Technical Literacy

**Technical Literacy Purpose Statement:**
The mission of Coastal Pines Technical College is to support workforce development and support lifelong learning needs of communities, businesses, and industries. Technical literacy is vital to CPTC’s mission and to student success, both in online and traditional classrooms and in the school’s efforts to prepare students for the global workforce.

**Summary:**
Coastal Pines Technical College has established minimum technical literacy requirements for students who enroll, and those skills include the ability to:
- send email messages with attachments;
- navigate the internet;
- upload and download files;
- create, save and rename files;
- participate in online discussions; and,
- have confidence in communicating at a distance with their instructors (Coastal Pines Technical College, 2016).

However, many experts on technical literacy – sometimes referred to as technological literacy, digital literacy or digital fluency – emphasize that technical literacy is much more than the knowledge required to use equipment or software (Asunda, 2012). Technical literacy includes the ability to:
- Express oneself or communicate using technology;
- Understand how technology works and have the comfort level to troubleshoot based on that foundation of knowledge;
- Navigate the internet and understand the difference between information that is factual versus false or fake information, and news versus advertising or propaganda;
- Identify and avoid scams and cyberbullying;
- Maintain a professional internet presence;
- Understand the ethics of internet use including use of intellectual property (Trotter, 2009).

The International Society for Technology in Education also includes innovation and design, collaborative problem-solving and creative communication in its 2016 Standards for Students.

Ultimately, technical literacy is less about equipment and software, and more about critical thinking skills and learning how to ask questions, collaborate to solve problems and seek reliable information in order to adapt to a quickly changing digital world.

Students who enroll at Coastal Pines Technical College come from all walks of life and varied experiences – from the Move On When Ready students still in high school to non-traditional students taking classes after many years out of school. There are students who are working full-time jobs, and those who are unemployed. There are parents working toward skills to help them
get better jobs to support their families, and veterans and retirees working toward a second career.

Coastal Pines Technical College’s student population includes digital natives and digital immigrants. Digital natives are people who have been using computers and accessing the Internet since they were young children. On the other hand, digital immigrants adopted technology as adults (Colbert, Yee & George, 2016, p. 731).

Digital natives are immersed in technology, and it might be natural to assume that they are more technically literate than a digital immigrants. However, while digital natives are often savvy at social media and comfortable with technology, they often do not have a deeper understanding of how technology works and how to access and judge information (Loewy, 2016).

A recent study by Stanford University found that middle school, high school and college students – from under-sourced inner city schools to the well-supported schools of suburbia – lack the skills needed to make sound judgements about the information streaming through their digital devices (Stanford History Education Group, 2016).

“In every case and at every level, we were taken aback by students’ lack of preparation,” the authors of the Stanford study wrote (Stanford, 2016, p.4).

Coastal Pines Technical College’s student population – both digital natives and immigrants – also come from diverse socio-economic backgrounds. Some students have computers and internet at home. Others don’t, and must rely heavily on computers at their high schools or on CPTC instructional sites when working on assignments outside of class.

A 2015 Pew Research Center report found that 64 percent of American adults own a smartphone, but of those users, 15 percent “have a limited number of options for going online other than their cell phone” (Smith, 2015).

All of these factors must be considered when evaluating the technology needs and technical literacy skills of CPTC’s students and staff.

**Student Learning:**

Coastal Pines Technical College measures technical literacy through online surveys of students and staff done by the QEP planning committee, and through SmartMeasure Learning Readiness Indicator, an assessment tool instructors encourage students to use. The Student Survey of Instruction also is used to gauge how students’ opinions about the technology used in their courses.

The QEP planning committee conducted Class Climate Surveys of faculty, staff and students in Fall 2016. Technical Literacy was one of the areas of concern, and 17 students and 11 faculty and staff wrote comments.
Student responses included comments that touched on multiple areas of concern. For example, one student mentioned problems with SNAP software on a personal computer, and also indicated difficulty in getting help.

A recurring theme was a lack of communication with instructors and the need for help installing software on personal devices. One student described the experience as “frustrating and immobilizing” (Coastal Pines, 2016). The 11 faculty responses mostly stressed the importance of technical literacy, and one mentioned a need for more staff training in Blackboard.

The SmartMeasure assessment data comes from students who voluntarily participate. Some instructors require the assessment as an assignment, and it is included in the class syllabus (C. Swanson, personal communication, November 28, 2016). Other instructors simply encourage students to participate, Swanson said.

An example of SmartMeasure assessments of technical competency and technical knowledge shows the average scores of students in a report from January 1, 2016:

- Technical Competency – 231 participants
  - Computer Competency 88 percent
  - Internet Competency 92 percent

- Technical Knowledge – 225 participants
  - Personal Computer/Internet Specifications 89 percent
  - Technology in Your Life 62 percent
  - Technology Usage 55 percent
  - Technology Vocabulary 77 percent

The Student Survey of Instruction for Fall 2016 found that 87 percent of students either agreed or strongly agreed that the technology used in their courses was user friendly, and approximately the same percentage felt the technology in their courses was beneficial.
Significance, Urgency/Description and Scope and Supporting Data:
Technology is constantly evolving and advancing and upgrading. The technical literacy of our student body and our staff should have the foundation of knowledge and the critical thinking skills needed to adapt to those changes (Chikasanda, et al., 2011).

However, the data being collected by Coastal Pines Technical College involves a small sample of the more than 3,000 students who are enrolled. The data does not fully show what CPTC students know, and where more training is needed. Furthermore, CPTC is not measuring the technical skills of its instructors. The challenges are:

- Students are not being assessed to ensure that they meet the minimum technical requirements.
- The assessments being done after students are enrolled are mostly volunteer, and do not paint a complete picture. While the information may be helpful to individual instructors who require it, the data does not paint a complete picture of the technical literacy levels and needs of CPTC students. One might argue that students who are not comfortable with technology may opt out of taking the online assessment.
- The assessments in place do not capture whether students have acquired the skills included in the broader definition of technical literacy, including trouble-shooting skills, ethics, etiquette and the ability to discern fact from falsehoods in information found online.

Coastal Pines Technical College may be on track, but without reliable assessment tools and accurate data, there is no way to know if the school is truly accomplishing its mission.

Implementation Resources & Evaluation:
Coastal Pines Technical College offers a variety of resources to help students and staff with issues related to technical literacy. These include:

- Library Orientations, both online and face-to-face, in all ENGL 1101 classes and in other classes by request.
- LibGuides on a variety of topics – from research to finding and citing credible sources – offer links to online resources. The TechHelp LibGuide has information on trouble-shooting and links to help sites, emails and phone numbers for issues with software.
• LearningExpress Library, available through GALILEO, has tutorials on Microsoft Office software, Adobe Photoshop, and more.
• CPTC help pages for Student Email and Computer Logon page are accessible through the college’s website.
• An Introduction to Online Learning (Orientation for an Online Class) slideshow is available to assist students, along with a brochure.
• Blackboard Helpdesk Request Form allows students to request help.

Recommendations for additional projects to enhance CPTC’s efforts to help students and staff improve include:

**Action Step: 1**
CPTC should adopt a definition of technical literacy that is broader than the minimum requirements.

**Action Step: 2**
Technical literacy is vital to our nation’s workforce in a 21st century global economy, but measuring technical literacy is complicated (Mayrath, 2011, p.1). SmartMeasure is one of many tools available to academic institutions. A task force or committee should be created to research technical literacy assessment tools for students as well as staff.

**Action Step: 3**
Students who attend New Student Orientation are offered help learning how to log on to the computer and access BannerWeb and Blackboard. However, this training is not required and many students opt out. Furthermore, students cannot open and explore Blackboard until the first day of class. CPTC should offer separate Blackboard workshops after classes have started each semester.

**Action Step: 4**
IT tutors should be available in CPTC libraries the first couple of weeks of each semester to provide help with tech- and software-related questions, and to show technology users how to troubleshoot problems. From these interactions, a Tech FAQs page could be developed to serve students who may not be able to physically visit a site for help.

**Conclusion:**
Technical literacy influences whether or not a student passes a class, stays in school, and even impacts the occupational choices of students (Baskette, et al., 2013) as well as their success in the workplace and in their communities. A technically literate student becomes a productive worker, and informed consumer and an engaged citizen. These ideas go hand in hand with the mission of Coastal Pines Technical School. CPTC should invest in the assessment tools needed to measure whether or not it is accomplishing its goals.
References


