) is the most used survey instruments across literature. The CA construct gains its momentum since late 1970s, with research dedicated in four communication contexts. Further discussion on this instrument will be included in the section of variables and operationalization in Chapter 3.

Context-based CA, a term often appeared in literature, indicates the level of fear associated with person or persons in specific communication context. Such classification allows the researchers to analyze CA phenomenon in a greater detail, while also serve to define and narrow the research focus as needed. For example, literature focusing on public speaking may address CA phenomenon under the public speaking context.

Apart from PRCA-24 survey instrument, there are questionnaires designed for the niche. For instance, speaker's perception of situational cause of CA, or SPSCA instrument, is administered after a public speaking performance. The tool is designed and intended for such occasion. Given the focus of this study, the importance CA as being context-based is duly noted. Thus, a section shall be reserved in data analysis for the discussion and comparison of context-based CA.

In light of accounting education, scholars adopted interview and presentation as substitutes of meeting and public speaking communication contexts (see Gardner et al., 2005). It is due to that the students are not sufficiently exposed themselves in meeting context, as not every future accountants need to be in public speaking occasion. This change improves the relevancy to both the researcher and the subject. However, adoption of the changes above may compromise the comparison of the finding with past studies which utilized original PRCA-24 instruments instead.

2.4 CA in Accounting Education

2.4.1 Major choice as effect of CA

Consequences of CA are often studied on individual and organizational level (McCroskey & Richmond, 1976). These consequences are attributed towards a person's overall nature of interpersonal relationship. They could influence one's education development, and subsequently career development. For example, a

person with higher level of CA is interpersonally less attractive and attracted to others, less membership acceptance due to low quality and volume of contribution in the group, and also less favored in job interview (Daly et al., 1979). CA could lead to avoidance behavior, which could substantially influence individual's life decision. As cited in the Encyclopedia of Communication Theory,

> …research has indicated that people high in communication apprehension make a number of life choices designed to minimize contact with others. Choosing a profession that requires little or no contact with other people is an example of such a choice (Littlejohn & Foss, 2009, p. 118).

Arquero et al. (2007) noted that a person high in communication apprehension will have a greater tendency to choose a class that requires lesser social interaction and participation. Furthermore, he or she does not interact and seek help from teachers or friends, and is normally sitting at the back of the classrooms. The shyness phenomenon will not constitute a problem if the prospect of accounting career requires lesser social interaction. Should they be confronted that accounting profession in its future role requires them to be communication competent, it is likely that their career development will be affected.

CA is found to be strong correlate of self-perceived communication competence (SPCC), a popular construct existed in communication literature. Teven,

Richmond, McCroskey, and McCroskey (2010) reported that CA, willingness to communicate (WTC), and shyness are significant predictors of SPCC. In other words, it is predicted that people manifested with high level of CA normally see themselves as less competent communicators.

The research on communication anxiety has been diverse across multiple academic disciplines, such as engineering studies (Devi & Feroz, 2008), pharmacy (Khan, Ejaz, & Azmi, 2009), business, accounting and communication. Among these majors, the study of CA among accounting students are the most prevalent that it deserves a separate discussion to fit the literature review of the dissertation.

2.4.2 Prior Studies

Students' major choice may be influenced by their predetermined levels of CA. Thus, choice of major is preceded by CA. As such, accounting profession is likely to be attracted by people who suffer a higher degree of apprehensiveness in communication, and that prior studies also agreed (Noel, Michaels, & Levas, 2003).

Accounting education research has been extensive in exploring CA among the accounting students. Accounting majors, in general, possess a higher level of CA than the business majors in countries such as US, UK, Spain, Australia, and

Ireland (Arquero et al., 2007; Aly and Islam, 2003; Ameen et al., 2010; Elias, 1999; Fordham and Gabbin, 1996; Gardner et al., 2005; Hassall et al., 2000; Meixner, Bline, Lowe, & Nouri, 2009; Warnock and Curtis, 1997). Table 2.1 summarizes the findings by researchers across the countries.

It is noted that some authors included written communication apprehension (WCA), a work advanced by Daly and Miller (1975), alongside with oral CA. As clarified earlier, present study will only focus on oral elements of CA, despite a noticeable emerging trend of WCA (Arquero et al., 2007; Gardner et al., 2005; Marshall & Varnon, 2009). Moreover, written communication also requires extensive study in which case the present study has defined its scope to be only verbal focused. It should be noted that skills such as leadership, interpersonal skill, and communication skill are rated as the most important skills and abilities necessary for success in the accounting profession. As future accountants are to be both equipped with communication competency as well as technical skills, this present study focuses solely upon student's oral CA.

Fordham and Gabbin (1996) investigated oral communication apprehension in the setting of a mid-sized comprehensive state university in Virginia, US. Three groups of students, i.e., 62 accounting sophomores, 283 business sophomores, and 84 accounting seniors were assessed using PRCA-24 questionnaire based on a five-point Likert scale. Their findings reflected that (1) the accounting students have higher level of CA than the business students, and (2) there is no difference

Table 2.1: CA Scores across Past Studies

Author	Year	Country	No. of students (n)	Accounting	Business	Note
McCroskey	1984	US	25,000	-	-	national norm = 65.6
Fordham & Gabbin	1996	US	62 & 283 (sophomores)	66.40	64.20	-
			84 (seniors)	64.00	-	ns.*
Hassall et al.**	2000	UK	236 & 380	67.50	63.85	sig. at p=.002
		Spain	235	-	64.23	-
Aly & Islam	2003	Canada	334 (entering)	69.19	-	
			334 (exiting)	68.24	-	ns.
Gardner et al.**	2005	NZ	181 (1st year)	68.50	-	-
			96 (3rd year)	67.40	-	
			434	68.40	-	
Joyce et al.**	2006	UK	111 & 178	68.72	67.62	ns.
Arquero et al.**	2007	UK	236 & 380	67.77	63.65	Sig.
		Spain	235 & 338	67.78	63.99	Sig.
Ameen et al.	2010	US-1998	78 & 396	69.88	66.45	ns.
		US-2006	45 & 182	66.29	62.90	ns.
Hassall et al.**	2013	UK-High	228 Malaysian Chinese	75.93	-	
		UK-Low		54.99	-	

*No significant difference between accounting sophomores and seniors.

** Comparability of these findings may be compromised as these accounting education researchers altered the wordings of some of the questions in PRCA-24 instrument. Specifically, they replace the wording 'meeting' with 'interview', and 'public speaking' with 'presentation'.

in levels of CA between the accounting sophomores and seniors. The result suggested communication skill covered in the curriculum alone does not successfully eliminate or reduce CA of students with above-average level of CA. Similar CA studies were also conducted in the US, including those by Ameen et al. (2010) and Meixner et al. (2009). Both studies reported higher level of CA among accounting students compared to that of business students.

Some CA studies go beyond mono-cultural context. For example, Hassall et al. (2000) assessed the level of CA among UK and Spanish business and accounting students. The PRCA-24 instrument was adapted to measure oral CA, and also written CA instruments developed by Daly and Miller (1975). It was found that the females have higher level of CA, coherent with the result of another research study conducted in Oklahoma, US by Elias (1999). The cross-cultural study by Hsu (2007) compared US and Taiwan samples and found significant difference in which the Taiwanese are generally more apprehensive than the Americans. These findings, to some extent, suggest national culture as one factor in shaping individual's communication behavior. A latter study by Hsu (2010) revealed that the Chinese with longer exposure to American culture are comparatively less fearful in communication.

Comparison of level of CA across multiple cross-sectional samples were also conducted. For example, Aly and Islam (2003) conducted a Canadian survey comparing the level of CA between two groups of accounting students: those who were entering and those who were exiting the program. A total of 334 students

participated in the survey, which requires them to report on their CA based on the PRCA-24 instrument. Based on their finding, the overall mean for both groups were significantly higher than the US national norm. It was further concluded that there is no significant difference between the level of CA between the groups. Their study raised an interesting question as a relationship between age and CA was expected, but was not found.

CA and curriculum impact are also an interesting line of research. In this instance, Gardner et al. (2005) investigated the CA pattern among 434 students in New Zealand. They failed to find a significant association between student's level of CA and academic performance, a finding which contradicted that of Allen and Bourhis (1996). Furthermore, Gardner et al. found that the those students with above average of CA appear to show evidence of CA reduction when it comes to their final year of study. This finding is also found to be contradicting with Hassall et al. (2000)'s study. The latter authors suggest the impact of curriculum to possibly intensify student's CA, but was not found in Gardner et al. (2005)'s study. It could be due to that both studies have samples which are different in nature. Gardner et al. (2005) attempted to examine the CA pattern within the pre-determined cohorts of students, while Hassall et al. (2000)'s finding is based on different cohorts of students. They proposed a longitudinal approach to CA study as recommendation for future research, and there is an indication that such effort is in place (see Ameen et al., 2010).

In providing greater generalizability, more studies like Arquero et al. (2007) investigated the CA difference between UK and Spanish university students. The result confirmed a higher level of CA in European accounting students, with extra notion that accounting students' level of CA is significantly higher than students studying in other disciplines at the same universities. Further UK evidence by Joyce et al. (2006) affirms a higher, though not significant, level of CA among accounting students.

Although the literature generally suggests that accounting students are communication apprehensive there are, nevertheless, studies that contradict this view. For example, Borci and Mills (2001) revealed lower CA for accounting students, compared to that of business students. Despite the inconsistency, the overview is that the literature highlighted CA as paramount to be addressed in accounting education. As Arquero et al. (2007) suggested, "It is necessary to highlight that all CA reducing techniques are contextual, and require a deep knowledge of the exact CA profile in order to develop adequate strategies" (p. 315).

The literature has shown that CA appears to be different across the countries, thus calling into question of whether the previous work is generalizable to other part of the world. The problem is that the findings are mostly conducted in mono-cultural countries (though cross-cultural countries are studied, it merely compares both mono-cultural countries, e.g., US and Japan). These findings, while applicable to

their original contexts, must be interpreted carefully before an inference could be made to other setting.

Concerning this, there is little evidence suggesting the CA profile of Malaysian accounting students, except one recent study by Hassall et al. (2013). Their study is special as they were targeting the Malaysian Chinese accounting students who study abroad in the UK university. However, the study does not provide aggregate CA scores for comparison purpose, as it was never their intention to do a comparative study as was demonstrated earlier in Hassall et al. (2000). In other instance, Hassall et al. (2010) used the Malaysian sample in a study on perception toward vocational skill priorities between the Malaysian and UK students. In ranking individual skills, it appears that both groups ranked other skills above the communication skill. For example, a question "Present and defend point of view and outcomes of their own work verbally to colleagues, clients, and superiors" is ranked 20th for UK sample, 22nd for Malaysia.

Due to lacking of present literature to inform the present state of accounting student's CA level in the Malaysian setting, a hypothesis is forwarded as such that the Malaysian accounting students will exhibit higher a level of CA than the non-accounting business students (the control group of the study). This hypothesis is forwarded in light of the first research objective set earlier. The finding will supplement the present literature in understanding CA in accounting education.

H1: There is a significant difference in students' level of CA between accounting and non-accounting majors.

2.5 Demographic Determinants of CA

In fulfilling second research objective, association between personal variables and CA will be studied. This will serve as additional finding which may be helpful to facilitate the discussion for both the first and third research objective in latter section.

A general impression was that females suffer a relatively higher level of CA than males. Such trend is acknowledged in the existing literature (Arquero et al., 2007; Gardner et al., 2005), although there are also contradicting studies found (McCroskey, 1982). Further explanation towards such trend is probably due to the higher CA score in the formal oral communication context, i.e., meetings (Arquero et al., 2007; Gardner et al., 2005; Simons et al., 1995) and public speaking (Gardner et al., 2005; Simons et al., 1995). Meanwhile McCroskey (1982) revealed that the gender does not contribute significant difference towards level of CA. Such result is also reflected in recent gender studies (Donovan & MacIntyre, 2004; Frantz, Marlow, & Wathen, 2005). As recent findings suggested a difference between CA and gender, it is hypothesized that the females will exhibit higher scores of CA than their male counterparts.

H2: The females exhibit higher level of CA than the males.

In addition, student's age and years of study are identified to be included in this study. In supporting CA as being enduring in nature, studies such as Frantz et al. (2005), Aly & Islam (2003), and Ameen et al. (2000) highlighted no significant association between the student's level of CA and year of study. Thus, hypotheses were made in light of student's personal variables against CA.

H3: There is no significant difference between student's level of CA and age.

H4: There is no significant difference between student's level of CA and year of study.

2.6 Temperament as Determinants of CA

2.6.1 Review of Relevant Theoretical Models

As mentioned, CA research in accounting education often lacks a theoretical foundation. It is evidenced as even the most literature available to-date was demographic-based in nature. As a result, lesser effort is dedicated to the discussion of the etiology of CA. It is necessary to investigate the potential causes of CA before any effort in communication development is to be carried out.

In general, the communication literature captures three school of thoughts, two of which are communibiological paradigm (Beatty et al., 1998; Beatty et al., 2009 focusing on the nature perspective), and social learning, on the nurture perspective. A third one adopts an integrationist approach (Infante, Rancer, & Womack, 2003), which incorporates both nature and nurture dimensions. Example of a model inspired by such approach can be seen in Ayres, Hsu, Schmidt, and Sonandre (2009)'s Component Theory of Communication Apprehension (earlier version by Ayres, 1997 does not include the nature dimension). Neither of these theoretical foundations are sufficiently discussed in the literature of accounting education, thus creates a gap of knowledge in application the recent communication theory.

Ayres et al. (2009) model on CA is appealing due to multi-dimension to the causes of CA. In early stage, Ayres utilizes self-perceived motivation, self-

perceived negative evaluation, and communication competence as main predictors of state CA. One downside of the early model is the exclusion of genetic based predictors, as Beatty et al. (1998) also contended that communication research without consideration of nature element is incomplete. Also, CA is very much a behavioral variable resulted by psychological activation. What causes the arousal of fear in speaking should be examined closely internally. Hence, this line of inquiry calls into a need of deeper understanding of the human brain and also neuropsychology towards communication behavior.

Ayres el al. (2009) model of communication apprehension extends to include a biological dimension, i.e., nervous system sensitivity. This has resulted in over 60% accounted variance in explaining CA. Even so, for fear sensitivity to correlate well with CA, chances are that it will also correlate well with self-perceived motivation, and self-perceived negative evaluation. It would be interesting if both self-perceived constructs (motivation and negative evaluation) were merely mediating factors. Because if it holds true, that would sum up to be the position of the communibiologist, i.e., the influence of one's neurobiological system in governing communication behavior.

In light of research motivation, a general pattern of CA among the Malaysian accounting students is required prior to further analysis of causes leading to CA. The communibiological paradigm is appealing due to two major reasons. First, it has a biological focus, which is rooted in trait conceptualization of CA (see Fig. 2.1). What seems to be an enduring pattern among the shy accounting

students as reflected in a decade of accounting education research may be explained by a model which has the heredity focus (rather than environment focus). Second, the paradigm is recent and requires more empirical support in terms of generalizing the finding in a different context. Accounting education may be benefit from the adoption of communibiological paradigm in understanding the phenomenon of communication apprehension among the accounting students.

2.6.2 Communibiological Paradigm

It is important to note the importance of CA as a trait-like construct (as laid down in conceptualization of CA in section 2.3). By acquiring understanding from the temperament literature, which stems the discussion of neurobiological structure, it is promising that the paradigm will open new understanding for accounting educators to understand CA better.

Communibiological paradigm is a departure from the dominating viewpoint, i.e., social learning in explaining CA. The paradigm takes on the nature perspective, specifically, the biologically rooted brain systems responsible in human behavior. This is in direct contrast to the nurture perspective, which is based on the belief that the fear of communication is learned.

The paradigm advocates the relationship between genetics and communication behavior. Actually, a substantial genetic component in CA was proposed by

McCroskey (1977), but there was virtually no one who advances that goal until the one pioneered by Beatty et al. (1998).

In essence, the paradigm proposes five propositions:

1. All psychological processes - including cognitive, affective, and motor – involved in social interaction depend on brain activity, which, thereby, necessitates a neurobiology of communication traits;
2. Brain activity precedes psychological experience
3. The neurobiological structures underlying temperamental traits and individual differences, such as those associated with communication apprehension, are mostly products of genetic inheritance;
4. Environment has only a negligible effect on trait development; and
5. Differences in interpersonal behavior are principally a consequence of individual differences in neurobiological functioning.

Latter update by Beatty et al. (2009) discarded the second proposition stated above, while the rest of the propositions were updated to serve the direction of research under the communibiological paradigm.

Based on the propositions, the paradigm relies heavily on the understanding of neurobiology in relation to behavior disposition. Particularly, the paradigm in view of CA focuses primarily on two distinctive brain systems, i.e., Behavioral Activation System and Behavioral Inhibition System. BAS is accounted for approach / avoidance dimension, while BIS for pleasant / unpleasant emotions associated with social interaction.

Beatty et al. (1998) addressed CA in their introductory paradigm as the "manifestation of neurotic introversion in contexts requiring social interactions". The idea is that CA is the expression of an individual's temperament (in particular, neuroticism and introversion) which is negligently affected by learning. Given such ground, it stimulates thinking and research of whether communication behaviors are also the product of genetic inheritance.

Such change of perspective provides advantages and insights to questions social learning theory finds hard to explain, e.g., a human as a "blank slate" is hardly justifiable towards the diversity of CA manifested across a group of people. Two neurobiological systems (Gray, 1991) are responsible for producing CA, which are Behavioral Activation System (BAS) and Behavioral Inhibition System (BIS). Both structures could be identified as part of the brain anatomy (Beatty et al., 2009,).

2.6.3 Behavioral Activation System (BAS)

The behavioral activation system (BAS) "consists of the basal nuclei, the neocortical regions connected to it, the dopaminergic fibers that extend from the midbrain, and the thalamic nuclei" (Beatty et al., 2009, p. 6). BAS is based on the understanding that people are motivated to act. For instance, in presence of reward, or perceived reward, it is likely to trigger Behavioral Activation System (BAS). Once BAS is triggered, the person is energized to reward-oriented goal. That is why people with high CA are occasionally 'extrovert' despite their introvert personality. To illustrate this, a person with high levels

of communication anxiety is likely to be troubled with anticipated communication when he is asked to present a 5-minute speech in front of his classmates. But due to the perceived reward (e.g., grade A in public speaking course), or perceived cessation of punishment (avoiding bad grade), BAS is triggered and thus motivates him to action. It is noted that he will still suffer from anxiety during his speech, but the positive side is that he did not choose to avoid the communication context. It is believed that BAS represents the extroversion of a person.

2.6.4 Behavioral Inhibition System (BIS)

The behavioral activation system (BIS) consists primarily of the hippocampus, the subiculum, and the limbic system. (Beatty et al., 2009, p. l). BIS handles more on the limbic system of a person. Limbic system controls the emotion, which includes anxiety as the main element of CA. Beatty et al. (1998) mentioned that whenever there is an actual or anticipated communication, negative stimuli is likely to be generated (i.e., people associate communication as aversive), which will activate BIS. Apart from the internal stimuli, novel or conditioned stimuli which are external to the speaker may also cause an activation of BIS. For example, a student representative is asked to present a speech before the masses in the grand hall, which he or she has never done it before (novel stimuli). In another instance, an officer is asked to brief a group of managers about the upcoming budget expenditure in every first week of the month. The officer is conditioned to be anxious in the beginning of every month.

Stimuli, be it internal or external, novel or conditioned, is needed to trigger the BIS, which later activates the limbic system. When activated, the limbic system (serve as control of emotional response) generates anxiety response, which worsens the communication experience. Common anxiety responses ranged from sweaty palm, increased heartbeat, blank minded, worry, nervous, having trouble concentrating, butterflies in the stomach, to feeling depressed. BIS represents the neuroticism of a person, according to Gray (1991).

An example is given to illustrate the interaction of BAS and BIS when a communication experience takes place. A speaker, due to activation of BAS (assuming he is an extrovert), carries out the speech but suffers from anxiety (due to negative stimuli and activation of BIS). The anxiety response renders speaker to perceive or associate communication as negative. And thus, next communication experience is very likely to be associated with negative stimuli, which will again stimulate BIS (cause anxiety). When negative stimuli are strong enough, it is possible to overtake the BAS system (reward and action). Thus, even with great reward, a person will choose to avoid communication situation. An illustration pertaining to the interaction of these two brain systems is graphically illustrated in Figure 2.2.

Both BAS and BIS addressed the elements of avoidance and anxiety during communication context, which is very much similar to the concept of CA. The brain activity as illustrated by communibiological paradigm is the core element in generating the propositions of the paradigm.

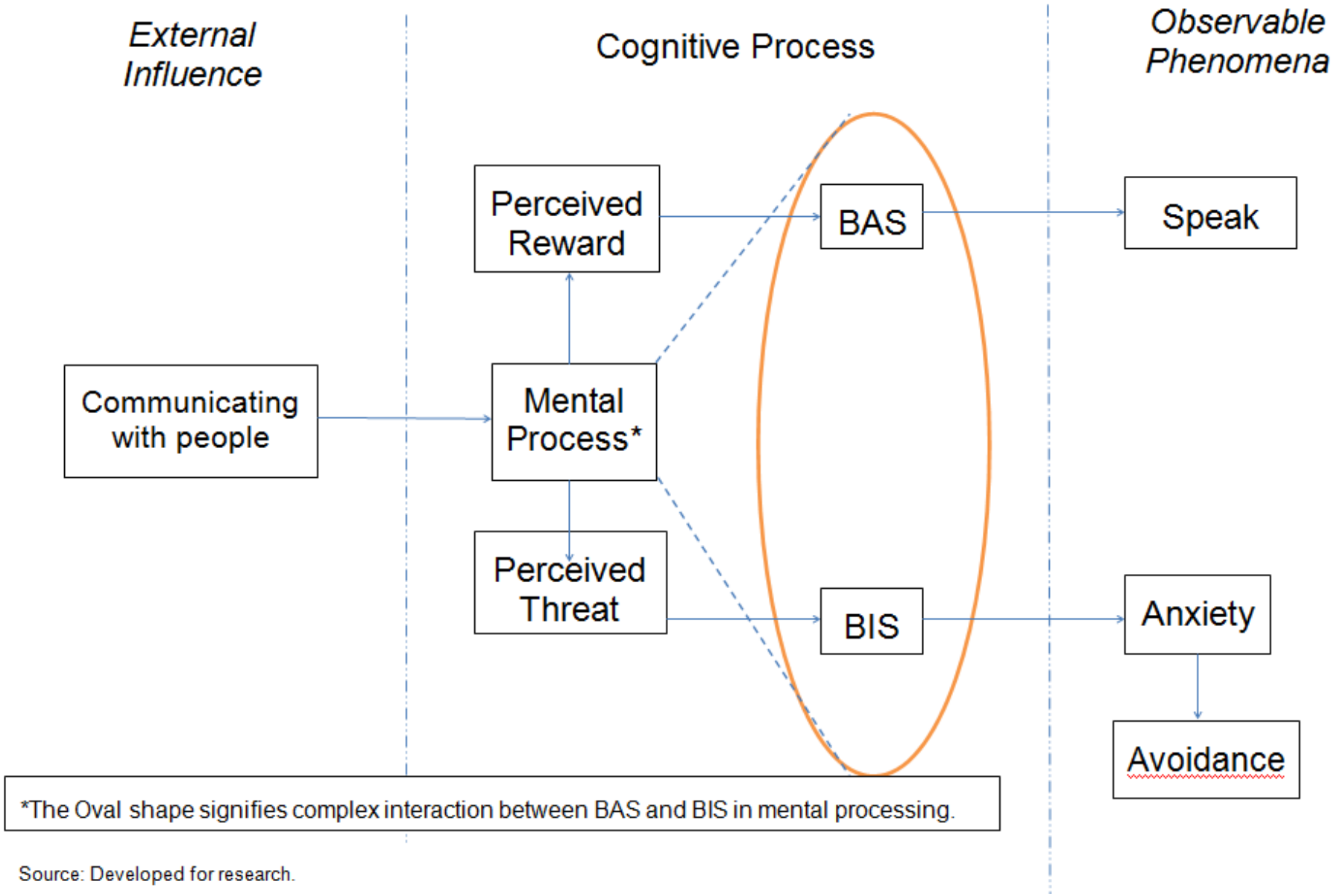


Fig 2.2: Graphical Illustration of the roles of BAS and BIS in Communication Apprehension

In support of communibiological paradigm, McCroskey, Heisel and Richmond (2001) initiated the effort to put together the Eysenck's Big Three temperament and communication traits, where one of them is CA. Such link is important "due to the correspondence between the three dimensions of personality derived through higher order factor analysis and Gray's (1991) tripartite organization of neurobiological systems" (p. 360).

Though it is not the intention of the current study to explore its difference, it is noted that the communibiological paradigm relied on Gray's BAS and BIS, the two brain activities covered earlier. And, Eysenck's work on biological basis of personality, happen to coincide with Gray's theory, i.e., extroversion to be BAS to be operationalized as E, and BIS as N. Such linkage (Matthew & Gilland, 1998) was pioneered and introduced in the paradigm.

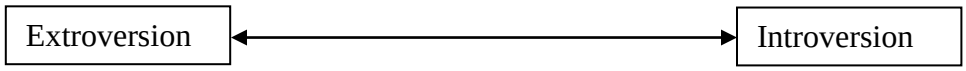
The result by McCroskey et al. (2001), based on 219 college students sample from Mid-Atlantic University in the United States, inferred that a combination of neurotic-introversion is found among those who are communication apprehensive. Extroversion is negatively correlated (r=-.47) with CA, while neuroticism is positively correlated with CA (r=.36).

2.6.5 Extroversion and Neuroticism

Temperament theorists do not claim that temperament is an exclusively genetic product (Beatty et al., 1998), yet it should be a substantial one. Temperament is defined as "biologically rooted individual differences in behavioral tendencies that are present in life and are relatively stable across various kinds of situations and over the course of time" (Bates, 1989, p. 4). The temperament is essentially represented by the supertraits, also known as 'The Big Three', which are extroversion, neuroticism, and psychoticism (Eysenck, 1986). These 'supertraits' define one's personality with predetermined threshold, which is believed to be governed by human inborn neurobiological structure. For the purpose of achieving third research objective, temperament is operationalized by the survey measurement score consisting of two distinctive variables (i.e., extroversion and neuroticism). The operationalization of the variables will be further elaborated in Section 3.6.4.

Extroversion is a dimension proposed by Eysenck (1971) as the degree to which a person is sociable, lively, active, assertive, sensation-seeking, carefree, dominant and venturesome. In other words, an extrovert desires the company of others, and is active in social interactions. The other extreme of this dimension is introversion (or low extroversion). The introverts behave just opposite the extroverts. Instead of being sociable and active in community, they are happy in their own company.

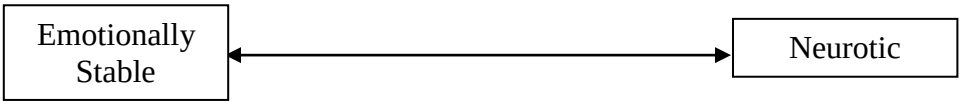
Introverts are generally shy, and usually do not demand much social interaction. The extroversion-introversion construct is illustrated below as a continuum.



Humans are presumed to have predefined genetics on a random point along the continuum, which defines their personality. In Wrench, Brogan, McCroskey and Jowi (2008), relationship between genetics, supertraits, and human behaviors is explained.

> "In essence, Eysenck sees the three supertraits as intervening variables between genetics and human behavior. In other words, an individual's genetics causes her or him to have differing scores on the three supertraits (extraversion, neuroticism, & psychoticism); in turn an individual's supertraits impact how people actually behave" (p. 404).

The second dimension is neuroticism, which refers to the tendency to be anxious, depressed, guilt, low self-esteem, tense, shy, irrational, moody and emotional. People with high neuroticism are sensitive to their anxiety response, while people with low neuroticism are generally emotionally stable, and hence not easily provoked with fear and anxiety. For operationalization purpose, neuroticism can be viewed as a continuum, ranging from high neuroticism (neurotic) to low neuroticism (emotionally stable).



Psychoticism as the third trait in temperament refers to personality patterns typified by aggressiveness and interpersonal hostility. Just like the previous two dimensions, psychoticism is very much inherited, and should not be confused with neuroticism. In theoretical sense, psychoticism has little to do with the avoidance and anxiety element of CA, but it does play a role in explaining other communication traits, i.e., verbal aggression (McCroskey et al., 2001). Also, psychoticism is statistically not significant towards CA. As such, this dimension is not further discussed in the study.

With psychoticism excluded, Beatty et al. (1998) cited a strong correlation between PRCA-24 and introversion ($r=0.83$, $p<.01$) and neuroticism ($r=0.74$, $p<.01$), and proposed a link between neurotic introversion and CA. Neurotic introversion is a term to suggest the blend of high neuroticism and low extroversion, and is explained by Eysenck (1990) as people who approach social interaction with avoidance and anxiety. High neuroticism is responsible for the occurrence of anxiety response, and low extroversion for the tendency of avoidance. Both of these constructs, which represent major dimensions of personality, are related to the two neurobiological systems as proposed in the communibiological paradigm.

2.6.6 Prior Studies

In further advancing the paradigm, Neuliep et al. (2003) in a cross-cultural test between the US and Japan found that substantial correlations and explained variance are reported among the measure of neuroticism, introversion, and CA. Meanwhile, Jung and McCroskey (2004) revealed a strong relationship between CA in the first and second language. Most importantly, both extroversion and neuroticism are able to predict the first and second language CA approximately equal. The consistency of CA across linguistic context is an interesting finding, as it suggests that while the languages are learned, the CA is not. Hence, it supported the fourth proposition of the paradigm: CA is negligently affected by the environment.

A latter study by Blume, Dreher, & Baldwin (2010) also revealed significant association between temperament and CA. They actually utilized Goldberg's (1999) instruments which are originally directed by the Big Five personality markers. One point to note is that while both extroversion and neuroticism may be reasonably measured either by Eysenck's (Big Three) or the Big Five, scholars must be cautious about the biological basis in anchoring individual's personality. The communibiological paradigm uses Eysenck's temperamental model as it correlates well with Gray's work on the neurobiological structures.

Two directional hypotheses are framed in response of third research objective**.** Once the directions were confirmed, a collective analysis of extroversion-neuroticism against CA will be used to generate a regression model. Hence,

H5: The score on extroversion (E) is negatively related with accounting student's level of CA.

H6: The score on neuroticism (N) is positively related with accounting student's level of CA.

H7: Temperament creates a significant regression model to explain accounting student's level of CA.

It is important to note that CA is a function of extroversion and neuroticism from the communibiological perspective. Interested readers who wish to explore other dimensions of personality (openness, agreeableness, conscientiousness) may refer to DeYoung et al. (2010) literature, where the relationship between these dimensions and brain activities is also advocated.

2.6.7 Evidence of Extroversion and Neuroticism towards CA outside of Communibiology

The classification of CA as a manifestation of both neuroticism and extroversion creates insight for the current research trend to consider the influence of personality towards such communication behavior. However, there is a distinction in terms of theoretical background behind personality-based and communibiological research.

While it may be interesting for the researchers to explore the interrelationship between personality and CA, Beatty et al. insisted that Eysenck's personality theory is essentially biologically based. For example, Eysenck (1967) proposed the link between temperament and individual difference in cortical arousability. Further support by Gray (1994) contended that the three neurobiological structures may be represented by major dimensions of personality, noting Eysenck's work to be precise.

Apart from Eysenck's personality theory, there are many other personality based research. Perhaps the most popular personality instrument is the five-factor model (Digman, 1990, McCrae & Costa, 2003). It consists of extroversion, neuroticism, openness, agreeableness, and conscientiousness. Their model depicted biological bases as the starting point, which shapes one's basic tendency (McCrae & Costa, 2003). Basic tendency, with the influence of external influence, leads to

characteristics adaptation, where one eventually ‘acquired’ his personality structure.

Evidence were provided in relation to personality factors and CA. Rashidi, Yamini, and Shafiei (2011) explored extroversion and CA in an English teaching environment. The authors suggested self-esteem and extroversion as the major determinants of oral CA, with the latter factor as the stronger predictor of CA. The model is an impression of Jung’s theory of personality, in which the authors relate CA with people with ‘low self-esteem, high introversion, and low self-assertiveness’ (Rashidi et al., 2011, p. 167).

Other personality based research includes Jung’s theory of personality and Myers-Briggs personality indicators (MBTI), both of which acted as the theoretical foundation and operationalization of study. As cited in Opt and Loffredo (2000), people suffered from CA are very likely to have inclination towards **introversion** and sensing type. Furthermore, the personality profile of accounting students mostly reside between the combination of ISTJ, namely Introversion, Sensing, Thinking, and Judging (Kovar et al., 2003, Wheeler, 2001).

What is interesting is that the accounting profession with ISTJ Personality type may regard the opposite type as a total mismatch (which is ENFP- Extroversion, Intuition, Feeling and Perceiving), as argued by scholars such as Swain & Olsen (2012). Further evidence shows that Sensing/Judging are the most prevalent

personality traits found among the accounting students who later graduated and serve as practitioners.

Particularly for extroversion/introversion dimension, there is not enough evidence to conclude that the students in general are introverts. For example, Andon, Chong and Roebuck (2010) found that Australian postgraduate accounting students were more extravert than previous study as reported in Wheeler (2001). Meanwhile, a 1999-2003 longitudinal study by Briggs, Copeland, & Haynes (2007) fail to conclude a difference in preference for extraversion among the Australian accounting students. Another study by Bealing, Baker and Russo (2006) investigated the MBTI personality profile among the accounting students, and found that except for the STJ dimensions which are generally agreed upon, there remained a mixed opinion on the facet of extroversion/introversion.

2.7 Proposed conceptual framework

For the first research objective, major of study is studied (labelled as H1) as it is believed that the students are motivated to choose a major according to their communication preference. Stereotype of 'accountant' will likely motivate the enrollment of those who possess higher level of CA. On the other hand, students with relatively lower level of CA are less motivated to settle for a career in accountancy. This rationale is justified by a series of past research comparing student's CA between accounting and business majors (see Table 2.1). In view of

research generalizability, this research will set place in Malaysian context, specifically, a case study approach is adopted which will be explained in chapter 3.

Second objective serves to supplement the finding from the first research objective. It aims to provide evidence towards how personal variables (gender, age, year of study) are related to communication apprehension. For this purpose, H2, H3, and H4 will be responsible to answer the second research objectives.

For the third research objective, a temperamental based model is employed as an attempt to explain the phenomenon of communication apprehension in accounting education context. Such model is adapted from Beatty et al. (2009)'s communibiological paradigm (see figure 2.3). The overview of the paradigm (not present model) is that the authors hypothesized a causal relationship from genetic inheritance to observable communication behavior. Genetic inheritance, coupled with prenatal hormonal exposure, will influence the development of neurobiological threshold, which in turn shapes the temperament of a person. Temperament is viewed as proximal consequence due to the shaping of neurobiological structure. Temperament, once developed, will influence communication behavior (distant consequence).

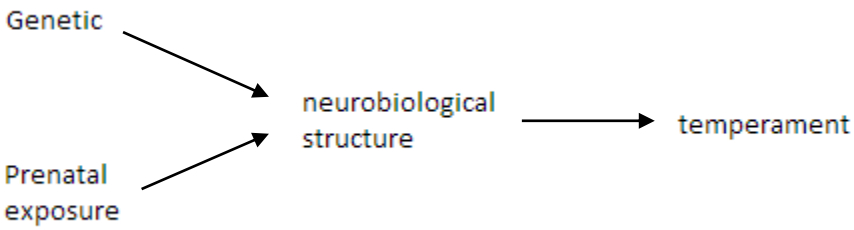
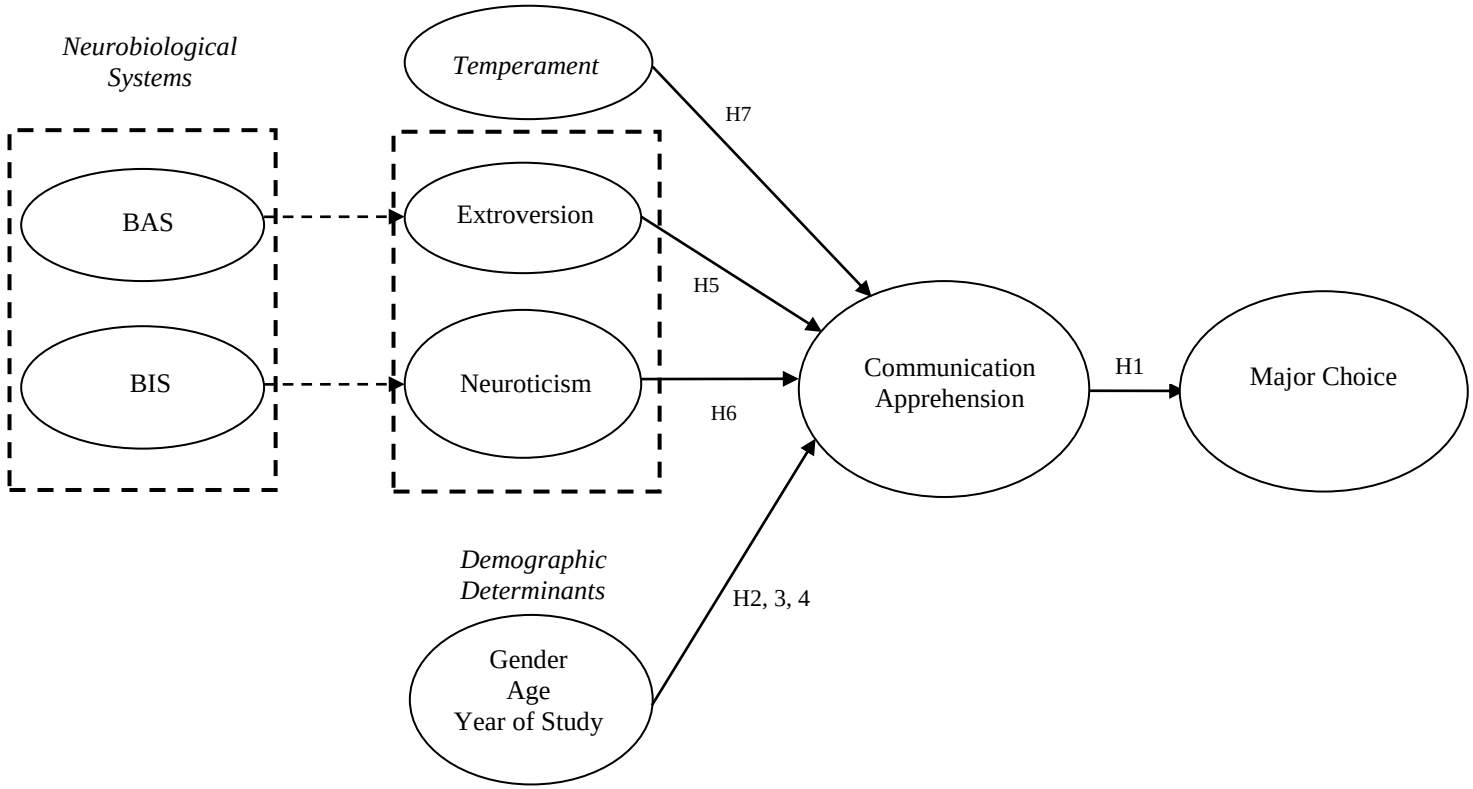


Figure 2.3: Genetic, Neurobiological Structure, and Temperament

For the purpose of this research, only temperament and communication behavior is examined empirically. Reader who is interested in finding out the preceding links may refer to Beatty et al. (2009) literature.

Relationship between student temperament and communication apprehension will be studied. This is to propose communibiological perspective of CA in addition to demographic based factors which were popularly studied in accounting education. Students' temperament (which is shaped by BAS and BIS) will likely to predict communication apprehension, which in turn affects their choice of major. As a reference to research, study relating temperament and communication apprehension, with communibiological paradigm as theoretical framework, is previously demonstrated by Neuliep et al. (2003). This research is an extension of their work by relating temperament to CA, and CA to major choice in the context of accounting education. To this end, H5, H6, and H7 will serve to answer the third research objectives.

Having laid down the hypotheses which are responsible to guide the three research objectives, an overview of proposed conceptual model is depicted in Figure 2.4.



Source: Adapted from Beatty et al. (2009), Neuliep et al. (2003).
Note: For clarity purpose, H7 proposes a relationship between temperament (Extroversion and Neuroticism collectively) and CA.

Figure 2.4: Proposed Conceptual Framework

CHAPTER 3

METHOD

3.0 Introduction

Chapter 3 is divided to five (5) segments. First, section 3.1 provides an overview of how research data collection should take place in a given research setting. Second, section 3.2 to 3.3 defines the population and sample. Third, section 3.4 and 3.5 are devoted to sampling strategy and procedure. Forth, section 3.6 provides the measurement and operationalization of constructs identified in chapter 2. And lastly, section 3.7 provides the data analysis technique needed for interpretation of data finding in latter chapter.

3.1 Research Design

Part of the effort of this study is to replicate the finding, which is to identify if the accounting students exhibit higher CA than non-accounting students. To fulfill this purpose, 'constructive replication' is used to provide greater generalizability by conducting the research under dissimilar conditions. According to Keyton (2006), constructive replication is a method employed to replicate the past findings by using different sampling technique in a different population with different research procedures and measures.

This study employed purposive sampling technique. It is a non-probability sampling used to draw student sample from the population of Malaysia. Purposive sampling is defined as a method in which the researcher, based on his own judgment, select cases that are typical of the population of interest (Kyeton, 2006). This kind of sampling technique is wholly dependent on the researcher's ability to identify what is typical.

For measurement, survey based self-report measure is undertaken as CA is "experienced internally by individuals" (Gardner et al., 2005, p. 319). While it is also possible to depend on other's report, i.e., observation, or measures of psychological activation (McCroskey, 1984), they are seen as indirect evidence. Past CA studies appeared to favor survey research as a method to draw response from the large samples. And given that the first research objective aims to identify the level of CA among accounting and business students, a survey-based research will be opted, with two concurrent phases of survey administration conducted: physical and online administration.

3.2 Population definition

Theoretical population is defined as tertiary accounting and non-accounting business undergraduates in Malaysia.

However, reaching a sample from this population is proving infeasible due to several reasons. The **first** issue to address is the cultural effect. As highlighted by

McCroskey (2005), cultural effect still stands as an important variable in mediating the CA. Studies conducted in Malaysian setting should take into consideration of the potential cultural and racial effect towards the research designs. Hence, both cultural and racial effects are best to be controlled in order to provide a much controlled research environment. The second issue is the feasibility of study. A much smaller population is targeted for the scope required for a suggested 2-year part time research degree. Such work could be advanced by extending it to other parts of the population should there be positive outcome as a result of replication to current study.

As a result, a research design was articulated to an accessible population, specifically, accounting and non-accounting business undergraduates from Universiti Tunku Abdul Rahman (UTAR). UTAR is a private higher education institution in Peninsula Malaysia, with an approximate 95% Chinese students enrolled in the institution consistently since its establishment in late 2002. Finding from this research may be used for comparison purpose among the Chinese university students in Malaysia. It will serve as a source of reference for future cross-racial and cross-cultural research.

3.3 Sample Definition

Accounting student is comprised of those who enroll in Bachelor of Commerce (Hons) Accounting. This is a 3-year full time programme with a major in accountancy. Meanwhile, the composition of business major is ambiguous as past studies do not explicitly define a business student. As such, the sample is narrowed to two business majors with the prefix of 'bachelor of business administration', excluding other business majors such as marketing, entrepreneurship and economics. These two majors were chosen to match the student enrollment statistics provided by the Department of Admission of the university. Table 3.1 shows the courses selected to represent accounting and business students.

Table 3.1: Coding for Major of Study

Student Group	Course	Code
Accounting	Bachelor of Commerce (Hons) Accounting	AC
Business	Bachelor of Business Administration (Hons)	BA
	Bachelor of Business Administration (Hons) Banking and Finance	BF

The population of this sample is estimated by obtaining data from the Department of Admission and Credit Evaluation (DACE) of the university. Though no specific

number of students by major could be obtained, the researcher is able to estimate the number of students by calculating the number of student intake each trimester, starting from year 2009 onwards.

Based on Table 3.2, there is a decline in student's intake, particular the accounting students from year 2010 onwards. This statistics is probably due to the introduction of a 4-year Bachelor of Accounting (Hons). This new programme is run by the branch campus in Selangor, Malaysia.

Table 3.2: Number of students per intake (2009-2011)

Year	2009		2010		2011			Total		Percentage
Course	Jan	May	Jan	May	Jan	May	Oct			
AC	198	594	148	438	101	225	124	1828	1828	44.3%
BA	172	295	126	267	129	133	145	1267	2302	55.7%
BF	74	203	76	253	102	167	160	1035		
Total (per year)	1536		1308		1286			4130		100%

Based on the table, the population of accounting and business students are 1828 and 2585 students yielding 44.3% and 55.7% respectively. Minimum samples needed for both groups are 322 (95% confidence interval, or p=.05, Krejcie & Morgan, 1970).

3.4 Sampling strategy

It is important to study the background prior to planning the sampling procedure. Preliminary observation found that flexible timetable is adopted in university setting. Hence, it is difficult to identify accounting and business students as they have the freedom to choose and enroll any pending subject in any trimester. In ensuring that the sample for all 3-year of studies are reached, a two-phase sampling is adopted which will be elaborated as follows.

Data collection period falls on a short trimester (October 2012). This period is special due to that most final year students will be undertaking industrial attachment during this period. Hence, a request was sent to the faculty office to seek a sampling frame of the interns. Google Form, a free online survey tool, was set up and a link (shortened using TinyURL) was sent to all AC, BA, and BF interns via e-mail. The invitation was sent one-month upon commencement of their industrial attachment.

Second phase deals with year 1 and 2 students. One way to identify them is to check for the subjects (or teaching units) which are exclusively offered to these student groups. This method has two major advantages. First, a teaching subject is often associated with year of study as well as to which major the unit is offered. For instance, UBAM2023 Performance Management is a level two management accounting subject, and is recommended for year 2 accounting students. Conducting data collection in such class will ensure a garnered sample comprising

of this sub-category (year 2, accounting). Second, the data collection could be conducted in lecture-wide setting, making it feasible in terms of time resource needed to reach out to a large number of students.

The process of identification is facilitated by referring to the master list of subjects offered, a document which is made available to students in faculty website (see appendix E). Data collection, using this approach, assumes that students enroll the subject based on the recommendation of their course structure.

3.5 Sampling Procedure

3.5.1 In-class Administration

The faculty members in-charge of the selected units were approached on the first week of the trimester to brief about the data collection process. Essentially, permissions are first obtained from the respective staff of their willingness to help out. The lecturer is requested to spare 15 to 20 minutes of the class for such purpose.

All nine (9) survey administrations were made in lecture class setting and with the presence of the researcher. In each administration, an announcement is made in briefing the intention of study. In hope of receiving good response rate, students are encouraged to include e-mail address (an optional entry in questionnaire) so

that the aggregate result of the scores on communication apprehension may be sent to them upon the completion of this project.

The closed-ended self-administered survey questionnaires were distributed thereafter. Students were required to complete the questionnaire consisting of three sections: all of which were accompanied by a written instruction. The first section is demographic profile requiring students to report on their gender, major, age, year of study, as well as e-mail address (optional to students should they want the result to be sent to them in future). Second section involves 24 Likert-type questions responsible in reporting student's scores on communication apprehension. Last section is temperament instrument (24-item) in binary response format.

Students in general require minimal guidance throughout the survey administration process. Table 3.3 shows the number of usable samples, population, and response rate of all nine (9) survey administration. All administrations were conducted between teaching week 1 and 3 in the October 2012 trimester.

Table 3.3: Sample Response (Class Administration)

Student Group	Year	Unit	Data Collection					Remark	Time taken (during the lecture)
			Venue	Time Collected	Usable Samples	Known Population	Response Rate (%)		
BA	1	Business Accounting 1	IDK2	8-10am, Thu, Week* 3	88	186	47.3	Students took the questionnaires back.	ending
	2	Recruitment & Resourcing	IDK5	8-10am, Mon, Week 1	111	182	60.1		ending
		International Marketing	IDK5	10-12pm, Fri, Week 1	30	160	18.8	UTAR anniversary event taken place, high absenteeism	beginning
BF	1	Principles of Macroeconomics	EDK4	10-12pm, Tue, Week 3	73	95	76.8		ending
	2	Financial Markets & Regulation	IDK4	6-8pm, Wed, Week 2	119	220	54.1	Most students joined the alternate noon class.	beginning
AC	1	Financial information for management	IDK2	8-10am, Mon, Week 2	127	165	77.0		beginning
			IDK2	12-2pm, Mon, Week 2	191	264	72.3		beginning
	2	IT for management	IDK4	10-12pm, Tue, Week 3	96	156	61.5		beginning
			IDK2	10-12pm, Thu, Week 3	102	180	56.7		beginning

*Refers to teaching week of October 2012 trimester. All data collection taken in Universiti Tunku Abdul Rahman, Perak Campus.

**Year 3 students are sampled by Google Form, an online survey tool. Sampling frame is obtained from the faculty office for research purpose.

3.5.2 Online Administration

Online administration is made possible with the availability of the sampling frame. The sampling frame consists of 394 accounting students, and 443 business students (which made up of 227 business administration and 216 banking and finance students). There is little help in retrieving the information about the gender composition as the sampling frame merely consists of a list of e-mail address together with major of study.

All interns for October trimester 2012 commenced their industrial attachment from October to December 2012. An e-mail was sent to them as a formal invitation to participate in the survey. In the email, a link is provided so that the students may navigate to the page to complete the survey. All responses were captured and automatically coded by the Google Form.

The online version of questionnaire (Appendix B) was designed according to the physical copy. There are three sections requiring the respondents to complete the response before navigating to next pages.

3.6 Measurement and Operationalization

3.6.1 Major of Study

Students are required to report on their major of study as part of the demographic profile in the questionnaire. Two options were given, which are “accounting” and “non-accounting”. Students who selected the latter will have to indicate their majors on the space provided. Accounting major is defined as a person undertaking a tertiary course with a major in accounting. Meanwhile, non-accounting major is defined as a person undertaking a business course with a major other than accounting. Non-accounting major in this study is further narrowed to either BA or BF group.

For coding purpose in statistical software (SPSS), accounting major will be coded as “0”. For business major, BA group is coded as “1”, and BF group as “2”. Both BA and BF groups will be combined to create a new variable, which represents the business students. This is done to facilitate analysis of difference as indicated in the first research objective.

3.6.2 Personal Variables

The demographic section includes three personal variables, i.e., gender, age, and year of study in fulfilling the second research objective. Gender as a nominal scale is coded in binary format, where male is labelled as “0”, and female “1”. Next,

student's age is reported using with 2-year interval format, which transforms the variable as an ordinal scale, instead of a ratio data type. In the questionnaire, student is required to report on their age by indicating either "*18 and below"*, "*19-20"*, "*21-22"*, "*23-24"*, or "*25 and above"*. Such format is used to encourage honest reporting of student's age. Lastly, student's year of study is coded as *"1", "2",* or *"3"*. This variable is classified as nominal scale due to that the researcher has no intention to assert intrinsic ranking unto it, i.e., year 2 is no superior than year 1 in the context of current study.

3.6.3 Communication Apprehension

The original questionnaire by McCroskey (1984), Personal Report of Communication Apprehension (PRCA-24) is the most used questionnaire across literature. PRCA-24 uses five-point Likert response scale format throughout 24 questions which made it an interval data type. For example, a response of "1" shows that the students strongly disagreed to the statement, while a response of "5" indicates strong agreement. The instrument is an established instrument with content validity (McCroskey, Beatty, Kearney, & Plax, 1985). There are four communication contexts with six questions on each context: public speaking, dyad, meeting, and group discussion. Also, face validity is demonstrated, with wordings such as 'nervous, tense, calm, relaxed' found in the survey instrument. Previous reports of reliability of the instrument are above alpha = 0.90.

Instead of using the original questionnaire, Gardner et al. (2005) modified the PRCA-24 for accounting education context. Notable changes are that two communication contexts are replaced (meeting and public speaking were replaced with interview and presentation). It is recognized that not all accounting students are called to be public speakers, nor does the profession implies the need to be so. Also, presentation skill is viewed as important in workplace, thus making it relevant to replace such context, in adherence of formal, one-to-many communication context. Additionally, the 'meeting' context is replaced by 'interview'. Both of these contexts fit in the formal communication context.

Gardner et al. (2005)'s version is chosen as it is more relevant to accounting education context. The instrument will be attested of its validity within Malaysian setting. In Table 3.4 shows the breakdown of PRCA-24 items and how they are coded in SPSS statistical software.

Table 3.4: PRCA-24 Coding in SPSS

Variable	Sub-Scale	Code	Item Description**
Communication Apprehension	Group Discussion	GD1	dislike participating
		GD2*	comfortable while participating
		GD3	tense and nervous while participating
		GD4*	like to get involved
		GD5	tense and nervous while new people are around
		GD6*	calm and relaxed while participating
	Interview	MT1	nervous to participate
		MT2*	calm and relaxed while participating
		MT3*	calm and relaxed to express an opinion
		MT4	afraid to express myself at interviews
		MT5	Uncomfortable in speaking
		MT6*	relaxed when answering question
	Conversation	IP1	nervous conversing with acquaintance
		IP2*	no fear of contributing ideas
		IP3	tense and nervous in conversations
		IP4*	calm and relaxed in conversations.
		IP5*	relaxed conversing with acquaintance
		IP6	afraid to express opinions
	Presentation	PS1*	no fear of giving a presentation.
		PS2	nervous while giving a presentation
		PS3*	relaxed while giving a presentation.
		PS4	Jumbled thought in presentation
		PS5*	Confident in giving a presentation
		PS6	Nervous and forget facts in presentation.

*Asterisk items were reversed coded, as intended in the original questionnaire.

**The description is summarized to improve clarity. Actual questionnaire format may be found in appendix A (Print) or B (online).

There are four contexts with prefix GD, MT, IP and PS, with each representing group discussion, interview, interpersonal, and lastly, presentation. Each context consists of six questions. For example, GD1 to GD6 were coded to represent the facet of group discussion. The same applies to the rest of the communication contexts.

The scoring is retrieved as follows:

Group discussion: *18 - (scores for items GD2, GD4, & GD6) + (scores for items GD1, GD3, & GD5)*

Meeting (Interview): *18 - (scores for items MT2, MT3, & MT6) + (scores for items MT1, MT4, & MT5)*

Interpersonal: *18 - (scores for items IP2, IP4, & IP5) + (scores for items IP1, IP3, & IP6)*

Public speaking: (Presentation) *18 - (scores for items PS1, PS3, & PS5) + (scores for items PS2, PS4, &PS6)*

The scoring is ranged between 24 and 120. Score below 51 represents students with very low CA, while 51-80 is classified as average CA, and above 80 as high level of CA.

Table 3.5: Cluster of CA

CA Levels	Score
Low	<51
Medium	51-80
High	>80
US National Mean*	65.6 (SD 15.7)

Adopted from McCroskey (1984).

Details of the 24-items can be found in the Appendix. An express statement defining the context is included in the questionnaire so as to minimize bias. Specifically, students were informed as follows:

- '*Group discussions*' means an informal discussion involving several of your colleagues/fellow students;

- '*Interview*' means a formal conversation between you and a lecturer/employer;
- '*Conversation*' means an informal discussion involving you and a colleague/a fellow student; and lastly
- '*Presentation*' means a formal verbal communication given to an audience.

3.6.4 Temperament (Extroversion and Neuroticism)

Matthews and Gilliland (1998) provided explanation to link between Gray's BAS/BIS systems and Eysenck's work on the personality. Both authors' works are anchored as the "biological bases of personality traits", which is different from the popular five-factor model. Beatty et al. (1998) utilized EPQ as the operationalization of temperament due to the theoretical foundation laid down in their literature. Specifically, they mentioned how brain systems react as activation and inhibition mechanism when interacting with the stimuli. These systems have to be measured in some ways in order to make empirical survey testing possible. Subsequent works (for example, see Jung & McCroskey, 2004, Neuliep et al., 2003) following Beatty et al. (1998)'s literature also used EPQ as the sole measure of temperament. In Jung & McCroskey (2004), three principal reasons were cited:

> First a large number of empirical studies indicate that the ratio of genetic inheritance to environmental contribution is estimated to be 80/20 in the three basic personality dimensions. Second, psychobiologists have made considerable progress identifying and mapping genetically inherited individual differences in

> the thresholds of neurobiological structures responsible for the behavior we observe and interpret as P, E, and N [psychoticism, extraversion. neuroticism]. Third, two of Eysenck's basic dimensions of personality, extraversion, and neuroticism, are the primary subcomponents of CA (Beatty et al., 1998, p. 200 as cited in Jung & McCroskey, 2004).

Temperament is measured by Eysenck, Eysenck, and Barrett's (1985) revised Eysenck Personality Questionnaire (EPQ-R) version. This version (24 questions) measures student's extroversion and neuroticism. One sample question is "Are you a talkative person?". The questionnaire is attached in Appendix A.

Previous research reported an alpha reliability estimate of .73 for extroversion and .74 for neuroticism. Table 3.6 presents the coding of EPQ-R in SPSS.

Table 3.6 : EPQ-R Coding in SPSS

Variable	Sub-scale	Code	Item Description**
Temperament	Extroversion	E1	talkative person
		E2	rather lively
		E3	enjoy meeting new people
		E4	enjoy at a lively party
		E5	take initiative in making new friends
		E6	easily get some life into a rather dull party
		E7*	keep in the background on social occasions
		E8	like mixing with people
		E9	like plenty of bustle and excitement around
		E10*	quiet when with other people
		E11	other people think of being very lively
		E12	can get a party going
	Neuroticism	N1	mood often go up and down
		N2	feel just miserable for no reason
		N3	irritable person
		N4	feelings easily hurt
		N5	often feel fed-up
		N6	call yourself a nervous person
		N7	a worrier
		N8	call yourself tense or highly-strung
		N9	worry too long after an embarrassing experience
		N10	suffer from nerves
		N11	often feel lonely
		N12	often troubled about feelings of guilt

*Asterisk items were reverse coded as intended in the original questionnaire.

**The description is summarized to improve clarity. Actual questionnaire format may be found in appendix A (Print) or B (online).

As shown in the table above, 24 items are represented by two major code prefix. Both E and N are referred to as extroversion and neuroticism. Each variable consists of 12-item. E1 to E12 correspond to extroversion, and N1 to N12, neuroticism. For interpretation, respondents with higher scores on each dimension indicate higher manifestation of extroversion and neuroticism. The scoring key is as follows: (1 score each)

Extroversion (E), *Yes:* *item E1, E2, E3, E4, E5, E6, E8, E9, E11, & E12*

No: *item E7 & E10*

Neuroticism (N), *Yes:* *item N1 to N12*

The original EPQ consists of 100-item, which will likely cause fatigue to the respondent. Hans Eysenck then came out with a revised questionnaire, namely EPQ-R as an alternative for research purpose. Eysenck's Big Three Temperament scale, as Beatty et al. (2009) argued, correspond well to the major model of neurobiological system (Gray, 1991), and that Eysenck's work is related to communication in general, and social anxiety in particular.

Table 3.7 summarizes the instruments used to operationalize the variables in this study.

Table 3.7: Summary of Instruments

Variable	RQ	Instrument	n	Source
Communication Apprehension	RQ1	Personal Report of Communication Apprehension (PRCA-24)	24	Gardner et al. (2005)
Extroversion	RQ3	Revised version of Eysenck's Personality Questionnaire (EPQ-R)	12	Eysenck, Eysenck, & Barrett (1985)
Neuroticism			12	

3.7 Data Analysis Technique

For first research objective, independent t-test will be used to identify significant difference in levels of CA between accounting and non-accounting majors. Mean scores between the target groups will be examined as well. For second research objective, independent t-test and ANOVA will be used to identify significant difference between personal variables (gender, age, year of study) and student's level of CA.

For third research objective, Pearson correlation is used to analyze the correlation of extroversion and neuroticism against the level of CA. Additionally, multiple linear regression is applied whereby extroversion and neuroticism are tested collectively against CA. Past studies had a convention of reporting attenuated correlation (after correcting measurement error). This convention is noted and will be reported in data analysis.

CHAPTER 4

DATA ANALYSIS

4.0 Introduction

In chapter 4, sample response rate and its characteristics are detailed in section 4.1 and 4.2. Next, section 4.3 is devoted to assumption testing prior to descriptive and inferential statistics in section 4.4 and 4.5.

4.1 Response Rate

All survey questionnaires were collected during the month of October 2012 in Universiti Tunku Abdul Rahman, where a short trimester was taken place. Data collection process is split to two concurrent phases: face-to-face and online administration.

For face-to-face administration, all first and second year students' responses were captured during questionnaire survey administration in nine (9) different lecture classes. An average response rate of 58.3% is recorded, yielding 937 completed responses out of 1608 population in class.

Meanwhile, online administration using Google Form is conducted by means of e-mail invitation. The invitation is sent to 837 final year (or year 3) students, based

on the sampling frame provided by the faculty. Data collection is opened from 5 November 2012 to 31 December 2012. Finally, 211 responses were collected, yielding 25.2% response rate. Data from Google Form were compiled to an excel-like format automatically by the Google system. This data is then recoded using Microsoft Excel, before exporting it to SPSS for further analysis.

There were a total of 1101 samples consisting of 890 usable printed questionnaires and 211 online data. Table 4.1 shows the basic information of online data collected.

Table 4.1: Gender against Major (Online sample)

	Major		
Gender	Accounting	Business	Total
Male	23	37	60
Female	92	59	151
Total	115	96	211

Online data, which captures response from final year internship students, were taken from 60 male and 151 female responses. These students were represented by 115 accounting and 96 business students (53 from BA, 43 from BF).

4.2 Sample Characteristics

Out of 1101 data, there were 624 accounting and 477 business student responses. These two groups will be analyzed to find out the CA levels difference as indicated in the first research question.

4.2.1 Gender

Table 4.2 shows the gender composition of the sample collected. 319 male and 782 female students took part in this study. The number of males in both accounting and business course is lesser than the females. As a result, the females made up 71% of the total sample. While it is observable that females generally outnumbered the males in business major, this situation will likely to affect the data finding, i.e., the mean score is likely to skew to the females. As a result, gender comparison is necessary in data analysis.

Table 4.2: Gender against Major (Aggregate)

	Major		
Gender	Accounting	Business	Total
Male	148	171	319 (29.0%)
Female	476	306	782 (71.0%)
Total	624 (56.7%)	477 (43.3%)	1101

4.2.2 Age

In Table 4.3, it is found that majority of the students (over 93%) were in between the groups of 19-20, and 21-22. These age groups are reasonable for a typical Malaysian undergraduate. The finding is important so that the sample might not be represented by non-traditional students, i.e., those who worked for few years before resuming education. Other groups (18 and below, 23-24, and 25 and above) were with less numbers of responses. These age groups are excluded for further analysis due to that the inference drawn is less meaningful.

Table 4.3: Age against Major

	Major			
Age	Accounting	Business	Total	Total (%)
≤18*	2	2	4	0.36%
19-20	400	198	598	54.31%
21-22	197	234	431	39.15%
23-24	24	39	63	5.72%
>24*	1	4	5	0.45%
Total	624	477	1101	100.00%

*Age group **"***≤*18*" as well as "*>24*" will be excluded from statistical testing due to low numbers of response needed to enable meaningful statistical comparison.

4.2.3 Year of Study

Students' data were further split according to the year of study, and is presented in Table 4.4. There are 444 first-year students, 419 second-year students, and 238 third-year students, each made up of 40.3%, 38.1%, and 21.6% of the total sample respectively. Overall impression was that both first and second year students outnumbered the final year student responses. It is probably due to lower response rate yielded when questionnaire survey is administered online (to final year students) rather than face-to-face. Despite the difference, minimum 322 samples per major, in consideration of statistical aspect suggested by Krejcie and Morgan (1970), were achieved.

Table 4.4: Year of study against Major

	Major			
Year	Accounting	Business	Total	Total (%)
1	311	133	444	40.3%
2	180	239	419	38.1%
3	133	102	238	21.6%
Total	624	477	1101	100%

4.3 Assumption Testing

Normality assumption is important prior to conducting parametric testing. Using CA as the main variable, one-sample Kolmogorov-Smirnov test of goodness-of-fit provided no evidence against the null hypothesis that the sample has been drawn from a normal population (K-S test D = .039, p =.077). Next, the factor analysis is presented in 4.3.1.

4.3.1 Factor Analysis

Factor analysis is conducted to validate the construct validity of PRCA-24 in Malaysian context. Two factor analyses are conducted, i.e., firstly for 4-factor structure in ascertaining the CA contexts, and secondly, 1-factor structure to represent trait-like CA. Maximum Likelihood extraction method will be used as recommended by Shanahan (2011) when conducting study using a different sample.

As shown in Table 4.5, Maximum Likelihood extraction with Promax rotation reveals four factors structure, with six (6) items loading on each factor. These four structures represent the theoretical dimensions of contextual CA, which are group discussion, interview, interpersonal and presentation.

It is noted that question 5 and 23 generated less satisfactory loading (<0.3), which are “Participating in group discussion with new people makes me tense and

nervous" and "*I face the prospect of giving a presentation with confidence*". The loading for question 5 suggested an overlapping between conversation and group discussion, both of which are considered informal context. Meanwhile for question 23, it could be due to that the meaning of 'prospect' is distorted among the students, as most of Malaysian students acquire English as the second language. Nevertheless, the overall factor analysis is satisfactory, which demonstrates the construct validity of PRCA-24 instrument.

Factor analysis is also conducted with one factor requested, in reflecting the trait-like conceptualization of CA. Results shows that all items loaded on one factor, except question 23 (statistical tool generates lowest loading for this question). Normal treatment for such occasion is item reduction, but doing so will compromise the comparability of finding with other studies. Gardner et al. (2005) faced lower factor loading for some items, i.e., question 1 and 4. They suggested that the item be kept as removing it will only slightly increase the reliability of the instrument.

With two factor analyses generated for PRCA-24, the trait-like (1 factor) and context-based (4 factors) structure of CA can be ascertained. It is important to note that the present study uses 1-factor model in determining the trait-like CA structure.

For EPQ-R factor analysis, the factor loading yielded two factor structures, which represent the theoretical constructs, i.e., extroversion and neuroticism. Item E6, E7,

E9 (extroversion scale) and N11 (neuroticism scale) were poorly loaded (<0.3) when factor analysis is generated the first round. The description of each item is as follows:

E6: Can you easily get some life into a rather dull party?

E7: Do you tend to keep in the background on social occasions?

E9: Do you like plenty of bustle and excitement around you?

N11: Do you often feel lonely?

These items were poorly loaded as the students may have misinterpreted the meaning of the sentence. Wording such as 'dull', 'keep in the background', and 'bustle' are some of the less common wordings used among the Malaysian. Thus, the chances of misinterpreting these are relatively higher.

EPQ-R is retested with items removed, and factor structure (Table 4.6) is much clearer with reliability score exceeding 0.7 for both construct. Next, the cumulative explained variance provided by EPQ-R scale is 32.44%, suggesting that the measurement is poor in capturing the construct. Some observations are made in light of this.

First, the original EPQ has 100 questions in dichotomous format (i.e., true or false). It contains four dimensions, which are extroversion, neuroticism, psychoticism, and lie. For the purpose of this study, both extroversion and neuroticism scale was extracted from a shorter version of EPQ-R. Second, the

Table 4.5: PRCA-24 Factor Analysis

		Factor	Factor			
		1	1	2	3	4
	Eigenvalues	7.397	7.397	2.488	1.854	1.252
1	I dislike participating in group discussions	.346				.668
2*	Generally, I am comfortable while participating in a group discussion.	.390				.768
3	I am tense and nervous while participating in group discussions	.502				.397
4*	I like to get involved in group discussions.	.371				.798
5	Participating in group discussion with new people makes me tense and nervous	.526				**.282**
6*	I am calm and relaxed while participating in group discussions.	.494				.513
7	Generally, I am nervous when I have to participate in an interview	.568			.636	
8*	Usually I am calm and relaxed while participating in interviews.	.545			.878	
9*	I am very calm and relaxed when I am called upon to express an opinion at an interview.	.430			.601	
10	I am afraid to express myself at interviews	.613			.305	
11	Speaking at interviews usually makes me uncomfortable	.602			.343	
12*	I am very relaxed when answering questions in an interview.	.549			.580	
13	While participating in a conversation with a new acquaintance, I feel very nervous.	.617	.794			
14*	I have no fear of contributing my ideas during conversations.	.543	.639			
15	Usually I am very tense and nervous in conversations	.590	.873			
16*	Usually I am very calm and relaxed in conversations.	.599	.832			
17*	While conversing with a new acquaintance, I feel very relaxed.	.600	.668			
18	I'm afraid to express my opinions during conversations	.568	.599			
19*	I have no fear of giving a presentation.	.557		.675		
20	I feel very tense and nervous while giving a presentation	.519		.730		
21*	I feel relaxed while giving a presentation.	.573		.636		
22	My thoughts become confused and jumbled when I am giving a presentation	.547		.761		
23*	I face the prospect of giving a presentation with confidence.	**.289**		**.242**		
24	While giving a presentation I get so nervous, I forget facts I really know	.558		.717		

*Asterisk items were reverse coded prior to analysis.
Maximum likelihood extraction with Promax rotation. KMO measure of sampling adequacy =0.906.
Four factors cumulatively explain 54.13% of variance, and one factor 30.82% of variance.
Loading below 0.3 is suppressed to improve clarity of factor structure.

Table 4.6: EPQ-R Factor Analysis

		Factor	
		1	2
	Eigenvalues	3.880	2.604
E1	Are you a talkative person?		.576
E2	Are you rather lively?		.489
E3	Do you enjoy meeting new people?		.402
E4	Can you usually let yourself go and enjoy yourself at a lively party?		.425
E5	Do you usually take the initiative in making new friends?		.436
E8	Do you like mixing with people?		.491
E10*	Are you mostly quiet when you are with other people?		.546
E11	Do other people think of you as being very lively?		.540
E12	Can you get a party going?		.405
N1	Does your mood often go up and down?	.617	
N2	Do you ever feel 'just miserable' for no reason?	.573	
N3	Are you an irritable person?	.419	
N4	Are your feelings easily hurt?	.565	
N5	Do you often feel 'fed-up'?	.501	
N6	Would you call yourself a nervous person?	.457	
N7	Are you a worrier?	.532	
N8	Would you call yourself tense or 'highly-strung'?	.542	
N9	Do you worry too long after an embarrassing experience?	.440	
N10	Do you suffer from 'nerves'?	.478	
N12	Are you often troubled about feelings of guilt?	.444	

*Asterisk item is reverse coded prior to analysis.
Maximum likelihood extraction with Promax rotation. KMO measure of sampling adequacy =0.837.
Two factors cumulatively explain 32.42% of variance.
Loading below 0.3 is suppressed (after item deletion E6, E7, E9, N11) to improve the clarity of factor structure.

cumulative variance of short EPQ-R version seems problematic as other study such as Aluja, García, and García (2003) revealed only 30.44% cumulative variance with four factors. It is less than half of the total variance. Third, Muñiz, García-Cueto, and Lozano (2005) suggested that rather than using dichotomous format, EPQ-R with Likert response format may improve its psychometric properties.

Despite this limitation, factor analysis is able to reveal the dimensionality of EPQ-R. Next section discusses the descriptive and inferential statistics for further testing.

4.3.2 Reliability Test

Next, the reliability result is presented in Table 4.7. PRCA-24 instrument is reliable at Cronbach's Alpha = 0.90. When breaking down at contextual level, all four contexts yield above 0.70 reliability scores. Next, EPQ-R instrument measuring both extroversion and neuroticism is reliable. Extroversion dimension recorded 0.729 reliability score, and neuroticism at 0.790 scores. It is important to note that some items in EPQ-R are removed due to poor factor loadings (see section 4.3.1).

Table 4.7: Reliability Test

Instrument			Item	Reliability n=1101
Personal Report of Communication Apprehension (PRCA-24)	Trait-like		24	0.900
	sub-scale	Group Discussion	6	0.791
		Interview	6	0.813
		Interpersonal	6	0.869
		Presentation	6	0.799
Revised Eysenck's Personality Questionnaire (EPQ-R)		Extroversion	9*	0.729
		Neuroticism	11*	0.790

*Some items are deleted (i.e., E6, E7, E9, & N11) due to poor loading in factor structure

4.4 Descriptive Statistics

As mentioned, both PRCA-24 and EPQ-R instruments were used to measure communication apprehension and temperament (extroversion and neuroticism). Descriptive statistics is generated based on the total 1101 data collected. As indicated in Table 4.8, missing values were present (7.8% of the total sample), thus affects the total number of cases analyzed. These missing values were primarily due to incomplete entry made by the students.

Table 4.8: Descriptive Statistics

		n*	min	max	*M*	*SD*
Trait-like CA		1076	24	112	74.67	11.58
Context-based CA	Group Discussion	1095	6	28	16.26	3.68
	Interview	1098	6	30	21.31	3.67
	Interpersonal	1090	6	30	16.98	4.08
	Presentation	1095	6	30	20.17	3.81
	Extroversion	1072	0	9	5.23	2.44
	Neuroticism	1060	0	11	5.52	3.03
	Valid N (listwise)	1015				

*Total 1101 data were analysed. Reduction in N indicates existence of missing value (7.8%). Minimum and maximum values are reported to ensure all data were inserted within the relevant range. Sample mean score and standard deviations are also reported.

Minimum and maximum value of each case is also reported, which indirectly monitors the range of values inserted into the SPSS system. As shown in the table, all variables were in the correct minimum and maximum values. Lastly, mean score and standard deviation were reported to give an initial impression of how the sample looks like.

For trait-like CA, it appears that the sample is in the average region of CA (50 – 80). However, the score is leaning toward the upper tail. This contrasts with McCroskey's study in US, which yielded only 65 mean score overall. Meanwhile, context-based CA revealed that both informal setting (group discussion and interpersonal) yielded lower scores compared to that of the formal setting (interview and presentation). Lastly, the interpretation of temperament score is vague at this point, as past researchers do not normally provide a range to interpret such measure.

Present result is theoretically sound and safe to proceed. Next section discusses the inferential statistics, where all seven (7) hypothesis testing will be conducted.

4.4.1 CA Profile by Cluster

Student's CA score is further breakdown according to year 1, 2, and 3. Major coded as 0 represents the accounting students; and 1 as the business students. With gender analysis, the table below shows the three clusters of CA, which represents the low, medium, and high levels of CA **(**as included in Table 3.5). Minimum and maximum score are also reported, which served to check if the data is correctly sorted by the statistical software.

Table 4.9: CA by Cluster

Year	Major	Gender	Cluster	N	Mean	SD	% of Total N
1	AC	Male	Low	1	50.00	-	0.23
			Med	70	70.73	6.14	15.91
			High	17	88.82	6.28	3.86
			Total	88	73.99	9.76	20.00
		Female	Low	4	41.25	11.53	0.91
			Med	131	68.95	7.60	29.77
			High	88	87.49	6.40	20.00
			Total	223	75.77	12.45	50.68
		Total	Low	5	43.00	10.72	1.14
			Med	201	69.57	7.16	45.68
			High	105	87.70	6.37	23.86
			Total	311	75.26	11.76	70.68
	BA	Male	Low	-	-	-	-
			Med	41	67.51	7.69	9.32
			High	9	85.22	2.68	2.05
			Total	50	70.70	9.84	11.36
		Female	Low	4	45.50	2.65	0.91
			Med	54	71.56	6.47	12.27
			High	21	87.00	4.79	4.77
			Total	79	74.34	11.22	17.95
		Total	Low	4	45.50	2.65	0.91
			Med	95	69.81	7.27	21.59
			High	30	86.47	4.30	6.82
			Total	129	72.93	10.81	29.32
	Total	Male	Low	1	50.00	-	0.23
			Med	111	69.54	6.90	25.23
			High	26	87.58	5.53	5.91
			Total	138	72.80	9.88	31.36
		Female	Low	8	43.38	8.07	1.82
			Med	185	69.71	7.37	42.05
			High	109	87.39	6.10	24.77
			Total	302	75.39	12.14	68.64
		Total	Low	9	44.11	7.87	2.05
			Med	296	69.65	7.18	67.27
			High	135	87.43	5.98	30.68
			Total	440	74.58	11.53	100.00

Table 4.9: CA by Cluster (Cont'd)

Year	Major	Gender	Cluster	N	Mean	SD	% of Total N
2	AC	Male	Low	1	39.00	-	0.24
			Med	25	66.52	8.33	6.05
			High	6	90.00	10.06	1.45
			Total	32	70.06	13.72	7.75
		Female	Low	2	47.00	0.00	0.48
			Med	94	70.72	6.28	22.76
			High	50	87.90	6.66	12.11
			Total	146	76.28	10.89	35.35
		Total	Low	3	44.33	4.62	0.73
			Med	119	69.84	6.94	28.81
			High	56	88.13	7.01	13.56
			Total	178	75.16	11.66	43.10
	BA	Male	Low	1	47.00	-	0.24
			Med	58	67.79	7.09	14.04
			High	18	84.61	4.02	4.36
			Total	77	71.45	10.02	18.64
		Female	Low	2	49.00	0.00	0.48
			Med	95	72.09	5.83	23.00
			High	61	86.51	5.29	14.77
			Total	158	77.37	9.52	38.26
		Total	Low	3	48.33	1.15	0.73
			Med	153	70.46	6.65	37.05
			High	79	86.08	5.07	19.13
			Total	235	75.43	10.06	56.90
	Total	Male	Low	2	43.00	5.66	0.48
			Med	83	67.41	7.45	20.10
			High	24	85.96	6.29	5.81
			Total	109	71.05	11.18	26.39
		Female	Low	4	48.00	1.15	0.97
			Med	189	71.41	6.08	45.76
			High	111	87.14	5.96	26.88
			Total	304	76.85	10.20	73.61
		Total	Low	6	46.33	3.72	1.45
			Med	272	70.19	6.77	65.86
			High	135	86.93	6.01	32.69
			Total	413	75.31	10.76	100.00

Table 4.9: CA by Cluster Cont'd

Year	Major	Gender	Cluster	N	Mean	SD	% of Total N
3	AC	Male	Low	1	49.00	-	0.45
			Med	21	68.52	7.36	9.42
			High	5	85.20	4.44	2.24
			Total	27	70.89	10.35	12.11
		Female	Low	5	47.60	2.70	2.24
			Med	60	69.63	7.79	26.91
			High	33	87.88	5.25	14.80
			Total	98	74.65	12.61	43.95
		Total	Low	6	47.83	2.48	2.69
			Med	81	69.35	7.65	36.32
			High	38	87.53	5.18	17.04
			Total	125	73.84	12.22	56.05
	BA	Male	Low	3	44.33	4.62	1.35
			Med	24	67.67	7.94	10.76
			High	9	86.22	7.34	4.04
			Total	36	70.36	13.52	16.14
		Female	Low	5	40.60	8.96	2.24
			Med	31	70.84	6.62	13.90
			High	26	86.96	4.36	11.66
			Total	62	75.16	14.19	27.80
		Total	Low	8	42.00	7.46	3.59
			Med	55	69.45	7.33	24.66
			High	35	86.77	5.17	15.70
			Total	98	73.40	14.07	43.95
	Total	Male	Low	4	45.50	4.43	1.79
			Med	45	68.07	7.60	20.18
			High	14	85.86	6.29	6.28
			Total	63	70.59	12.17	28.25
		Female	Low	10	44.10	7.25	4.48
			Med	91	70.04	7.40	40.81
			High	59	87.47	4.86	26.46
			Total	160	74.85	13.21	71.75
		Total	Low	14	44.50	6.43	6.28
			Med	136	69.39	7.49	60.99
			High	73	87.16	5.16	32.74
			Total	223	73.65	13.04	100.00

Overall, females outnumbered the males in all three years of the sample. Due to that the nature of the study is to investigate the levels of CA among the accounting students, it appears that an analysis devoted solely to those having higher levels of CA (that is, the 3rd cluster) would be beneficial for further insight. Table 4.10 is prepared as follow:

Table 4.10: CA by Cluster (High levels of CA)

AC	Male		Female	
Year	N	%	N	%
1	17/88	19.3%	88/223	39.5%
2	6/32	18.8%	50/146	34.2%
3	5/27	18.5%	33/98	33.7%
Total	23/147	15.6%	171/467	36.6%

BA	Male		Female	
Year	N	%	N	%
1	9/50	18.0%	21/79	26.6%
2	18/77	23.4%	61/158	38.6%
3	9/36	25.0%	26/62	41.9%
Total	36/163	22.1%	108/299	36.1%

Table 4.10 shows the proportion of students exhibiting high levels of CA. High levels of CA are those who scored 80 and above. It is noted that for both AC and BA students, an approximate 1 out of every 5 students suffers high CA scores. This data is consistent with McCroskey (1984) US national norm, whereby there is an approximate 20% out of the group who were in the range of high levels of CA.

4.5 Inferential Statistics

4.5.1 Hypothesis testing 1: Major and CA

Table 4.11: Hypothesis testing 1- Group Statistics

		Major	N*	*M*	*SD*	*SE* Mean
Trait-like CA		Acc	614	74.94	11.82	0.48
		Bus	462	74.30	11.26	0.52
Context-based CA	Group Discussion	Acc	622	16.39	3.66	0.15
		Bus	473	16.10	3.70	0.17
	Interview	Acc	624	21.44	3.59	0.14
		Bus	474	21.13	3.76	0.17
	Interpersonal	Acc	620	16.95	4.11	0.17
		Bus	470	17.02	4.04	0.19
	Presentation	Acc	619	20.24	4.00	0.16
		Bus	476	20.08	3.55	0.16
Extroversion		Acc	608	5.27	2.42	0.10
		Bus	464	5.18	2.45	0.11
Neuroticism		Acc	601	5.41	3.01	0.12
		Bus	459	5.66	3.05	0.14

*Valid number of cases fluctuates in each category as some respondents did not complete the questionnaire of that particular section.

The total sample is split to two major samples (Accounting and Business) prior to analysis. The mean score, standard deviation for both majors were reported, as shown in Table 4.11 above. Additionally, statistics on CA, its sub-scales as well as two temperament predictors (extroversion and neuroticism) were also reported. The difference of N indicates the existence of missing values.

Independent sample t-test is used to identify if there is a significant difference in level of CA between accounting and business students. Based on Table 4.12, there is no significant difference in the levels of CA between accounting (*M*=74.94,

Table 4.12: Independent t-test

		Levene's Test for Equality of Variances		*t*-test for Equality of Means						
		F	Sig.	*t*	*d.f.*	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference	
									Lower	Upper
Trait-like CA		1.138	0.286	.902	1074	.367	.644	.713	-7.561	2.044
Context-based CA	Group Discussion	0.349	0.555	1.258	1093	.209	.283	.224	-0.158	0.723
	Interview	0.349	0.532	1.397	1096	.163	.312	.223	-0.126	0.750
	Interpersonal	0.391	0.908	-0.283	1088	.777	-.071	.250	-0.561	0.419
	Presentation	3.828	0.051	0.715	1093	.475	.166	.232	-0.290	0.622
Extroversion		0.261	0.609	0.569	1070	.570	.085	.150	-0.209	0.380
Neuroticism		0.237	0.627	-1.346	1058	.179	-.252	.188	-0.620	0.116

The result shows no significant difference in trait-like CA, context-based CA, extroversion and neuroticism between two majors.

SD=11.82) and business students (*M*=74.30, *SD*=11.26) conditions; *t*(1074)=.902, *p*=.367. This result fails to reject the null hypothesis 1. Furthermore, all four subscales also revealed no significant difference between accounting and business majors. This is expected as there is no significant difference found in overall level of CA between both majors.

4.5.2 Hypothesis testing 2: Gender and CA

Table 4.13: Independent t-test analysis between Gender and CA

Course	Male		Female		t-test analysis of difference		
	M	*SD*	*M*	*SD*	*t*	*d.f.*	*p*
All	71.73	10.85	75.86	11.67	-5.36	1074	0.001
Accounting	72.56	10.90	75.69	12.01	-2.96	266*	0.003
Business	70.98	10.77	76.11	11.12	-4.79	460	0.001

*Equality of variance test is significant, resulting in reduction of degree of freedom.

As shown in Table 4.13, it appears that the females possess significantly higher level of CA than the male counterparts, regardless of major of study. There is significant difference in accounting student levels of CA between males (*M*=72.56, *SD*=10.90) and females (*M*=75.69, *SD*=12.01), conditions; *t*(266)=-2.96, *p*<.01. Also, there is significant difference in business student levels of CA between males (*M*=70.98, *SD*=10.77) and females (*M*=76.11, *SD*=11.12) conditions; *t*(460)=-4.79, *p*<.01. Overall there is significant difference in student levels of CA between males (*M*=71.73, *SD*=10.85) and females (*M*=75.86, *SD*=11.67) conditions; *t*(1074)=-5.36, *p*<.01. This result is in line with past studies whereby females exhibit relatively higher level of CA compared to that of the males.

Table 4.14 : Additional Analysis

Course	Year	Male		Female		*t*-test analysis of difference		
		x^2	σx^2	x^2	σx^2	*t*	*d.f.*	*p*-value
All	Year 1	72.80	9.88	75.39	12.14	-2.202	438	0.03
	Year 2	71.05	11.18	76.85	10.20	-4.963	411	0.01
	Year 3	70.59	12.17	74.85	13.21	-2.218	221	0.03
Accounting	Year 1	73.99	9.76	75.77	12.45	-1.334	202*	0.18
	Year 2	70.06	13.72	76.28	10.89	-2.784	176	0.06
	Year 3	70.89	10.35	74.65	12.61	-1.423	123	0.16
Business	Year 1	70.70	9.84	74.34	11.22	-1.883	127	0.06
	Year 2	71.45	10.02	77.37	9.52	-4.393	233	0.01
	Year 3	70.36	13.52	75.16	14.19	-1.642	96	0.10

*Equality of variance test is significant, resulting in reduction of degree of freedom.

Using all samples, females consistently recorded higher scores on CA than the males across all years of study. With 0.05 alpha level, gender difference on CA could be derived across three years of studies. However, when the data analysis is breakdown according to major-specific year of study, only year 2 business students shows a significant difference in levels of CA between males (M=71.45, SD=10.02) and females (M=77.37, SD=9.52) conditions; $t(233)$= -4.393, p = 0.01). A standalone analysis on the year of study toward CA is included in section 4.5.4 hypothesis testing 4.

This finding raises a question as to whether gender plays a part in explaining student's temperament, which eventually leads to difference in CA (Hypothesis testing 5, 6, & 7). For this purpose, a separate discussion (section 4.5.7) is devoted to find out to what extent gender would cause a difference in student's temperament and CA.

4.5.3 Hypothesis testing 3: Age and CA

Age group for this study is classified as a categorical or ordinal data. As noted earlier, few age groups (<19, >24) are represented with low response of data. Thus, only the group 19-20, and 21-22 will proceed for statistical testing. The reduction of statistical scope warrants the use of independent sample t-test, instead of ANOVA test.

Table 4.15: Hypothesis testing 3- Group Statistics

	Age	N	Mean	Std. Deviation	Std. Error Mean
CA	<19*	4	66.25	10.34	5.17
	19-20	593	74.79	10.96	0.45
	21-22	416	74.85	12.11	0.59
	23-24*	59	73.41	12.42	1.62
	>24*	4	63.75	26.22	13.11

*Age groups with asterisk will not go through statistical testing due to unsatisfactory number of cases needed.

As shown in Table 4.15, each age group's number of cases, mean score, and standard deviation are reported.

Table 4.16: Independent Samples Test (between 19-20 and 21-22 age group)

	t	*d.f.*	*p*-value	Mean Difference	Std. Error Difference
CA	-0.081	1007	0.936	-0.059	.732

In Table 4.16, it shows the result of independent t-test. There is no significant difference in levels of CA between age group 19-20 (M=74.79, SD=10.96) and 21-22 (M=74.85, SD=12.11) conditions $t(999)$=-0.081, p=.936).

4.5.4 Hypothesis testing 4: Year of study and CA

Table 4.17: Hypothesis testing 4- ANOVA

	Sum of Squares	*d.f.*	Mean Square	*F*	Sig.
Between Groups	409	2	204.62	1.527	.218
Within Groups	143817	1073	134.03		
Total	144227	1075			

A one-way between subjects ANOVA was conducted to compare the effect of student's year of study on level of CA in year 1, year 2, and year 3 conditions. As shown in Table 4.17, there is no significant effect of student's year of study on level of CA at the $p<.05$ level for the three conditions [$F(2,1073)=1.527$, $p=0.22$)]. Due to the non-significance, Tukey post-hoc test will not be elaborated. However, the test result is reported below for reference purpose.

Table 4.18: Post-Hoc test

Year of study (A-B)	A	B	Mean Difference (A-B)	Post Hoc Tests Multiple Comparison Sig.
	Mean	Mean		
1-2	74.58	75.31	-0.735	.623
2-3	75.31	73.65	1.670	.193
1-3	74.58	73.65	0.934	.589

In summary, year 3 students do not differ significantly from year 1 and 2 students in terms of levels of CA. By integrating the finding from both hypothesis testing 3 and 4, it was concluded that neither age nor year of study are related to CA. Both situational predictors in this study appeared to be poorly related to CA.

4.5.5 Hypothesis testing 5 & 6: Extroversion and CA, Neuroticism and CA

Pearson correlation is used to analyze the correlation between temperament indices and CA. Past studies, most notably the line of research under Beatty and McCroskey, have the convention of correcting the reliability of instruments. This statistical process is called as 'correction for attenuation', which attempts to remove the measurement error in order that a much accurate estimate of correlation be obtained. Correlation for attenuation is derived using the formulae below (Spearman, 1904):

$$r_{x'y'} = \frac{r_{xy}}{\sqrt{r_{xx} r_{yy}}}$$

Uncorrected correlation, r_{xy}
Reliability of variable x, r_{xx}
Reliability of variable y, r_{xy}

Table 4.19 shows the correlation matrix between CA, extroversion, and neuroticism. The upper diagonal correlations were 'disattenuated' in correcting the measurement error of the instruments. Based on the table, CA is negatively and moderately correlated with extroversion r=-0.59. Moreover, CA is positively and moderately correlated with neuroticism at r=0.49.

Table 4.19: Pearson Correlation between Extroversion, Neuroticism, and trait-like CA.

		CA	Extroversion	Neuroticism
CA	Pearson Correlation	1	-0.59*	0.49*
	Sig. (2-tailed)		0.01	.01
	N	1065	1048	1039
Extroversion	Pearson Correlation	-0.48**	1	-0.22*
	Sig. (2-tailed)	0.01		0.01
	N	1048	1072	1036
Neuroticism	Pearson Correlation	0.41**	-0.16**	1
	Sig. (2-tailed)	0.01	0.01	
	N	1039	1036	1060

*Correlation was corrected for attenuation, and is reported at the upper diagonal area. Lower diagonal area represents the original correlation.
** Significant at 0.01 level.

Accounting-specific sample is selected in order test hypothesis 4 and 5. Table 4.19 shows that both extroversion and neuroticism produced moderately higher correlation against CA after correction for attenuation (extroversion & CA, r = -0.64; neuroticism & CA, r = 0.52). Table 4.20 below shows the Pearson correlation result when only the accounting sample is analyzed.

Table 4.20: Pearson Correlation (Accounting Sample)

		CA	Extroversion	Neuroticism
CA	Pearson Correlation	1	-0.64*	0.52*
	Sig. (2-tailed)		.01	.01
	N	614	590	593
Extroversion	Pearson Correlation	-0.51**	1	-0.28*
	Sig. (2-tailed)	.01		.01
	N	590	597	582
Neuroticism	Pearson Correlation	0.43**	-0.21**	1
	Sig. (2-tailed)	.01	.01	
	N	593	582	601

*Correlation was corrected for attenuation, and is reported at the upper diagonal area.
Lower diagonal area represents the original correlation.
** Significant at 0.01 level.

For business students, the statistical process is repeated and is shown in Table 4.21. The result shows a relatively lower strength of correlation between extroversion and CA (r = -.52), and neuroticism and CA (r = .46) when only the business students are analysed. Nevertheless, both correlations produce moderate to moderately higher strength of correlation.

Table 4.21: Pearson Correlation (Business Sample)

		CA	Extroversion	Neuroticism
CA	Pearson Correlation	1	-0.52*	0.46*
	Sig. (2-tailed)		.01	.01
	N	462	444	446
Extroversion	Pearson Correlation	-0.42**	1	-0.14
	Sig. (2-tailed)	.01		.02
	N	444	458	445
Neuroticism	Pearson Correlation	0.39**	-0.11	1
	Sig. (2-tailed)	.01	.02	
	N	446	445	459

*Correlation was corrected for attenuation, and is reported at the upper diagonal area. Lower diagonal area represents the original correlation.
** Significant at 0.01 p-value.

Both collective and major-specific bivariate correlation results are important as extroversion and neuroticism are correlated with CA in its predicted direction. When only the accounting student sample is selected, Pearson correlation test is able to produce moderate to moderately higher correlation strength between E and CA, and N and CA, thus affirming the hypothesis 4 and 5. Also, multi-collinear issue between independent predictors (i.e., extroversion and neuroticism) is checked and found satisfactory. Next hypothesis testing will utilize both temperament indices as predictors against CA, the criterion variable.

4.5.6 Hypothesis testing 7: Temperament (extroversion and neuroticism) and CA

A multiple linear regression model is tested with extroversion and neuroticism as the independent factors, and CA as the dependent factor. Prior to conducting data analysis for hypothesis testing 7, the accounting students will be regarded as the main data, which reflects the accounting education context. Additionally, result for business students will also be provided for comparison purpose later.

Table 4.22 below shows the R and R-Square obtained from temperament-based model of communication apprehension. For accounting students, both R and R-Square acquired are higher than the business students.

Table 4.22: Multiple Linear Regression (Part 1)

Model	*R* [a]	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	*F*	Sig.
Accounting	.616	.379	.377	9.37	176.16	.001
Business	.553	.306	.302	9.30	95.10	.001

a. Predictors: (Constant), Neuroticism, Extroversion

Based on Table 4.23, a moderate and negative relationship is found between extroversion and CA (β=-.439, t=-13.09, p<.001). Next, a moderate and positive relationship is found between neuroticism and CA (β = .350, t= 10.42, p<.001).

Table 4.23: Multiple Linear Regression (Part 2)

Major/Predictor	*B*	SE *B*	β	*t*	*p*
Accounting					
(Constant)	78.85	1.294		60.91	
Extroversion	-2.152	.164	-.439	-13.09	.001
Neuroticism	1.377	.132	.350	10.42	.001
Business					
(Constant)	76.21	1.409		54.09	
Extroversion	-1.783	.185	-.389	-9.66	.001
Neuroticism	1.294	.147	.356	8.83	.001

*CA as dependent factor.

The combination of extroversion and neuroticism has created a significant model to predict CA, with accounting majors at $R^2 = .379$, $F(2, 577) = 176.16$, $p < .001$. This confirms the hypothesis 7 that temperament-based model produces a significant model to explain CA. R Square suggested that the model accounts up to 37.9% of the variance.

The model utilizing business students sample accounts for 30.6% of the variance, at $R^2 = .306$, $F(2, 432) = 95.10$, $p < .001$. It shows that temperament is able to explain CA regardless of majors.

Table 4.24: Linear Regression Formulae

Accounting	CA = 78.85 – 2.152 Extroversion + 1.377 Neuroticism
Business	CA = 76.21 – 1.783 Extroversion + 1.294 Neuroticism

In Table 4.24, linear regression formulae could be derived by extracting the intercept and unstandardized coefficient. It appears that the higher intercept was found among the accounting students, as well as higher magnitude of impact as a result of an increase of one unit of extroversion and neuroticism. For example, when extroversion is increased by 1, accounting student's CA is decreased by

2.152 point, while business student's CA is decreased by a relatively lower 1.783 point.

4.5.7 Gender, Temperament, and CA

In H2, it was found that there is a significant difference between student's level of CA and gender. Specifically, the females exhibit relatively higher level of CA than the males. The finding is consistent regardless of major and year of study (see Table 4.14). Also, as highlighted in H7, temperament is a good predictor of student's CA.

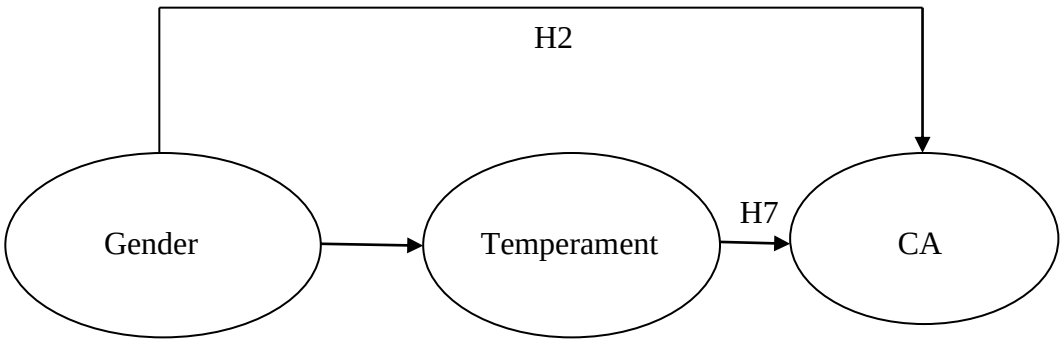


Fig 4.1 Gender, Temperament, and CA

Given the insight from H2 and H7, it would be good to discover if students' CA is a function of their temperament profile, which might be predicted by their gender. Figure 4.1 is illustrated for clarity purpose. Data analysis utilizing independent sample t-test is carried out (male and female as two distinctive groups) to see whether there is a significant difference in their temperament profile. Specifically, both extroversion and neuroticism will be tested. The result is presented as follow:

Table 4.25: Analysis of Difference (Gender, Temperament & CA)

Course		Male		Female		*t*-test analysis of difference		
		x^2	σx^2	x^2	σx^2	*t*	*d.f.*	*p*-value
All	CA	71.73	10.85	75.86	11.67	-5.357	1074	0.01
	E	3.40	2.38	3.18	2.45	1.321	1053	0.19
	N	4.80	3.05	5.81	2.97	-5.006	1058	0.01
Accounting	CA	72.56	10.90	75.69	12.01	-2.815	612	0.01
	E	3.56	2.30	3.21	2.45	1.547	595	0.12
	N	4.69	3.00	5.64	2.98	-3.365	599	0.01
Business	CA	70.98	10.77	76.11	11.12	-4.788	460	0.01
	E	3.26	2.46	3.15	2.45	0.454	456	0.65
	N	4.90	3.09	6.07	2.94	-4.008	457	0.01

CA= communication apprehension
E=extroversion
N=neuroticism

Based on Table 4.25, there is no significant difference in student's extroversion between males and females when the data is analyzed collectively, as well as split according to major of study. This finding is important as student's level of CA differs according to gender, and it appears that the difference is attributed by the neuroticism (significant in all cases) rather than the extroversion. Here the females exhibit higher scores of neuroticism (that is, they are more sensitive to anxiety responses), which might explain the relatively higher scores of CA.

This finding is in line with past findings in which there remains an inconclusive notion about accounting student's personality preference to extroversion/introversion. In this study, the males indeed scored higher scores on extroversion than the females, but not sufficient to constitute a significant difference (male = 3.4, female = 3.18, $t = 1.321$, $d.f. = 1053$, $p = 0.19$).

Additional analysis includes controlling gender effect in attesting the influence of temperament on CA. The result yielded similar result as previous hypothesis testing. Specifically, with only males sample, the temperament model accounts for 31.2% of explained variance (R^2 = 0.312, F(2, 291) = 66.10, p < .01). Meanwhile for the females, the model accounts for 34.5% explained variance (R^2 = 0.345, F(2, 711) = 187.22, p < .01). The result suggests temperamental model of CA is fit regardless of gender.

Another possible analysis is the use of hierarchical multiple regression analysis. The researcher may include both demographic and temperament variables in predicting student's scores of CA, which summed up the integrationist approach (Infante et al., 2003). With gender and temperament as predictors of CA, the model accounts for 35.3% of explained variance (R^2 = 0.353, F(3, 1004) = 182.60, p < .01). Temperament had greater effect on CA (extroversion β=-.414, t=-16.085, p<.001; neuroticism β=.341, t=13.092, p<.001), whereas gender has a lesser effect on CA (β=0.081, t=-3.160, p<.002). The linear regression formula incorporating both gender and temperament toward CA is as follows:

CA = 74.43 + 2.070 gender – 1.976 Extroversion + 1.299 Neuroticism

CHAPTER 5

DISCUSSIONS

5.0 Introduction

In chapter 5, all data finding in previous chapter is discussed in answering the research objectives set in chapter 1. The implication of the study is also included.

5.1 Summary of Findings

First, it was expected that the accounting students are more communication apprehensive (hence higher CA scores) than the business students. As such, the problem of communication apprehension among accounting graduates should be addressed should there be initiative focusing on building their communication competence.

Apparently, present result shows that there is no statistical difference between accounting and business students in CA. This is not surprising given that many within the comparison sample are banking and finance students who may be similarly predisposed as the accounting students. Despite the result, both groups of students indeed yield higher CA scores than the past studies. This may lead to a greater problem- the CA in higher education; not just the accounting education.

Second, a temperament-based communication apprehension model is found in accounting education. As already highlighted, accounting career success extends to communication competence, where one facet is communication apprehension. Drawing from the understanding of communibiological paradigm, students with higher level of CA are a result of higher scores on neuroticism, and lower scores on extroversion. Furthermore, trait-like CA conceptualization as advocated by the commubiology was supported in context of accounting education when, utilizing accounting student as main data analysis, CA correlates well with the neuro-introversion temperament profile.

While many believed that CA could be changed over time, present evidence shows that the good fit of temperament-based CA model will likely to suggest that future supply of accounting professional (the accounting students) are likely to possess a temperament/personality profile not in favor of a 'communicator' role as expected by the accounting body at large. This study provides a cross-sectional evidence to investigate the changes of CA across years of study. It appears that university education exposure does not necessary to support the belief that CA is something capable to be trained and improved.

Third, students' temperament and communication apprehension will stand as substantial contributors in career choice. In this study it is found that accounting students are scoring higher scores of CA than those reported in the past studies. Students who are predisposed to relatively higher scores of CA (associated with

high neuroticism and low extroversion) are more likely to select accounting course as their majors. Accounting stereotype enables a false impression in which they attempt to avoid social interaction. This skill gap reflects the lack of knowledge that the accountants today are to be communication competent as part of their value-added service.

5.2 Answering Research Questions

Overall, three research questions were asked in guiding the dissertation. First research question seeks a potential difference in level of CA among accounting and business students. Specifically, both trait-like and context-based CA are examined. To facilitate research inquiry, hypothesis 1 is used as the direction of study. It is important to note that the research setting is substantially reduced to a case-study scenario in light of feasibility concern.

Second research question extends the current literature by employing demographic-based inquiry to the current state of CA. The question is approached by hypothesis 2, 3, and 4, targeting both accounting and business students. Specifically, gender, age, and years of study are examined, with race as the control variable. In bridging the third research question, the discussion seeks to explain the outcome of demographic influence towards one's CA, with emphasis on trait-like conceptualization of CA.

Third research question, which forms the thesis of this study, aims to discover potential relationship between CA and student's temperament. As such, hypothesis 5, 6 and 7 were used to answer the research question. This temperament-based inquiry of CA includes insights from the communibiological paradigm, and also its effect towards communication development in accounting education.

5.2.1 Discussion of RQ1

Research Question 1 aims at identifying accounting students' level of on communication apprehension (business students as counterparts). Construct validity of CA instrument, PRCA-24 is demonstrated in a local context. The result shows that the accounting students do not necessarily exhibit higher levels of trait-like CA as compared to business students.

Present result contradicts with the general pattern exhibited by past studies, where the researchers argued a potential difference in communication anxiety report among accounting and business majors. CA research (such as Joyce et al., 2006) demonstrates that accounting students, in general, exhibit higher levels of CA, and lower levels of math anxiety as compared to other business majors.

This study, seemingly a sub-set of Joyce et al.'s (2006) study, measures only oral communication anxiety among the two business majors. Nevertheless, first research question is necessary as the present state of CA literature does not necessarily represent the samples from multicultural developing countries like Malaysia. It is important to realize that the new finding generated in this context will contribute to literature by means of comparison of difference of student's CA profile, and to relate it in light of possible cultural determinant.

Following the norm of reporting styles as demonstrated by past studies, present study reports both trait-like and context-based CA scores. Adoption of survey instrument (modified version of PRCA-24 as cited in Gardner et al., 2005; Hassall et al., 2000) enables comparability of findings across national context.

For trait-like scores, both accounting and business students reported over half a standard deviation higher than most reports in the western countries (M=65.6, *SD*=15.3), using McCroskey (1984) US national norm result. In other words, Malaysian may be slightly handicapped in terms of communication competence, due to that CA is a form of negative motivation to foster communication competence. English language barrier may also contribute to Malaysian student's CA, though Jung and McCroskey (2004) suggested that there is no difference in terms of levels of CA between first and second language.

For context-based CA, present study shows no significant CA difference between both major across formal (presentation and interview) and informal (conversation and group) situation. This is likely due to the similar trait-like scores exhibited by both, as revealed in data analysis and discussion above. When trait-like scores differ significantly, it will contribute to significant different context-based scores as well.

Despite non-finding of context-based CA difference, student's CA scores were recorded to be lower in informal contexts; and higher in formal contexts. This

pattern contributes to the criterion-related validity of PRCA-24 instrument, which points out that the operationalization of each context behaves the way it should according to the situational model (Beatty, 1988; Buss, 1980).

To elaborate, Beatty's situational model of CA includes 'formality' as one cause leading to elevation of CA in a situation. The earlier version of PRCA were criticized of covering only the public speaking context, due to that speech communication is viewed heavily, and to some extent, every undergraduate needs to pass an oral examination prior to graduation. Revised version of the instrument, named PRCA-24 thereafter, covers the major contexts of communication, which sums up to be four contexts, two of each representing formal and informal contexts.

It is important to realize the cultural influence towards individual's communication preference. Generally speaking, there is certain norm to be adhered to when one desires to receive approval from the rest of the members in a society. For example, Chinese were, in general, obedient to parent and respectful to superiors (i.e., teacher, supervisor, employer) by heeding advice and instructions, without retaliation or oral argument (Clarke, 2010). Such culture slowly suppresses Chinese's need to express freely. In other words, they felt better to be in the background, rather than to be in the spotlight and be viewed as egoistic (or outliers of society).

However, care should be taken prior to generalizing Chinese learners as being quiet. Cheng (1999) advocated that quiet phenomenon observed among the Chinese learners is situational-based rather than culture based. However, Chan (1999) also addressed the misconceptions that Chinese students may operate on certain learning styles influenced by cultural values. For current study to report relatively higher levels of CA, the data does suggest that the Chinese are prone to CA problems.

There is no significant difference between accounting and business students in terms of scores of CA. The non-difference result is unexpected. In phenomenon where the business students exhibit relatively higher scores of CA as well as accounting students, it might signal a trend that both accounting and business education are facing skill gap particularly in communication competence. Nevertheless, two key observations are made.

First, the business students in this study are made up of two major courses, i.e., business administration (BA) in general, and also a modified BA course which provides an option for the students to major in banking and finance (BF). The non-difference may be attributed to the fact that these students are equally predisposed to CA prior to their enrolment of university education. Also, a banking and finance graduate does share a certain degree of similarities with an accounting graduate, both of which the nature of career has a stereotype of needing less communication exposure.

Second, it is important to note that there are other business-related courses offered in the institution, i.e., marketing, entrepreneurship, and economics. These are not included in the study. Courses especially like marketing and entrepreneurship do send a strong signal that these are belonged to people who incline to maximize the use of communication in their nature of career. The reason why these courses are not included at the first place is due to that (1) the original intent of the researcher in narrowing down the scope of a "business student" as such term is defined vaguely across literature, and (2) the number of students enrolled in AC matches well with BA/BF enrollment, hence making a good research setting for comparative study. Student enrollment in marketing, entrepreneurship, and economics are relatively lower than the BA/BF group.

5.2.2 Discussion of RQ2

There are two important notes under this line of inquiry. Firstly, gender difference is found across the sample. The difference is also found when data is filtered by major of study. These results agree with past studies, whereby females generally possess higher level of CA than the males. The influence of biological sexes towards one's profile on CA has been long studied (see McCroskey 1984). While it appears that females are relatively apprehensive than their male counterparts, this result is merely an average score, thus do not necessarily apply to each individual female.

Secondly, there is no significant difference between age group and CA. The result is consistent analyzed separately according their major of studies. Also, statistical result reveals no significant difference in levels of CA across student's year of study. In other words, neither student's age group nor year of study is good predictor of CA. This contradicts with the study of Aly and Islam (2005), which suggest a relationship between years of experience and student's CA.

As mentioned, past studies generally lean on social learning theory in explaining CA. It is to no surprise that Aly and Islam (2005) speculated a change in CA but found it to be otherwise. Educators desire that the students improve in both technical and soft skills during their three to four years of university exposure. Based on the belief that people learn by doing, and that over time the learning experience contributes to better skill.

Communibiological perspective of communication apprehension assumes that CA is trait-like in nature, and does not change easily over environment exposure. The non-difference of age group and year of study toward CA is a good indication that CA generally endures over the university exposure, as the data also suggested. Nevertheless, this conclusion is rather preliminary, as it is derived from cross-sectional data of different cohorts of students. Caution is to be exercised prior to claiming that university exposure has nothing to do with CA improvement. What data does suggest at this point of time is that the non-difference of age group toward CA, and year of study toward CA should motivate the researcher to find

out the reason behind the enduring CA pattern. Hence, following the communibiological perspective, it suggests that the CA is generally enduring as it is an expression of individual's temperament.

Particularly for the second research objective, both time-based variables (age and year of study) do not significantly alter one's personal report on communication apprehension. This finding further substantiates CA as being trait-like in nature. And conversely, this contradicts with social learning paradigm, which suggests that a person's CA may be changed due to environmental influence over time. This finding is important because it reflects the enduring nature of CA, which may be explained if a biologically based model is used in place of learning based model.

5.2.3 Discussion of RQ3

Research question 3 examines the potential relationship between temperament and CA. Statistical result shows that temperament is a good predictor of communication apprehension among accounting students. This is in line with the result by Neuliep et al. (2003). The result appears to be consistent across different years of study. It validates Aly and Islam (2003) notion that student's CA is no different between those who are entering and exiting the accounting program. Additionally, gender specific analysis also revealed the similar result, with females providing greater predictive power in explaining CA.

Majority of past studies revealed that student's CA is largely enduring across different year levels. It would seem that the education process should help a little through classroom exposures. Activities such as discussions and presentations should help, however these effect is not evident toward change in CA. Should there mean a lack of focus of current accounting curriculum on communication aspects remain a possibility to explain this phenomenon. And if not, for students who cannot overcome their anxieties in speaking up even after going through a lot of classroom exposures (i.e., final year students).

Current accounting syllabus does not include a compulsory module on oral communication. Also, though discussions and presentations are sometimes incorporated into the syllabus as part of the pedagogy technique, the issue about CA is often undermined. Specifically, students are ill informed of how to deal with their anxiety when associated with speaking in front of the people.

A probe is required as a reflection of the role of education in the area of CA. Here the communibiological paradigm is used to explain CA. Temperament as good predictor of CA may shed light to why CA endures despite much education exposure.

From a commununibiological perspective, CA is explained by individual's temperamental expression, in which it is largely governed by two neurobiological structures. Using temperament as surrogate measures, the neurobiological

structures address the avoidance and anxiety dimensions of CA. Specifically, Behavioral activation system (BAS), measured as extroversion, recorded lower scores for those with higher levels of CA. And, Behavioral Inhibition System (BIS), measured as neuroticism, recorded higher scores for those with lower levels of CA.

To illustrate this, an introvert (less extroversion) will have a relatively higher BAS threshold required for activation. It means that in order for BAS to be activated, more stimuli is needed. That explains why an introvert refrains from action most of the time. An introvert, who is also associated with higher CA, engages communication context only when really motivated. The source of motivation may come from higher perceived reward. In short, the higher the level of perceived reward, the greater stimuli is available to activate BAS, which leads to action.

For anxiety dimension, students with high CA will appear to be more inclined to the neurotic side of temperament. Such 'neurotic' score is a reflection of relatively lower BIS threshold required for activation. High CA's generally suffered a range of anxiety-type feeling in presence of anticipated or actual communication. When put under such situation, a relatively lower perceived threat is required for communicator to engage communication with minimum fear. That is, lower level of perceived threat is needed to prevent an activation of those having lower BIS threshold.

5.3 Implication

5.3.1 Theoretical Implication

Both theoretical and practical implications are addressed based on the result and discussion in each three research objective. Theoretical implication of the study mainly addresses the new finding in support of communibiological paradigm.

Present study utilizes temperament as the main predictor of student's level of communication apprehension. The result favors the propositions made in the paradigm, which suggests that temperament is good predictor of CA. Student's year of study and age, which rooted in the assumption that CA is a learned behavior, play a negligent role in association with CA. In other words, this Malaysian study provides evidence that communibiological paradigm holds true across other cultural context, and also across national boundaries.

Other evidence which favors communibiological paradigm is that both temperament and CA were seen as being enduring characteristics of a person. If student's CA, which is trait-like in nature, correlates well with student's temperament, chances are that this communication behavior requires a biological perspective in understanding the causes behind it.

Present study does not demonstrate the endurance nature of student's temperament. Nonetheless, it is interesting to note that the no significant difference in student's CA and majors could be due to the similarity of the two groups in terms of their temperamental profile. Coincidentally, no significance difference in CA is found across each year of study. Student's temperamental profile does not differ significantly across year of study. Inference drawn from such a result was that temperament is seen as being the major contributor to CA, where CA is theorized as enduring due to trait-like conceptualization covered earlier in literature review.

Theoretical support concerning endurance of student's temperament is also found in the proposition made by communibiologist, whereby temperament is believed to be representing one's neurobiological structure. Due to scope of study, prospective reader may refer to Matthews and Gilliland (1999) on the relationship between neurobiological structure and human temperament.

5.3.2 Practical Implication

Perhaps more than just treating CA, the accountancy profession needs to attract more students who are not predisposed to CA issue. Specifically, accounting education is to address the rising need for more value-added work required in the profession, i.e., provide, defend, and advise management in the capacity as financial controller, navigator of the organization. Effort could be made at course-

advising level where prospective students are well informed of the changing work nature as a future accountant.

The understanding of communibiology, particularly in relating human neurobiological structures to CA, may seem to nullify the assertion of effectiveness of behavioral based treatments. Even so, there is still room for environmental influence to take place. The key for environmental factors to play a part in influencing CA lies in the perceived reward/threat. This may be important for an accounting educator in understanding how communibiology could play a part in student's communication development.

Two key points are elaborated, i.e., (1) perceived reward and threat as key to CA treatment in communibiological perspective, and (2) relevance of communibiology in accounting education. Interested readers are directed to Kelly & Keaten (2000) literature.

1) Perceived reward & threat: the key to CA treatment in communibiological paradigm

Perceived reward and perceived threat as stimuli may be intensified and reduced to accommodate the temperamental profile of each communicator in light of communication situation. In fact, present remedies are actually targeting at encouraging communicator to reprogram or modify the perceived reward & threat.

For example, cognitive restructuring aims at encouraging the communicator to restructure the incoming perceived threat as a positive one. Instead of thinking "everyone will laugh at me when I talk", he or she replaces such a thought with positive tone such as "everyone is learning to speak in this public speaking class, we're all on the same boat". Doing so helps to lessen the perceived threat, which in turn lessen the chance of activating BIS (the lower the activation threshold, the greater need the effectiveness of cognitive restructuring.

A second example, systematic desensitization, advocates that human brain may adapt, even in face of repeating, unpleasant situations. For instance, many people have stage fright the first time they are asked to present at a new place or when facing a crowd. The perceived threats are likely to be intensified in this situation. This view is supported by situationalist perspective, with novelty as one of the perceived threats contributed by the situation/environment above.

CA patient (assuming student in this case) treated by systematic desensitization technique (SD) is slowly and gradually exposed to intense situation. At first, a highly apprehensive person may be invited to do a short introduction to a new friend, accompanied by regular social circles. Next, he/she may be exposed to giving presentation, first a group basis, in a small class setting, (e.g., tutorial class). The goal of exposure is to get the person to acquaint himself to general communication situation. As exposure increased, a person is "desensitized"

against the environmental stimuli. Thus, less perceived threat may be generated, which leads to CA.

While not every CA patient is able to overcome CA totally (after all, not all individuals need to become a public speaker), though SD is one of the behavioral therapies found in practice today. As reflected in two examples above, current treatment methods of CA, despite stemmed from social learning perspective, seem justifiable even in light of communibiology. The point is that the accounting educators need to be informed with the latest research, particularly on communication instruction when the students are generally apprehensive in speaking in class. The importance of communibiology in accounting education is further elaborated.

2) Relevance of communibiology in accounting education

There is evidence of CA improvement, as informed by the literature. For example, Ayres et al. (2000) is able to demonstrate an effective reduction of CA through systematic desensitization (SD). However, Beatty et al. (2011) caution that SD is essentially self-report, and that the validity of research is questioned due to potential placebo effect induced in the experiment. What is worth noting is that SD may constitute authentic change, but that the educators should recognize its limit in light of neurobiological barrier, i.e., BAS and BIS manifested itself as biological based personality (extroversion and neuroticism).

The relevance of treatment should motivate accounting educators to help students in facing their communication anxiety, and to overcome it. While it may be true that future accountants may not have the best personality to fit the emerging communicative role, they are at least equipped with the right technical skills during their university years. Available techniques to soothe the anxiety response, i.e., systematic desensitization (Lane, Cunconan, Friedrich, & Goss, 2009), cognitive restructuring (Wilcox, 2009), and visualization (Ayres, Hopf, Hazel, Sonandre, & Wongprasert, 2009) should inform current researchers and educators in dealing with student's CA.

CHAPTER 6

CONCLUSION

6.0 Introduction

This chapter discusses the limitation of the study, as well as stating recommendation necessary to guide future research in light of CA in accounting education. An endnote is also included to conclude the research.

6.1 Limitation of Research

Limitation is noted in the process of acquiring the primary data of the study. First, the effectiveness of garnering student's data based on the Master List (see appendix E) rests upon an assumption, which is that students enroll class based on the List provided by the faculty. The list summarizes the classes to be opened for each trimester in 2012, intended for specific majors. For example, an introductory financial accounting subject, UBAF1033 Business Accounting, is opened to Financial Economics (FE) students for January and May trimester, but not October trimester. This technique is useful in targeting different major of students (in this case, accounting and business students were targeted) at different level of study (Bachelor first year, second year, and final year).

The assumption is violated when students did not enroll in subjects according to the course structure, which recommends the suitable year of study for each subject. This leads to incidence where students were present in more than one venue of data collection (despite carefully selected accordingly to year of study and major). This anomaly contributes to possible duplicated responses in current dataset. In response to such possibility, student's email is used as a basis to judge if duplicated response exists in the dataset. There are 64% (or 705) data which were supplied with email, while 36% has no email record. Data sorting using 705 data reveals zero duplicated response.

Second, the result may subject to self-report bias. Students may be reporting their scores on CA and temperament based on what is desired of them, rather than what actually reflects their current state.

Third, the finding from this study is drawn from one university and therefore may not be generalizable to all accountancy students in Malaysia.

Fourth, current temperament scale (EPQ-R) recorded less than half of the total variance explained. Current study employs a short version of EPQ-R so as to minimize fatigue on the respondents. But doing so has resulted in compromising the validity of the measurement. As Hair, Black, Babin, & Andreson (2010) noted, a good measurement in the field of social science should record at least half of the total variance explained.

6.2 Recommendation and Future Research

In this section, recommendation is proposed in light of limitations raised above. First limitation was raised in attempting to scrutinize the effectiveness in the data collection method employed in this study.

Primary data sampling within a large university setting will be made easier if the sampling frame (list and contact of each student) is made available to the researcher. The researcher should at, anytime, strives to get access to this list, as it enables rigorous, probability-based, and systematic data sampling process in a primary-data based research. When such a list is inaccessible or unavailable, alternate method should be considered in terms of its effectiveness in reaching a sample which is of representative of population.

Present study adopted purposive sampling in identifying year 1 and 2 students, both for accounting and business majors. This technique, despite fallen under the category of non-probability sampling (as it depends on the judgment of researcher in determining who should be in the sample), relies on the "Master List", which generally guides students in enrolling their classes each trimester. Purposive sampling is then executed on class basis, that is, the researcher selects the most relevant class to reach out to. Contrary to other purposive sampling design, present data collection is made easier and, to the some extent, more credible.

Future research who wishes to replicate such data collection method should first identify if each target sample (i.e., university or college) systematically sorted out the classes each semester/trimester according to recommended year and major of studies. As in the case of this study, flexi-system may, to a lesser extent, affects the effectiveness of data collection. However, it is noted in limitation section that the effect is often very marginal to be able to affect overall outcome.

In view of second limitation, it is recommended that triangulation method be employed. For example, student's or instructor's interview may be incorporated to further validate the research finding. This is also known as mixed method research, whereby the primary data (survey questionnaire) is validated by a subsequent qualitative inquiry. Focused group may be employed by randomly selecting students who fall in the range of low, medium, and high levels of CA.

For third limitation, this study may be expanded by collecting data across universities in the country. Some guidelines may be used when applying a nation-wide survey. For example, public and private universities may be distinguished as two major groups, as well as institutions offering professional accountancy program instead of conventional university courses. Also, the proportion of race in the sample should adhere to the national statistics so that the sample may adequately represent the population.

For fourth limitation, future researchers may consider using 7-categories Likert scale response format as recommended by Muñiz et al. (2005) when using EPQ-R scale. Also, the original 100 questions may be employed for better total variance explained. Alternatively, researchers may consider other temperamental based instruments such as the Big Five by McCrae and Costa (2003). As contended by Zuckerman, Kuhlman, Joireman, Teta, & Kraft (1993), both extroversion and neuroticism dimension are quite similar across EPQ-R and Big Five instruments.

6.3 Conclusion

In conclusion, this survey-based research project was carried out in light of fulfilling of the three research objectives set forth earlier. Essentially, accounting students were no more communication apprehensive than their business counterparts, but even so, both groups' CA were among the highest compared to that of past studies. Also, current research demonstrates that age and year of study are poor predictors of students' score on CA, while temperament (both extroversion and neuroticism) provides a good fit of the model in explaining CA. It is important that a temperamental-based model of CA is replicated in accounting education setting, so as to inform the need to approach CA as being trait-like in classroom instruction or remedial strategies.

The finding is beneficial to existing accounting educators who wish to get an insight of the shy phenomenon in the classroom. As demonstrated that

temperamental-based model is superior than situational factors in explaining student's communication apprehension, present education system should take into consideration the characteristics of accounting students (i.e., their temperament/personality) in charting the education reform, if any. Particularly speaking of communication skill, it should be noted that at present state, the relatively higher level of accounting students' CA contradicts with the changing role of future accountants as communicators.

The role of an accountant may have been over stretched as the profession, according to the personality-based findings, is still very much attracted by people who are not natural communicators. While it is important to recognize the edge of having right person with right personality to fit the right job, the variety of skills required as an accountant may warrant employing people with diverse personality preference (Bryant, Murthy, & Wheeler, 2009). More research is needed to discover the trend of personality among accounting students in a longitudinal basis, something similar to work done by Kovar et al. (2003), Andon et al. (2010) and Swain and Olsen (2012).

All in all, the research hopes to embrace the third process of accounting in today's education. As how late Frank Wood and Alan Sangster, the author of introductory business accounting textbook popularly used in Malaysia put it, accounting is "the process of identifying, measuring, and *communicating* economic information to

permit informed judgments and decisions by users of the information (Wood & Sangster, 2008)".

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