Design Review of iTutor

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Introduction

iTutor is an online delivery system used to tutor students in a virtual classroom. The virtual classroom environment incorporates a white board, live video and audio streaming, chat, image upload, and file sharing. Students receive either one-on-one or small group instruction from state certified teachers. The iLMS also provides a means to schedule tutoring sessions, track each student's progress, and generate reports.

iTutor provides tutoring services to students at home, in-school, or after school while under the supervision of school personnel. Tutors, who are experienced teachers, complete a screening with proficiency in the iTutor virtual classroom environment, and spot-check monitoring of recorded sessions is performed throughout the year. Tutoring is provided in core subject areas including mathematics, science, English language arts, and social studies as well as credit recovery. In addition, test preparation services are provided for such tests as ACT, SAT, and AP.

This Design Review is based on an array of materials provided by the client including documentation, example videos of instruction and professional development sessions. The first section of this report includes a literature review of online tutoring and 1:1 instructional practices. The second section is a closer review of the instructional design component of iTutor. A third section is an analysis of the interface design of the virtual classroom. Last are the conclusions and proposed recommendations.

A Review of Online Tutoring and 1:1 Instruction Practices

Introduction

With the rapid development of synchronous communication technologies, the possibilities for online student support have grown in potential value. In this review of the literature on the topic, the term "online tutoring" will refer to the definition operationalized by Johnson and Bratt (2009) as "individualized learning support mediated by learning technology." There are, however, many variations of this subject, with the academic literature often using similar terminology such as e-learning, online facilitation, and online mentoring, among others. And while each term differs slightly in its own right, they are all embodied in the overarching concept of the 1:1 instructional practice, which traditionally does not *require* computer-mediated communication but now flourishes because of it. Jopling (2011) provides a meta-analysis of tutoring cases in a variety of contexts and curriculum areas; in nearly all cases, online tutoring presents clear benefits but is also accompanied by drawbacks and challenges. Most notably, one-on-one tutoring (whether delivered in-person or virtually) can provide learners with a personal instructional guide, attuned to the individual learner's strengths and weaknesses, yet this approach presents issues with scalability, making it impractical for all students (Muldner, Lam, & Chi, 2013). This paper seeks to identify the barriers to implementing online tutoring practices while highlighting the advantages that instructional technologies afford.

1:1 Instruction

At its core, online tutoring employs a 1:1 instructional approach. The benefits of 1:1 instruction have been well-documented and shown to outperform small or large group instructional environments (Merrill, Reiser, Merrill, & Landes, 1995). There are various subgroups within 1:1 instructional tutoring frameworks, including tutor-to-learner, peer-to-peer, and intelligent tutoring systems (ITS). This paper is directed towards the tutor-to-learner approach employed by iTutor, though it is worth mentioning that research on peer-to-peer instruction is overwhelmingly positive and indicates a reciprocation of benefits for both parties within a variety of learning domains and grade levels (Driscoll, 2015; Munley, Garvey, & McConnell, 2010; Worley & Naresh, 2014). Intelligent tutoring systems also are a promising frontier in educational technology, as they present a scalable solution to learner differentiation and personalization and place an emphasis on metacognitive strategy instruction (Chi & VanLehn, 2010). Regardless of the format, however, there exist fundamental characteristics of the instructional tutor/guide/mentor/coach.

Berge (1995) proposed four distinct roles for online tutoring: social, managerial, pedagogical, and technical.

- ***Pedagogical***: The moderator/tutor uses questions and probes for student responses that focus discussions on critical concepts, principles, and skills.
- ***Social***: Creating a friendly, social environment that promotes human relationships, develops group cohesiveness, maintains the group as a unit, and helps members work together in a mutual cause.
- ***Managerial***: Setting the agenda for the conference: the objectives of the discussion, the timetable, procedural rules, and decision-making norms.
- ***Technical***: Making participants comfortable with the system and the software that the conference is using. The ultimate technical goal for the instructor is to make the technology transparent.

Online tutoring can assume an asynchronous or synchronous format (the latter format being the case with iTutor). In the early development stages of information communication technologies (ICT), online tutoring was delivered primarily asynchronously, but as technology and communication networks have evolved, more opportunities for synchronous tutoring have been seized. Asynchronous tutoring arguably can offer more convenience for its participants as well as allow for more time for reflection in between interactions (Barker, 2002), but synchronous tutoring fosters more of a social presence between the tutor and the student. In synchronous tutoring environments, the tutor can identify areas of learner weakness in real-time, and modify instruction accordingly. Wiliam (2006, p.285) describes this as a *moment of contingency*: "a point in the instructional sequence where the instruction can change direction in light of evidence about the student's achievement, thus allowing her to adapt the instruction to better meet [the student's] learning needs." Instant feedback is another hallmark of synchronous tutoring and 1:1 instruction.

Challenges to Online Tutoring

Providing effective online tutoring can be challenging. A computer-mediated interface, such as that used by iTutor, has affordances that are unable to be replicated in a classroom or F2F learning environment, such as the ability to share and annotate multimedia in real-time and the option to record and review tutoring sessions. But, with these advantages come difficulties for novice learners and tutors who are not yet fluent in the program interface, or for distance learners with spotty internet access, which can then act as a barrier to instruction.

As with the case in the traditional classroom, the instructor/tutor is largely responsible for the success of the tutee. Price, Richardson, and Jelfs (2007) studied the differences between face-to-face (F2F) and online tutoring. The findings from their three studies indicated that learners perceive F2F and online tutoring differently, and that the effectiveness of the tutoring is highly dependent on the individual tutor's domain knowledge. Mcpherson, Nunes, and Zafeiriou (2003)

argue that in addition to the baseline knowledge of the subject matter, online tutors also must possess as many, if not more skillsets than their classroom instruction counterparts, including but not limited to:

- Welcoming and embracing a diversity of learning outcomes, attitudes, and styles
- Creating an atmosphere of collaborative learning of which the tutor is often an integral part
- Developing and implementing methods for learner feedback and reinforcement
- Encouraging active construction of knowledge by being actively involved in discussions

Further, it is imperative that online tutors receive appropriate professional development related to pedagogical strategies for the online environment, rather than training on the technical aspects and capabilities of the tutoring program itself (Price, Richardson, & Jelfs, 2007). The quality of the tutor is a key differentiator in the success of online tutoring programs.

Conclusion

Online tutoring is a legitimate and effective way to fill in instructional gaps in the classroom and reinforce key ideas critical to the learning process. Although 1:1 tutoring typically is not entirely feasible in terms of its scalability (pairing individual students with individual instructors), online tutoring does facilitate this model, making 1:1 tutoring a realistic and effective practice for differentiation. Still, the success of online tutoring hinges on the same circumstances as the traditional classroom: sound pedagogical strategies on the part of the tutor as well as engaged and empowered learners.

Instructional Design Review

This review follows a modified version of the Design Review Rubric developed by the Center for Research and Reform in Education at Johns Hopkins University (see Appendix A). Appropriate substitutions and adaptations have been made for each project. The Design Review team was provided with access to internal documents, an archive of authentic recorded tutoring sessions, and professional development materials, and two individuals of the iTutor staff elaborated on our interview questions.

Specification of a Theory of Action or Logic Model

Answers provided to our interview questions identified the development of a Teachers Instructional Model (talk, expect, aim, coach, heighten understanding, reflect, and submit feedback) and a Coaching Model (talk, understand, offer solutions, reflect, and submit feedback). The Teacher's Model is grounded in deep learning and effective teaching research. Similarly, the Coaching Model is grounded in strategic tutoring and deep learning research. Several sources are cited in the support and development of the models.

A Systematic (iterative) Design Process was used to Develop, Evaluate, and Refine Materials in Accord with the Logic Model

iTutor, programmatically, does not develop or provide specific course materials. Rather, the uniqueness of the program is that instruction is tailored to the materials provided by the individual teachers in partner schools. This approach helps to ensure a continuity of instruction across classroom and tutoring environments by integrating school-provided materials.

Program Content Selection and Design

The Program Design Addresses Specified Instructional/ Curriculum Needs

Tutors work with local teachers to obtain materials for use in the tutoring sessions that align with state and/or local standards. According to the documentation, the school partners prefer that the iTutor teachers employ the materials provided by the student's teacher to ensure continuity across instruction and content. In the event that materials are unavailable, OER materials that are aligned with the Common Core Standards are used, and teachers are professionally trained to identify and vet high quality materials from other sources. Additionally, an Educator Quality

Team supports teachers in locating supplemental resources. The documentation indicates teachers can also use their own personal library of resources that have been officially approved by iTutor. There are plans to compile a digital toolbox of approved materials that align with state and national standards. However, specific details were not provided as to the process or timeline for developing these materials.

A Comprehensive Design Plan Was Employed in Developing the Program

iTutor does not develop proprietary materials for use in the tutoring program. This is an intentional move to better align content across learning environments by using content already integrated with state/local standards.

The Program Design Addresses Individual Leaner Needs for High Achievement

The iTutor staff is in the process of implementing a digital assessment tool to employ after each session measuring an individual student's progress on Common-Core aligned skills for a specific grade and content area. This quantifiable data will provide a measure of academic growth, and qualitative data will be used to provide information on student engagement. One strategy the organization is considering implementing is a pre- and post-test measure of student progress while participating in iTutor. These data will be available in the dashboard that is accessible by administrators, parents, and teachers but were not yet available for our review.

Instructional Sequencing is Aligned with Objectives to Adapt to Learner Needs

The tutoring session is rooted in documentation provided by the student and/or the school, and includes IEP's and special needs students (roughly 30% of the population served by iTutor). Still, much of the decision of how to adapt a tutoring session to the student is based on the first few minutes of the session and then on feedback from the student. As discussed in the literature review, this is an important feature, as the ability and willingness to adjust is a key component of formative evaluation. Future plans include the development of course outlines from each partner school district and make them available to the tutors.

Tutor Training and Tutoring

Training Materials Are Provided for New Tutors

New tutors are expected to review the recordings of five webinars, which have been produced in the past four months. iTutor plans to implement monthly trainings and webinars beginning in 2018. The documentation also indicates additional resources are provided to help new teachers. Additional how-to videos are provided for using the online technology. iTutor continues to build and archive its repository of teacher resources, documentation, and recorded webinars for professional development.

Training is Consistent with the Stated Model

A review of the Coaching Cycle 1 video shows consistency with the model. This is a promising and encouraging example of tutor fidelity.

Coaching Review Is Consistent with the Stated Model

Review is consistent with model based on observation of Coaching Cycle 1. Other lessons captured from previous tutoring sessions show a range of tutoring styles and learner interactions.

Tutoring Sample Session Is Consistent with Model

iTutor provided several video examples of actual tutoring sessions. Because of the range in a variety of topics, learners, and tutors, these examples illustrated a diverse learning experience – each tutoring scenario had its own strengths and weaknesses.

In one sample tutoring session (which lasted roughly 40 minutes), the tutor presented an informative lesson on American History to a high school student. He begins the session by building a relationship with the learner, asking him about his hobbies and his background. When the learner replies that he is interested in law enforcement, the tutor reassures him that he will "try to gear the course as much towards law enforcement as [he] possibly can." This degree of personalization is highly effective and creates a sense of comfortability for the learner – a key

component of Berge's (1995) roles for online tutoring. Later in the session, the tutor aptly recognizes an opportunity to use the recent events of Charlottesville, relating them to the events that led to the Civil War. The tutor, a retired teacher of 34 years, effectively creates a student-centered online environment consistent with the program's model.

In another sample video, the tutor does not appear to follow the tutoring model closely. Initial impressions of the tutoring session are that the tutor talked extensively in some areas, and answered some of the questions she posed. In this particular example, the learner feedback was typically low-level. This particular session employs more of a didactic model rather than an interactive and student-centered tutoring session. It appears that in some examples, the tutor frontloads the session with information, but there is still productive dialogue that occurs between the tutor and the learner in every case. There were several instances where the tutor asked and answered a question rather than asking the student the question. At points in the session, the tutor spent time searching through a textbook searching for examples to use, rendering the use of time somewhat inefficient. This example video, which may not necessarily be indicative of all tutor-learner experiences with iTutor, does illustrate the range of which the tutoring sessions can endure.

As is often the case when relying totally on computer-mediated communication, technology can play a role. In the sample videos provided by iTutor, there were some hiccups with technology use, including audio/microphone delays and echoing, which could be remedied by providing guidelines and best practices to tutors and learners for using the technology prior to the session. In one tutoring session, the tutor's phone rang several times during the first few minutes. Tutors should have the headset on and equipment ready before logging on in order to provide a professional atmosphere. Also, it is recommended that tutors check video camera position before logging on to make sure he/she is properly positioned in the viewing window. Fourth, when doing extensive typing, the tutor should occasionally talk to the student to keep them informed of what the tutor is doing similar to a phone system when you are on hold. Long silent pauses can cause a student to wonder if they are still connected.

Of course, an essential component of the online tutoring model is the human component. iTutor cannot, nor should it, try to regulate or manage every aspect of this tutor-learner interaction. Just as there are shortcomings in traditional classroom environments, these same issues may manifest themselves in a technology-enabled distance-learning environment. Assuredly, iTutor is taking appropriate and reasonable measures to improve the quality of all tutoring sessions through its continual professional development and evaluation processes.

Program Evaluation

Formative Evaluation Was Used to Develop and Refine the Program

Since iTutor has not engaged in the development of proprietary tutoring materials, there is no formative evaluation of these materials. Given their focus on professional development of teachers, a formative evaluation plan was described for assessing teacher performance that is used to direct the professional development program. This research-based teacher evaluation process is significant to maintain the quality of tutors employed by the program. iTutor documentation describes a daily review of live and recorded classes. The Operations, Technology, and Educator Quality teams review these tutoring sessions and their findings are used to plan both professional development and reform internal practices. iTutor conveyed that a summative evaluation is planned for the current year with ongoing data collections in progress.

Materials Interface and Design

Costs and Resources Needed for Using The Program Are Clearly Stated

iTutor provides transparent cost information to its clients and potential customers. Rates and services are clearly delineated in price sheets, which detail individual and subscription pricing packages and what is included in each.

Support for Users is Timely and Effective

Program documentation indicated that teachers can contact a member of the iTutor team during the instructional day and receive a response to additional needs within 24 hours. This fall, the Tech Office Hours were implemented to provide additional support to school districts, students, families, and educators. Team members answer individual questions and provide 1:1 tutorials and support for participants in using the platform. Access to support is a critical feature of a successful online learning environment.

Students Receive Clear and Relevant Feedback About Their Performance

Multiple videos of tutoring sessions were reviewed. In general, the videos demonstrate evidence that, much like a traditional classroom or tutoring environment, there is variation in the ways that teachers interact with students. Some variation in teaching style should be welcomed, especially with regards to creating a friendly and social environment for the learner, but other areas (primarily with regards to instructional strategy use) could be more structured. However, this likely will improve as iTutor continues to build its repository of documents and resources for tutors, providing them with more outlines and documentation on which to operate.

In the reviewed videos, tutors appear to be very well-qualified in their content areas and are skilled in their ability to converse and relate to the learners. There also seems to be a genuine interest on the part of the tutors to make a difference in the learners' academic lives – an important and necessary component of successful online instruction.

Teachers Receive Assessment Data for Tracking Students' Process

iTutor conveyed that this component will be added sometime in the future.

Interface Design is User Friendly and Easy to Follow

The interface includes a virtual whiteboard, window for sharing and presenting screens and application, and video and chat boxes to encourage real time interaction between the student and tutor. This interface style appears to be user-friendly and easily navigable.

Conclusion

iTutor has a strong foundation in research and instructional theory. The challenge is presented in the implementation of the model by individual tutors. The process of employing the teaching model, evaluating the student's understanding, asking relevant high-level questions, providing appropriate and high-level feedback, and generating examples and problems produces a high cognitive load for the tutor. Thus, training and support materials should be considered to make the tutoring sessions more efficient. iTutor is addressing this by developing a strong repository of its professional development webinars and coaching opportunities for its tutors.

Recommendations

The following are recommendations to consider as the program implementation moves forward.

1. **Development of tutoring materials.**
   There would appear to be a real benefit for the digital toolbox to a variety of examples and short lessons the tutor could employ rather than needing to generate the information on the fly. The recordings of tutoring sessions suggested different instructional approaches by individual tutors. While this is necessary to differentiate instruction, it would be beneficial to have stock materials on which the tutor might rely, rather than have to search for information in the moment. The iTutor model relies heavily on classroom materials provided by the school, which allows tutors the ability to align online instruction with the traditional classroom. This integration promotes continuity between the online and seated environments and ensures student understanding and meaningfulness of the content. Still, it would be prudent to develop a baseline of materials for tutors to use under circumstances in which class-related material is unavailable or missing.

2. **Model appropriate on-camera behavior for tutors.**
   Tutor training should include fundamentals of providing a professional image on camera. For example, in one video the tutor kept rocking back in her chair causing the camera to lose focus, and it was very distracting. Similarly, one tutor's phone kept ring during a tutoring session. Guidelines are needed so that tutors understand how to create a professional image on-camera.

   Tutors should follow a procedure where they test their headset, microphone, and video camera before logging on to a session. One possible solution would be a website the tutor can use to check audio and video that provides a video image and maybe a meter or recording for audio to confirm the equipment is working.

3. **Implementation of tutoring model.**
   The tutoring model is both robust and complex. One concern is how effectively tutors can implement the model if they must create examples and explanations during a session. In line with what iTutor is developing currently, we recommend a robust toolbox of materials teachers can use. For geometry, the toolbox might include pre-drawn shapes such as different triangles the tutor can use to draw on the screen as well as a means of adding simple dimensions for each side. Similarly, a toolbox of examples and problems based on student needs in a content area. For example, a unit on grammar might include a number of introductory adverbial clauses a tutor could

present as a problem to the student for them to either edit or punctuate. Having readily available examples and problems that are organized in a meaningful manner would allow the tutor to focus more on the tutoring process rather than generation of content. Also, consider providing tutors with a tablet for drawing; this would be more efficient than defaulting to a mouse.

4. **Provide information to teachers watching the recording seminars.**
   Typically, educators participate in professional development opportunities in synchronous, real-time format. However, webinars are recorded and archived for later viewing. This is a resourceful feature offered by the Educator Quality team, but a few things are noted.

   The recorded webinars for PD often ask participants to enter information into a chat box; this, obviously, is a feature of the live webinars only. If teachers are watching the recorded webinar, they should be notified in advance that it will not be interactive and provided with an avenue for communication should they have questions (email or shared discussion forum, for instance). Second, participants should be encouraged to record their answers and compare them with responses given during the webinar as a means of promoting active learning.

   As an observation, the start of the webinar on building technology expertise is confusing. The slide immediately after the title slide lists the topics as LMS Proficiency, Resource Curation, and Digital modeling (it would be best to list each of these items on individual lines and skip the needless graphic). Roughly a minute later, the agenda is presented. The topics are then listed in reverse order (digital modeling, resource curation, and iTutor's LMS). Consistency across the slides in terms of topic sequence is important.

   In general, however, the professional development webinars provide effective examples of quality teaching through screenshots and captured screen recordings; these authentic examples are highly valuable. It might be worthwhile to activate the video for the person directing the webinar in order to increase social presence.

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Appendix A: Design Review Rubric

Program Design Framework and Process				
	Limited	**Moderate**	**Strong**	**Source**
1. 1. The program design clearly specifies a systemic Theory of Action (or Logic Model)	*The Theory of Action (ToA) is not adequately represented in standard project or submitted support material. OR, *The represented ToA is not logically or sufficiently specified for achieving defined product goals. OR, *The represented ToA is not appropriate for this instruction.	*The Theory of Action (ToA) is described in the design rationale and materials provided for review (but may not be disseminated to prospective users). *The ToA logically connects inputs to output with at least moderate detail. *Outcomes are consistent with defined product goals (student achievement and/or other).	*The Theory of Action (ToA) is explicitly described in the design rationale and materials disseminated routinely to prospective users. *The ToA is logical, detailed, and comprehensive. *The ToA clearly shows how "inputs" lead to mediating and culminating outputs, consistent with defined product goals (student achievement and/or other).	Design rationale Program materials

2. 2. A systematic (iterative) design process was used to develop, evaluate, and refine materials in accord with the Logic Model.	* Standard program documentation or submitted support material do NOT demonstrate informal or formal use of an iterative design process of tryouts, evaluation, refinement, etc.	*Standard program documentation or submitted support material demonstrate informal or formal use of MOST of the following design processes: -Initial design -Formative evaluation plan -Trial and revision -Implementation and monitoring -Evaluation of each element and program whole -Revision/redesign as appropriate	*Standard program documentation or submitted support material demonstrate systematic use of ALL of the following design processes: -Initial design -Formative evaluation plan -Trial and revision -Implementation and monitoring -Evaluation of each element and program whole -Revision/redesign as appropriate	Program documentation or support materials Interview with designers or evaluators

Program Content Selection and Design				
	Limited	**Moderate**	**Strong**	**Source**
1. The program design addresses specified instructional/ curriculum needs	*Alignment of the program design with instructional/ curriculum needs is only generally described and not adequately supported.	*The program design appears to support instructional/ curriculum needs via broad alignment with defined standards (e.g., Common Core State Standards or other). *The content alignment or selection process is described in materials provided for review but only generally in standard program documentation.	*The program design is directly and explicitly connected to instructional/ curriculum needs via systematic alignment with defined standards (e.g., Common Core State Standards or other). *The content alignment or selection process is described in standard program documentation. *Objectives developed for local implementation that align with defined standards *Formal expert review of content was performed	Program documentation Program review

3. 2. A comprehensive design plan was employed in developing the program.	*Program design did not use a systematic process of analyzing instructional needs, content sequencing, and instructional method in accord with learning objectives and target user needs.	*Program design included systematic use of *most* of following components: -Instructional needs analysis for target users. -Specification of instructional objectives. -Content sequencing in accord with objectives and instructional/ curriculum needs. -Instructional strategies and methods in accord with learner and instructional/ curriculum needs.	*Program design included systematic use of ALL of the following components: -Instructional needs analysis for target users. -Specification of instructional objectives. -Content sequencing in accord with objectives and instructional/ curriculum needs. -Instructional strategies and methods in accord with learner and instructional/ curriculum needs.	Program documentation
4. 3. The program design addresses individual learner needs for high achievement.	*The program design description and operation do not demonstrate sufficient support for accommodating student readiness, expected prior learning, or individual needs for adaptive instruction.	*The content and learning activities appear to have been designed so as to be developmentally appropriate for targeted grade-levels. *Prerequisite learning needs are identified fully or in part in program documentation. *Instruction/lesson activities feature some capabilities for adaptation to student needs, such as self-pacing, variation of content difficulty.	*The content and learning activities are explicitly designed to be developmentally appropriate for targeted grade-levels. *Prerequisite learning needs are analyzed, documented for users, and accounted for in the lesson design. *Instruction/Lesson activities support the mastery knowledge/skills specified in objectives.	Program documentation Program review

			*Instruction/lesson activities are highly adapted to individual learner needs (e.g., achievement levels). *Appropriate lesson completion time (or individual pacing options) is provided.	

5. 4. Instructional objectives are systematically developed and clearly specified.	*Program learning (or other objectives) may be implicit or informally defined but -are not made explicit to users OR -do not clearly address outcomes, learning domains, expectations, etc.	*Program learning (and/or other) objectives are specified. **Some* of the following are included (as relevant): -Purposes of the program are clear to the teacher, learner, or target user. -Learner (or other) performance expectations (what knowledge and/or skills) are specified. -How learning (or other) mastery is assessed. -Target domains of learning (knowledge, comprehension, application, analysis, synthesis, or other)	*A systematic process was used to develop objectives (learner/teacher/ curriculum needs) **All or most* of the following are included (as relevant): -Purposes of the program are clear to the teacher, learner, or target user. -Objectives are revised or modified for local implementation rather than adopted as is. -Learner (or other) performance expectations (what knowledge and/or skills) are specified. -How learning (or other) mastery is assessed. -Target domains of learning (knowledge, comprehension, application, analysis, synthesis, or other)	Program documentation Program review

6. 5. Instructional sequencing is aligned with objectives and adaptive to learner needs.	*Instructional sequencing may be implicit or informally defined, but: -is not supported in terms of logic or rationale AND -only weakly, if at all, addresses instructional objectives, learner needs, or developing comprehension and mastery in a systematic way.	*A rationale or logic for instructional sequencing is provided in program materials. **Some* of the following attributes of sequencing are included (as relevant): -Aligned with instructional objectives. -Informed or corroborated by content experts. -Is flexible based on learner performance and needs. -Is logical in developing learner comprehension and mastery (addresses prerequisites, builds on prior knowledge and content, etc.)	*A systematic process was used to develop instructional sequencing. **All or most* of the following attributes of sequencing are included (as relevant): -Aligned with instructional objectives. -Informed or corroborated by content experts. -Is flexible based on learner performance and needs. -Is logical in developing learner comprehension and mastery (addresses prerequisites, builds on prior knowledge and content, etc.)	Program documentation Program review

Program Evaluation				
	Limited	**Moderate**	**Strong**	**Source**
7. 1. Formative evaluation was used to develop and refine the program 8.	*Standard program documentation or submitted support material do NOT demonstrate informal or sufficient formal use of formative evaluation to develop and refine the program.	*Standard program documentation or submitted support material demonstrate informal or formal use of *SOME* of the following formative evaluation processes: -Beta testing of program operation. -Individual user tryouts. -Small-group tryouts. -Piloting in realistic settings. *Formative evaluation data are used *intermittently* by the design team for program refinement.	*Standard program documentation or submitted support material demonstrate systematic use of *MOST* or *ALL* the following formative evaluation processes: -Beta testing of program operation. -Individual user tryouts. -Small-group tryouts. -Piloting in realistic settings. *Formative evaluation data are used *continuously* by the design team for program refinement. *Documentation provided that show method, data, and recommended revisions for one or more formative evaluation efforts.	Program documentation

9. 2. Summative evaluation was used to obtain evidence on program effectiveness 10.	*Standard program documentation or submitted support material do NOT demonstrate sufficient informal or formal use of summative evaluation to develop and refine the program.	*Standard program documentation or submitted support material demonstrate the following summative evaluation processes: *Evaluation evidence is available from: -At least one rigorous third-party case study or well-designed third-party experimental study *Summative evaluation data are used *intermittently* by the design team for program refinement. *Additional studies are in process or planned.	*Standard program documentation or submitted support material demonstrate the following summative evaluation processes: *Evaluation evidence is available from: -At least two rigorous third-party case studies. OR -At least one rigorous third-party quasi- or randomized-experimental study *Summative evaluation data are used *continually* by the design team for program refinement. *Additional studies are in process or planned.	Program documentation

Materials/Interface Design				
	Limited	**Moderate**	**Strong**	**Source**
11. 1. Costs and resources needed for using the program are clearly specified . 12.	*Cost and resources beyond original purchasing are not communicated clearly in advance. *Unspecified supplemental costs may occur in some of the areas identified for *Strong* status.	*Costs and resources beyond original purchasing are generally communicated for consumers in the areas identified for *Strong* status. *There are no hidden costs of any substance. .	*Costs and resources beyond original purchasing are clearly specified and described in relation to implementation quality with regard to the follow areas. -Additional equipment/ Materials -Technical or other support -Staff costs (paraprofessionals, technology coach, etc.) -Space/facilities (computer lab; classrooms) -Access to data from provider *There are no hidden costs of any substance.	Marketing materials

13. 2. Support for users is timely and effective. 14.	*Support for users is not explicitly or formally offered in the product or from the provider,.	*Program use appears logical and intuitive. *Help for technical difficulties is built into the program and/or can be obtained by contacting the provider.	*Program use appears highly logical and intuitive. *An online or print program "user's guide" describes solutions for common technical problems. *Timely and effective help for technical difficulties is built into the program and/or readily and explicitly available from the provider ("help line" or other contact outlet).	Program User guide
15. 3. Students receive clear and relevant feedback about their performance.	*Feedback to students is not provided in a manner consistent with the Logic Model.	*The rationale for providing feedback seems consistent with the Logic Model but may not be formally described. *Some performance feedback is intermittently provided to students.	*The provision of feedback is logically determined and described on the basis of the program's Logic Model *Performance feedback is provided to students at appropriate intervals.	Program

16. 4. Teachers receive assessment data for tracking students' process.	*Assessment data are not provided or presented without adequate clarity or teacher support.	*Assessment data are provided to teachers as part of the program, but without explicit or strong connection to the Logic Model. *Some explanation of how to use and interpret the data is provided in program documentation.	*The provision of assessment data is logically determined and described on the basis of the Logic Model. *Assessment data are provided to teachers continuously by the program or provider. *Assessment data are provided in a clear and interpretable form. *Explanations of how to interpret the data are provided in program documentation.	Program Program documentation (teacher guide)