

## The Impact of Personal Computer Anxiety and Communication Apprehension on Computer Mediated Communication Anxiety

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**Abstract:** Although Malaysia's Internet penetration rate has been on the increase, yet it is still far behind other newly industrialized countries (e.g. Singapore). Given the widespread use and importance of the Internet technology in public institutions of higher learning, this study anticipates that the low growth rate is surmised to be caused by computer mediated communication anxiety. The sample respondents were undergraduate students from an institution of higher learning. By establishing plausible causes to be personal computer (PC) anxiety, oral and written communication apprehension, the results of this study illustrates that the three variables indeed managed to account for the variance in computer mediated anxiety. Specifically, PC anxiety plays a greater role in influencing computer mediated communication anxiety than both forms of communication apprehension. The implications and directions for future research are discussed.

**Key words:** Computer anxiety, communication, apprehension

### INTRODUCTION

Research on technology-related subjects has never been timelier. With the advancement of computers and the Internet encompassing all aspects of human life, comes as well a host of problems that threatens to impede the maximization of technology to its optimal level. One such tribulation that piques research interest concerns the use of electronic mails (e-mails); a text-based form of Computer Mediated Communication (CMC). There is certainly no denying that e-mails have transfigured the methods of communication, therein allowing and speeding up human interaction together with the exchange of ideas across borders.

Being identified as a prime CMC application tool<sup>[1]</sup> business firms as well as academic institutions have come to rely profoundly on e-mails. The former regards e-mails as a foundational component for daily intra-/inter-organizational communication, networking purposes<sup>[2,3]</sup>, virtual team interactions<sup>[4,5]</sup> and the like, while the latter uses e-mails mainly as a means of correspondence between lecturers and students and also to facilitate the implementation of distance education<sup>[6,7]</sup>. At the organizational level, it seems that e-mail is flourishing as a successful form of CMC technology, but upon closer inspection, empirical evidence resulting from existing studies (e.g.<sup>[8,9]</sup>) insinuate uneven and problematic use at the individual level.

As in the case of Malaysia, a developing nation in Southeast Asia that has achieved remarkable growth to gaining recognition worldwide, its e-mail usage is still far

from satisfactory, albeit its Internet penetration has been on the increase. This perturbing phenomenon is particularly evident among students in public institutions of higher learning. There seems to be some kind of apprehension that is hindering the students' progress in using e-mails as a mode of communication. This specific form of anxiety is appropriately termed as computer mediated communication anxiety. It revolves around the individual's level of fear or apprehension associated with actual or anticipated use of information technology to communicate with others<sup>[10]</sup>. The question that most scholars are concerned with is What causes this apprehension or anxiety towards e-mail as CMC application tool? Bearing this in mind, this research seeks to identify the plausible determinants of CMC anxiety among varsity students. Subsequently, we strive to examine the relationship between the proposed determinants and CMC anxiety.

### FACTORS CONTRIBUTING TO CMCA

In the quest of unraveling the reasons responsible for CMC anxiety, we attempt to study the factors that were conceived by Brown *et al.*<sup>[10]</sup> in the Malaysian context. Brown *et al.*<sup>[10]</sup> comprehensive study surmised that CMC anxiety is a result of two plausible causes, namely computer anxiety and communication apprehension (includes both oral and written communication). Computer anxiety stems from an embedded psychological fear while communication apprehension is more of an aptitude-based fear.

**Computer anxiety:** Despite the simplicity of using technological applications these days, there exist some individuals who still experience tension when exposed to computers. For these individuals, the combination of computers and communication technologies may present a particularly challenging environment<sup>[10]</sup>. Consequently they develop a tendency to be uneasy, apprehensive or fearful about current or future use of computers<sup>[11]</sup> which may very well influence their feelings towards using e-mails. In short, individuals displaying higher levels of computer anxiety are likely to experience higher levels of CMC anxiety. Therefore, it is hypothesized that:

H1: Computer anxiety is positively associated with CMC anxiety.

**Oral communication apprehension:** When ask about fears, the average person might include public speaking in his list of phobias. It is hardly surprising to find many individuals out there who dread communicating with others face-to-face. This kind of apprehension relates to the phobia in conversing in interpersonal (dyadic), group, formal meetings and public speaking contexts. Where oral communication is required, these individuals will try to avoid it as much as possible as they are afraid of being laughed or looked down upon by others for their incompetence in communicating vocally. Therefore, individuals with high levels of oral communication apprehension would embrace text-based CMC (e.g. e-mails) as a means to avoid speaking. In this manner, we posit that:

H2: Oral communication apprehension is negatively associated with CMC anxiety.

**Written communication apprehension:** This concerns anxiety about having one's writing read by others and the self-evaluation of one's own writing. Some researchers like Hartman *et al.*<sup>[5]</sup> have argued that there is a negative relationship between writing apprehension and electronic student-teacher interactions, while some other researchers have found that no relationship between writing apprehension and intention to use text-based communication technologies. Nevertheless, similar to Brown *et al.*<sup>[10]</sup>, we believe that those individuals who experience writing apprehension will shun themselves from using e-mails. With that, we infer that:

H3: Written communication apprehension is positively associated with CMC anxiety.

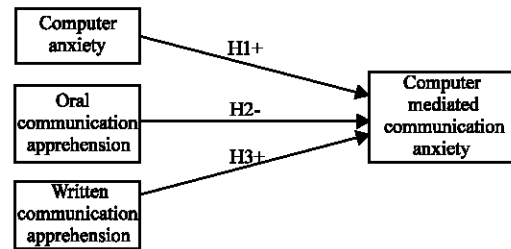


Fig. 1: Research model

The above-mentioned relationships between computer anxiety and communication apprehension are depicted in Fig. 1.

## MATERIALS AND METHODS

Data was collected from 244 undergraduates within the campus grounds of a public institution of higher learning. The questionnaire items are adopted from Brown *et al.*<sup>[10]</sup> and are all measured on a 7-point Likert scale, ranging from 1=strongly disagree to 7=strongly agree. There were 5 questions pertaining to computer anxiety, 6 items on oral communication apprehension, 4 items on written communication apprehension and 6 items on computer mediated communication anxiety.

## RESULTS

**Respondents' characteristics:** There was an almost equal representation of both males and females, with 41 and 59%, respectively. The respondents were predominantly from Chinese lineage (93.4%), followed by Malay (4.5%) and Indian (2.0%) parentage. Majority were studying in the arts stream (70.1%), while the rest were in the science stream, constituting as much as 29.9%. Most of them were staying outside of the campus (59.4%). The common CGPA score for the respondents were 2.68-3.00 (33.6%) and 3.01-3.33 (30.7%).

**Regression analysis:** Table 1 shows the results between the hypothesized factors (independent variables) and CMC anxiety (dependent variable) from the multiple regression analysis. The R square value indicated that 38.9% of variance in CMC anxiety can be explained by the 3 variables ( $R^2=0.389$ ;  $F=48.396$ ;  $p<0.01$ ). All three variables, computer anxiety ( $\beta=0.500$ ,  $p<0.01$ ), oral communication apprehension ( $\beta=-0.189$ ,  $p<0.01$ ) and written communication apprehension ( $\beta=0.145$ ,  $p<0.01$ ) were found to be significant determinants of CMC anxiety. Thus, H1, H2 and H3 are supported. Based on the beta

Table 1: Factors influencing cmc anxiety

Independent variables	Computer mediated communication anxiety
Computer anxiety	0.500**
Oral communication apprehension	-0.189**
Written communication apprehension	0.145**
F-value	48.396**
R <sup>2</sup>	0.389
Adjusted R <sup>2</sup>	0.381

\*\*p&lt;0.01

values, computer anxiety seemed to have the strongest impact on CMC anxiety compared to the other two communication factors.

## DISCUSSIONS

The results confirmed the initial assumption that the higher the individuals' computer phobia is, the higher the propensity to experience anxiety in using e-mails. As hypothesized, it is only a typical reaction that individuals who fear to engage themselves in any forms of public speaking will turn to e-mails as an alternative to avoid speaking. As expected, it was shown through the results that the higher the individuals' level of writing apprehension, the more they dread using e-mails. In the case of Malaysian university students, the fear of writing and conversing is very much intertwined with the proficiency in English. Upon entering tertiary education, these students are suddenly faced with a language change. From being familiar with lessons, textbooks and exams in Malay (the national language) all through elementary and secondary education, these students have to contend themselves with reference books and articles in English when in universities. As a result, these students develop a dread for communicating in English. Nevertheless, given an alternative, they would still prefer writing e-mails in broken English rather than speaking in public.

Overall, the fear of using e-mails to communicate lies mostly in the fear of computers (higher beta value indicating stronger impact). Upon learning this discovery, steps can be taken to remedy the situation as phobias can be treated and need not necessarily remain permanent. One of the steps that the educators in academia can play a role in is to give the students an early exposure of web-based learning beginning from their freshmen years. This can be done, for instance by incorporating the use of course websites in their lessons. Perhaps by introducing course websites and linking the use of course websites to the improvement of studies and ultimately the attainment of better grades, students can overcome their fear of using computers and also e-mails considering that the perceived benefits of using course websites outweighs their fear. A note of caution however, is that web-based

learning should be facilitated with ease to reduce anxiety and apprehension towards technology. For one, the technology's user interface should be developed and continuously improved. To address the writing apprehension factor, more emphasis should be given to the English language as main medium of teaching. Apart from conducting lessons in English, lecturers can perchance instruct all assignments, project reports etc to be submitted in English instead of the national language as well as encourage the use of English in class discussions and daily interactions. In time, this move will prove to be beneficial for the students as it trains them to converse and express themselves in English, thus gradually eradicating the fear for communicating in English.

**Limitations and directions for future research:** This study utilizes a student sample. The results from sampled students' CMC application could be biased towards a more casual and social communication, as most students tend to use e-mail for peer-to-peer correspondence purposes more than anything else. Thus, there is a need to examine CMC anxiety among working people in the organizational environment.

As the CMC application of study is only confined to e-mails, the generalizability of the study is questionable. It is advised that future research should be expanded to include other text-based CMC applications, for example instant messaging services or online chatting applications.

## CONCLUSION

Overall, we have managed to provide an initial insight into the factors that are related to computer mediated communication anxiety, namely among campus students. Nevertheless, there is still much room left for more research on this subject of technology-based communications apprehension.

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