

2. Determination of appropriate IELTS band score for admission into a program at a Canadian post-secondary polytechnic institution

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This research project aims to determine the appropriate IELTS band score for admission to, and success in, the Computer Systems Technology (CST) and Computer Information Technology (CIT) programs at a large Canadian polytechnic post-secondary institute.

ABSTRACT

This research project aims to determine the appropriate IELTS band score for admission to, and ideally success in, the Computer Systems Technology (CST) and Computer Information Technology (CIT) programs at a large Canadian polytechnic post-secondary institute.

This was done by examining typical instances, such as course materials, activities and assignments, in which students are required to read, write, speak and listen in English and then comparing the required proficiency in English to IELTS band score descriptors. Data were collected through interviews with students, interviews with faculty members, observations of lectures and labs, and content analyses of documents used in the courses. Due to the small number of interviewees, the limited depth of content analysis and the limited resources available, the results of this study should be viewed as indicative rather than conclusive.

IELTS band descriptors for Reading and Listening are not available so the Canadian Language Benchmarks (CLB) were consulted. Language tasks (reading, writing, listening and speaking) that students are required to do in the CIT/CST programs were benchmarked to the CLB. Then, the CLB performance indicators were correlated to IELTS band scores based on the publicly available IELTS band descriptors for Speaking and Writing. This rough-and-ready approach allowed the researchers to extrapolate the Speaking and Writing correlations between CLB and IELTS to estimate the IELTS band score which would be required for reading and listening tasks in CST/CIT.

The findings showed that the appropriate band score for entrance into CST/CIT at the institute is 6.5. This is based on the following:

- a Reading score of 7 is required to manage the high-level documents required in Programming and Business classes

- a Writing score of 6.5 is required to meet the standards for professionalism in Business Communication
- a Speaking score of 6 is required to contribute fully in group work and in teams to complete assignments in many classes
- a Listening score of 6.5 is required to understand complex and fast-paced conversations that take place among team-mates.

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1. INTRODUCTION

This research project aims to determine the appropriate IELTS band score for admission to, and ideally success in, the Computer Systems Technology (CST) and Computer Information Technology (CIT) programs at a large Canadian polytechnic post-secondary institute.

This project was conducted as a case study in which data were collected through interviews with students and faculty members in the programs, a content analysis of various course materials (such as textbooks, syllabi, assignments, lecture notes) and classroom observations. Due to the small number of interviewees, the limited depth of content analysis and the limited resources available, the results of this study should be seen as indicative rather than conclusive. The results point to a variety of larger-scale research projects which could be undertaken.

2. RATIONALE FOR THE STUDY

The increasing number of non-native speakers of English (NNS) enrolled in post-secondary education in Canada has brought a great deal of attention to how to best serve these students without being seen to be allowing, as Coley (1999, p 7) points out, the standard of communication to deteriorate. This has led to an increasing use of language testing for admission to post-secondary programs. Hence, institutions also need to continue to evaluate language testing and language entrance requirements.

In particular, setting cut scores and assessing their actual relevance to the academic language requirements of the institution are important tasks which may get lost in the hurly-burly of institutional life. This study aims to provide a model for investigating the relationship between test tasks and scores and actual academic tasks in the context of a technical education institution, this type of setting being less well-represented in testing literature than university or college settings.

Note on defining NNS: Defining ‘non-native speaker’ is increasingly problematic, and is defined in different ways in different locations, for different purposes. For the purposes of this study, NNS is used to describe students who identify themselves as NNS and who are seen by their instructors and classmates to be NNS. This definition is based simply on the fact that this is how the term (along with ‘ESL’) was used and understood by faculty members and students.

2.1 Background of the study

In line with the number of international students attending Canadian post-secondary institutions, the number of NNS students enrolled at the target institution has also been increasing, as has the number of local NNS students (Hamilton, 2005, p 13). This change in demographics requires the institute to better understand the needs of NNS students in order to better serve them. The institute is also re-designing its in-house testing process and is interested in how its test scores match up to some of the major standardised language test scores currently accepted. For these reasons, it is useful to know what IELTS band score is appropriate for entrance into specific programs, in this case, Computer Systems Technology (CST) and Computer Information Technology (CIT).

In addition, while ample research on IELTS in university settings is available, there appears to be much less research on IELTS scores for entrance to technical institutions. The institute in this study, like most colleges and technical institutions in Canada, accepts IELTS scores as evidence of English-language proficiency for admission to their programs. However, the language requirements in university settings and in colleges/technical institutions are often quite different; therefore, the literature available on university settings may not be entirely applicable. While Kerstjens and Nery (2000, p 93) found IELTS Writing scores correlated more closely, though not statistically significantly, to student GPA in Technical and Further Education (TAFE), overall IELTS was not “a significant predictor of academic performance for the TAFE sample” (2000, p 105) in their study. Kerstjens and Nery recommended further studies of IELTS’ predictive validity in differing contexts.

While this current study does not examine predictive validity, it does seek to shed light on what might be the appropriate relationship of proficiency on IELTS test tasks to course activities.

An examination of the language requirements and the appropriate IELTS band score for entrance into a program at a typical technical institution should be useful to other technical institutions that wish to gauge the appropriateness of their minimum band score requirements.

2.2 Challenges in setting language entrance requirements

Choosing appropriate admission scores, or cut scores, is often left to administrators who may know little about language requirements and may know little about the multitude of language tests used and what each test's score means (Coley, 1999, p 9). In addition, cut scores may be set for political or administrative reasons rather than substantive reasons. For example, while cut scores should be set to accurately and adequately reflect the language abilities required to succeed in a program, they may be set to facilitate greater enrolment (Shohamy, 2001, p 37). To be fair to NNS students seeking entry to a program, to the other students in the program, and to the faculty who teach these students, it is important to investigate what the scores mean in terms of real language proficiency required for success in a program.

Coley's (1999, p 9) examination of the English language requirements of Australian universities for students of non-English speaking backgrounds revealed that the number of language tests caused a great deal of confusion for admissions boards. Often those setting cut scores did not actually know what was tested nor did they know what an appropriate score was. In fact, Coley cited the "unclear and often inaccurate way in which the English language tests/measures were named or cited in the responses" as a "major difficulty with collating the information" she received (1999, p 9). She took this as evidence that "some universities are not familiar with the actual test results" (1999, p 9).

McDowall and Merrylees' (1998, p 138) survey of how institutions use IELTS and their attitudes toward it suggests that, although "several respondents suggested that more information was actually needed about what the various tests indicated", many decision-makers in universities and colleges did in fact have sufficient knowledge of the tests being used. Evidence of their knowledge of the tests was demonstrated by the fact that 12% of institutions were not satisfied with the tests being used and were concerned "with the predictive validity of some tests" (McDowall and Merrylees, 1998, p 135). Of this 12% of respondents, most identified TOEFL only as the cause of concern and provided anecdotal evidence of test score consistency depending on the country in which the test was administered. These decision-makers knew enough about the tests to be aware of their predictive validity and to have noticed patterns and inconsistencies in the reliability of the tests.

At the same time, McDowall and Merrylees (1998, p 134) also acknowledged that, since many institutions consult other institutions when setting cut scores, "there could be a strong temptation for each institution to set the policy according to what it perceives the other equivalent universities/colleges have done". However, only 12% of institutions in their survey stated they relied solely on the cut scores of other institutions. Forty per cent of the institutions surveyed said they relied on consultations with ESL professionals, other institutions and the literature on setting cut scores. Perhaps then, the setting of cut scores is not always as haphazard as it might appear in Coley's (1999) study. Indeed, now in 2008, major testing organisations have made substantial efforts to address the need for information on what test scores mean. This has been done through providing information about, and examples of, typical performances at a variety of score levels so institutions can determine what type of performance they are looking for. The recent development of the *IELTS Scores Explained* (IELTS, 2006) DVD is a good example of this effort.

In addition to the challenge of the different tests that admissions officers have to be familiar with, there are a variety of pressures on administrators setting entrance scores. The administrators and teachers interviewed by Hawkey (2006, p 129) mentioned competing pressures in setting cut scores: on the one hand, the university wanted higher cut scores “to maintain or raise standards”, and on the other hand, departments wanted lower cut scores so they could “admit students with particularly strong non-linguistic skills”. While there may be value in admitting students with strong non-linguistic skills, evidence must be presented to demonstrate that strong non-linguistic skills can compensate for insufficient linguistic skills. Otherwise, admitting these students may not be entirely ethical as they may not be able to cope with the language demands of the program.

Coley’s (1999, p 13) research also corroborates the general assumption that the test scores required are often more a reflection of the number of places available in a program rather than the actual level of proficiency required to successfully participate in the program. She uses IELTS scores as a specific example: Many Australian universities require band scores of 6.5, in effect, “pitching their IELTS entry requirement at language ability levels which are at best only ‘probably acceptable’” (Coley, 1999, p 13). While McDowall and Merrylees (1998, p 92) do not comment on how appropriate a score of 6.5 is for entrance to undergraduate studies, their study supports the notion that most universities require 6.5. Also, Hawkey (2006, p 129) found the UK universities in his study set their cut score at IELTS 6 or 6.5. The program being studied in this project requires a minimum band score of IELTS 6.

Shohamy (2001, p 90) cautions against serving administrative purposes with flexible cut scores; in other words, cut scores should not be raised or lowered based, for example, on the number of places available rather than the level of language required for success. If the cut score is set too low in order to allow more people into a program, many of the students who meet the minimum language requirement may be unable to cope with the language tasks required. If the cut score is set too high, then people who are able to cope with the language tasks would be kept out for the wrong reasons.

Rather than setting cut scores for administrative reasons, Bachman and Palmer (1996, p 101) recommend a thorough examination of the Target Language Use (TLU) and a comparison of the TLU to test tasks. The test tasks (what is tested) must be reasonably matched to the ‘real life’ situations (TLU) in which language will be used.

In this case, the IELTS Test tasks must match the language tasks required in CST/CIT courses at the institute (the TLU) to a reasonable degree. The next step is to determine which IELTS band score describes the level of proficiency required to cope with those tasks. Therefore, this research project will examine the TLU (language tasks required to be successful in the CST/CIT programs) at the institute and compare it to the IELTS Test tasks and band descriptors. This comparison will make it possible to recommend an appropriate minimum band score for entrance into, and ideally, success in the program.

If the cut score is appropriate, then students who meet the minimum requirement should be able to cope with language tasks. Therefore, if they are unsuccessful, it is not likely due to their language proficiency. In this way, the cut score demonstrates the ethical principle of benefit maximisation (Hamp-Lyons, 1997, p 324) – the NNS student will not pay for courses essentially under false pretences and the other students, faculty and the institution in general will have less reason to be concerned that the “standard of communication is deteriorating” (Coley, 1999, p 7).

3. CONTEXT OF THE STUDY

To provide a more complete understanding of the environment in which this research project is being carried out, this section will briefly describe the institute and the specific programs being studied.

3.1 The institute

The institute in this study is a post-secondary polytechnic with approximately 48,000 full- and part-time students at five campuses in British Columbia (BC), Canada. It offers certificate, diploma, and degree programs in six schools: Computing and Academic Studies; Business; Construction and the Environment; Health Sciences; Manufacturing, Electronics and Industrial Processes; and Transportation.

The institute's mission statement is "to build pathways for career success in the global marketplace through teaching excellence and applied education and research". Its mandate includes preparing "dynamic, highly skilled members of the workforce". As the institute's mandate includes providing graduates with job-ready skills, it is crucial that graduates can communicate clearly in English, the dominant language of business in BC (Business Council of British Columbia, 2006; Hamilton, 2005, p 14).

Classes are conducted primarily in a lecture and lab format – the entire cohort for a program meets for a lecture and then separate, smaller subgroups of students meet with lab instructors to practice the principles discussed in lecture. There is generally a 1:1 ratio of lecture to lab time (two hours of lecture to two hours of lab per week) or 1:2 ratio (one hour of lecture to two hours of lab per week). Practical workplace skills and teamwork are strongly emphasised. In CST and CIT, students with an overall average of 70% or more are eligible to apply for co-operative education work placements.

3.2 The programs

The CST and CIT programs, run through the School of Computing and Academic Studies, attract a significant number of NNS students. While demographic information on the language background of students is not collected by the institute, instructors in the programs confirm many of their students need language support. In an effort to provide support, CST/CIT has run a pilot program in which all students sit an in-house language test in the first week of classes. Students who are identified as needing language support are streamed into a specialised Business Communication (COMM) course because Business Communication is generally considered the most challenging course for NNS students. The number of students in need of language support and the programs' interest in providing this support made CST and CIT attractive for this study.

4. RESEARCH QUESTIONS AND DESIGN

Two broad questions guide this research project:

1. Is IELTS is an appropriate language assessment tool for CST/CIT?
2. If IELTS is an appropriate assessment tool, what is an appropriate band score for entrance into CST/CIT?

To gain a broad view of the language requirements from a variety of perspectives, this research was carried out as a case study. Three different means of examining the language proficiency requirements and the TLU were used: interviews, observations, and content analysis.

The analysis of the reading materials and listening tasks in relation to IELTS band scores was complicated by the lack of published band descriptors for Reading and Listening. Assessing the Speaking and Writing band scores required to complete the language tasks in CST/CIT was facilitated by the principal investigator's experience assessing Speaking and Writing as an IELTS Examiner and by the availability of public versions of the band descriptors. (While IELTS Examiners have access to confidential full IELTS band descriptors, these were not used because those charged with setting cut scores only have access to the public descriptors.)

With no descriptors available for the Reading and Listening modules, matching tasks and abilities to IELTS bands was more challenging. To deal with this challenge, the Canadian Language Benchmarks (CLB) (Pawlikowska-Smith, 2000) were consulted. The CLB are "a descriptive scale of communicative proficiency in English as a Second Language (ESL) expressed as 12 benchmarks or reference points" (Pawlikowska-Smith, 2000, p viii). The CLB Framework was developed to provide "a common professional foundation of shared philosophical and theoretical views on language education", "a national standard" and "a common yardstick" for ESL education in Canada. Therefore, the CLB not only provides an appropriate descriptive scale, but is also a relevant tool for the context of this study; more and more institutions, including the location of this study, are working towards using the CLB framework.

The language tasks (reading, writing, listening and speaking) that students are required to do in the CIT/CST program were benchmarked to the CLB. Once this was done, the CLB performance indicators were correlated to IELTS band scores based on the publicly available IELTS band descriptors for Speaking and Writing. This allowed the researchers to extrapolate the Speaking and Writing correlations between CLB and IELTS to estimate the IELTS band score which would be required for reading and listening tasks in CST/CIT. While these correlations are not exact, and while the CLB performance indicators were not developed for a test but rather as a framework, the correlations established using this rough-and-ready approach did provide a useful benchmarking tool. (See Appendix A for the correlations established.)

4.1 Interviews

Bachman and Palmer (1996, p 102) stressed the importance of determining the TLU in collaboration with stakeholders. Therefore, students and faculty members were invited to take part in interviews. In September, 2007, during the CST/CIT orientation meeting, all the students, a number of instructors, the two program heads and the departmental dean were given recruitment flyers, as well as a short verbal summary of the research project and its goals. Four students were interviewed in October 2007 and seven faculty members were interviewed between November 2007 and February 2008.

4.1.1 Student interviews

Shortly after the flyers were handed out at the orientation meeting, seven students responded via email expressing their interest in participating. Of these seven, four responded to a follow-up email setting up a time to meet and were interviewed in October. These interviews were digitally recorded and then transcribed. While the program head reported that there were six students in this cohort who had gained admission based in part on their IELTS scores, none of these students came forward to participate in the study.

The number of interviewees is small and impacts the conclusiveness and generalisability of the results. However, the interviews were successful, with the interviewees demonstrating sophisticated knowledge of language learning and language requirements. (Note that pseudonyms have been substituted for the students' real names.) The interviewees were:

- Adam, a foreign-trained engineer
- Tim, an international student
- Jeremy, a recent graduate of Grade 12 in BC; Jeremy speaks mostly Russian at home but considers himself a native speaker of English
- Justin, a recent graduate of Grade 12 in BC; Justin spent two years after high school taking language courses to improve his English abilities

Although Adam had taken IELTS (General Training) in the past, none of them had entered the CST/CIT programs based on an IELTS score.

4.1.2 Faculty member interviews

Between November 2007 and February 2008, interviews were conducted with various faculty members who have contact with first-term students:

- two Communication instructors
- one Math instructor
- one Programming instructor
- one Organisational Behaviour instructor
- the program head for first-year CIT
- the instructor for Co-operative Education placements.

Although the Co-operative Education instructor does not have contact with students in their first term, he was asked to participate because, given the institute's mandate to prepare students for the workplace, it was felt that he could represent employer needs. While the majority of the interviews with faculty members were conducted one-on-one, the two Communication instructors opted to be interviewed together.

In structured interviews, participating instructors were asked to describe the language requirements and the major language challenges students face in their classes. Following the interview, they were asked to examine documents and video clips from the *IELTS Scores Explained* DVD. They were given samples of Academic module Task 2 Writing scripts and asked to judge how qualified they felt each candidate was for entry into the CST/CIT programs. The same process was carried out with video clips of sample Speaking test interviews.

4.2 Observations of classes

Once the interviews were carried out, classes and lectures and labs were observed to provide a point of triangulation of the evidence found in the interviews and documents. From November 2007 until February 2008, observations were done of one Communication lecture and one lab, one Programming lecture and one lab, and one Math lecture and one lab.

4.3 Content analysis

Samples of course outlines and schedules, textbooks, assignments, activities and lecture notes for each course in CST/CIT were compiled. For the most part, these were collected through the institute's network drive, where instructors can post course materials for students to access. Textbooks and writing samples were obtained through direct requests to the instructors. The writing samples included examples of various levels: failing, bare pass, clear pass.

5. FINDINGS

This section will first discuss the suitability of IELTS band scores for use in making admissions decisions in this program. Next, the stakeholders' definitions of 'success' in the program will be addressed. Finally, the results of the data analysis in the four skill areas will be addressed with reference to Communication (COMM), Business, Math and Programming. As the language demands in COMM and Business are more rigorous, more emphasis will be placed on these courses.

5.1 Suitability of IELTS band scores for admission to CST/CIT

Kerstjens and Nery's (2000, p 105) finding that IELTS does not have significant predictive validity in Technical and Further Education (TAFE) suggests that an examination of how well IELTS matches the TLU is especially important. A preliminary analysis in the early stages of this project compared the types of reading, writing and speaking activities required in CST/CIT to the types of activities required by IELTS (as found in the *Official IELTS Practice Materials*, the *IELTS Scores Explained* DVD and the *Cambridge IELTS* series). This analysis revealed the CST/CIT tasks were sufficiently similar to IELTS tasks so that IELTS could be considered a useful measure of language for these tasks. IELTS was determined to be a suitable measure of language skills for admission to the CST/CIT programs. This section will describe how the IELTS Test tasks match the CST/CIT program TLU.

5.1.1 IELTS Reading and CST/CIT Reading

The IELTS Reading test requires candidates to locate, rephrase, classify and match information; complete notes, summaries, diagrams, flow charts and tables; choose appropriate headings; identify main points and the writer's views; and identify information in the text (IELTS, 2006). Where IELTS Reading tasks are on general interest topics for a non-specialist audience (IELTS, 2006), CST/CIT reading tasks are on computer- and business-related topics. However, since students entering the program are not required to have a background in computing or business, these texts are accessible to a non-specialist.

Although the activities are not exactly the same, many of the skills required to complete IELTS Reading tasks are also required of CST/CIT students: CST/CIT students are required to locate and rephrase information, make comparisons, define terms, and organise information logically (information architecture). Most importantly, they apply information from their readings to write computer programs. These students describe, discuss and analyse concepts from their readings and use the information to justify the practical choices they have made (eg reasons for selecting a certain procedure or software).

5.1.2 IELTS Writing and CST/CIT Writing

In Task 1 of the IELTS Writing test, candidates are required to describe, in their own words, information from a given graphic. Depending on the graphic, this may include organising, presenting, and comparing data; describing the stages of a process or procedure; describing an object, event, or sequence of events; or explaining how something works. In Task 2, candidates are given a prompt with a point of view, argument or problem in response to which they must respond in essay format. Depending on the prompt, this essay will present a solution to a problem; present and justify an

opinion; compare and contrast evidence, opinions, implications; or evaluate and challenge ideas, evidence or an argument (IELTS, 2006).

Although in many CST/CIT courses, very little writing is required (at most, a sentence or two on an assignment), in COMM and Business, students produce significant amounts of writing: 85% of a student's mark in COMM is based on written work (letters, memos and instructions), and approximately 60% in Business. While COMM is the most writing-intensive course, the type of writing is significantly different from the types produced by IELTS candidates. In COMM, students write simple workplace messages. The emphasis in this course is on writing messages that are clear, concise, correct and focused on the audience and purpose. Developing good document design skills (using lists, headings etc for improved reader access) is also stressed. Many of the types of writing on the IELTS Writing test are not covered in COMM until Term 2 when the students write short business reports.

However, the writing required in Business matches the types of writing required in the IELTS Writing Task 2. For example, in one assignment students respond to a case by analysing problems and suggesting solutions. This requires them to provide evidence to support their analysis of the problem and justify their suggested solution. Similarly, in another assignment, students work in teams to produce a 16-page formal report describing and analysing "one of Canada's well-managed companies".

5.1.3 IELTS Speaking and CST/CIT Speaking

The importance of teamwork, class participation and oral presentation skills at the institute makes speaking skills crucial. Business courses put the most emphasis on team-based assignments, class participation and oral presentations, in terms of proportion of the course grade at 40%. In five courses, from 5% to 20% of the course grade comes from these activities. In one course, Human-Computer Interaction, these activities do not form part of the official course grade, but students are organised into teams for lab work. Math is the only course that does not state a requirement of any of these activities.

In the IELTS Speaking test, candidates often must provide personal and non-personal information, express opinions and preferences, justify opinions, repair conversation, explain, suggest, speculate, compare and contrast, summarise, narrate, paraphrase and analyse (IELTS, 2006).

These are all functions that students must perform to participate successfully in a team. The ability to perform these functions is also necessary in more informal class situations if the students are to maximise their learning. As will be discussed in Section 5.2, Defining 'success' in the program, several students and faculty members interviewed for this project mentioned the ability to communicate well with classmates and instructors to share information and ask questions as key to being successful in the program.

5.1.4 IELTS Listening and CST/CIT Listening

There is a strong match between the IELTS Listening test and the types of listening students must do in CST/CIT. IELTS Listening includes two sections related to "social needs" (one conversation between two speakers and one monologue) and two sections set in "educational or training contexts" (one conversation between up to four people and one monologue) (IELTS, 2006).

Students in CST/CIT are not directly evaluated on listening skills, but they are expected to understand lectures, follow verbal instructions in labs, participate in small group-discussions in labs to solve a problem or complete a task and participate in teams to complete assignments. Some of the team-based assignments are worth a significant part of the students' grade (20% in Business for preparing and delivering a presentation as a team) making the ability to participate fully in a team highly important to academic success. Given the institute's emphasis on group work and teamwork skills, students in CST/CIT will not only need to be able to listen to and understand conversations and monologues

related to their course work but also to those of a more social nature. Sufficient listening skills in a variety of settings are crucial.

5.2 Defining ‘success’ in the program

As stated earlier, to determine the appropriate band score for entrance into CST or CIT, this project investigated what the scores mean in terms of real language proficiency required for *success* in a program. As Shohamy (2001) argues, test cut scores for admission to a program, if set ethically, should reflect the level of language a student needs to be successful in that program. Therefore, the interviews with students and faculty members began by asking for their definition of success in the program. The answers to this question included both numerical scores and more holistic descriptions.

In terms of numerical scores, neither the students nor the faculty members saw simply achieving a passing grade (50%) as success. One student, Justin (a Tagalog speaker who holds another diploma from the institute and a certificate from a local university), suggested an overall average of 70% could be considered success since 70% is the required average for participation in the Co-operative Education program. Another student, Jeremy (a recent graduate of grade 12 in Canada, who completed elementary school in the United States and two years of high school in Russia), said that to be considered successful, a student would need to be getting above 75%, and a student with less than 60% was just “coping”.

Faculty members generally agreed that while 50% technically represented successful completion of a course, it did not indicate real success or mastery of the material. Two faculty members suggested a score of 65% represented success, and another faculty member said a student achieving a ‘B’ (75%) and above could be considered successful.

The holistic definitions of success generally included being able to communicate with classmates and instructors, and fully participate in classes to gain some real working knowledge to apply to workplace practice. For example, one student, Adam (a Chinese speaker with a bachelor degree in Engineering from China), said he didn’t “want to put it in a way of how many points I score” but instead described success for him as follows: “I understand what the teacher is talking about, and I turn that instruction into my own knowledge and I can use it in my real work...I get real knowledge I can use in the future, not just all those notes”.

Justin said being able to express oneself and work in teams were marks of success. Specifically, he noted the importance of intercultural communication: “You should be able to work with different cultures, to interact with people from different backgrounds and be able to understand that different people think differently”. Further down his list of competencies that demonstrate success were strong computing and logic skills.

Justin’s comments suggest that native-speaker-like English abilities are not required and, as long as students can communicate their ideas and understand others, they can be successful. This sounds similar to the description of an IELTS band score of 6 where the emphasis is generally on communicating ideas clearly despite grammatical or lexical errors. For example, in Speaking, the public band descriptors describe a candidate who “is willing to speak at length, though may lose coherence at times” (Fluency and coherence), and who “may make frequent mistakes with complex structures, though these rarely cause comprehension problems” (Grammatical range and accuracy) (UCLES, 2006). In Writing, the Lexical resource category mentions that the candidate will likely make “some errors in spelling and/or word formation, but they do not impede communication” and in Grammatical range and accuracy, it is stated that the candidate will make “some errors in grammar and punctuation but they rarely reduce communication” (UCLES, 2006).

Tim (a Korean international student who had completed English preparation classes at the institute) said focusing on grades was a source of stress because he could not “overcome the huge gap between [him] and the Canadians”. Measuring his success in terms of grades was not helpful to him, so instead, he measured in terms of what he had learned.

Faculty members saw students as successful if they could ask intelligent questions, solve problems, follow instructions accurately and demonstrate attention to detail. One faculty member emphasised that being able to take the information from various sources (lectures, labs, textbooks etc) and put it together to “build a picture” was indicative of success. This is in line with Adam’s comment that turning instruction into his own knowledge was success for him.

Rather than commenting on specific language skills required for success, the instructors focused on critical-thinking and problem-solving skills. Like Justin, they were generally more concerned with clear expression of ideas rather than native-speaker-like English skills. For example, most instructors mentioned that to be successful, students needed to be able to ask intelligent questions; none of them suggested, for example, that students must be able to ask grammatically accurate questions that demonstrated flexible use of vocabulary.

These definitions of success suggest that, when deciding on the minimum band score required for admission to CST/CIT, it is not enough to select the minimum score students need to simply pass the course with 50%. Rather, students should be admitted to the program with sufficient English skills to participate fully in their classes and in student life.

5.3 Reading

Most interviewees mentioned textbooks as a main source of course reading material. Other sources of reading material included online programming manuals/tutorials/documentation, newspaper articles, handouts from instructors, PowerPoint slides and lecture notes, and email correspondence from classmates. While the students did not find the textbooks made for easy reading, they did find textbooks to be easier than many of the other types of documents. Overall, all the interviewees agreed the level of vocabulary and technical jargon made a document difficult to understand.

5.3.1 Reading in Communication (COMM)

In COMM, the materials that the students needed to read included a course manual/workbook, PowerPoint lecture slides and assignments. As instruction in the course focuses heavily on writing clear, concise messages which are easy for the audience to access and understand, the course materials are written to reflect this. Sentences and paragraphs are short, and the vocabulary is targeted to the CST/CIT students’ level.

The COMM instructors felt that most problems NNS students had with the readings were more the result of different cultures, including different business cultures, than problems in understanding the language itself: “It’s a little bit of weak language skills but also a little bit of a lack of cultural knowledge”. The students are expected to use what they have read in the course manual (how to organise and format a business message and use an appropriate tone, for example) and apply it to assignments. The NNS students were found to be competent at completing the assigned readings and applying concepts such as formatting and organisation but had difficulty choosing an appropriate tone to address the reader (either overly formal or too casual).

5.3.2 Reading in Business

As with COMM courses, in Business courses, students read the textbook, PowerPoint lecture slides and assignments. In addition, they were asked to read newspaper articles and case studies.

Tim found the newspaper articles for Business were the most difficult because they did not have the pictures and examples provided in the textbooks. Also the articles often used vocabulary which had what Tim termed “behind meanings”; in other words, the surface meaning was not always exactly what the author intended to convey.

For the Business instructor, a student’s ability to read and understand the text and then apply the theories to cases is crucial to success in the course. He found all students, not only NNS students, had difficulty with this. He felt that students were not motivated to do the readings if they were not going to be graded immediately on an assignment based on the reading.

As with the COMM instructors, the Business instructor felt NNS students’ difficulty with the readings did not appear to come from language issues but rather from a clash of business cultures: “It’s not their language; it’s their approach to the human dimension of how to give feedback in an organisation. They understand the words, but they don’t understand that [the approach described in the textbook works in practice]”.

5.3.3 Reading in Math

For Math, no textbook readings were assigned and the text was used only as a reference. In the Math instructor’s experience, word problems were the most challenging types of reading in the course. However, the NNS students had the advantage of being “careful with the grammar”. In the Math instructor’s experience, the NNS students “know to read very carefully” whereas “other people [NS students] sort of scan it and ‘Oh, I don’t understand it.’ That’s it. Brain shut down”.

5.3.4. Reading in Programming

For Programming, the main reading materials also included textbooks, PowerPoint lecture slides, emails from classmates and an online forum set up and moderated by the instructor where students could post and respond to questions.

Online programming manuals/tutorials/documentation on company websites were cited by Jeremy as being the most difficult because of the level of “geek speak”. Unlike textbooks aimed at students learning the subject area, the online tutorials were generally intended for a more technically savvy audience and, therefore, technical terms were not explained for the students. Similarly, Justin commented that software documentation and manuals were the most difficult because of the level of jargon, and also the complexity of the sentences. Justin commented that it was possible to get through the course relying mostly on PowerPoint slides and lecture notes, and using all the other materials as “backup reference”.

The Programming instructor noted students often have “real difficulties with the concepts”. Therefore, he suggested students skim the chapter ahead of time, come to lectures prepared with questions, and then read it again more carefully later. Students also had the opportunity to practice using the concepts and to ask questions in labs. While he stressed that the students needed to keep up with the textbook readings, the instructor found the most challenging aspect for all students was reading a problem statement or situation and “being able to pick out what’s important and what’s not important”. The students must “pick out the red herring stuff, discard it and focus on what is appropriate, what has to actually be programmed”, but are often unable to do this effectively. This is similar to the difficulties the Math instructor described students having with word problems.

The students were asked to select types of tasks they had to do with what they read from a list. The list was generated by combing through the *Official IELTS Practice Materials* (IELTS, 2005), *IELTS Scores Explained* (IELTS, 2006) and Cambridge's practice materials (Cambridge, 2006). They were also encouraged to add to the list if there were any tasks not represented. Overwhelmingly, the students said while they had to do many of the tasks on the list, the main one was applying what they read to complete programming problems. One student described being given a "real world problem" or case that required them to apply their knowledge of programming to solve a problem for a company. To complete this, they had to analyse the case to determine the best software solution for the company, and rephrase information so, as Justin said, their solution would be "more understandable for a wider demographic or target audience".

5.3.5 Reading conclusions

The reading that students in CST/CIT have to do is not limited to textbooks designed for students, the non-specialist audience IELTS Reading tasks are targeted to. The heaviest reading demands are in Programming and Business courses. The reading tasks in CST/CIT correspond most closely with CLB performance indicators for benchmark 9 including reading "academic materials, textbooks, manuals" and "simple routine business letters and documents" which are complex but have a "clear underlying structure" and may be on partially familiar or unfamiliar "abstract, conceptual or technical topics" (Pawlikowska-Smith, 2000, p 148).

Based on the correlations made between the CLB and IELTS for Writing and Speaking, the IELTS band score required for Reading in CST/CIT is 7.

5.4 Writing

COMM and Business require the most writing by far (85% and 60% of the course mark, respectively). Math and many Programming courses require such minimal writing that, when writing samples were requested from instructors, many responded that they did not have anything useful to provide: their students could respond in point form or with one- or two-word answers. However, some samples were obtained from the Math instructor. Other writing samples typical of failing, barely passing, and clearly passing work were received from the COMM and Business instructors. In addition to writing evaluated for classes, students also wrote emails to each other and to their instructors and had to take notes in lectures and labs.

While COMM was cited by all the instructors in the CST/CIT programs as one of the most challenging courses in terms of writing requirements, none of the students mentioned they found it particularly difficult. In fact, Justin said he found COMM and Business to be the easiest. When the students were asked what they found most difficult, some of them did mention particular courses, but all of them mentioned learning new vocabulary and technical jargon and incorporating it into their writing well.

5.4.1 Writing in Business Communication (COMM)

Students in COMM write simple workplace messages (emails and letters) that provide information, persuade the reader to do something, or sensitively deliver bad news to the reader. While presentation skills are covered in the course, the emphasis is very heavily on writing. The COMM instructors, after looking at the public IELTS Writing band descriptors, said between band 6 and band 7 would be acceptable.

To be successful in COMM, students must write clearly and concisely, use an appropriate tone for the audience, and demonstrate the ability to use a variety of structures while maintaining grammatical accuracy. Some minor errors are tolerated but, because the emphasis in the course is on writing professional workplace documents, a significant number of minor errors may cause a document to fail

even if the errors do not impair meaning. Based on this, students would require a band of 7 in Lexical Resource and Grammatical Range and Accuracy, as described in the IELTS Writing Band Descriptors: Task 2 (public version) (IELTS, 2006). For Task Response and Coherence and Cohesion, a score of 6 would be acceptable. Therefore, students entering COMM with a Writing score of 6.5 would be adequately prepared for the demands of the course.

5.4.2 Writing in Business

Business requires students to write two short papers (three to four pages) individually and a longer report (1500 words) in groups. Justin found writing in the Business course to be “very straightforward” but Jeremy disagreed: He felt Business was challenging because the students had to learn specific business terms and incorporate them into a detailed oral presentation and written report demonstrating their comprehension of the content.

While one of the biggest challenges for students in writing in COMM came from high expectations of grammatical accuracy (in addition to accuracy in content), in the Business course, students were evaluated on how clearly and logically they could develop an argument. Therefore, the qualities described in Task Response and Coherence and Cohesion were most relevant to the Business instructor, and a score of 7 in these areas would be appropriate.

The Business instructor said he was less concerned with grammatical accuracy or sentence variety as long as the student’s ideas were well-developed and explained.

Lexical Resource and Grammatical Range and Accuracy, therefore, are slightly less important: grammar and spelling errors are given very little weight in terms of marking (only 5%) but the instructor stresses to his students that “you have to have something presentable because [your employer/colleagues will] think your idea is bad if your grammar is bad”. A score of 6 in these areas would be sufficient for success in the course. Overall, then, like COMM, a score of 6.5 in Writing is the minimum acceptable score.

5.4.3 Writing in Math

Students are required to do very little writing in Math. The Math instructor said the most writing required were occasional one or two sentence conclusions. While he does correct spelling, he does not dock marks for it. Therefore, the writing skills needed to be successful in Math were minimal; students with a band score of 5 (or perhaps even lower) would likely be able to succeed in this course as long as they had strong enough math skills.

5.4.4. Writing in Programming

In Programming courses, students may have to write short answers on tests, and in one course, four short progress reports (100 words each) on team projects. Most of the writing required is comments in their programs: providing comments in a program is a standard programming practice to give other programmers brief explanations of what the programming code is intended to do. Comments allow other programmers to look at code and see what the original programmer’s thought process was and why the code is structured a certain way. According to the Programming instructor, clear writing is crucial in the comments: “If the program works then, wonderful, but if it doesn’t then we need to go through it and try to figure out where they made a mistake....Very often if it’s not commented, who knows what’s going on? If they are commented, but it is really hard to follow, that’s a problem.”

Justin said that COMM and Business were “very straightforward” but writing program comments for programming courses “can be very complicated because we have to know a lot of vocabulary”. He found putting the new vocabulary into grammatically accurate “sensible sentences can be challenging because you have to be able to understand the vocabulary before you write. And the understanding part takes a while. Most students struggle with understanding the concepts. Therefore, it’s hard for them to put it into writing.”

Jeremy’s comments dispute this assertion: He felt writing the program comments simply required they “implement the technical terms [they’ve] learned”.

As students are not evaluated directly on the quality of their writing, a band score of 5 would likely be sufficient for success in Programming courses.

5.4.5 Sample IELTS Writing Scripts

At the end of the interviews, faculty members and students were shown two samples of candidate scripts, Scripts I (rated band 5) and J (rated band 7), from the *IELTS Scores Explained* DVD (IELTS, 2006). Faculty members were asked to comment on whether someone writing at that level would be able to succeed in their course, and students were asked if someone writing at that level would be able to succeed in the program. Interviewees were not told in advance at what band score these samples were rated, nor were they told which one was rated higher. It would have been useful to have the interviewees look at an example of a band 6 script but none were available on this topic.

Samples of Task 2 responses were chosen since this type of writing is more common (most people are familiar with essay writing) and therefore more accessible to readers and also because it represented the type of writing in the TLU more closely. Initially, the researchers felt Task 1 would better match the TLU because of the technical nature of the writing that the students do; however, upon further examination of course materials and assignments, it became apparent that the type of writing required for Task 1 was not part of the curriculum in the CST/CIT until later terms.

Script I (band 5) was seen by Programming and Math instructors to be at an acceptable level of writing for their courses but they were aware this level would not be acceptable in COMM. The Math instructor said this level of writing would be acceptable because “they can get their point across, even if it’s grossly misspelled and has bad grammar running amok through it”. However, he also noted that someone with this level of writing would “run into a lot of trouble and end up hating the Communication instructor. The usual.”

The Business instructor, the Co-operative Education instructor and Justin agreed the writer of Script I might be able to cope in the program. They had reservations about this writer’s abilities but felt the meaning came through well enough despite the errors, and the content of the writing was strong enough to show some thoughtfulness. As the Business instructor said: “I think [the writer was] getting the meaning but expressing it in not the best manner” because the ideas were not fully explained. He felt this writer would be able to complete his course because he believed instructional feedback on a piece of writing like this would allow the writer to improve and hand in more satisfactory assignments in the future. The grammar errors were not an issue for this instructor: “I don’t care about the grammar. It’s the idea, the concept. What’s your point with it?”

The COMM instructors and most of the students agreed that someone at this level would not be successful in the program, specifically in COMM. Adam summed up why this student would be unsuccessful in COMM: “If the instructor wants to see perfect grammar, various structures, and well-developed ideas, this person has nothing, very simple structures”. Both Adam and Tim said they would not want to work in groups with someone at this level because, in Tim’s words: “if he communicates like this in his team, I would have to ask a lot of questions and it makes other people very tired”.

All the interviewees said Script J (band 7) would be acceptable or this writer would do well in the program. The complexity of the vocabulary, the development of ideas and the minimal grammar errors made Script J stand out as an example of acceptable writing skills. Interestingly, however, the Co-operative Education instructor believed this script demonstrated a lower level of ability and this candidate would find the Co-operative Education course challenging. He felt the sentences were too long, contained too many subjects and, overall, the script had too many errors.

5.4.6 Writing conclusions

For most courses, students could succeed with fairly low writing skills. COMM and Business courses required significantly stronger skills, and other faculty members, including the program head for first-term CIT, recognised that students would not be ready for the workplace with low writing skills.

Based on the requirements to succeed in COMM and Business, a Writing band score of 6.5 is the minimum acceptable band score students should have for entrance into the program.

5.5 Speaking

The value placed on teamwork at the institute means speaking skills are important to students' success in the program, even if they are not formally evaluated on speaking abilities by their instructors. If students lack sufficient verbal communication skills, they are unlikely to be able to participate fully with their teams. As Jeremy noted, if students have difficulty making themselves understood they "might feel intimidated by the group and not put in as much". This can have a serious impact on students' success as they are often asked to evaluate each other's performance in a group. Students who have not participated as fully as others may get their "marks lowered by the group members themselves".

Faculty members and students also noted that weak speaking skills (in addition to cultural differences) may make students less likely to go to their instructors or other classmates for extra help. As Jeremy said, communicating informally with instructors is "a major factor in success because if you're not understanding something in class, or you need help with a project, the number one place you should go is to the teacher". While students with weak speaking skills might be less likely to seek help from their instructors and classmates, Adam found speaking with instructors was, in fact, easier than speaking with his peers: "I always prepare my questions in advance. And also, that conversation typically won't last very long. I ask one or two questions and leave."

5.5.1 Speaking in COMM

Students are required to give an eight to 10 minute individual formal presentation worth 10% of their course grade on any topic they choose that is related to CST/CIT. Because of this requirement, COMM is seen by students to be demanding in terms of speaking. Aside from the formal presentation, students are often called upon to give short, informal presentations (not graded) in class. For example, during a lab, students may be put into groups to work on an activity and then have to present their group's accomplishments to the rest of the class.

In the lab observed, the small group discussions around activities the students worked on required fairly sophisticated language skills: The students were given a piece of text and asked to reformat it using paragraphing, headings, lists, white space, bold and other visual distinctions. Since there were a variety of ways this could be done, each group debated what they felt was the best approach. This required students to negotiate and politely argue for what they felt would be best. Most of these matched the performance indicators described as benchmark 7 in the CLB, including participating in "formal and informal conversations, involving problem solving and decision making" (Pawlikowska-Smith, p 54). Overall, the qualities of a band 6 performance in Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation best describe the level of ability required.

5.5.2 Speaking in Business

Students found Business courses to have the most challenging speaking requirements. In Business courses, students are evaluated on their participation (10% of the overall course mark), and one Business course requires students to give team presentations of up to 20 minutes in length. This means students have to communicate with their teammates to prepare the presentation, and then deliver the presentation in front of the class. Therefore, speaking skills play a significant role in student success in these courses. As with the COMM course, these tasks match the performance indicators for CLB benchmark 7 and IELTS Speaking band 6.

5.5.3 Speaking in Math

While speaking skills are not formally evaluated in Math, they can impact students' performance in the course, as discussions in class are an important part of overall success. For example, in the lab observed, people worked quietly on their own for a while and then, without prompting, began to work in pairs to compare answers and ask questions.

When the instructor brought the class back together to take up the activity they had been working on, he asked questions to elicit information from the students (eg "What do I need to do here?", "What other ways could you do this?") and continued to encourage them to respond. This demonstrates the importance to the instructor of getting verbal feedback from the students to ensure they all understood the math. While speaking is not formally assessed, the instructor clearly sees participation and speaking as important to the course. Based on the minimal speaking required, an IELTS band 5 would likely be sufficient for success in this course.

5.5.4 Speaking in Programming

Again, speaking skills are not formally evaluated, but in the lab observed, there was a great deal of discussion among students, both one-on-one and in small groups. None of the discussion was formally organised by the instructor – the students had just chosen to work together and help each other. At one point, a group of students who had been working on a programming problem together in Chinese sent one of the group members to talk to the instructor. Once this group member had opened the discussion with the instructor, the others followed him to the front of the room and listened in.

Again, speaking was not formally assessed, and students could work with others who spoke the same language. However, the ability to comfortably speak to other students and the instructor was noted by the instructor and the students as an important factor in success in the course. As with Math, the IELTS Speaking score of 5 would likely be sufficient for success in this course.

5.5.5 Sample IELTS interviews

At the end of the interviews, faculty members and students were shown two samples of IELTS Speaking interviews, candidates G and H, from the *IELTS Scores Explained* DVD (IELTS, 2006).

After viewing candidate G's performance, rated at band 5, three faculty members (the Programming instructor, Co-operative Education instructor and the program head for first-year CIT) said this candidate would be able to handle the demands of their courses. The Math and Business instructors were more reserved and thought the student would be borderline, and might be able to get through.

The Math instructor believed that as long as candidate G's math skills were strong, his speaking skills would not hinder his performance in the class. The COMM instructors were very quick to say this candidate did not demonstrate strong enough speaking skills to be successful in COMM.

The student interviewees' responses were similar to those of the faculty members: Adam felt that, aside from COMM and Business, candidate G's success would not be hindered by his speaking skills. Jeremy and Justin felt candidate G's skills were borderline, and Jeremy pointed out he would have difficulty working in teams. Tim was sure this candidate would "hardly make it to graduate the CST course".

Candidate H's performance, rated band 6, was assessed by all students and most faculty members to be acceptable. The COMM instructors felt the performance indicated borderline abilities, and suggested if candidate H were speaking on a more challenging topic than hobbies and interests, they would be better able to decide if candidate H had sufficient speaking skills. While some interviewees did not feel it was an exceptionally strong performance, all agreed this candidate's abilities were sufficient for the program.

5.5.6 Speaking conclusions

The emphasis on teamwork at the institute makes strong speaking skills crucial to student success. While the Math and Programming instructors said minimal speaking was required in their classes, the importance of the ability to interact informally with other students and with faculty members makes speaking skills significant in students' experience in the program.

The data collected indicated that students need to be able to clearly and confidently get ideas across in a variety of situations: from one-on-one conversations with instructors, to group discussions with classmates, to formal oral presentations. However, while ideas must be conveyed clearly, faculty members and students indicated it was not necessary for communication to be free of errors or occasional disfluency.

Overall, based on these data, a student would need a Speaking band score of 6 to participate successfully in these programs.

5.6 Listening

As the listening tasks in CST/CIT courses are all fairly similar, the discussion of listening skills required will not be broken down by course.

In the CST/CIT programs students listen to lectures given by instructors, verbal instructions given in labs, presentations given by other students, conversations with other students to complete group work or team assignments, and in some instances, clips of movies or other video. To help students prepare for lectures and to follow along during lectures, most instructors said they posted their lecture notes on the network drive for students to access ahead of time. Indeed, in the lectures observed many students had the lecture notes up on their laptops and were following along.

Most students agreed listening in lectures was a fairly easy task: The instructors tended to speak slowly and clearly, and their talks were generally well organised. Tim said small groups were the most challenging listening situation, as in a lecture, although other students interact with the instructor, the instructor is the focus. But in a small group, the conversation can go back and forth very quickly, and one speaker may be interrupted by another. Tim said: "If someone is speaking and I am listening to him and someone suddenly interrupts the speaker and talks about his story, then I have to organise the information and focus on him". Tim also found it frustrating that when movie clips were shown in class "everyone understands except for me because even though I focus and concentrate on that, if there are some words that I don't know, it affects the rest of the movie clip". When a movie clip was shown in his Business class, he "had to ask [his] friends the story of the clip because [he] couldn't understand".

The Business instructor commented on poor note-taking skills of all students, not just NNS students. However, he added that if he prompted them to take notes and provided them frameworks or rubrics for note-taking, the students were generally able to complete the notes. This suggests the Business instructor was noticing a lack of study/note-taking skills rather than a problem with listening skills.

5.6.1 Listening conclusions

Students in this program must be able to do some challenging listening tasks (eg listening to a number of speakers in a group, taking notes while listening to a lecture). These tasks best match the performance indicators for CLB benchmark 8 – “Can follow most formal and informal general conversations, and some technical, work-related discourse in own field at a normal rate of speech; Can follow discourse about abstract and complex ideas on a familiar topic” (Pawlikowska-Smith, 2000, p 74).

Based on the CLB-IELTS correlations, an IELTS score of 6.5 in Listening is required for success in CST/CIT.

6. CONCLUSIONS

This study set out to determine the appropriate IELTS band score for entry into, and ideally success in, the CST/CIT programs at a Canadian polytechnic post-secondary institute. It was key, then, to first ask stakeholders how they defined ‘success’ in the program before endeavoring to determine the required band score. The stakeholders were clear that success did not mean passing a course with the bare minimum but rather, participating fully in courses, contributing fully to their teams for the numerous team-based assignments, and interacting with other students and instructors to get the most from the learning experience. This broad definition of success means that examining only the language tasks evaluated by instructors to determine the band score requirements is not sufficient; success requires a great deal more interaction and communication with faculty and students than just completing assignments.

As expected, Business communication (COMM) and Business courses had the most rigorous language requirements. Programming courses required especially strong reading skills to deal with the technical manuals and other documentation because these were not designed for a non-specialist audience. In Math courses, students were evaluated on very little that required language skills, except for reading word problems. However, in order to participate in, and contribute to, the classes, some speaking and listening skills were required.

Overall, the appropriate band score for entrance into CST/CIT at the institute is 6.5. This is based on the following:

- a Reading score of 7 is required to manage the high-level documents required in Programming and Business classes
- a Writing score of 6.5 is required to meet the standards for professionalism in COMM
- a Speaking score of 6 is required to contribute fully in group work and in teams to complete assignments in many classes
- a Listening score of 6.5 is required to understand complex and fast-paced conversations among team-mates.

It is important to note that while it appears that an overall score of 6.5 would be acceptable, the sub-skill ratings must also be considered. For example, if students were to gain admission based on an overall score of 6.5 but had lower Reading scores (5.5 or 6, for example), the overall score of 6.5 may not be sufficient for success. For the language entrance scores required for admission to be predictive of success in the program and, therefore, the most ethical, administrators must take sub-skill scores into account when setting the language entrance requirements. This could be done, perhaps, by requiring that no sub-skill band be less than 6.5.

7. AREAS FOR FURTHER RESEARCH

As mentioned earlier, because of the limitations of this study, the results should be seen as indicative, not conclusive. Further research is required to confirm the findings. A few possible areas for further research are outlined below.

To confirm the band scores recommended in the current study, a further study should be conducted to test the accuracy of these recommendations. For the current study, no students who had entered CST or CIT based in part on their IELTS scores came forward to participate (the program head estimated that six students had gained access to the programs with their IELTS scores). Having students who had recently sat the IELTS Academic module participate in this study would have provided the researchers an opportunity to test whether or not the recommended band scores were accurate. A future study could ask students who had achieved the recommended IELTS bands (as well as students who achieved one band above and one band below) to complete activities and assignments in CST/CIT. The students' ability to complete the tasks successfully would help confirm or disconfirm the current study's findings.

A study of the predictive validity of IELTS in CST/CIT was beyond the scope of this project. However, to confirm the current findings and to ensure IELTS is a suitable measure of language skills for this setting, studies of predictive validity should be carried out. This is particularly important since Kerstjens and Nery (2000, p 105) found IELTS had more predictive validity in higher education than in vocational education (TAFE).

For this study, time and resources limited the researchers' ability to discuss language requirements and expectations with industry. In addition, students language levels upon entering the program would likely be quite different from their levels at the end of the program, or even at the end of the first term. Ideally, their skills would improve in the course of their studies, so the language requirements for entering the program may be quite different from industry language requirements. However, consultations with industry, especially with companies employing students in the Co-operative Education program, are also suggested as an area of study in the future. Given the institute's mandate to provide graduates with job-ready skills for the workplace, those who employ the graduates from this program should be consulted to confirm the language requirements in the program are sufficient.

Certainly, a more in-depth study at this institution would be productive, and beyond this specific institution, a large-scale survey could be conducted across a variety of institutions and programs. Such a survey would provide more conclusive results and greater generalisability.

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APPENDIX A

Correlations between the Canadian Language Benchmarks (CLB) Performance Indicators and the Public Version of IELTS Band Descriptors

CLB Benchmark	IELTS Band Score	Skill Area in CST/CIT
7	6	Speaking
8	6.5	Writing and Listening
9	7	Reading

Relevant CLB Writing performance indicators <i>Benchmark 8</i>	Relevant IELTS Writing band descriptors (public version) <i>Bands 6 & 7 (6.5 overall)</i>
Demonstrates fluent ability in performing moderately complex writing tasks; can write routine business letters	(TR) 6 relevant position, but conclusions may be unclear or repetitive 7 addresses all parts of the task; presents, extends and supports main ideas, but there may be a tendency to over-generalise and/or supporting ideas may lack focus
Can link sentences and paragraphs (three or four) to form coherent texts to express ideas on familiar abstract topics with some support for main ideas and with an appropriate sense of audience	(CC) 6 arranges ideas coherently, clear overall progression 7 uses a range of cohesive devices appropriately although there may be some over-/under-use
Has occasional difficulty with naturalness of phrases and expression	(LR) 6 adequate vocabulary 7 may produce occasional errors in word choice, spelling, and/or word formation
Demonstrates good control over common sentence patterns, coordination and subordination, and spelling and mechanics; has occasional difficulty with complex structures	(GRA) 6 uses a mix of simple and complex sentence forms 7 has good control of grammar and punctuation but may make a few errors; produces frequent error-free sentences

Key – IELTS criteria

TR – task response

CC – coherence and cohesion

LR – lexical resource

GRA – grammatical range and accuracy

Relevant CLB Speaking performance indicators Benchmark 7	Relevant IELTS Speaking band descriptors (public version) Band 6
Participates in small group discussion or meeting; expresses opinions, feelings, and reservations; initiates questions to gather, analyse and compare information needed; discourse is reasonably fluent with frequent self-corrections and/or rephrasing	(FC) will speak at length, though may lose coherence at times due to occasional repetition, self correction or hesitation; uses a range of connectives and discourse markers but not always appropriately
Uses vocabulary adequate for the topic; can use an expanded inventory of concrete and common idiomatic language	(LR) wide enough vocabulary to discuss topics at length and make meaning clear in spite of inappropriacies; generally paraphrases successfully
Can use a variety of sentence structures (including compound and complex sentences); grammar errors are still frequent but rarely impede communication	(GRA) uses a mix of simple and complex structures but with limited flexibility; may make frequent mistakes in complex structures but these rarely cause comprehension problems
Pronunciation errors are still frequent but rarely impede communication	(P) can be understood throughout, though mispronunciation errors may occasionally cause momentary strain for the listener

Key – IELTS criteria

FC – fluency and coherence

LR – lexical resource

GRA – grammatical range and accuracy

P – pronunciation

Relevant CLB Reading performance indicators Benchmark 9	Estimated IELTS Band 7
Differentiates between fact and opinion; locates and integrates several pieces of information in instructional texts to correctly interpret and follow extensive instructions for a familiar process or procedure; locates and integrates several pieces of information in extensive and visually complex formatted texts; separates relevant from irrelevant information across the text; transfers complex textual information to an alternate form; access information involving a complex electronic or traditional library search; uses effective search strategy.	Based on correlations between CLB and IELTS for Speaking and Writing.

Relevant CLB Listening performance indicators Benchmark 8	Estimated IELTS Band 6.5
8: Identifies specific factual details and inferred meaning; identifies some attitudinal nuance, emotional tone, register; identifies component parts of the presentation; identifies functional value of utterances (warnings, suggestions); can follow most formal and informal general conversations and some technical, work-related discourse in own field at a normal rate of speech; can understand sufficient vocabulary, idioms and colloquial expressions to follow detailed stories of general and popular interests; can follow discourse about abstract and complex ideas on a familiar topic; often has difficulty following rapid, colloquial/idiomatic or regionally accented speech between native speakers.	Based on correlations between CLB and IELTS for Speaking and Writing.