

# **Oral and Written Communication Apprehension in Accounting Students: Curriculum Impacts and Impacts on Academic Performance**

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## **Abstract**

In the context of an accounting curriculum that has been significantly modified over the past decade in response to calls for skills development, this study investigates the impacts of curriculum on students' levels of communication apprehension. An emerging concern in accounting is that attempts made to improve students' communication skills may fail or be less effective for some students because such attempts do not improve, or may even exacerbate students' anxiety about communicating, which in turn leads to poorer performance. The results from this study show that students in their final year of study in which they are exposed to greater communication demands, do not on average have higher levels of communication apprehension than their peers in earlier studies. The levels of communication apprehension for final year students decline most markedly for those students starting with higher average levels of apprehension. The results fail to find any strong associations between levels of communication apprehension and students' abilities to advance in their studies or average levels of academic performance. One finding that opens up the possibility for further research, however, is that students' anxiety about communicating in interviews is not reduced.

Keywords: Communication Apprehension, Accounting Education, New Zealand.

## Introduction

Starting in the late 1980s and throughout the 1990s accounting education suffered mounting criticism. Several reports (e.g., The US Bedford Committee, AAA, 1986; 'Big Eight', 1989; AECC, 1990; NZSA, 1995; and IFAC, 1996) and several authors (e.g., Sundem *et al.*, 1990; Deppe *et al.*, 1992; Lovell, 1992; May *et al.*, 1995; Adler and Milne, 1997a, 1997b; Hassall *et al.*, 1998) attacked the lack of development of lifelong and self-directed learning skills. Improved problem solving, teamwork, communication, and interpersonal skills are issues that many of the reports and authors raise. From the United States, and elsewhere including New Zealand, professional reports expressed concern that accounting education over-emphasised the technical abilities of graduates to the detriment of other competencies, and prescriptions emerged for educators to move to case-based methods, seminars, role-plays, and simulations for actively involving students in the learning process (AAA, 1986; AECC, 1990; IFAC, 1996; Adler and Milne, 1997a). Similar calls have come from educationalists more generally (e.g., Biggs, 1989, 1999; Ramsden, 1992; Gibbs, 1992; Candy *et al.*, 1994).

Partly in response to these calls and our own University's teaching and learning plan and senate guidelines on assessment, partly in recognition of surveys of employers' expressed needs for certain attributes in graduates they recruit, and partly on the basis of our own reviews of the education literature, we sought to amend the curriculum our accounting undergraduates undertake. Over a period of years, the intent has been to expose students to greater array of activities and assessments that call on their abilities to search out information, work in groups, analyse unstructured material, and plan and present findings in class to their peers. Changes that have occurred have moved assessment structures from over 85% testing individual performance in exam-type situations in almost all courses to about 50% final exam and 50% a combination of case, essay, group, and presentation type assessments in almost all the main accounting courses from year 1 through year 3. Such changes have not come about via some blueprint for curriculum change, but rather via an organic and somewhat contagious evolution starting with one or two year 3 courses and spreading to year 2 and now year 1 courses.

The educational and philosophical basis for such change is a general belief that students learn by doing, by an experiential process, and particularly in regard to the development of broader generic skills associated with leadership, communication, and interpersonal behaviour. Our courses have sought to integrate and reinforce the development of accounting knowledge in a relatively realistic and professional context (see, for example, references to be included following review). Evidence has appeared in the literature, both in terms of several of our

courses (see, to be included), and also others (see Boyce *et al*, 2001; Weil *et al*, 2001) that helps substantiate claims to some of these learning outcomes, and that the kinds of curriculum changes made help promote increased levels of student motivation to learn (references to be included). Recently, however, evidence from a UK Business School suggests that action-orientated approaches to learning (e.g., group work, presentations, etc.) may not result in lower levels of students' Communication Apprehension (CA) with subsequent consequences for learning. Hassall *et al*. (2000 p.93), for example, note that:

There are indications that CA cannot be overcome by techniques aimed at the development of communication skills. In other words, if an individual has a high level of CA, application of these techniques will not result in improved communication performance. Consequently, for the effective development of communication skills it is necessary to diminish CA.

Hassall *et al.*'s observations are also backed by much theoretical work on CA, and particularly McCroskey's (1970, 1977, 1978, 1982, 1984a,b) work. A particularly important notion, however, is that exposing individuals to situations designed to enhance their communication skills only works if they have pre-existing low levels of CA. Students with high levels of CA might not only fail to develop such skills, but exposing them to such a situation they would prefer to avoid (but can not), likely increases their anxiety, and lessens their learning. Consequently, the aim of this study was to discover the extent to which the curriculum we have adopted is related to levels of student communication apprehension, and the extent to which student communication apprehension is related to levels of academic performance.

The next section reviews the main literature on communication apprehension, and the few studies that have previously investigated communication apprehension among accountancy students. We then outline the methods used to investigate communication apprehension among our students, before presenting the analysis, results and discussion of our findings.

## **Prior Literature on Communication Apprehension**

Communication apprehension is one perspective dealing with general concern about problems with communication avoidance and anxiety (McCroskey, 1984a), and it is an area that has received substantial attention from communication scholars. This literature is too vast to review here other than briefly and selectively.<sup>1</sup> The original conceptualisation of communication apprehension (McCroskey, 1970) viewed CA as "a broadly based anxiety related to oral communication" (cited in McCroskey, 1984a, p. 13). McCroskey's later work, however,

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<sup>1</sup> For more detailed reviews, the interested reader should read those sources cited here, but especially McCroskey, 1984a,b; McCroskey, 1978, 1982; and Richmond & McCroskey, 1998.

presented the view that CA was “an individual’s level of fear or anxiety associated with either real or imagined communication with another person or persons” (1977 p.78).

Originally the focus of the work on CA was oral communication but later researchers were concerned with apprehension about writing and the measure developed by these researchers, the Writing Apprehension Test (WAT), has been employed widely with only moderate correlation reported with the Oral Communication Apprehension (OCA) measure (Daly and Miller, 1975). With the broadening of the construct it must be recognised that the current instruments labelled as CA measures (notably the Personal Report of Communication Apprehension (PRCA); McCroskey, 1970, 1978, 1982) are restricted to oral CA, specifically apprehension about talking to or with others.

### **Conceptualisations of Communication Apprehension**

While McCroskey (1970) advanced the construct of CA, he made no explicit mention of whether it is a trait of an individual or a response to the situational elements of a specific communication transaction (a state). The distinction is important because of its implications for possible intervention strategies to modify levels of CA. McCroskey (1984a) believes the trait/state distinction is a false dichotomy. To view all human behaviour as emanating from either a trait-like, personality orientation of the individual or from the state-like constraints of a situation ignores the interaction of these two sources. His advice is to view the sources of CA as four points on a continuum from trait to situational.

*Traitlike CA.* A true trait is an invariant characteristic of an individual, such as eye colour and height. Traitlike personality variables, although highly resistant to change, can be and often are changed during adulthood. There is substantial research on treatment of people identified as having high CA that suggests CA can be changed (Condit, 2000; but see Beatty *et al.*, 1998 and Opt & Loffredo, 2000 for recent views that CA may be a fairly stable personality trait that is not easily subject to change). Traitlike CA is viewed as a relatively enduring, personality-type orientation toward a given mode of communication across a wide variety of contexts (McCroskey, 1984a). The primary measures of CA are presumed to be traitlike measures, which means that it is assumed that scores for an individual on the measures will be highly similar across an extended period of time, barring an intervention program designed to alter the relevant CA level or a demand characteristic introduced into the CA measure.

*Generalised-Context CA.* CA viewed from this perspective represents orientations toward communication within generalisable contexts. Fear of public speaking (stage fright), the oldest

of the CA conceptualisations, is an example. This view recognises that people can be highly apprehensive about communication in one type of context while having less or no apprehension in another context. CA is viewed as a relatively enduring, personality-type orientation in a given type of context. McCroskey (1984a) identifies four classic types of CA context: public speaking, speaking in formal meetings, speaking in small group discussions and speaking in dyadic interactions (i.e. conversations).

*Person-Group CA and Situational CA.* These two types of CA, which are of less interest here since they relate to specific individuals, are the reactions of an individual to communicating with a given individual or group of individuals across time, and the reactions of an individual to communicating with a given individual or group of individuals at a given time. These two types of CA are argued to be much more variable for a given individual, and have also been much less studied.

Each individual is affected by each type of CA to a lesser or greater degree. And it would be rare to find an individual that never experiences CA in any communication situation, or one that experiences CA in all situations, although some do exist. McCroskey (1984a, p.21) states that “Experiencing fear or anxiety in a threatening situation and adapting by withdrawing or avoiding the situation is normal.” Continuing to function in the threatening environment, even when fearful, is also normal. The reverse responses are not, and a recurring pattern of such behaviour would warrant a judgement of abnormal response, and hence a diagnosis of being apprehensive. Being able to assess an individual’s fear and responses on such a conceptual basis, however, is difficult since the only effect of CA that is predicted to be universal across both individuals and types of CA is an internally experienced feeling of discomfort. For this reason, self-reports of individuals’ CA are judged the only potentially valid measures of CA (McCroskey, 1984a). Measures of physiological activation and observation provide, at best, only indirect evidence of CA.

The distinction between normality and abnormality is more easily determined, however, on the basis of normal curve approximations generated by scores from previous research using self-reported measures of apprehension about communicating (McCroskey, 1984a). McCroskey believes that a CA score beyond one standard deviation above or below the mean score of the population can be identified as high or low in oral CA. A population mean score published from the results of 25,000 respondents is 65.60 with a standard deviation of 15.3 (McCroskey, 1984a). In normally distributed scores 16% of scores would be higher and 16% lower.

## **Causes and Consequences of CA**

Recent writers in this area have acknowledged that there may be a hereditary contribution to CA (e.g., Beatty *et al.*, 1998; Opt & Loffredo, 2000). When reviewing social biology research McCroskey (1984a) reasoned that research into twins has provided evidence that something other than environmentally based learning impacts on human behaviour tendencies and that significant social traits, for example sociability, can be measured in infants shortly after birth and that there are significant differences on these traits. The interaction between heredity and environment is seen as a precursor of adult predispositions and tendencies such as CA.

The causes of situational CA appear much clearer than those offered for trait-like CA. Buss (1980) suggests that the major elements in the situation that can result in increased CA are novelty (increased uncertainty about behaviour), formality (narrower confines for acceptable behaviour), subordinate status (appropriate behaviour is in the hands of the superior), conspicuousness (new social settings or standing up to speak in class or meetings), unfamiliarity (more comfortable when communicating with whom they are familiar), dissimilarity (with audience), and degree of attention from others (moderate attention is the most comfortable, but being stared out or ignored is uncomfortable). Two other elements are suggested by work from Daly and Hailey (1983). These are the degree of evaluation (more anxious if evaluation is occurring) and prior history (success breeds success but conversely prior failure will result in fear of failure and increased apprehension).

The causal explanations are useful in developing a fuller understanding of CA, but work in the field of expectancy learning, particularly that concerning learned helplessness, permits causal explanation that can be applied to all types of CA since it takes into account both traits of the individual and the variety of situational demands the individual confronts. McCroskey's (1984a) underlying assumption is that people develop expectations with regard to other people and with regard to situations. He argues that when expectations of outcomes are reinforced, individual confidence increases. Conversely, the individual is confronted with the need to develop new expectations which may result in a lack of confidence. "When no appropriate expectations can be developed, anxiety is produced" (McCroskey, 1984a, p.27). Expected negative unavoidable outcomes can induce fear. The last two cases are seen as the foundations of CA.

### *Communication Ability:*

While there are clear conceptual distinctions between communication apprehension and communication ability or skills, since individuals may overcome their anxiety and continue to

perform, a number of empirical studies have found significant negative associations between apprehension and communication ability, and/or cognitive ability (McCroskey & Andersen, 1976; Richmond & McCroskey, 1998). Two meta analyses (Allen & Bourhis, 1996; Bourhis & Allen, 1992) found negative relationships between the level of CA and measures of cognitive and communication skills. McCroskey & Andersen (1976) and McCroskey *et al.* (1976) found lower grade-point averages and lower college entrance exam results with students with higher levels of CA.

Not all studies of CA and communication behaviour, however, claim to have found significant negative relationships. Carrell & Willmington (1996, 1998), for example, report that no relationship was found between self-reports of communication competence and ratings of communication competence, and between self-reports of communication apprehension and observer ratings of communication competence. Carrell & Willmington (1998, p. 93) suggest "...internally perceived and reported feelings of CA do not relate to outwardly demonstrated communication behaviours." Despite this conclusion, however, many of the correlation coefficients in their study are negative (some as strong as  $r = -0.20$ ), and are not entirely inconsistent with Allen & Bourhis' (1996) meta-analysis.

In addition to evidence of poorer communication ability, and poorer academic performance among individuals with high levels of CA, there is also evidence that high CAs do not fare as well in job interviews (Ayers *et al.*, 1993; Ayers & Crosby, 1995), appear less satisfied with work, are less likely to advance at work, and are more likely to quit an organisation (Daly *et al.*, 1979). Overall, it would appear there is substantial evidence to suggest at least some negative consequences from high levels of CA in terms of performative ability.

### **Treatment of Communication Apprehension**

McCroskey (1984a) makes a clear distinction between rational and non-rational CA. "Rational CA levels are produced by combinations of positive and negative expectations and helplessness or responsiveness that are consistent with the views of an outside, objective observer's perception of reality ... Non-rational CA is seen as the unjustified expectations and helplessness or responsiveness of the individual, as viewed from the perspective of an outside, objective observer" (McCroskey, 1984a p.30). He argues that this distinction is important as it follows that there will be two major classifications of treatment: either directed toward communication behaviours or toward cognitions about communication behaviours.

McCroskey's depiction (see Figure 1) maps two levels of communication skill (satisfactory and unsatisfactory), against two levels of CA (low and high), to produce two rational and two non-rational conditions.

		<b>Communication Skill Level</b>	
		<b>Satisfactory</b>	<b>Unsatisfactory</b>
<b>Communication Apprehension Level</b>	<b>Low</b>	<b>Rational I</b>	<b>Nonrational II</b>
	<b>High</b>	<b>Nonrational III</b>	<b>Rational IV</b>

Figure 1: Rational and Non-rational Communication Avoidance Levels (McCroskey, 1984a, p.31)

Rational: Condition I is where people have low CA and good skill levels, requiring no treatment. The aim is to move people from the three other conditions to condition I (McCroskey, 1984a). Condition IV is where people have high levels of CA and unsatisfactory skills. They have two problems, one behavioural and the other cognitive. People in this condition must develop better skills as well as reduce their apprehension to become more effective communicators.

Non-rational: Condition II is where people have low levels of CA and unsatisfactory skills. McCroskey (1984a, p.32) argues that "These are people who should experience high CA, but don't." These people should be treated by improving their communication skills, therefore, moving them to Condition I, the desired condition. Of course in seeking to raise their skills, care would be needed to ensure such measures did not increase their levels of CA and move them to condition III.

Non-rational: Condition III is where people have high CA, despite having satisfactory skills. "These are people who should not experience high CA, but do" (McCroskey, 1984a, p.32). The treatment for this condition is directed toward reduction of CA level.

In summary there are two treatment programs, those focusing on improving communication skills and those directed toward reducing CA. Improving skills should not necessarily reduce CA, and vice versa. McCroskey (1984a) states that simply enrolling in a speech class or making additional oral presentations may, in fact, increase apprehension, and consequently, it cannot be

assumed that simply increasing the subject's opportunity to participate in writing and oral communication assignments will result in the anticipated improvement in a person's communication skills. Further, Powers *et al.* (1979, cited in Simons *et al.*, 1995) suggest that compulsory writing increases writing apprehension.

There are two basic approaches to reducing CA: behavioural and pedagogical. Behavioural interventions include systematic desensitisation, cognitive restructuring, assertiveness training and visualisation techniques. Complete discussion of these can be found in McCroskey (1984a), Stanga and Ladd (1990) and Simons *et al.*, (1995).

Pedagogical approaches include the effectiveness of pedagogical strategies for reducing apprehensions. To reduce written CA, Daly and Miller (1975) recommend structuring programs in which the writer would be allowed to view writing as a successful experience. Riffe and Stacks (1992, cited in Simons *et al.*, 1995) report that simply "giving a name" to a student's problem enhances trust and reduces anxiety (but see Proctor *et al.*, 1994 for contrary views). Other instructional techniques are discussed in Simons *et al.* (1995), but the conclusion is that more research is required to identify techniques that are adaptable to classroom situations.

### **Communication Apprehension Studies in Accounting Education**

There have been a small number of studies investigating communication apprehension in accounting students (see, for example, Stanga & Ladd, 1990; Ruchala & Hill, 1994; Simons *et al.*, 1995; Hassall *et al.*, 2000). A particularly common issue seems to support Daly and Stafford's (1984) observation that highly anxious individuals select majors having significantly fewer perceived communication demands than those selected by low anxious people. Occupations perceived as low in communication demands included accountant (among others), and several studies have sought to investigate levels of CA in accounting majors relative to their peers in other (business) majors, and in relation to McCroskey's (1984a) national norms. Typically the results (shown later in Table 2) indicate accounting students have higher average levels of CA than other business majors and above national norms (Stanga & Ladd, 1990; Simons *et al.*, 1995; Hassall *et al.*, 2000).

While Stanga & Ladd confine their study to oral communication apprehension, Simons *et al.* (1995) and Hassall *et al.* (2000) also include apprehension about writing and use Daly and Miller's (1975) WAT. Both studies also include a focus on gender differences following Daly & Miller's observation that women have significantly higher OCA but lower WA than male

counterparts. Simons *et al.*'s results indicate that while females written communication apprehension was lower, it was not significantly so. Female accounting students did, however, have significantly higher overall oral CA scores and higher scores associated with formal speaking contexts; namely, the meeting and public speaking subscale scores. These results are replicated in Hassall *et al.*'s study, and indicate commonalities between UK and US accounting students.

Hassall *et al.*'s (2000) study also indicates that prior educational background (science-based, arts-based, or a mix) is significantly associated with average levels of written communication apprehension for accounting and business majors, with those from a science background being highest and those from an arts background being lowest. Students' self-ratings of their own academic ability are also found to be significantly associated with average levels of communication apprehension for both writing and oral communicating, with those students reporting higher than average ability having lower than average levels of communication apprehension. Hassall *et al.* (2000, p. 97) also report the "CA scores remain largely unchanged as students progress through their courses of study", a point they consider worrying in the light of the efforts their own Department has made in terms of emphasising communication in the curriculum.

This last point provides the basis for this study. Our curriculum changes have been aimed at motivating increased learning outcomes and communication skills development. In the light of the previous discussion about the kinds of interventions required to treat and reduce levels of communication apprehension, we would not expect the changes we have made as educators to necessarily have reduced the levels of CA in our students. On the contrary, the concern is that the changes made to improve communication skills development are actually increasing the levels of CA among our students, or among a subset of our students, and, as a result, this is harming such developments and overall academic performance.

One study that has preliminary investigated associations between levels of CA, communication ability and academic performance is Warnock and Curtis (1997). Based on a small sample of Irish accounting students, they find overall average levels of oral CA at 72.6 – much higher than found in other studies, but no association between overall academic performance and levels of CA. They did, however, find significant associations between levels of CA and participation in tutorials, and, importantly, they also found that levels of CA were associated with the apparent success of students to get job offers from (then) Big Six accounting firms.

With evidence that students who chose accounting studies are already predisposed to having higher levels of communication apprehension, evidence that high CA impedes communication ability, and evidence that attempts to improve communication skills might not improve or even exacerbate communication apprehension, this study investigates the impact of curriculum on students' communication apprehension.

## **Method: The Research Instrument, Sample Selection, and Data Collection**

### **Communication Apprehension Measurement**

McCroskey (1984b) reports three major approaches to the measurement of oral communication apprehension (ORA) initiated in the early days of the research that continue to the present<sup>2</sup>, but, not surprisingly, McCroskey (1984a) concludes self-report measures are the most valid because CA is experienced internally by an individual. Self-reports also represent inexpensive and efficient methods of assessing large numbers of respondents with minimum effort and imposition.

McCroskey's (1970, 1978, 1982) Personal Report of Communication Apprehension (PRCA), in its various forms, has been the self-report measure employed in the overwhelming majority of studies involving traitlike communication apprehension. McCroskey (1984b) states the 20-item, 10-item, 25-item, and 24-item versions of this instrument all use 5-step, Likert-type response formats and the reliability is very high at above  $\alpha = 0.90$  in most cases. These forms are correlated around 0.90 and there is overwhelming evidence for the predictive validity of the measures. The most recently developed 24-item version of the instrument includes 6 items for each of 4 contexts: public speaking, talking in meetings or classes, talking in small groups, and talking in dyads (i.e., conversations). This version also permits the generation of 4 subscores as well as an overall score. In some research the subscores have been found to differ in their predictive power for a variety of dependent variables so the clear choice is the 24-item version, and this is the instrument used in this study. McCroskey's PRCA-24 item instrument has also been used in several other studies of accounting students in different countries (e.g., Hassall *et al.*, 2000; Simons *et al.*, 1995; Stanger & Ladd, 1990), and permits comparisons across studies.

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<sup>2</sup> McCroskey (1984b, p. 81) states that "Lomas (1934) and Gilkinson (1942) began the stream of research that employs self-report measures. Henning (1935) initiated research using observer ratings. Redding (1936) launched the research that focuses on measurement of physiological arousal ... Clevenger (1959) published a major review of the research done to that time, and found that all three approaches to measurement generated highly reliable scores." He found they are poorly intercorrelated as they were used for different purposes. The measurement approach for this proposed research is to be similar to other research in the area, so focuses on self-report measurement.

Simons *et al.* (1995) and Hassall *et al.* (2000) also study students written communication apprehension (WCA) using Daly and Miller's (1975) instrument for measuring written communication apprehension. Differences occur, however, in the use of this instrument. Simons *et al.* (1995) appear to use the original 26 item instrument designed by Daly and Miller (1975) to assess students apprehension associated with writing and taking comprehension courses. Hassall *et al.* (2000) modify this instrument for use on UK and Spanish business and accountancy students to a 24-item version using 20 of the original items with minor changes (e.g., substituting "essays" for "composition"), deleting two items and substituting two items. This study uses Hassall *et al.*'s (2000) version of the instrument, but neither Simons *et al.*'s nor Hassall *et al.*'s studies report reliability analyses for the written communication apprehension instrument.

### Sampling and Data Collection

This study focuses on a cross-sectional investigation of the CA of students studying all levels of undergraduate accounting at a New Zealand University in 2002. Some repeated measures data for the final year of studies was also elicited. The research methods included written questionnaires administered in the classroom, and database retrieval of students' grades. Informed consent, student ID, and ethical approval were required. Demographic information such as age, gender, ethnicity, prior education, and university major was also requested for each student. All accountancy students were surveyed in March at a classroom time convenient to the course conveners, and the 300 level students were surveyed a second time in September. The numbers of students surveyed are shown in Table 1.

**Table 1. Levels and numbers of students surveyed**

<b>Semester One</b>	<b>100 level</b>	<b>200 Level</b>	<b>300 Level</b>	<b>300 level</b>	<b>Total</b>
	<i>ACCT 111</i>	<i>ACCT 211</i>	<i>ACCT 302 &amp; 307</i>	<i>ACCT 310</i>	
Total Number of Students	262	189	166	129	617
Total Useable Surveys for OCA	181	123	130	96	434
% Useable out of total surveys	69%	65%	78%	74%	70%
Total Useable Surveys for WCA	183	127	120	92	430
% Useable out of total surveys	70%	67%	72%	71%	70%

### Data Analysis and Results

#### Preliminary Factor Analysis and Reliability Analysis

Several forms of preliminary factor analysis and reliability assessment were performed on both the PRCA-24 item instrument, and the written communication apprehension instrument. Since

the results from the PRCA-24 instrument are often reported and analysed using both the subscales, and overall, it is usual to assess reliability at both levels (Levine & McCroskey, 1990; Hutchinson *et al.*, 1995). The detailed results of Principal Axis Factoring with Varimax rotation, and Cronbach reliability analysis are included in Appendix 1. Four factors were requested and clearly extracted with each of six items cleanly loading on each factor. The factor matrix was constructed using all 434 accountancy students, and the results show high levels of Cronbach alpha scores (e.g., >0.80) for each factor (subscale). The 4-factor results compare favourably with Hutchinson *et al.*, (1995) and Blue *et al.* (1998).

Principal Axis Factoring when a single factor is requested representing the uni-dimensional character of the 24-item instrument was also performed and the results are shown in Appendix 1. Again, Cronbach alpha scores of >0.92 indicate the reliability of the single factor solution. Overall, the confirmatory factor analyses reveal robust and reliable data for both the uni-dimensional measure of oral communication apprehension, and the apprehension measures for the dimensions of public speaking, talking in meetings or classes, talking in small groups, and talking in dyads. These constructs are reliable for the overall sample of accountancy students, and for the sub samples of year-1, year-2, and the two year-3 sub samples.

Appendix 1 also includes the results of the factor analysis conducted on Hassall *et al.*'s (2000) version of Daly and Miller's (1975) measure for written communication apprehension when a single factor is requested and extracted using Principal Axis Factoring with Varimax Rotation.<sup>3</sup> Again, the results show a robust and reliable set of results from this instrument.

### **Communication Apprehension Analysis & Results**

Table 2 shows the overall mean scores and standard deviations for both the OCA and WCA measures in comparison with previous studies on accountancy and business studies students. The results for this study are largely in line with previous studies of accountancy students' levels of communication apprehension. The overall means for the accountancy students regardless of level and country mostly lie between 63.0 and 70.0 on a scale ranging from 24-120. Both written and oral communication scores for this study are remarkably similar to those of Hassall *et al.*'s

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<sup>3</sup> The psychometric basis of this instrument appears less developed and much less widely reported than for the PRCA 24. Neither Hassall *et al* (2000) or Simons *et al* (1995) report the results of any factor analyses, nor any reliability analyses for the versions they used. As a precaution, then, we conducted both exploratory and confirmatory factor analyses. Exploratory analysis creates two factors with Eigen values greater than one, with 10 items (3,4,5, 7,8,10, 13,15, 17 and 18) loading on one factor, and the remaining 14 items loading on a second factor. The 10-item scale, which on the basis of the items might be described as the liking or enjoyment of writing, produces a Cronbach Alpha reliability score of 0.833. The 14-item scale, which appears more a shortened version of fear of and inability to write, has a Cronbach Alpha score of 0.912.

(2000) UK students. Comparisons between this study and those of US students tend to show slightly elevated levels of apprehension in NZ students compared to McCroskey's norms of 65.6, and in relation to those studies examining senior accountancy students. Year-1 accountancy students in NZ, however, show similar levels of apprehension to those US students studied by Stanga & Ladd (1990) and Simons *et al.* (1995).

Table 2 About Here

**Table 2: Comparative results with prior studies into student communication apprehension**

	Students	N	Country	Group		Interviews		Conversations		Public Speaking		Overall		Written	
				Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
McCroskey	College	25000	USA	15.4	4.8	16.4	4.8	14.5	4.2	19.3	5.1	65.6	15.2		
Hutchison et al 1995	Undergrads & MBA	260	Australia	13.3	3.9	14.5	4.2	12.9	3.8	18.2	4.7	58.8	13.0		
Hutchison et al 1995	Undergrads	124	USA	14.8	4.5	15.4	4.2	14.2	3.9	18.0	5.0	62.4	14.0		
Simons et al. 1995*	1 <sup>st</sup> year Acc	233	USA	16.3	5.6	17.0	5.3	14.8	4.5	20.0	5.7	68.1	17.4	70.7	18.2
Stanga & Ladd 1990	1 <sup>st</sup> year Acc	161	USA	16.0	4.8	17.0	4.8	15.0	3.9	19.6	5.4	67.5	16.0		
Fordham & Gabbin 1996	1 <sup>st</sup> year Acc	283	USA									64.2	12.2		
<b>This Study</b>	<b>1<sup>st</sup> year Acc</b>	<b>181</b>	<b>NZ</b>	<b>15.8</b>	<b>4.1</b>	<b>18.2</b>	<b>4.7</b>	<b>15.0</b>	<b>4.2</b>	<b>19.5</b>	<b>4.8</b>	<b>68.5</b>	<b>14.4</b>	<b>68.5</b>	<b>13.3</b>
Ruchala & Hill 1994	3 <sup>rd</sup> year Acc (pretest)	22	USA	14.7	2.5	16.5	3.3	14.1	4.5	17.8	5.8	63.0	14.1		
Ruchala & Hill 1994	3 <sup>rd</sup> year Acc (posttest)	22	USA	14.1	3.3	15.2	3.6	12.1	4.7	14.7	6.1	56.1	14.8		
Warnock & Curtis 1997	3 <sup>rd</sup> year Acc	83	Ireland	18.1	5.3	18.9	4.7	14.6	3.6	21.0	4.3	72.6	15.5		
Fordham & Gabbin 1996	3 <sup>rd</sup> year Acc	84	USA									64.0	13.8		
<b>This Study</b>	<b>3<sup>rd</sup> year Acc</b>	<b>96</b>	<b>NZ</b>	<b>15.1</b>	<b>3.6</b>	<b>20.2</b>	<b>4.2</b>	<b>13.9</b>	<b>3.2</b>	<b>18.2</b>	<b>5.2</b>	<b>67.4</b>	<b>11.4</b>	<b>62.3</b>	<b>14.1</b>
Fordham & Gabbin 1996	1 <sup>st</sup> year Bus	62	USA									66.4	10.9		
<b>This Study</b>	<b>1<sup>st</sup> year Bus</b>	<b>67</b>	<b>NZ</b>	<b>15.8</b>	<b>4.6</b>	<b>19.9</b>	<b>4.0</b>	<b>15.0</b>	<b>3.8</b>	<b>18.5</b>	<b>5.0</b>	<b>69.2</b>	<b>14.4</b>	<b>63.2</b>	<b>14.1</b>
Hassall et al. 2000	1-3 year Acc	236	UK	14.7		18.8		15.0		19.0		67.5		67.7	
<b>This Study</b>	<b>1-3 year Acc</b>	<b>434</b>	<b>NZ</b>	<b>15.7</b>	<b>4.0</b>	<b>18.4</b>	<b>4.4</b>	<b>15.0</b>	<b>4.0</b>	<b>19.2</b>	<b>4.8</b>	<b>68.4</b>	<b>13.7</b>	<b>68.0</b>	<b>13.4</b>
Hassall et al. 2000	1-3 year Bus	380	UK	13.6		17.7		13.3		19.3		63.8		62.4	
Hassall et al. 2000	1-3 year Bus Ad	235	Spain	15.1		20.1		13.0		19.9		68.1		64.2	

\* Simons et al. (1995) uses a 26-item Written Communication Apprehension instrument with a range 26-130.

*Communication Apprehension, Accounting Courses and Assessment.*

Table 3 provides an overview of the assessment regimes used in the accounting courses for years 1 through 3 in 2002.<sup>4</sup> The assessments are shown using dimensions from Adler and Milne (1997b), namely: final exam versus internal; and then of the internal assessment, (1) group versus individual, (2) oral presentation, written, and computer based, and (3) case/project, essay, numerical exercise or test based. Accounting majors are required to take ACCT 111 and 112, ACCT 211, 213 and 222, and ACCT 310, 307 and/or 302, and two other ACCT 300 level papers.

**Table 3: Accounting Courses and Assessment in % of overall course grade**

Course	Overall Assessment		Breakdown of Internal Assessment								
	Exam	Internal	Group	Individual	Case	Essay	Test	Exercise	Written	Oral	Comp
<b>2002 yr</b>											
<b>111</b>	50	50	15	35	25	0	15	10	45	5	0
<b>112</b>	30	70	30	40	40	0	30	0	70	0	0
<b>211</b>	60	40	7.5	32.5	15	5	15	5	40	0	0
<b>213</b>	55	45	25	20	25	0	15	5	22.5	2.5	20
<b>222</b>	52.5	47.5	25	22.5	32.5	0	15	0	37.5	10	0
<b>302</b>	47.5	52.5	20	32.5	12.5	32.5	7.5	0	27.5	25	0
<b>303</b>	35	65	30	35	30	35	0	0	46.25	18.75	0
<b>304</b>	70	30	0	30	0	0	15	15	27.5	2.5	0
<b>306</b>	65	35	25	10	25	10	0	0	35	0	0
<b>307</b>	65	35	25	10	15	0	10	10	20	15	0
<b>310</b>	65	35	35	0	25	10	0	0	30	5	0
<b>319</b>	72	28	0	28	12	8	0	8	28	0	0
<b>Pre2002</b>											
<b>111</b>	65	35	5	30	5	0	20	10	32.5	2.5	0
<b>112</b>	60	40	20	20	15	15	10	0	37.5	2.5	0

When the students were surveyed in March 2002, the year 1 students would have been exposed to only two to three weeks of ACCT 111, and so their levels of CA are effectively those with which they enter accountancy studies. The year two students would have been exposed to the pre 2002 ACCT 111 and 112 courses and 2-3 weeks of ACCT 211 and ACCT 213.

In general, the year 3 students surveyed in March would have been exposed to the pre 2002 ACCT 111 and 112 courses, all the three year 2 courses and 2-3 weeks of ACCT 302 and/or ACCT 307 plus one other 300 level paper excluding ACCT 310. The year 3 students surveyed in September would have been exposed to virtually the entire curriculum. In terms of exposure to courses involving group and oral assessments, then, the four cross-sectional samples represent: ‘none’, ‘a

<sup>4</sup> It should be noted significant changes occurred to the year 1 curriculum in 2002, and that the year 2 and year 3 students surveyed in this study were exposed to a year 1 curriculum (in 2001 and 2000) that contained significantly less group and case work as shown. The year 2 and year 3 courses have remained largely unchanged since 1999.

little’, ‘some’, and ‘a lot’. In terms of exposure to written assessments including exams at University, the four cross-sectional samples represent: ‘none’, ‘some’, ‘a lot’, and ‘a great deal’.<sup>5</sup>

Table 4 presents the results of the four cross-sectional samples of students’ levels of communication apprehension, showing the overall results for the levels of written and oral apprehension, and for the four subscales of oral apprehension.

**Table 4: Descriptive Statistics for Communication Apprehension by Course.**

	N	Mean	SD	Min	Max	%Low	%High	Male	Female
<b>Written CA</b>									
ACCT 111	183	68.53	13.34	28	110	3.3	13.1	67.67	69.27
ACCT 211	127	68.00	13.20	29	106	1.0	14.2	69.14	66.60
ACCT 302	31	69.30	13.93	44	97	3.2	16.1	65.64	72.32
ACCT 307	89	67.34	13.63	35	95	4.5	12.4	68.77	66.18
ACCT 310	92	62.32	14.09	39	96	9.8	7.6	62.16	62.45
<b>Oral CA</b>									
ACCT 111 *	181	68.51	14.39	39	111	4.4	13.8	65.26	71.13
ACCT 211	123	67.33	13.95	31	103	5.7	10.6	67.24	67.45
ACCT 302	30	71.40	13.56	43	92	6.7	13.3	70.23	72.41
ACCT 307 *	100	69.21	12.01	34	95	2.0	11.0	66.02	72.04
ACCT 310	96	67.44	11.40	46	100	0.0	8.3	66.07	68.60
<b>Group Meetings</b>									
ACCT 111	181	15.77	4.10	7	29	24.3	5.5	15.26	16.19
ACCT 211	123	15.58	4.22	6	27	23.6	4.1	15.83	15.89
ACCT 302	30	15.63	4.19	8	25	26.7	3.3	15.85	15.47
ACCT 307	100	15.61	3.68	8	24	21.0	2.0	15.09	16.08
ACCT 310	96	15.09	3.65	7	24	29.2	1.0	14.91	15.25
<b>Formal/Interview Meetings</b>									
ACCT 111 *	181	18.23	4.70	6	30	14.4	14.4	16.93	19.29
ACCT 211	123	18.11	4.35	6	27	14.6	8.9	18.00	18.25
ACCT 302	30	19.67	4.58	9	28	13.3	20.0	19.46	19.82
ACCT 307 *	100	18.98	3.95	9	28	11.0	13.0	18.06	19.79
ACCT 310	96	20.21	4.19	8	29	4.2	30.2	19.45	20.85
<b>Dyads/Conversations</b>									
ACCT 111	181	15.01	4.19	6	26	32.0	3.3	14.48	15.43
ACCT 211	123	15.12	4.09	6	29	30.1	4.9	15.07	15.19
ACCT 302	30	15.77	3.91	6	23	23.3	0.0	15.08	16.29
ACCT 307 *	100	15.00	3.78	6	26	33.0	3.0	14.09	15.81
ACCT 310	96	13.95	3.23	6	25	45.8	1.0	14.39	13.58
<b>Public Speaking</b>									
ACCT 111 *	181	19.49	4.80	8	30	7.2	20.4	18.59	20.23
ACCT 211	123	18.25	4.64	10	30	14.6	16.3	18.34	18.13
ACCT 302	30	20.40	5.24	12	30	10.0	20.0	19.85	20.82
ACCT 307	100	19.62	4.79	9	30	5.0	24.0	18.79	20.36
ACCT 310	96	18.19	5.18	6	30	12.5	18.7	17.32	18.92

\* refers to significant gender differences

<sup>5</sup> These descriptors are based on students entering University from school, and not having previously undertaken University studies, the most common track into and out of accountancy studies for the majority of students.

Table 4 shows the overall means and standard deviations for each year (course) subsample, along with the maximum and minimum values, as well as the percentage of the subsamples considered to exhibit low and high levels of communication apprehension.<sup>6</sup> Table 4 also shows the mean values for male and female students.

Differences between mean scores (using t-tests) by gender revealed the only significant differences occurred for overall oral CA, public speaking, and formal meetings for entry level students (ACCT 111) – with females being significantly higher, and for overall oral CA, formal meetings, and dyads/conversations in ACCT 307 – with again females being significantly higher. Consistent with other studies, female students do exhibit higher levels of overall oral CA because of higher formal oral communication (public speaking and formal meetings), but these were not always significantly different. There are no significant gender differences for writing apprehension. While Table 4 shows similar proportions of about 12-15% in the high group and about 5% in the low group for written CA and overall oral CA, the oral subscales reveal the classic differences of anxiety associated with oral communication in formal and informal settings. About 25% of students appear in the low group for informal group communication and about 33% appear in the low group for conversations, with typically less than 5% of the samples appearing in the high CA group for such communication situations. In contrast, for interviews and public speaking, the proportions are around 20% or more for those with high levels of CA, and around 10-15% for those with low levels of CA.

In terms of differences in levels of CA between the years (courses) of students, it can be observed that overall levels of written CA remained largely similar at 67.0 to 69.0 except for those year 3 students sampled in September towards the end of their final year of accounting studies in ACCT 310 where average levels of CA are *lower* at 62.0. ANOVA analysis reveals these differences are significant for the overall samples ( $F=3.898$ ,  $p=0.004$ ), for the male students ( $F=1.994$ ,  $p=0.096$ ), and for the female students ( $F=2.920$ ,  $p=0.022$ ). t-tests reveal the significant differences for both males and females only occurs between those students surveyed in ACCT 310, and students in other levels. These profiles are similar for males and females and indicate that levels of written CA seem to hold steady until the final year, where they decline. The proportions of students in the high and low written CA groups in ACCT 310 show the distribution being shifted towards lower levels of written CA, indicating some curriculum impact on students, albeit towards the end of their studies.

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<sup>6</sup> Based on McCroskey (1984a,b), low levels of overall oral and written CA are judged as scores less than 45, while high levels of overall CA are judged greater than 85 on a theoretical range of scores 24-120. With the subscales for Oral CA, low is judged as scores less than 12, while high is judged above 24 on a theoretical range of scores 6-30.

For mean levels of overall oral CA there are no significant differences between the years of study. There are also no significant differences for the mean levels of CA associated with the group communications subscale, although the levels are very slightly lower for ACCT 310 students. There are significant differences in mean values for the conversations subscale, but only for female students (ANOVA,  $F=2.776$ ,  $p=0.027$ ), and again, t-tests reveal significantly lower levels of CA for students surveyed in ACCT 310 compared to other levels, but not between other levels. For public speaking, Table 4 generally shows lower mean levels of CA in students sampled in ACCT 310 compared to other levels, and not between other levels, but these results are only significantly different for female students (ANOVA,  $F=2.373$ ,  $p=0.053$ ). t-tests reveal significant differences between mean values for ACCT111, ACCT 211, and ACCT310 for public speaking. For formal meetings/interview situations, Table 4 generally shows *higher* levels of CA among ACCT 310 students compared to students in other levels. These differences are significant for all students (ANOVA,  $F=4.330$ ,  $p=0.002$ ), and for the male and female samples (ANOVA,  $F= 2.914$ ,  $p=0.022$ ;  $F=2.472$ ,  $p=0.045$ ).

Table 5 provides a summary of the significant results from the t-tests for male and female students and generally shows lower levels (shown as +ve differences) of written CA for both in ACCT 310 compared to earlier years; lower levels of public speaking CA and conversation CA for female students in later studies; and higher levels of interview/formal meeting CA for both groups in later studies.

**Table 5: Summary of Differences Between Student Cohorts by Courses (t-tests)**

<b>Male students</b>	<b>Group</b>	<b>Interviews</b>	<b>Conversations</b>	<b>Public Speaking</b>	<b>Overall</b>	<b>Written</b>
ACCT 111 > ACCT 310		-ve				+ve
ACCT 111 > ACCT 211						+ve
ACCT 211 > ACCT 310						
<b>Female students</b>						
ACCT 111 > ACCT 310		-ve	+ve	+ve		+ve
ACCT 111 > ACCT 211				+ve		
ACCT 211 > ACCT 310		-ve	+ve			

Differences significant at 5% or less

To gain further insights into the effects of increasing exposure to the curriculum on levels of CA, we also analysed the differences between the repeated measures of CA collected for the year 3

students between March (taken in ACCT 302 or ACCT 307) and September (taken in ACCT 310). These results provide stronger evidence for *changes* in levels of CA over the academic year when students are most exposed to the curriculum in terms of its demands on students' communication capacities for assessed activities. Table 6 presents the results of the repeated measures scores tested for differences using paired t-tests on 53 students. The results indicate a significant *decline* in written communication apprehension, and a significant *increase* in oral communication apprehension associated with interviews/formal meetings. Marginal declines in the other three oral communication subscales occur, but these are not statistically significant, and overall oral CA, given the increase in interview CA, remains virtually constant.

**Table 6: Differences in Communication Apprehension Scores at start and end of Year 3**

	N	Mean 1	Mean 2	Difference	t-values	Sig	Correlation
Group CA	53	15.57	15.36	.21	.460	.647	.512
Conversation CA	53	14.79	14.43	.36	.764	.448	.538
Interview CA	53	18.75	19.91	-1.15	-2.241	.029	.557
Public Speaking CA	53	19.28	18.68	.60	1.151	.255	.661
Overall Oral CA	53	68.40	68.38	.02	.015	.988	.664
Written CA	53	66.61	61.96	4.65	3.837	.000	.777

To further probe the changes in CA among the year 3 students, we also examined the changes within high and low CA groups by dividing the paired samples into those above and below the midpoint score of 72 on the written and oral CA scales. This was done to see what effects the curriculum might be having on those students with high levels of CA compared to low levels, and because from Table 4 there is some indication that the changes in the proportions of the samples in the high and low extremes were not uniform across the year 3 courses – some decline, but some increase.

Table 7 indicates some interesting effects on the year 3 paired samples. For students who start year 3 with relatively high levels of CA, there are *declines* in their levels of CA for both oral and written CA except for the interview/formal meeting subscale score. Furthermore, all of these declines are significant at 10% or less. For those students starting out with relatively low levels of CA, the changes during year 3 are reversed (they *increase*) for all but the written CA, which again significantly declines. The increases in interview and overall mean levels of CA for the low group are significant at less than 5%.

**Table 7: Differences in CA scores between start and end of year 3 partitioned by high/low CA scores at start of year 3.**

	N	Mean 1	Mean 2	Difference	t-values	Sig	Correlation
<b>High CA (CA1&gt;72)</b>							
Group CA	25	17.92	16.60	1.32	1.941	.064	.488
Conversation CA	25	17.16	15.48	1.68	2.545	.018	.612
Interview CA	25	20.56	21.20	-.64	-.905	.374	.468
Public Speaking CA	25	22.52	20.64	1.88	2.412	.024	.612
Overall Oral CA	25	78.16	73.92	4.24	2.463	.021	.411
Written CA	17	80.79	76.53	4.26	1.859	.082	.210
<b>Low CA (CA1&lt;71)</b>							
Group CA	28	13.46	14.25	-.79	-1.441	.161	.184
Conversation CA	28	12.68	13.50	-.82	-1.395	.174	.152
Interview CA	28	17.14	18.75	-1.61	-2.170	.039	.512
Public Speaking CA	28	16.39	16.93	-.54	-.827	.415	.507
Overall Oral CA	28	59.68	63.43	-3.75	-2.482	.020	.557
Written CA	36	59.92	55.08	4.83	3.356	.002	.558

*Communication Apprehension and Academic Performance*

While Tables 4 through 7, excepting interview CA, generally show either no changes or declines in levels of CA, and especially for year 3 students and those starting with relatively high levels of CA, we also examined whether levels of CA were at all related to levels of course performance. Table 8 shows the results of comparing mean levels of CA between those students who passed or failed the course for each of the sub samples of students.

**Table 8: Differences in levels of CA between Students failing/passing course**

	Group	Interviews	Conversations	Public Speaking	Overall	Written
<b>ACCT 111</b>						
Failed	16.7	18.3	14.4	19.6	69.1	66.4
Passed	15.8	18.4	15.3	19.2	68.8	68.6
<b>ACCT 211</b>						
Failed	15.0	18.0	13.5*	16.8	63.4	71.7
Passed	16.0	18.0	15.5*	18.5	68.1	66.9
<b>ACCT 310</b>						
Failed	15.1	22.3*	14.9	19.7	72.0	66.5
Passed	15.0	19.7*	13.9	17.8	66.5	61.4

\* denotes significant differences

Excepting conversations CA in ACCT 211, and interviews CA in ACCT 310, none of the levels of CA are significantly different between those students passing or failing a course, and this pattern of results also repeated when examining students who passed or failed the final exam in each course. Higher average levels of written CA are shown for students failing the year 2 and 3 courses, and for the levels of oral CA in those failing the year 3 course, but these are not

significantly higher. Table 8 generally shows that levels of CA are not significantly related to whether students advance in their accounting studies.

**Table 9: Comparative means of performance (in %) in course between high CA students and others.**

	ACCT 111	ACCT211	ACCT302	ACCT307	ACCT310
Group>24	78.9	62.6	65.5	77.5	No students
Group<24	72.6	62.6	68.4	68.5	
Interviews>24	73.7	66.4	72.5	68.7	66.3
Interviews<24	73.0	62.3	67.4	68.7	68.5
Conversations>24	75.7	65.8	No students	77.0	One student
Conversations<24	73.0	62.5		68.5	
Public Speaking>24	54.2	64.0	72.5	67.5	69.3
Public Speaking<24	58.2	62.4	66.4	69.1	67.5
Oral Overall >85	67.2	65.2	71.7	65.9	68.0
Oral Overall<85	74.1	62.3	67.8	69.0	67.8
Written >80	76.2	57.6	70.1	65.2*	62.6*
Written<80	73.2	64.2	67.6	70.1*	69.0*

\* denotes significant differences

Table 9 examines the levels of course performance for those students judged to have high levels of CA relative to their course peers. None of the differences for Oral CA are statistically significant, indicating that higher levels of Oral CA are not related to lower levels of course performance. Indeed, in some cases higher levels of CA are related to higher levels of performance. Higher levels of written CA seem most marked in impact on levels of course performance in ACCT 307 and ACCT 310, and reflect differences between a C+ and B- on average. The differences for these courses are statistically different.

Correlations run on levels of CA and course performance also reveal significant results for written CA in ACCT 310 (n=89, rho= -0.230, p=0.030), ACCT 307 (n=81, rho= -0.267, p=0.016), and ACCT 211 (n=116, rho= -0.209, p=0.024), but not ACCT 302 and ACCT 111. Significant negative correlations for oral CA also appear in ACCT 307 for public speaking (n=89, rho= -0.178, p=0.095) and interviews (n=89, rho= -0.227, p=0.033).

ACCT 302 and ACCT 307 also contain relatively high levels of presentation activity (25% and 15% of course grades respectively), and so we also examined whether levels of oral CA, and particularly public speaking CA, were associated with levels of performance in these specific assessments. The tests (results not shown) revealed that students with high levels of oral CA do not seem to do any worse on average in these assessments than their peers with lower levels of oral CA.

## Discussion and Conclusions

The results from this study reveal several findings. First, based on factor and reliability analysis the use of McCroskey's (1970, 1978, 1982) oral CA instrument and Daly & Miller's (1975) written CA instrument on New Zealand students produces robust and reliable results. Studies in the US, UK, Australia, and New Zealand, suggest the construct and measurement of communication apprehension is largely universal. Second, the average levels of oral and written communication apprehension among New Zealand accountancy students is very much in line with earlier studies of US and UK accountancy students. Third, the results indicate the classic situational differences associated with oral communication apprehension in formal versus informal settings with communication apprehension in interview and public speaking settings being much higher on average and with a greater proportion of students in the high (>24) groups. As noted in other studies, female students also tend to exhibit higher levels of oral CA associated with formal situations like interviews and public speaking.

Fourth, and of some importance in the context of this study, is the general result that accounting students exposed to more demanding aspects of the accounting curriculum in terms of assessed activities in their later accountancy studies do not have significantly higher average levels of communication apprehension than their peers in earlier studies. Indeed, there is some evidence of *declines* in CA, and especially in relation to written communication apprehension, and to aspects of oral communication apprehension for those starting year 3 studies with particularly high levels of such apprehension. Such declines appear to occur mostly in the last year of studies, and may reflect the cumulative and concentrated impacts of the accounting curriculum. While the curriculum changes were not made to reduce communication apprehension, some aspects of it may be operating as a form of mild assertiveness training. The declines, however, may also simply reflect increased levels of maturity, or the possibility (for the changes observed during the third year of studies) that the order of the courses have captured relatively different levels of reported apprehension. What appears less likely on the evidence from this study, however, is that year 3 students have lower average levels of communication apprehension because students with higher average levels of CA failed to survive and advance from earlier studies. Our claim is not that the accounting curriculum has reduced levels of CA, since this was never the intent, and based on the earlier literature this seems to require some fairly specific and elaborate interventions. Rather, the evidence suggests the curriculum does not appear to be exacerbating levels of CA.

Indeed, a fifth result is that other than for written communication apprehension there appears to be little association between levels of apprehension and academic performance. This is perhaps not

surprising given other explanatory variables for performance (e.g., intelligence, effort, etc.), how we have measured performance in this study, and that despite our curriculum changes the bulk of assessment still concerns written forms of assessment. There is a small but significant negative correlation between written CA and course performance, and evidence from two year 3 courses that the average differences between high and low written CA students is about one grade point average. The lack of association between measures of oral CA and academic performance is consistent with Warnock & Curtis' (1997) finding for Irish accountancy students, and while it might appear to contradict the studies reviewed by Allen & Bourhis (1996) and Bourhis & Allen (1992), it should be noted we have not measured such communication activities as participation in tutorials, clarity of speaking, and other specific communicative tasks.

Overall, the evidence from this study suggests that students' levels of CA are not made worse in later studies which place increased demands on their abilities to work in groups and undertake presentations, and they may in fact improve. Neither does academic performance appear to be detrimentally affected by levels of CA. Hassall *et al.* (2000) suggest that accounting educators need to consider whether their emphasis placed on communication in curriculum is misdirected at the expense of attention to communication apprehension, and that efforts should be directed to reducing high levels of CA in students before tackling skills development. While we would agree educators should certainly investigate curriculum impacts on students' levels of CA, our results also suggest that specific interventions aimed at reducing levels of CA are not always required, at least in terms of preventing non-advancement in studies, poorer academic performance, and to the extent we have assessed and measured them, the development of communication skills.

There is a caveat to this conclusion, however, and that is that while students' academic performance appears not to be impacted by their levels of CA, other than Warnock and Curtis' (1997) study we have no understanding of how CA levels impact on accounting students performance and success in job interviews. Warnock and Curtis' (1997) findings suggest high levels of CA have a much more direct and noticeable impact on communication performance in such settings than classrooms. The one result that emerges from our study as of concern is the increased levels of oral CA associated with interviews and formal meetings with academics/employers. While our curriculum may in part produce these elevated levels of CA, it may also be a function of students undertaking formal job interviews during this time. The questionnaire directly refers to anxiety about communication in "interviews". Whether educators should be concerned with attempts to reduce levels of anxiety produced by the job interview process rather than the curriculum, however, is perhaps more debatable. First, though, and a useful

extension to the work here, would be to show that levels of CA, and especially oral CA, are associated with levels of performance and success in job interviews, and by further extension, with levels of success in accountancy careers. Armed with such knowledge, educators and employers could then consider whether and how to employ specific intervention strategies designed to reduce communication anxiety, and/or whether and how to seek to recruit individuals with pre-existing low levels communication apprehension.

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## Appendix 1: Detailed Results of Factor Analysis and Reliability Analysis.

### Confirmatory Factor Analysis on PRCA-24 (Oral CA) with Four Extracted Factors

	Factor			
	1	2	3	4
1* I dislike participating in group discussions				.515
2 Generally, I am comfortable while participating in a group discussion				.701
3* I am tense and nervous while participating in group discussions.	.409			.647
4 I like to get involved in group discussions.				.621
5* Participating in group discussion with new people makes me tense and nervous				.498
6 I am calm and relaxed while participating in group discussions.				.600
7* Generally, I am nervous when I have to participate in an interview.			.796	
8 Usually I am calm and relaxed while participating in interviews.			.848	
9 I am very calm and relaxed when I am called upon to express an opinion at an interview.				.634
10* I am afraid to express myself at interviews.				.449
11* Speaking at interviews usually makes me uncomfortable.				.605
12 I am very relaxed when answering questions in an interview.				.682
13* While participating in a conversation with a new acquaintance, I feel very nervous.	.689			
14 I have no fear of contributing my ideas during conversations.	.546			
15* Usually I am very tense and nervous in conversations.	.759			
16 Usually I am very calm and relaxed in conversations.	.750			
17 While conversing with a new acquaintance, I feel relaxed.	.638			
18* I'm afraid to express my opinions during conversations.	.548			
19 I have no fear of giving a presentation.		.678		
20* I feel very tense and nervous while giving a presentation.		.722		
21 I feel relaxed while giving a presentation.		.727		
22* My thoughts become confused and jumbled when I am giving a presentation.		.619		
23 I face the prospect of giving a presentation with confidence.		.699		
24* While giving a presentation I get so nervous, I forget facts I really know.		.622		
Cronbach Alpha Coefficient	.860	.880	.883	.837

Rotated Factor Matrix on BCom Accounting Majors. N=434. Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.915. Rotation converged in 6 iterations. 4 Factors cumulatively explain 61.84% of Variance. Items were answered on a 5-point Likert scale from 1=strongly agree to 5=strongly disagree. Items shown with an asterisk were reverse scored for the analysis.

Note: Repeated 4-factor analyses using the sub samples of year 1 students, year 2 students, and both samples of year 3 students, revealed equally as strong reliability results. All analyses produced Cronbach alpha scores on the 4 factors greater than 0.80, cumulative explained variances greater than 60%, and KMO measures greater than 0.780.

### Confirmatory Factor Analysis on PRCA-24 (Oral CA) with One Extracted Factor

	Factor 1
1* I dislike participating in group discussions	.340
2 Generally, I am comfortable while participating in a group discussion	.512
3* I am tense and nervous while participating in group discussions.	.671
4 I like to get involved in group discussions.	.385
5* Participating in group discussion with new people makes me tense and nervous	.640
6 I am calm and relaxed while participating in group discussions.	.730
7* Generally, I am nervous when I have to participate in an interview.	.559
8 Usually I am calm and relaxed while participating in interviews.	.659
9 I am very calm and relaxed when I am called upon to express an opinion at an interview.	.591
10*I am afraid to express myself at interviews.	.584
11* Speaking at interviews usually makes me uncomfortable.	.664
12 I am very relaxed when answering questions in an interview.	.640
13* While participating in a conversation with a new acquaintance, I feel very nervous.	.620
14 I have no fear of contributing my ideas during conversations.	.536
15* Usually I am very tense and nervous in conversations.	.591
16 Usually I am very calm and relaxed in conversations.	.616
17 While conversing with a new acquaintance, I feel relaxed.	.621
18*I'm afraid to express my opinions during conversations.	.496
19 I have no fear of giving a presentation.	.569
20*I feel very tense and nervous while giving a presentation.	.654
21 I feel relaxed while giving a presentation.	.598
22* My thoughts become confused and jumbled when I am giving a presentation.	.602
23 I face the prospect of giving a presentation with confidence.	.619
24* While giving a presentation I get so nervous, I forget facts I really know.	.629
Cronbach Alpha Coefficient (on 24 items)	0.927
Cronbach Alpha Coefficient (with items 1& 4 deleted)	0.928

Factor Matrix on BCom Accounting Majors. N=434. Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.915. One factor explains 37.96% of the Variance. Items were answered on a 5-point Likert scale from 1=strongly agree to 5=strongly disagree. Items shown with an asterisk were reverse scored for the analysis.

The 24 items load on a single factor with loadings of greater than 0.50. Items 1 and 4, related to group discussions, are the two exceptions, and these two items also failed to load on a single factor in Hutchinson *et al.*'s (1995) study. Levine and McCroskey (1990) also report that item 1 is problematic, as are occasionally other items (e.g., 10 and 17). Hutchinson *et al* (1995) note that inclusion or deletion of 2 such items appears to make little difference to the overall reliability coefficients, and, following advice from McCroskey, they suggest in such cases they be included.

The single factor analysis was also performed on sub samples of year 1, year 2, and the two samples of year 3 students. Again, all the respective Cronbach alpha scores were greater than 0.90 (both with and without the few items with loadings less than 0.50), and the KMO scores exceeded 0.780 indicating reliable factor analyses.

### Confirmatory Factor Analysis on WCA-24 (Written CA) with One Extracted Factor

	Factor 1
1* I avoid writing	.603
2 I have no fear of my writing style being evaluated.	.502
3 I look forward to writing down my ideas.	.512
4* I prefer to answer numerical rather than essay type questions.	.453
5 I like to do written work.	.558
6* My mind seems to go blank when I start to write.	.580
7* Expressing ideas through writing seems to be a waste of time.	.455
8 I like to write my ideas down.	.502
9 I feel confident in my ability to clearly express my ideas in writing.	.740
10 I like to have my friends read what I have written.	.332
11*I'm nervous about writing.	.628
12 People seem to appreciate what I write.	.509
13 I enjoy writing	.661
14*I never seem to be able to clearly write down my ideas.	.603
15 Writing is a lot of fun.	.508
16*I expect to do badly in courses that require written assignments.	.640
17 I like seeing my thoughts on paper.	.531
18 Discussing my writing with others is an enjoyable experience.	.421
19*I have a terrible time organising my ideas when writing an essay.	.608
20*When I have to write an essay I know I'm going to do poorly.	.686
21 It's easy for me to write good essays.	.688
22*I don't think I write as well as most other people.	.645
23*I don't like my written work to be evaluated.	.662
24*I'm no good at writing	.743
Cronbach Alpha Coefficient (on 24 items)	0.921
Cronbach Alpha Coefficient (with items 4, 7, 10 & 18 deleted)	0.920

Factor Matrix on BCom Accounting Majors. N=430. Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.934. Items were answered on a 5-point Likert scale from 1=strongly agree to 5=strongly disagree. Items shown with an asterisk were reverse scored for the analysis.

Overall 20 items load on the single factor with loadings greater than 0.50, explaining 37% of the variation. The Cronbach Alpha score calculated on the 20 items show very high reliability with a score of 0.921. As for the PRCA-24, however, including the 4 poorly loading items produces a very marginal decline in the reliability score to 0.920, and so further analysis is based on the full 24 items. Again, as for the PRCA-24, factor and reliability analyses were conducted on the year 1, year 2 and two year 3 sub samples. The factor analyses show in excess of 20 items loading on a single factor and explaining comparable levels of variance, as well as all producing KMO scores in excess of 0.870 for all sub samples. The results also all show Cronbach Alpha reliability scores of greater than 0.910 for all samples with and without poorly loading items included.