Computer Assisted Language Instruction Consortium

CALICO JOURNAL (ONLINE) ISSN 2056–9017

Article

Revisiting the TESOL Technology Standards for Teachers: Integration and Adaptation

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Abstract

This article revisits the TESOL Technology Standards for Teachers (TTST) and discusses the potential for their continued relevance 13 years after they were first promulgated (TESOL, 2008). To provide a historical backdrop, I first cover the development of the standards from the inside perspective of one of the six members of the team that created them. I next review some key literature relating to the influence of the TESOL standards on teacher education and professional development. I then discuss a multi-year project, in which the TTST were first introduced into an existing CALL course and then integrated throughout the eight units of the course. I describe how the TTST as presented in the two TESOL publications—TESOL (2008) and Healey et al. (2011)—can provide a somewhat problematic set of expectations for the pre-service teacher candidates in that course. Input from participants led to a restructuring of the course and a reformulation of the Healey et al.'s (2011) "can do" statements to better serve those who have not yet begun their teaching career. I conclude with speculation about the value of the TTST in the present and near future, particularly in light of the recent expansion of online teaching brought about by the COVID-19 pandemic.

KEYWORDS: TEACHER EDUCATION; PROFESSIONAL DEVELOPMENT; TECHNOLOGY STANDARDS; INTEGRATION; ADAPTATION.

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CALICO JOURNAL VOL 38.3 2021 319–337

https://doi.org/10.1558/cj.20068

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1. Introduction

Toward the end of 2008, TESOL published the *TESOL technology standards framework*. This was the culmination of a project aimed at providing baseline targets for language learners and teachers to achieve in the area of technology-mediated language learning. Although other technology standards existed for education as a whole (e.g., the National Education Technology Standards [NETS] from the International Society for Technology in Education [ISTE]), this was the first set exclusively focused on *language* teaching and learning. I was one of six on the TESOL Technology Standards Task Force that developed the standards and authored the framework document which introduced them to the field (TESOL, 2008). This team, appointed by the TESOL Committee on Standards, was chaired by Deborah Healey—other members were Volker Hegelheimer, Sophie Ioannou-Georgiou, Greg Kessler, and Paige Ware. The standards aimed to have the following positive impacts on language teaching and learning.

- Prompt teachers to learn to use technology in their teaching.
- Articulate a clear set of stages for the development of teacher IT (information technology) competence.
- Provide direction and motivation for integrating technology into language teacher education.
- Guide administrators and policymakers.
- Help minimize the digital divide—between countries and within countries. (Hubbard & Kessler, 2009, p. 1)

The last official publication from TESOL that focused on the technology standards was released 10 years ago (Healey et al., 2011). Since then, much has happened in technology and language teaching, yet the standards themselves have not been changed. One could legitimately ask: are they still relevant?

I think the answer to that question is a cautious "yes." To make the case for that claim, I first revisit the TESOL Technology Standards for Teachers (henceforth TTST), introducing them to readers who may not be aware of them and reminding those who are of their history, scope, and content. I briefly review some relevant literature, showing how the TTST have been referenced and utilized by researchers and teacher educators over the past 13 years to evaluate and guide teacher preparation and professional development. I then report on a problem encountered with implementing and integrating the TTST into a course in computer-assisted language learning (CALL) that I taught annually from 1998 to 2020. Feedback from participants in that course showed that the TTST were useful both for course organization and for helping participants to

self-evaluate their CALL knowledge and skills through a set of "can do" statements (Healey et al., 2011). However, those who were not currently teaching, especially those who had never taught, often encountered issues in interpreting and responding to the statements. In the final section, I show how a fairly straightforward adaptation of those statements offers a means for overcoming those issues.

2. History of the TESOL Technology Standards

The process of developing the TESOL's technology standards began in 2006, when the TESOL Standards Committee recruited the six of us to join the project. The initial plan called for us to draft standards for teachers, learners, and online teaching. As team members were already engaged in blended and/or online teaching at the time, we felt that learner and teacher standards should assume online to be one of a number of possible learning contexts. The Standards Committee agreed with our recommendation, and consequently specific online standards were not produced.

Development of the learner and teacher standards was inspired by the ISTE-NETS (International Society for Technology in Education, 1998, 2000), the ICT4LT (Information and Communication Technologies for Language Teaching) "can do" document (http://www.ict4lt.org/en/ICT_Can_Do_Lists.doc) (Davies, 2012), the TESOL standards for preK–12 (TESOL, 2006) and adult education (TESOL, 2003), and a number of published works by team members and others. There were four important guiding principles. One was that the standards should be able to apply to a wide variety of contexts, including language learning by children, adolescents, and adults, as well as to a variety of national and cultural settings, rather than focusing primarily on the United States. The second was that the implementation of the standards would acknowledge a range of technology availability, making them applicable to low resource as well as to high resource settings. The third was that the teacher standards should represent two levels of expertise: a base level expected of all teachers and an expert level to recognize those with advanced skills and knowledge of value to their institutions. The fourth was that the focus would be on technology-mediated language pedagogy rather than the on characteristics of the technology itself—for that reason, work began first on the learner standards. A fifth unofficial principle that I believe all team members shared was that although we were developing these standards for TESOL, they should be relevant for the teaching and learning of any language.

Team members remained in regular email contact throughout the development process. There were two intensive two- to three-day meetings at TESOL headquarters, as well as connecting at two TESOL conferences. The team

worked collaboratively when together, and individually on specific agreed-on assignments. Draft standards were delivered to the TESOL Standards Committee in mid-2007 and posted online for public review and comment. Teacher input was solicited at the international GLoCALL conference in Vietnam later that year. Responding to feedback, the team delivered a second draft in January 2008, which the Standards Committee sent out to five international experts for an independent external evaluation. The final draft incorporated their feedback and was released along with a range of supporting material that included an introduction and overview providing a rationale for the use of technology in language education, a glossary of terms, performance indicators for each teacher and learner standard, and several sample vignettes showing how the standards could be implemented in a realistic educational setting.

As noted above, in the framework document (TESOL, 2008), there are both learner and teacher standards. The 11 learner standards are divided across three overarching goals: (1) foundational skills and knowledge in technology for a multilingual world; (2) use of technology for language learning that is socially and culturally appropriate, legal, and ethical; and (3) effective use and critical evaluation of tools to develop language competence. An example of the third goal is: "Goal 3, Standard 3: Language learners appropriately use and evaluate available technology-based tools for communication and collaboration" (TESOL, 2008, p. 27). The TESOL Technology Standards for Learners are important, and teachers and administrators should work to help learners achieve them over time. However, for the remainder of this article, we largely set them aside and focus on the TTST.

There are 14 teacher standards distributed across four goals: (1) acquiring and maintaining foundational skills and knowledge in technology for professional purposes; (2) integrating pedagogical skills and knowledge with technology to enhance language teaching and learning; (3) applying technology in record keeping, feedback, and assessment; and (4) using technology to improve communication, collaboration, and efficiency. In the framework document, the 14 standards were accompanied by performance indicators, stating more precisely what teachers would need to be able to do to meet each one. For example, Goal 1, Standard 3 states, "Language teachers actively strive to expand their skill and knowledge base to evaluate, adopt, and adapt emerging technologies throughout their careers." Two of the four performance indicators are, "Language teachers utilize technology tools to expand upon a conventional activity" and "Language teachers keep up with information through a variety of sources (e.g., books, journals, mailing lists, conventions)" (TESOL, 2008, p. 29). There were also a few sample vignettes, practical examples of a standard embodied in a teaching setting. The full set of the TTST and a sample vignette

can be found on Deborah Healey's website at https://www.deborahhealey.com/uruguay2011/healey-tesol_technology_standards-pad.pdf.

The TESOL (2008) framework document was TESOL's first ebook and was offered for sale through TESOL publications beginning in 2008. With the release of the expanded volume by the team (Healey et al., 2011), the framework document was made available without cost on TESOL's website and is still there at this time of writing. Readers are strongly encouraged to take advantage of this availability and download the pdf while it remains freely accessible (see References).

The 2011 volume included the material in the 2008 framework but added much more, informed partly by feedback from teacher groups at a variety of international conferences in 2008 and later on. There was a full chapter comprising a concordance with a newer version of the ISTE-NETS (2007, 2008) and the UNESCO technology standards (UNESCO 2008a, 2008b), showing the ways in which the TESOL standards overlapped, but also had distinct elements related to language teaching and learning. In this way, a teacher trained with the ISTE-NETS or UNESCO standards could readily identify the areas needing the more language-centered specificity of the TESOL standards. For example, the ISTE teacher standards (2008) had no clearly equivalent statement for TESOL's Goal 3, Standard 3: "Language teachers evaluate the effectiveness of specific student uses of technology to enhance teaching and learning" (Healey et al., 2011, p. 135). Other chapters targeted ESL program administrators, teacher educators, and online teaching and learning, the last especially relevant in light of the move to emergency remote teaching in 2020. The volume also included a more robust set of vignettes covering every standard, and illustrating how the standards can be made relevant in low, medium, and high technology resource and access contexts. Finally, the performance indicators from the framework document were translated and expanded into first-person "can do" statements and given a scale very well > adequately > not so well > not at all, capturing the notion that knowledge and skill in the areas mentioned exist along a continuum from expert to novice.

Before concluding this section, it is worth noting that there have been formal attempts other than the TESOL standards and the more general ISTE-NETS and UNESCO ones to provide guidance to teachers in the use of technology. Murphy-Judy and Youngs (2006) describe sets of standards that address technology competence and use by teachers. They note that the National Council for the Accreditation of Teachers (NCATE), drawing from the ISTE-NETS standards, collaborates with ACTFL in accrediting language teacher education programs. They also describe projects in Colombia and the European Union, the latter tied to the Common European Framework and encouraging teacher reflection on technology use without mandating specific standards.

More recently, Kessler (2016) notes that ACTFL has been a leader in promoting standards in language proficiency and offering instructional goals across the "5 Cs" of communication, cultures, connections, comparisons, and communities. However, he also observes, "While intended to be comprehensive, the ACTFL standards offer little specificity regarding technology" (Kessler, 2016, p. 59). In a pair of position statements on technology, ACTFL provides the following recommendation, focusing more on what technology should *not* be doing independently of a qualified instructor.

ACTFL strongly recommends that a language educator should be responsible for the planning, instruction, assessment, and facilitation of any language course, leveraging technology to support language learning. Language instruction is best guided by language educators rather than solely delivered via a computer program or by a non-content specialist.

- Research does not support the isolated use of technology for acquiring a language.
- Interaction with a language educator is critical to building spontaneous interpersonal skills needed for real-world communication.
- Intercultural competence is best acquired through human interactions and meaningful experiences facilitated through a language educator.
- Educators use content knowledge, research-informed teaching strategies, and effective technology applications to support language learning. (ACTFL, 2017)

In a companion statement on the same page, ACTFL acknowledges that there are a number of roles for technology for language students, concluding, "The development of technology is best driven by the needs of the language learner, supporting the kinds of interactions our students need to become college, career, life, and world-ready" (https://www.actfl.org/advocacy/actfl-position-statements/the-role-technology-language-learning).

Another source of guidance for teachers using technology is the Flipped Learning Network (FLN) at https://flippedlearning.org. Although not unique to language education, this group is relevant because it depends centrally on educational use of technology to achieve its goals of a new methodology for learning. In flipped learning, students work independently before a class meeting as a group, typically listening to recorded performances of what in traditional teaching would have been the class lecture. This allows class time (whether in-person or online) to be spent on discussion, application, and other interactive pursuits. Although they do not refer to these as standards, the FLN embraces four "pillars" (flexible environment, learning culture, intentional content, and professional educator), evaluating these in terms of 11

"can do" statements. For example, for the "learning culture" (L) pillar, the statements are, "L1: I give students opportunities to engage in meaningful activities without the teacher being central. L2: I scaffold these activities and make them accessible to all students through differentiation and feedback" (https://flippedlearning.org/definition-of-flipped-learning).

Both the ACTFL and the FLN statements reflect what would be widely considered as effective teaching and learning strategies by our profession. However, they provide general targets without delineating how teachers can meet these objectives in anything approaching the detail of the TESOL standards. For example, there is no mention of evaluation tools, nor references to teachers being informed by and keeping up with relevant research. This suggests that the TESOL standards have additional value as complements to principled statements and frameworks such as those of the ACTFL and the FLN. In the case of both the ACTFL statements and the FLN pillars, the TESOL standards provide detailed guides to the foundational skills and knowledge needed for learners and teachers to meet the targets and to remain current as technology evolves (Kessler, 2016). The two organizations could thus draw on the TESOL standards as a resource for standards of their own.

3. Using the Standards

Since their release, the TESOL Technology Standards have been referenced in a number of publications. A Google Scholar search on May 3, 2021 yielded 392 results for the exact match "TESOL Technology Standards." Although many of these mention the standards only in passing, others incorporate them more substantially. With regard to the TTST specifically, the implementations have largely involved evaluation of existing teacher education courses and resources, implementation into existing courses or curricula, and guidance for development of tasks, courses, or curricula. For example, Arnold (2013) used the TTST as a significant part of the input to an evaluation tool for existing teaching methodology textbooks, in order to see the degree to which CALL elements are included in them. All but one of the 11 textbooks in her final review were published before the release of the TTST and so were not influenced by their existence. She found that content that supported development of teacher technology competence in line with the standards was present in many textbooks. However, she also noted that training in technology use for assessment and grounding in CALL research were sparsely represented.

In the area of curriculum development, the description of the Cyprus University of Technology CALL MA program shows how the TESOL standards are an integral part of its core: "The objectives of the proposed Master's programme are consistent with the technological standard[s] for the teaching of English

as a Second Language (Teaching English as a Second Language Technology Standards Framework, 2008)" (https://www.cut.ac.cy/studies/masters/master-programmes/lce-gr-call). Bauer-Ramazani (2017) similarly shows in detail how the both the TESOL and ISTE standards significantly align with the content components of the online CALL course that she teaches.

In a critique of much current language teacher competence in using technology, Nozawa (2019) argues that teachers are not well prepared for 21st-century teaching. He uses a combination of the ISTE standards and TESOL standards to suggest targets that should be implemented now in language teacher training: "If pre-service and in-service teachers understand the theoretical foundations and issues involved in using technology with learners through professional training programs, any new use of technology can be integrated into their teaching and learning situations in a principled way" (p. 12).

A number of publications mention the value of the TESOL Technology Standards for future guidance (e.g., Kessler, 2016). At the end of their introduction to a special issue of *Language Learning & Technology* devoted to technology and teacher education, Arnold and Ducate (2015) note that "future research should investigate how specific competencies develop and if/how they are interconnected. It will be particularly important to frame such research within standards and other policy frameworks (e.g., the TESOL Technology Standards) that guide accreditation and certification" (p. 6). Additional examples of publications incorporating the TESOL Technology Standards include DelliCarpini (2012), Hanson-Smith (2016), Healey (2018), Hubbard (2018), Kessler (2012, 2020), and Wiseman & Belknap (2013), among others. There are also applications of the TTST outside of formal publications, such as Deborah Healey's "Intelligent uses of technology" website, featuring a number of valuable resources for language teachers organized by their connection to the four goals of the TTST (https://sites.google.com/site/intelligentuseoftechnology).

4. Implementing and Integrating the Standards into a CALL Mini-Course

This section reports on how I introduced and integrated the TTST into an annually taught CALL course (see https://web.stanford.edu/~efs/callcourse2 and Hubbard, 2021). I describe how input from course participants led to a couple of substantial shifts in how the standards were used, as well as the form in which they were presented. Importantly, it documents a shift in the point when participants self-evaluated their level of compliance with the TTST—from evaluating themselves only toward the end of the course to prepare them for future self-study to doing so at the beginning *and* end—in order to provide learning targets and highlight areas of progress. This is not a report of a

formal action research project, but I hope that by sharing my experiences as an informal case study, it may encourage similar reflection and experimentation by other teacher educators.

In 1998, I began offering an optional one-unit seminar in CALL to accompany a general ESL methodology course (see https://web.stanford.edu/~efs/ling291). From 1998 to 2020, there were between two and 12 students annually, with an average of around six. The class met in the winter quarter (January to March) for 75–90 minutes once a week for eight weeks. It was labeled as a "mini-course" for students interested in a survey of the field of CALL. Due to the time limitations, students were largely responsible for exploring the material on their own, so that class time could be devoted to discussion and interactive demonstrations. In 2010, I introduced the TTST to students briefly in the final unit of the class as a resource (see https://web.stanford.edu/~efs/callcourse/CALL8.htm). Students were led through the standards to see what areas they had developed at least foundational knowledge and skills in, and what areas remained for future independent study.

In a major revision of the CALL course in 2012 following the publication of Healey and co-workers' study (2011), I integrated the TTST throughout the eight units. The standards as a whole were briefly introduced in unit 1, and relevant standards were mentioned in the remaining units, usually at the beginning. For example, unit 2 on how to locate and evaluate CALL resources begins with a reference to Goal 2, Standard 1: "Language teachers identify and evaluate technological resources and environments for suitability to their teaching context." A richer description of the TTST appears in unit 7. In the original course, this was the unit on learner training, but in the 2012 revision, it was expanded to include teacher education and professional development (see https://web.stanford.edu/~efs/callcourse2/CALL7.htm).

Beginning with the 2014 class, in the week before unit 7, students were given copies of the "can do" statements from Healey and associates (2011). These were adaptations of the performance indicators from the original framework document (TESOL, 2008), rewritten from using a third-person format to a

Goal 2, Standard 3	Very well	Adequately	Not so well	Not at all	N/A
I am aware of my students' level of digital competence ..... I understand the underlying structures of the technology that I use [Expert level]					

Figure 1. "Can do" statement example adapted from Healey and co-workers (2011). N/A, not applicable.

first-person format. These original 95 performance indicators were expanded into 160 "can do" statements, in order to offer a finer-grained assessment tool. The result represents a very rich and detailed set of targets for self-evaluation. Figure 1 shows an example of both a basic and expert level "can do" statement.

At this point in the class (week 6), students had been exposed to most of the course material, and it seemed like a good time for them to look back at what they had learned, as well as forward to what they would need to pick up in the future to meet the TTST. For the 2014 class, as this was the first time I had used the self-evaluation targets, I discussed the responses with each student in individual meetings. For the 2015–2018 classes, the same procedure was used for filling out the forms, but responses were discussed collectively in class instead of individually.

During these years, a couple of points became clear from student feedback. The first was that some felt that by not filling out the form at the beginning they had missed the opportunity to be better prepared for course work as they encountered it, and to be able to identify areas most in need of development early on. A second problem involved the fact that the "can do" statements are couched in terms of what a practicing teacher actually does. A statement such as "I am aware of my students' level of digital competence" cannot be credibly judged unless the respondent *has* students. This realization echoes Tschichold (2016), who similarly pointed out that a number of the teacher standards were not readily achievable in a pre-service course, particularly those under Goal 3 (assessment) and Goal 4 (communication, reflection, and efficiency).

There were some other insights from course participants worth mentioning (from the 2018 cohort).

- Expert level seems quite variable. (Do you really need to *produce* research to be an expert?)
- "Where appropriate" could be used in more statements (e.g., in "using computer-based testing where feasible").
- About the "very well" category—it shouldn't mean "all the time" or even "in all classes."

The lesson I was slowly learning from this feedback was that regardless of how well motivated and detailed the "can do" statements for the TTST were, in practice they needed to be adjusted or at least interpreted to make them more useful for the students in my class.

Taking the student feedback into account, for the winter 2019 course, I made the following three changes.

1. Moved the "can dos" to the first week with the goal of helping students to recognize gaps early on.
2. Explained some previously identified problems, especially issues with wording that assumes active teaching, suggesting that students not currently teaching should revise the statements themselves to fit what they believe they *know how to* do or *would* do rather than what they *actually* do.
3. Requested students to annotate their forms to improve the clarity and appropriateness of items that were problems for them.

Students dutifully filled out the forms, but compared to previous years, there were noticeably larger numbers of "N/A" responses (not applicable). Additionally, the annotations offered some insights that were different from the concerns of those who had filled out the form in prior years toward the end of the course. Here are a few examples.

- My answers assume I have students … I don't have students.
- What are evaluation tools?
- What's a community of practice?
- [in reference to CALL research] What research?
- What are "electronic resources"?
- "I share …": Is it OK to say, "I know how to share …"?
- "Perhaps 'I believe in _____ and am capable of doing so' would address the [pre-service] issue without sacrificing specificity."

On the positive side, going through this process at the beginning of the course led students to identify concepts and terms embedded in the TTST that they would come to know well during the course (such as "evaluation tools"). However, I was concerned about the level of frustration that seemed to underlie such comments.

An additional major issue that came through in both student comments and a lively class discussion was that the number of "can do" statements (160) that they had to address as mostly newcomers to CALL was excessive. This point had received only minor complaints in prior years when the assignment had been toward the end of the course, presumably because previous students had more content knowledge on which to base their responses. To avoid a repetition of this problem the following year, it was clear that reducing the number and revising the wording of the "can do" statements was needed if they were to be used effectively at the beginning of a course. I decided to make three additional changes for the winter 2020 CALL course, in order to address these issues.

1. Return to the original 95 third-person performance indicators from the 2008 framework, using these as a base for revised first-person "can do" statements.
2. Eliminate the "expert level" indicators, in order to further reduce the students' workload in filling out the form (they were shown where to find the performance indicators for expert level if they were interested).
3. Write new "can do" statements in wording that is friendly and meaningful to those who have not yet begun to teach, replacing "Language teachers …" from the performance indicators with "I know how to …," "I can …," or "I understand that …" as appropriate for the given statement.

For example, Goal 1, Standard 3 reads, "Language teachers actively strive to expand their skill and knowledge base to evaluate, adopt, and adapt emerging technologies throughout their careers." It had the following base-level performance indicators.

- Language teachers utilize technology tools to expand upon a conventional activity.
- Language teachers keep up with information through a variety of sources (e.g., books, journals, mailing lists, conventions).
- Language teachers participate in a relevant community of practice.
- Language teachers explore the possibilities inherent in emerging technologies with a critical eye.

I rendered these as "can do" statements of *potential* rather than *action*.

- I can utilize technology tools to expand upon a conventional activity.
- I know how to keep up with information through a variety of sources (e.g., books, journals, mailing lists, conventions).
- I know how to find and participate in a relevant community of practice.
- I can explore the possibilities inherent in emerging technologies with a critical eye.

The same was done for the performance indicators throughout the remaining 13 standards, resulting in a reduction from 160 to 65 items. As a consequence, responding to them became a much less formidable task for those new to the field. This revised and condensed set of "can do" statements is available at https://web.stanford.edu/~efs/TTS-CDs.pdf. Figure 2 shows an example.

It is important to note that the production of this revised set is in no way meant as a criticism of the one provided by Healey and colleagues (2011). There is a good reason to have "can do" statements representing teacher actions rather

Goal (G) and Standard (S) Reference	Well	OK	Some-what	Not at all	Comments (as needed)
G1S1 I know how to prepare instructional materials for students using basic technology tools.					

Figure 2. Example of a revised "can do" statement.

than intentions. In-service teachers can legitimately be held to the "can do" statements provided there, helping them to see clearly what they can honestly say they *do* rather than just what they know or know how to do. Participants in a CALL course who are currently teaching should thus be encouraged to use the 2011 formulations. Again, the problem for pre-service teachers (pre-practicum at least) is different—they are unable to say what they *do* with students because they have no students. For anyone wishing to include the expert-level statements for this group (the expert level was not targeted in this short CALL survey course), these can easily be added using the same strategy of changing what teachers do to what pre-service teachers can do or would do.

For the winter 2020 class, I had just four participants. Two were teaching their native language at the time, and the other two had limited teaching experience and fit the pre-service criterion of having no current students. In the first class, I explained the history of using the "can do" statements, and why the number of them and the language had been revised. They then filled out the forms at home, taking note especially of areas where they had no or limited knowledge, and generously provided me with a copy. None of them reported having issues with the number of items. We discussed some trends in their responses in the next class, and I answered a couple of remaining questions students had regarding terminology. Despite the small sample size, I hoped to be able to get a sense of how helpful this reduced and adapted set of "can do" to statements would be.

The plan was for participants to revisit the form at the end of the course, rating themselves and noting areas they believed they had improved in. Unfortunately, the final class meeting coincided with the beginning of emergency remote teaching. Given the general uncertainty of those times and the requirement of the university to reduce demands on students, I only received one post-course form from the group. She showed improvement in her self-evaluation across many areas that were not already in the top "well" category. Typically, this was limited to a single category shift (e.g., from "somewhat" to "OK"). However, in seven cases she reported moving two categories from "somewhat" to "well."

- G1S1: I know how to perform basic functions (composing, printing, editing, playing, recording, transferring, etc.) with available digital devices in order to accomplish instructional and organizational goals.
- G2S4: I am familiar with suggestions from research for classroom practice using technology.
- G2S4: I can effectively employ a variety of avenues for getting information about research related to technology use (e.g., communities of practice, conferences).
- G2S4: I understand the temporal nature of research findings related to technology use (i.e., that technology changes over time, so older research may not be applicable to current settings).
- G2S4: I am able to discern which findings about technology use are most appropriate for my situation.
- G4S1: I know how to find and draw on resources (lesson plans and teaching ideas) that are posted online.
- G4S3: I understand various methods of providing electronic feedback on student work (e.g., email, insert comments).

Her few comments noted that we had not covered assessment much (true), and that although she knew about communities of practice now, she was not sure whether she would join one. This single case is clearly not enough to draw any generalizations from, but it is an example of how students can track progress in specific standards by utilizing the "can do" statements at the beginning and end of a CALL course.

Overall, it appeared that the shorter, adapted form can provide a relevant self-evaluation experience, at least at the beginning of the course, although the data supporting that claim is limited. Used at the start of the course, though, I believe it serves the additional function of leading students to take note of and think about the wide range of areas within CALL. I would suggest that any teacher educator interested in the same strategy for a course integrating the TTST to consider the following, regardless of whether they use the reduced form, the original 160 items from Healey and co-workers (2011), or a form of their own design.

1. Place the self-evaluation into a Google Doc or similar collaborative environment to allow sharing with the instructor.
2. Have students mark the original responses in one format and any changes in another; for example, instead of an x, use 1 for the first week and then the number of the week (e.g., 6) when any changes are noted. This will make it easier for the student to get a sense of progress, and for the instructor to notice both individual and group patterns.

3. Ask students to review and update their responses weekly, focusing especially on any standards covered in a given week.
4. Take some class time to discuss their progress regularly, especially midway through the course. If this discussion is done in peer groups, it holds the potential for some collaborative learning to occur, and the outcome may reveal unforeseen challenges some students are facing that can lead to adjustment of the initial syllabus.

One other suggestion that I thought about but never implemented due to time constraints was to begin the course with the TESOL learner standards. Given that Goal 1, Standard 1 of the TTST acknowledges that teachers are expected to meet or exceed those, if one had the luxury of a full semester CALL course, it might be a good place to start,

5. Conclusion

Beyond the example of the CALL course described above, the TESOL Technology Standards for Teachers have shown themselves to be valuable as a resource for a range of purposes in teacher education and professional development. In my case, the TTST were used only for participant self-evaluation and for aligning elements of the course content. Other possibilities include using the TTST for research or as a tool for evaluating the technological and pedagogical skills and knowledge of participants in a CALL course, as well as observing how they are implemented within authentic language teaching settings. Exactly how this could be done would naturally vary with the context. However, one point worth noting in this regard is that there is currently no formal certification process to demonstrate that a teacher education course or individual language teacher has in any way met the technology standards. This absence of a recognized certification process for teachers or teacher education courses striving to meet the TTST may be limiting their wider adoption. Yet because of their origin within a relevant and internationally recognized professional organization, the TTST can nevertheless provide detailed and credible guidance, with some inherent flexibility to adjust to changes in technology and in teaching and learning contexts. Kuhn (2021) notes:

> It has been a decade since the publication of the TESOL Technology Standards. Since then, the technology landscape has shifted, but the relevance of the standards remains. What keeps them relevant is their restraint. Instead of focusing on specific technology, the standards advocate for educators to adopt a mindset toward technology as a foundational part of their classroom practice and to pursue professional development that fosters technology integration. (para. 1)

This study has shown one way in which the TTST can be adapted to provide a more relevant experience for a subgroup of teacher trainees.

In concluding her chapter in *The Routledge handbook of language learning and technology* on teacher education and technology, Hanson-Smith (2016) states, "The standards can be considered a culminating step in the quest for professional development in educational technology that will go beyond the brief semesters of teacher diplomas or graduate education" (p. 220). This suggests that teachers given a thorough foundation in the TTST will be poised to continue targeting them throughout their careers. In Kessler's (2016) paper on technology standards for language teacher preparation in the same volume, he predicts that the TESOL standards will represent an important foundational document for future endeavors in this area. However, he continues, "It is likely that as we develop a better understanding of the pedagogical practices that emerge in tandem with technological innovations, we will be in need of a completely new way of conceptualizing the role of technology in classroom practices" (p. 68). Indeed, other groups such as ISTE have continued to update their standards as both the technology and the learners evolve (Crompton, 2018).

In early 2020, the emergency remote language teaching brought on by the COVID-19 pandemic arguably became the new normal for many during the following months. At this time of writing, online learning is still the only choice being offered at large numbers of institutions. How will this experience of forced technology-mediated teaching and learning across not just languages but all other subjects influence the near future of teacher preparation and professional development? Will it lead to a paradigm shift that negates or seriously limits the value of the TTST, as teachers and administrators come to believe that the "normalizing" (Bax, 2003) of online teaching makes independent technology standards superfluous? Will we need new standards that explicitly address issues such as the emerging practice of co-modal teaching (Hasenkopf, 2021), where teachers have to simultaneously accommodate the competing needs of face-to-face and online learners? Or would a set of updated and expanded vignettes as already suggested by Hanson-Smith (2016) be sufficient, at least for the near future? Before these standards and more importantly their support material become too far out of date, it would be useful for the TESOL Standards Committee or some other professional group to explore the current standards in some depth and make recommendations. In the meantime, language teacher educators and teachers themselves can experiment with adaptations to make the TESOL Technology Standards fit their individual contexts of practice.

About the Author

Philip Hubbard is Senior Lecturer Emeritus at the Stanford University Language Center. Working in the field of computer-assisted language learning (CALL) since the early 1980s, he has published in the areas of CALL theory, research, methodology, evaluation, teacher education, learner training, and listening. He served on the task force that developed the TESOL Technology Standards and is associate editor of *Computer Assisted Language Learning* and *Language Learning & Technology*. His recent projects focus on CALL as a transdisciplinary field, teaching reflectively with technology, and teacher support for informal language learning. See https://web.stanford.edu/~efs/phil.

References

ACTFL (2017). *Position statement: The role of technology in language learning.* Alexandria: ACTFL. https://www.actfl.org/advocacy/actfl-position-statements/the-role-technology-language-learning

Arnold, N. (2013). The role of methods textbooks in providing early training for teaching with technology in the language classroom. *Foreign Language Annals*, *46*(2), 230–245. https://doi.org/10.1111/flan.12020

Arnold, N., & Ducate, L. (2015). Contextualized views of practices and competencies in CALL teacher education research. *Language Learning & Technology*, *19*(1), 1–9.

Bauer-Ramazani, C. (2017). Teacher training with CALL online. In J.-B. Son & S. Windeatt (Eds.), *Language teacher education and technology: Approaches and practices* (pp. 129–140). London: Bloomsbury Academic.

Bax, S. (2003). CALL—past, present and future. *System*, *31*(1), 13–28. https://doi.org/10.1016/S0346-251X(02)00071-4

Crompton, H. (2018). *Education reimagined: Leading systemwide change with the ISTE standards.* Arlington: International Society for Technology in Education.

Davies G. (2012). *Information and communications technology for language teachers (ICT4LT).* Slough: Thames Valley University (online). http://www.ict4lt.org/en/en_home.htm

DelliCarpini, M. (2012). Building computer skills in TESOL teacher education. *Language Learning & Technology*, *16*(2), 14–23.

Hanson-Smith, E. (2016). Teacher education and technology. In F. Farr & L. Murray (Eds.), *The Routledge handbook of language learning and technology* (pp. 210–222). New York: Routledge.

Hasenknopf, B. (2021) *How to establish a lasting covid-19 compatible teaching.* APITEL Alexandria Pedagogical Innovation and Technology Enhanced Learning, CONFREMO Conférence des Recteurs de la Région du Moyen-Orient, University of Alexandria, October 2020, Alexandria, Egypt. https://hal.archives-ouvertes.fr/hal-03133265/document

Healey, D. (2018). TESOL technology standards. In J. Liontas (Ed.), *The TESOL encyclopedia of English language teaching* (pp. 1–6). Hoboken: Wiley & Sons. https://doi.org/10.1002/9781118784235.eelt0453

Healey, D., Hanson-Smith, E., Hubbard, P., Ioannou-Georgiou, S., Kessler, G., & Ware, P. (2011). *TESOL technology standards: Description, implementation, integration*. Alexandria: TESOL.

Hubbard, P. (2018). Technology and professional development. In J. Liontas (Ed.), *The TESOL encyclopedia of English language teaching* (pp. 1–6). Hoboken: Wiley & Sons. https://doi.org/10.1002/9781118784235.eelt0426

Hubbard, P. (2021). *An invitation to CALL: Foundations of computer-assisted language learning*. APACALL. https://www.apacall.org/research/books/6

Hubbard, P., & Kessler, G. (2009). Help shape TESOL's new technology standards. In T. Koyama (Ed.), *Proceedings of the WorldCALL 2008 Conference* (pp. 37–39). August 5–8, 2008, Fukuoka. Japan: The Japan Association for Language Education and Technology. https://www.j-let.org/~wcf/sub/j-let_wcf/proceedings/proceedings.pdf

International Society for Technology in Education (1998). *National educational technology standards for students*. Eugene: ISTE.

International Society for Technology in Education (2000). *National educational technology standards for teachers*. Eugene: ISTE.

International Society for Technology in Education (2007). *National educational technology standards for student*s. Eugene: ISTE.

International Society for Technology in Education (2008). *National educational technology standards for teachers*. Eugene: ISTE.

Kessler, G. (2012). Preparing tomorrow's second language writing teachers to use technology. In G. Kessler, A. Oskoz, & I. Elola (Eds.), *Technology across writing contexts and tasks* (pp. 213–236). San Marcos: CALICO, Texas State University.

Kessler, G. (2016). Technology standards for language teacher preparation. In F. Farr & L. Murray (Eds.), *The Routledge handbook of language learning and technology* (pp. 57–70). New York: Routledge.

Kessler, G. (2020). Professionalizing your use of technology in English language teaching. In C. Coombe, N. J. Anderson, & L. Stephenson (Eds.), *Professionalizing your English language teaching* (pp. 163–173). Cham: Springer. https://doi.org/10.1007/978-3-030-34762-8_13

Kuhn, J. (2021). *Gaming to meet the TESOL Technology Standards*. TESOL blog, February 10, 2021. http://blog.tesol.org/gaming-to-meet-the-tesol-technology-standards/#more-222808

Murphy-Judy, K., & Youngs, B. L. (2006). Technology standards for teacher education, credentialing, and certification. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 45–61). Amsterdam: John Benjamins. https://doi.org/10.1075/lllt.14.06mur

Nozawa, K. (2019). *Language teachers in the 21st century: Professional qualifications and challenges to implement the latest technologies* (pp. 1–16). International Conference on Mathematics, Science, Language, and Economics in Education, Solok, West Sumatra, Indonesia.

TESOL (2003). *Standards for adult education ESL programs*. Alexandria: TESOL.

TESOL (2006). *PreK–12 English language proficiency standards*. Alexandria: TESOL.

TESOL (2008). *TESOL technology standards framework*. Alexandria: TESOL. https://www.tesol.org/docs/default-source/books/bk_technologystandards_framework_721.pdf

Tschichold, C. (2016). *Meeting the technology standards for language teachers* (pp. 445–449). CALL communities and culture—short papers from EUROCALL 2016. https://doi.org/10.14705/rpnet.2016.eurocall2016.604

UNESCO (2008a). *ICT competency standards for teachers: Policy framework*. Paris: UNESCO.

UNESCO (2008b). *ICT competency standards for teachers: Competency standards modules*. Paris: UNESCO.

Wiseman, C. S., & Belknap, J. P. (2013). Wikis: A knowledge platform for collaborative learning in ESL reading. *TESOL Journal*, *4*(2), 360–369. https://doi.org/10.1002/tesj.83