

Summary and analysis of findings:

City of Seattle's computer-based literacy project

Report of the findings

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Introduction

There are currently 31, 858 residents, over the age of 25, in Seattle who do not possess a high school diploma and 53, 877, over the age of 5, who speak English *less than very well*, as reported by the U.S. Bureau of the Census.¹ Employment pathways currently in demand in Seattle have a minimum requirement of skills such as: reading comprehension, writing, math, and basic computer skills. Seattle Jobs Initiative recently reported in their May 2012, *Changes in Entry-Level Jobs Over the Past Decade*, publication that the majority of entry-level jobs in professional and business professions require a high school diploma, or equivalent, at minimum. Adults who do not possess these skills and/or credential face a stark reality with limited options for employment, let alone meeting their family's basic needs. Additional skills and employment-pathway information can be found in Appendix B.

The Department of Information Technology (DoIT) seeks to develop a project-based and computer-delivered model or models intended to meet the needs of current refugees and immigrants who lack English language skills and a GED/HS diploma. Before determining an appropriate model for the specific needs of Seattle, two methods of analysis were employed. A community needs analysis was conducted to determine who would benefit from a model like this, and what the current environment, assets, and challenges are in the computer learning centers for serving these residents. (Key questions are available on the following page). Nine organizations varying in organizational capacity and services offered, who have, at some point in the last five years, received a tech matching fund from DoIT were interviewed. Each of the organizations selected to interview have had prior success implementing educational programming and to varying degrees incorporate technology literacy and skills development. A summary and analysis of these findings are reported in this document.

The second method of analysis was a national review of computer-based learning programs, which are having positive outcomes in addressing the educational needs of similar populations. Eight models were examined to determine and assess various components that would be appropriate for the needs of Seattle residents. A summary and analysis of these findings are reported in this document.

This report is the completion of the first of three phases that will take place in order to address the needs of Seattle residents who lack English skills and a GED or high school diploma. The following two phases will develop and frame the structure for a computer-assisted learning model, including recommendations to the Department of Information Technology on ways to implement and support organizations in delivering the eventual model. A community report will be provided to all organization that were interviewed as well as others who serve similar populations and would benefit from this type of computer-based programming.

¹ U.S. Census Bureau, 2012 August 9. Selected Social Characteristics in the United States. Generated by Amy Hitchcock; using American FactFinder. Retrieved from <http://factfinder2.census.gov>

Key Questions

Needs Analysis Questions

1. **What programs currently exist for a specific population (those who have no educational credential or High School diploma), and what are the most successful?**
2. **Who is being served?**
3. **Who is not being served?**
4. **What are the needs of the organization to implement a computer-assisted learning model?**

National Review Questions

1. **What is the technology supported learning model?**
2. **What are the intended educational outcomes?**
3. **How are learners supported?**
4. **What have been barriers to successful implementation?**
5. **Does this model support project-based learning?**
6. **How equitable is this model?**
7. **What are the costs for this model?**

Seattle Demographic Questions

1. **What are the available pathways that this project can help move people into?**
2. **What are the educational needs within the general population of Seattle?**

Community Needs Analysis for the City of Seattle

To gain a broader understanding of who could benefit from a project-based, computer-assisted learning model in the city of Seattle, and what the current environment, assets and challenges are in the computer learning centers for serving these residents we reviewed nine organizations in the city of Seattle: Literacy Source, Neighborhood House, Helping Link, North Seattle Family Center, Goodwill, East African Community Services, Casa Latina, Yesler Community Center and the Chinese Information and Service Center.

Summary of the findings

What programs currently exist for a specific population (those who have no educational credential or HS diploma), and what are the most successful?

All organizations offer English for speakers of other languages (ESOL) classes that span from pre-literacy, which targets functional language necessary to meet one's basic needs, to intermediate levels of language skills. Five of the nine organizations integrate language skills into other content areas such as: computer classes, parenting classes, vocational ESOL and job search. In contrast, three of the nine organizations integrate specific software, in order to assist in language development. Some common software used by these agencies is Rosetta Stone and Mavis Beacon. Other technology-supported tools for language skills are accessed through a variety of websites, which can be found in Appendix C of this document. One organization uses a variety of technological tools to enhance learning equitably. These are also listed in Appendix C.

All organizations offer basic computer classes intended to meet immediate needs such as applying for benefits, monitoring child's progress at school, and applying for jobs. Three of the nine organizations occasionally offer computer classes for Microsoft Word and Excel, but primarily at the request of participants. Organizations noted that participants' skills and abilities, as well as the applicability of specific computer programs to their lives, are reasons these workshops are not in high demand. Participants' needs are reflected in additional programming: Six of the nine organizations offer citizenship classes, while two of the nine offer ABE/GED classes.

Five of the nine organizations who offer ESOL and computer classes deliver content each day based on learner-specified goals. The remaining four have developed curriculum in which students progress through in a structured environment with learning goals, objectives and assessment built-in. Volunteer instructors with varying levels of training teach the majority of classes; only four of the nine organizations have paid instructors who deliver English instruction. Interestingly, the four organizations that have developed sequenced curriculum are those with paid instructors.

Only two of the organizations have ongoing employment trainings for retail skills and OSHA certification. Five of the nine organizations have offered sector-specific certifications in the past through partnerships with community colleges, SEIU, and King County. Although these pathways are not currently offered, the educational programming at each organization provides students, to varying degrees, with the academic skills necessary for employment and continued education: reading comprehension, writing, basic computers, and locating and using information. Four of the nine organizations provide both formal and informal college-navigation services, including assistance with admissions, registration, and financial aid and tours to community colleges. Navigation services do not specify particular pathways; rather, students utilize the services to develop their own educational pathway. Four of the nine organizations have workshops for job skills related to specific industries.

Eight of the nine organizations state that ESOL and computer classes are the most attended education programs that they offer and deemed the most successful. The reported reasons for this success are unanimous: individualized support with an in-person facilitator, open-enrolling and flexible attendance policies supported in

short-cycled curriculum, a range of options for learners in establishing learning goals, and content that connects directly to learners' needs and interests.

Who is being served?

The majority of organizations interviewed, seven out of nine, do not formally track participant education and employment status at time of entry or exit. Therefore, the findings reported here are approximate, yet informed by people who are deeply integrated with the populations being served at their organization. Seven of the nine organizations report that 0-5% of participants have a high school diploma and 15% are employed; many access organizations' computer resources because they are seeking employment. Six of the nine organizations serve 100% non-native speakers of English, the other three report that one-third to one-half of participants are non-native speakers. The lack of education and employment presents barriers for meeting basic needs, and can be a factor that prevents participants from consistently progressing towards an education goal; two of the nine organizations have additional case management services to assist students in removing these barriers. The remaining organizations respond to individual student needs with transportation services, fee-waivers for tests and childcare services during classes. These services are often dependent on funding and staff-capacity.

The primary skills that participants seek reflect the programming available at each organization: basic literacy and language skills, computer-navigation skills, and job readiness services. Two larger organizations have case management services available to work on barriers. Five of the nine organizations have formalized assessment to determine participant language skills in reading, writing, listening and speaking. The remaining four organizations have informal measures of assessment to determine skill level.

Who is not being served?

All of the organizations interviewed serve populations that are turned away from other educational programming in Seattle. Each organization reports that many students come to their classes primarily because their language skills are too low, often pre-literate, to be served at the community colleges. Many participants have missed community college enrollment deadlines, find classes full, or have scheduling needs not met by class offerings. One organization pointed out that visual and text-based advertisement of open-enrolling dates is ineffective for the pre-literate, low-literacy population and causes many to miss important deadlines. Three of the nine organizations report that the lack of tools to support disabilities or provide translation services prevents individuals from accessing services.

What are the needs of the organization to implement a computer-assisted learning model?

Each of the organizations interviewed vary in organizational capacity, and were selected for that reason. It is important to differentiate the size of organizations in relation to their needs for implementing a computer-assisted learning model, as capacity of staff, funding, and space play a critical role in implementation of programming and tracking of success. Helping Link, Literacy Source, Neighborhood House and Goodwill serve the highest numbers of participants in education and computer literacy programming each year, and have the ability to track the success of participants with databases. They also have the most staff and/or volunteers. Each of these organizations stated that funding for internal improvements to existing databases would improve the efficiency, quality, and breadth of tracking student success. The remaining five organizations do not have the tools, staff, or data collection and tracking systems to assess learner skills and progress. All five stressed the need to remedy this in order to improve educational services and acquire additional funding.

All organizations reported that implementation of Tech Matching funds and other grants are difficult because of limited staff and the ability to track gains and outcomes. Although grant-requirements have been met, each

Summary and analysis of findings: Department of Information Technology computer-based literacy project organization (large or small) explained that programming could be more successful and impactful with additional support staff and tracking ability. In addition to staff and tracking tools, all organizations stated that training would be crucial for a data-tracking tool and for any new computer-assisted learning model. This would require release-time of current instructors to integrate lessons with the model, or additional staff to develop processes for implementation and delivery. The five organizations, which have volunteer instructors, desire additional resources and training for best practices in teaching ESOL and computer literacy, and most importantly how to integrate the two. 7

Analysis

The needs analysis findings reveal that the population with the highest need for both language and technology literacy are being served by community organizations who offer pre-literate ESOL classes and basic computer classes. Although these agencies offer other programs, these are worth highlighting because they are the most attended, and often demand is higher than organizational capacity, which limits learner options.

Because the majority of this population lacks an educational credential or employment, more barriers exist for affordable housing, transportation, childcare, and job readiness. A few organizations are able to attend to these barriers through case management, transportation assistance, and fee waivers, but the needs are greater than any organization's resource capacity. Intensity, duration, and persistence are key components for making learning gains.² When learners' ability to persist is blocked by life-barriers, significant learning is much more difficult. If organizations were able to provide resources such as childcare and transportation, or refer learners to support services, we would assume that learners would progress through learning more easily.

The majority of organizations find their programs successful, because they target basic literacy and computer skills, which are key services that their student populations need. They are also able to address immediate needs that learners have, with flexible and adaptive curriculum, drop-in services and one-on-one support. Most classes are offered at a variety of times in order to serve learners with differing schedules. Many classes have flexible attendance requirements, which allow learners to miss classes without the threat of being dropped from the course. These will be important components to carry into any computer-based model in order to ensure learners can access content in order to progress toward a long-term goal.

Computer and literacy skills are necessary for employment, and essential to navigate systems in order to meet basic needs. The majority of organizations assist learners on an individual basis with immediate tools to meet a specific needs such as applying for benefits, creating a resume, and emailing a family member. While this responds to learners' immediate needs and interests, a key component of equitable instruction, it is not intentionally building learners' skills from one level to the next. Additionally, when content is delivered on a need-to-know basis it is often not in conjunction with other skills. One on one, as-needed instruction is excellent for meeting immediate needs, but is limited in its ability to address multiple skills that could be otherwise combined for contextualized learning. Collaborative, project-based and experiential learning are methods of instruction that can integrate multiple skill areas to maximize learners' limited time.

Organizations expressed a strong desire to implement integrated skills development through sequenced curriculum that guides learners towards a goal, but struggle to do so because of staff capacity, as well as staff comfort and knowledge with these instructional methods. Another element inhibiting sequenced skill building is the overwhelming need for organizations to use assessment tools that can be tracked, monitored and reported on. This is necessary for a few reasons. First, formalized and frequent assessment of learner skills is necessary to guide relevant instruction. Sequenced, scaffolded content that is tracked as learners progress allows learners to continuously build on prior knowledge and allows instruction to be more equitable. Finally, organizations that have the ability to track progress and report gains have greater opportunities to apply for funding that can

² Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, D.C.: U.S. Department of Education.

Summary and analysis of findings: Department of Information Technology computer-based literacy project address capacity limitations. Tracking learning gains and progress is necessary for both learner success and the sustainability of organizations. 8

National Review of computer-assisted learning models

To gain a broader understanding of educational models that integrate technology and basic skills development, we reviewed eight models implemented nationally: ALEKS; California Distance Learning Project: Adult Learning Activities; GCF Learn Free; The Learner Web; The Math You Need When You Need It; PLATO Online Learning Solutions; Preparing for the Oath: U.S. History and Civics for Citizenship; and U.S.A. Learns. (For a summary of each model, see Appendix A).

Summary of the findings

What are the technology-supported learning models?

While each model has specific characteristics that distinguish it from others, all models serve distance learners, independent learners, and self-directed learners who need specific, targeted skill development. Common skill development areas are ESOL, literacy, math, and workforce and college readiness. One model specifically prepares learners for the naturalization test.

All models provide content and skill development through self-paced modules, though each model varies in levels of support and scaffolding. Half of the models allow learners to spend as much time as necessary in each content area, but do not provide a sequenced path toward a specific goal, allowing learners or facilitators to choose any module as a starting point. Half of the models allow learners to select a specific education or employment goal and learners work at their own pace toward that goal through a sequenced series of lessons.

All lessons within modules are presented in cycles of (1) introducing the topic, concept, or new information, (2) practice, (3) applying new knowledge, and (4) final assessment. This general statement about the instructional method masks variation between models, such as the ways in which the models introduce concepts. For example, one implementation of a highly customizable model uses an experiential learning model as a framework for module design and instruction. In another model, certain life skills lessons, such as using an ATM, are presented as a virtual environment in which learners insert a bank card, enter a PIN, select the appropriate transaction, and so on.

All models are flexible in their possible implementations. Half of the models are able to be used independently by students as all content is freely available online, yet can also be used in conjunction with facilitators. The other half are specifically designed to be used in an organizational setting with staff or volunteer facilitators, though once students are registered, they are able to access their work from any computer at any time.

Five of the eight models have no built-in assessment prior to interacting with learning content to assess prior knowledge and diagnose learner needs. Of the remaining three, two include a pre-assessment using adaptive questioning to target students' content area skill gaps and create individualized learning plans. The final model allows full customization of content and modules, and thus allows room for pre-assessment to occur within in the module structure, possibly including assessment of tech literacy skills. This is notable; no other model pre-assesses computer skills.

As for the assessment of learning, two models use pre- and post-testing to measure improvement; six models include quizzes and activities that assess learning throughout the learning process, though two of those provide immediate feedback only and do not track progress or skills gains. Six models have options for sharing computer-based assessments so that facilitators and organizations can track learner progress.

What are the intended educational outcomes?

The intended educational outcomes vary according to content design and implementation. Three models are more general and designed to prepare lower-level learners for their next step, for example, a higher level ESOL course. However, the remaining five models can lead learners to specific educational outcomes. Two can prepare learners for pathways in healthcare and further education in fields with high math pre-requisites such as engineering and science. One prepares students for earning a Career Readiness Credential, a National Workforce Readiness Credential, or a GED. Three build skills for college readiness. One offers options for learners to earn Continuing Education Units (CEUs) and Microsoft Office Certifications.

Collectively, these models target a broad range of skill levels from beginning ESOL to post-secondary levels. No model specifically targets pre-literate learners. Primarily, the models address reading, writing, speaking, and listening skills in ESOL modules, literacy skills for low-skilled native or non-native English speakers, math problem-solving and quantitative reasoning, test preparation content and skills (including citizenship, GED, and COMPASS), computer basics and more advanced computing skills, life skills, and workforce readiness skills such as interviewing and writing resumes. Four of the eight models address only a single content area: ESOL, math, citizenship, or reading.

How are learners supported?

Each model can be customized for the individual learner, either within the computer-based component or through external, supplemental curricula. Only one of the models allows facilitators to customize the content of computer-based instruction. Content is fixed in the remaining seven models, but learners and facilitators can customize sequencing to meet learner needs.

Three models assume familiarity with computer systems, mousing, keyboarding, and internet navigation. Five models have some computer literacy development options, for example, separate modules that build skills in specific software, digital literacy, and basic computing, or tutorials that guide learners through navigating the learning interface. No model fully integrates tech literacy, content areas, and skills development by scaffolding computer skills and increasing computing challenges throughout the modules.

To varying degrees, all models integrate some elements of Universal Design for Learning (UDL) to provide access to learning to the broadest range of learners. All models provide multiple representations of information, through the use of video, audio, text, still images, and/or virtual learning environments. Seven of eight models address learners' needs and interests by providing high-interest content appropriate for adults with specific needs and goals. Additionally, one model provides learners with access and information on local resources and connects learners to volunteer-based learning support. Seven of the eight models do not provide multiple ways for learners to express what they know within the computer-based instructional environment. Typically, learners answer comprehension questions or take some kind of quiz. The single exception is a model that allows learners to create video and visuals or text to answer questions and express their learning.

As for the linguistic needs of students, three models provide content in English only, while the remaining five have content available in additional languages. However, the breadth of translated content varies in each model.

What have been barriers to successful implementation?

Because these models can be implemented in a variety of ways, each model defines successful implementation differently. Three models view success as increasing numbers of users and implementations, and all three

Summary and analysis of findings: Department of Information Technology computer-based literacy project 10 report high user numbers. Three models define success through student outcomes, and all three report significant improvements in pre- and post-test data, improved performance across many content areas, and increased passing rates in classes. Two models were not able to provide data.

All six models who were able to provide data report positive feedback from students and instructors. All six models report that the intended populations are being reached.

Do the models support project-based learning?

Contextualized, collaborative, experiential learning is the foundation of project-based learning (PBL) in which learners actively develop academic skills such as tech literacy, reading, writing, and math, as well as process skills such as teamwork, critical thinking, problem-solving, and negotiation. No model is specifically designed for project-based learning, but all models have some components that support PBL. For example, all models contextualize learning to some extent, by grounding skills development in themed lessons that are relevant to learners' needs. However, only three models explicitly allow learners to build personal meaning around content by relating it to their own experiences.

In all models, learners actively engage with content through practice activities and games. However, critical thinking is built into only three models and problem-solving in only one. All models can include collaborative learning when used in conjunction with a class or facilitator, but only two have options built in for computer-based collaboration through discussion boards and social media components.

Only one model has the flexibility to fully support PBL through experiential learning within the computer-based learning environment. Three models allow learners to explore their prior knowledge and experiences. Four models allow learners to research what they need to know. Six models allow learners to apply what they've learned in activities and games. Only three allow learners to reflect on what they've learned in writing prompts.

The instructor's role in these models is primarily that of a facilitator and administrator, tracking student progress in the six models that allow it and providing additional support, suggestions, and access to resources.

How equitable are the models?

Three models provide no training or tutorials for users. Five models have some computer literacy development. For all models, individual users do not need to purchase any new equipment or software. Four of the models would not require organizations to purchase new equipment or software. However, there are licensing fees associated with three models and one requires access to an external classroom management system. All models require internet access, and due to audio- and video-heavy content, half the models require high-speed internet. Five models limit learners to responding to prompts; there is no opportunity for learners to use technology to explore and create and thus feel ownership over the technology. Six models use examples that reflect the community's diverse makeup. All models use multiple instructional methods to meet the needs of diverse learners, and three use adaptable software to support special-needs learners.

What are the costs for the models?

All content for five models is available for free online, but one of those models requires access to an external course-management system for tracking student progress and administering assessments. The remaining three models have multiple licensing options. Costs vary according to the type of license and number of users. For example, one model allows individual learners to buy access for themselves or organizations to buy a concurrent license for a number of learners.

The five models with free online content provide no technical training or assistance except what is available in the help menus on the websites. Those models with licensing fees provide training and a technical support team. Additionally, one provides hosting and one provides educational consultants to work with organizations to best meet the needs of their students.

Five models are web-based and require a web-browser, Java, and Flash. Three operate in model-specific learning environments that become available through licensing. All models require users to have access to a computer with a mouse, keyboard, sound, and a connection to the internet. Models that require specific server hosting, plug-ins, or programming for implementation include those services and supports in their licensing fees.

If implemented as suggested resources for independent learners, four models have no specific staffing needs. However, administration, progress tracking, and content development to meet other needs would require a trained facilitator. Five of the models require at least one trained facilitator, plus administrative support. One model integrates community partnerships and local resources into its design and has options for developing a volunteer-based learner support network which adds additional administrative costs.

Analysis

The findings here reveal several important elements to consider when implementing a technology-supported, integrated, and contextualized learning model that meets the needs of community-based learners in the city of Seattle. All of the models we reviewed use a modularized instructional model. Modularization is an important component of a technology-supported model because learners are able to work at their own pace on their own time, rather than attending a fixed class for a prescribed number of hours in a week. Additionally, all models allow learners to practice and apply new knowledge. Experiential learning theory tells us that experience and experimenting with new knowledge are crucial for learning to occur. Assessment and feedback is important as well, not only for organizations to be able to measure educational gains, but also because learners are more likely to persist in their education if they see that they are making progress. For that reason, too, models that allow learners to select a goal and provide the pathways to move toward it are most effective; the completion of each lesson or module is one step closer to a tangible achievement.

We have further determined that an initial diagnosis or assessment of learner needs is important for learners to get the targeted skill development they require. Because few of the models include this feature in their computer-based environments, it will be important to build in skill diagnosis and scaffolding where necessary to aid learners in working at the right level to meet their needs.

Technology can be a huge barrier for learners no matter their educational level. Technology cannot be used effectively in education unless it is implemented equitably, so that all learners are supported in using technology to learn. The models that are most equitable are those that: provide training for staff and students in using the technology; scaffold technology skills development into learning; provide opportunities for learners to use technology to explore and create to feel empowered and connected to the technology; and provide opportunities for learners to work both independently and collaboratively with technology to address cultural and social differences in perception of learning and technology.

Models that are adaptable and customizable in their computer-based instructional components provide the most potential to serve diverse learners whatever their ultimate goal, whether it be progression to the next level in English language learning, developing job search skills, or earning a GED or an educational or employment credential. Such a model can be customized through additional facilitator-developed content imbedded into the computer-based modules to provide learners with opportunities to draw on their own experiences to build personal meaning around new knowledge and opportunities to reflect on their learning and experiences. Both are integral to the experiential learning model and help learners retain and transfer knowledge to novel contexts more readily than rote learning. Further, these models have the flexibility to incorporate technology-based projects and tasks that will allow learners work collaboratively and express their learning in a way that allows the facilitator to assess what they've learned, not how well they can perform on a test or a writing assignment.

The models that are intentionally designed to be implemented in organizational settings may seem more costly, but they are inherently more flexible, more equitable, and better able to address the needs of a diverse population because of the technical and educational support and training that are built into the model.

Those models that address only a single content area and do not allow facilitators to customize the computer-based content would require additional staff training and curriculum design to be implemented equitably and effectively. Likely the largest investment of time and money for any model would be in the initial set-up, training, and implementation phases. Once the model is in place, computer-based management systems would enable one facilitator to manage a large number of students.

The national models we reviewed seemed to have few barriers to implementation; all report success in increasing numbers of users and educational gains, positive responses from learners and facilitators, and reaching their target populations. To determine barriers to implementation, then, we must synthesize our findings on best practices in computer-based instruction and the needs of local organizations and learners.

Implications of the findings

Low-skilled learners who are served in community-based technology centers in the city of Seattle come to these organizations with a variety of goals but most are seeking employment, English language and literacy skills, and technology literacy. Childcare, transportation, and work schedules can all be barriers to learners attending community-based educational programs with the intensity and duration required to make progress. Learners need a flexible, customizable, modularized model that allows them to begin at the right level, meets immediate needs, and allows them to progress toward long-term goals while working at their own pace and on their own time. Organizations need a model that is able to meet their learners' needs without placing additional burdens on already overtaxed staff and funds.

Based on our review of successful educational models and our local needs assessment, a model that addresses the following components might best meet the needs of Seattle's low-skilled population:

- Flexible, customizable, modularized computer-based instruction
- Integrated, scaffolded computer literacy and content instruction
- Universally designed content that meets the needs of a range of pre-literate to higher-skilled learners
- Active, collaborative, contextualized learning to support retention, transfer of learning, and development of both process and academic skills
- Explicit goal-setting and sequencing of instruction to meet those goals, including skill-building for work and transfer to community college courses that serve higher-level learners
- Pre-assessment and diagnosis of skill gaps and learner needs
- Formalized assessment of learning and skills gains
- Built-in computer-based tracking and student management systems
- Administrative support and training for volunteer and staff facilitators
- Barrier mitigation and access to support services

Appendix A: Technology-supported Learning Models

ALEKS

www.aleks.com

ALEKS – Assessment and LEarning in Knowledge Spaces – is a web-based learning assistant that uses artificial intelligence to assess learning. ALEKS is available for a variety of subjects – math, business, and science – in K-12, Higher Education, and Continuing Education. ALEKS is accessible 24/7 from any computer with internet access. Learners can register individually for a small fee or with an organization.

California Distance Learning Project: Adult Learning Activities

www.cdplonline.org/index.cfm

Free online learning content. CDLP is no longer an active project, but content remains available. Site developed and maintained by Sacramento County Office of Education (SCOE). CDLP provides leveled readings and activities to build literacy skills in native and non-native English speakers.

GCF Learn Free

www.gcflearnfree.org and www.gcfaprendelibre.org

Free, online classes and tutorials developed by Goodwill Industries of Eastern NC, Inc. Self-paced modules available on a wide variety of topics, such as English language learning, financial literacy, life skills, computer basics, workforce skills development, as well as some instructor-supported asynchronous classes through which learning is formally assessed and learners earn Continuing Education Credits and/or Microsoft Office Certifications.

The Learner Web

www.learnerweb.org/infosite

Web-based software, implemented regionally through community partnerships. Learners navigate through self-paced Learning Plans that scaffold learning toward a student-identified goal. Learning plans are developed by regional partners, and content is currently available for GED preparation, English Language Learners, Citizenship, Workforce Development, College Success and Advising, College Transition, Professional Development, Digital Literacy, and Broadband Consumer Education. Learning Plans are adaptable and customizable.

The Math You Need When You Need It

<http://serc.carleton.edu/mathyouneed/index.html>

Quantitative skills building content accessible for free online, but intended to be used as supplemental material in introductory, college level geosciences courses. Teachers are invited to apply to attend an annual conference (funded by NSF) to develop implementation plans for integrating technology content into their courses.

PLATO Online Learning Solutions

www.plato.com

Multitude of online solutions that support educators in their mission to successfully transition learners from one stage to the next in their educational endeavors. Organizations/Educational institutions can use PLATO curriculum for a variety of subjects. PLATO services range from training on PLATO curriculum and assessment products to school improvement consulting to ongoing instructional and technical support. Institutions can also subscribe to an accredited virtual academy.

Preparing for the Oath: U.S. History and Civics for Citizenship

www.americanhistory.si.edu/citizenship

Free, online learning content. Preparing for the Oath is a web-based application for independent learning developed by the National Museum of American History (NMAH) and U.S. Citizenship and Immigration Services (USCIS). Content includes civics and history based on the 100 questions on the naturalization test, plus a collection of lesson plans and teachers' guides for using the application in a classroom.

U.S.A. Learns

www.usalearns.org

Free website funded by U.S. Dept. of Education. The project is a joint effort of the Sacramento County Office of Education (SCOE), Internet and Media Services Department and the Project IDEAL Support Center at the University of Michigan's Institute for Social Research. English language learners choose from three modularized courses to build reading, writing, speaking, and listening skills. Instructors can create accounts to track their classes' progress and scores.

Appendix B: Current and projected employment pathways in Seattle 2010-2013³

Available Pathways by Industry Sector:

- Information
- Professional & Business Services
- Manufacturing (Aerospace specifically)
- Wholesale Trade
- Retail Trade
- Administrative Support
- Education & Health Services
- Leisure & Hospitality

Projected areas of growth:

Below are Sectors that have seen significant growth in employment in Seattle over the past decade:

- Information (+14.2%)
- Professional & Business Services (+21.3%)
- Education & Healthcare Services (+31.1%)
- Leisure & Hospitality (+22.2%)
- Other (+8.7%)
- Government (+5.6%)

Expected sectors of growth from 2011-2013 are Manufacturing, Information, and Professional & Business Services.

Foundational Skills:

The Employment and Training Administration (ETA) defines **foundational skills** as those skills that will provide the foundation for success in school and in the world of work. The foundational skills that are mentioned below are extracted and cross-referenced from each projected sector's competency model.

- Teamwork
- Problem solving and decision making
- Planning and organizing
- Applied technology
- Customer focus
- Adaptability and flexibility

The Employment and Training Administration (ETA) defines **academic competencies** as critical competencies primarily learned in an academic setting, as well as cognitive functions and thinking styles. The academic competencies that are mentioned below are extracted and cross-referenced from each projected sector's competency model.

- Reading comprehension
- Business Writing
- Math
- Basic Computer skills
- Locating and using information

³<https://fortress.wa.gov/esd/employmentdata/reports-publications/economic-reports/washington-employment-estimates>

<http://www.careeronestop.org/competencymodel/default.aspx>

<https://fortress.wa.gov/esd/employmentdata/reports-publications/industry-reports/employment-projections>

Appendix C: Technology tools and resources

Local organizations reported that these technology tools and resources are effective for enhancing learning for their students.

Software and Websites

- Adele's ESL Corner at adelescorner.org
- Boggle's World/Lanternfish at bogglesworldesl.com
- Camptasia: a screen recorder useful for creating tutorial videos
- Dave's ESL Café at eslcafe.com
- ESL Resource Center at eslsite.com
- GCF Learn Free at gcflearnfree.org
- Google products: Gmail, Google maps, file sharing and storage, document creation
- Mavis Beacon Teaches Typing
- Medical English Service at med-english.com
- Rosetta Stone
- Skype
- Starfall.com
- Websites that serve local users: DSHS, King County Metro, City of Seattle and King County government info sites
- Weebly: a free, widget-based website creator
- WinWay Resume Deluxe

Technology Tools

- Document cameras that project and record
- i-clickers
- Digital cameras/Flip cameras
- Smart boards

Books

- Oxford Picture Dictionary with CD-Rom
- Welcome to the World of Computers by Russel Stolins, Jill Murphy, and Bruce Robertson

Appendix D: Matrix of key findings from 9 local organizations and 8 national models/services

Local Organizations 1-5	Goodwill	Yesler Community Center	CISC	East African Community Center	Casa Latina
What access to technology is provided?	Technology integrated into all workshops and classes, to varying degrees. Computer classes. Open Lab. Job Search.	Computer classes. ESL+computer classes. Senior computer classes. Open lab.	Computer Classes. Job Search.	Computer classes. Job Search.	Computer literacy classes.
What software and/or technology tools are used?	Rosetta Stone Lab. Document cameras, i-clickers, digital cameras/flip cameras, smart boards, Oxford picture dictionary, Weebly.	Primarily utilize websites that have relevancy to student needs: Email, DSHS, Skype, Google maps, transportation, etc	Primarily utilize websites that have relevancy to student needs: Email, DSHS, Skype, Google maps, transportation, etc	Primarily utilize websites that have relevancy to student needs: Email, DSHS, Skype, Google maps, transportation, etc	Would like Mavis Beacon.
Are there classes that intentionally integrate English language skills and technology?	No	Yes	No	No	No
How is student progress tracked?	CASAS	Not	In-class assessment.	Not formally. Instructors use google-docs to update other instructors.	Initially, students take the best-plus oral test. After 50 hours students are given test again. This is not a routine practice.
What support services are provided to the participants?	Case managers work with students to work on basic-needs barriers: housing, employment, childcare, counseling, etc.	None	Fee waiver for computer classes is available, childcare provided during computer classes.	Participants can bring kids, there is a play-area but not a dedicated childcare worker. Citizenship-test fee is waived.	Childcare for evening classes.

Appendix D: Matrix of key findings from 9 local organizations and 8 national models/services (continued)

Local Organizations 6-9	Literacy Source	Neighborhood House	Helping Link	N. Seattle Family Center
What access to technology is provided?	Computer classes. Open lab. Depending on instructor, technology is integrated into ESL classes.	Computer classes. Open lab. ESL classes integrate technology.	Computer classes. Open lab. ESL classes integrate technology.	Computer classes. Variety of workshops that often address technological advances.
What software and/or technology tools are used?	Mavis Beacon Rosetta Stone	Rosetta Stone, Adele's Corner (online resource), GCF Learn Free, Star fall.	Dave's ESL Café, typing games.	Mavis Beacon Primarily utilize websites that have relevancy to student needs: Email, DSHS, Skype, Google maps, transportation, etc.
Are there classes that intentionally integrate English language skills and technology?	Learning Lab has computer supported, individualized capability. In the past, with funds, have offered integrated instruction.	Occasionally, depending on volunteer ability.	Yes	No
How is student progress tracked?	CASAS	Pre and post-test Checklist of skills	Pre and post-test that are used to place students into levels.	Informally
What support services are provided to the participants?	Childcare for off-site classes.	Occasional transportation. Flexible with kids in class with parents.	Only emergency services available, occasionally.	Childcare. Assistive software for disabilities.

Appendix D: Matrix of key findings from 9 local organizations and 8 national models/services (continued)

National Models 1-4	ALEKS	California Distance Learning Project	GCF Learn Free	Learner Web
Target Population	K-12, Higher Education, and Adult learners. (Implementations vary in target populations, e.g. developmental math students, adults returning to a classroom after many years).	Low-skilled adult readers, both English language learners and native speakers	Adult learners at beginning-intermediate levels in many content areas	Adult learners. (Individual implementations target specific learners, e.g. Professional Development for ESOL teachers; GED Prep for adults without a high school diploma).
Sequenced and goal-oriented instruction?	YES	NO	NO	YES
Single or multiple content area(s)?	Multiple content areas	Reading	Multiple content areas	Multiple content areas
Pre-assessment/Diagnosis of skills built into model?	YES – Pre-testing	NO	NO	YES – In registration process
Assessment of learning?	Quizzes, post-testing, assignments	Quizzes, writing assignments	Immediate feedback only unless enrolled in GCF Instructor-led course	Quizzes, post-testing, assignments
Allows progress tracking?	YES	YES – Students can submit results to teachers via email	NO	YES
Technical and/or organizational support available?	Yes, both	Tech support: minimal (help menu) Organizational support: none	Technical support: Video tutorials. Organizational support: none	Yes, both
Licensing Cost?	YES	NO	NO	YES

Appendix D: Matrix of key findings from 9 local organizations and 8 national models/services (continued)

National Models 5 – 8	The Math You Need	PLATO	Preparing for the Oath	U.S.A. Learns
Target Population	College students enrolled in introductory geosciences courses who need math skills development	K-12, Higher Education, and Adult learners. (Implementations vary in target populations, e.g. learners seeking workplace skills or test preparation).	Permanent residents seeking citizenship; English language learners at low-intermediate and above levels	English language learners
Sequenced and goal-oriented instruction?	NO	YES	NO	YES
Single or Multiple Content Area(s)?	Math	Multiple content areas	Civics/History for Citizenship	ESOL
Pre-assessment/Diagnosis of skills built into model?	YES – in-class diagnosis and pre-test	YES	NO	NO
Assessment of learning?	Post-testing, in-class assignments	Quizzes, post-testing, assignments	Immediate feedback only	Quizzes
Allows progress tracking?	YES – but requires external course management system	YES	NO	YES
Technical and/or organizational support available?	Neither	Yes, both	Technical assistance: Video tutorials Organizational assistance: no	Technical assistance: Minimal (help menu) Organizational assistance: none
Licensing Cost?	NO	YES	NO	NO