

A Needs Assessment Study of the Educational Technology Needs of English Literacy Students and Teachers in Qatar and the U.S.

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CMU-RI-TR-15-16

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August 2015

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This publication was made possible by NPRP grant # 4-439-1-071 from the Qatar National Research Fund (a member of Qatar Foundation). The statements made herein are solely the responsibility of the authors.

¹ Although author Nada Soudy is now employed elsewhere, her contributions to the work presented in this publication occurred during her time at Carnegie Mellon University in Qatar.

Abstract – This paper presents the results of a needs assessment study that was conducted to investigate the educational technology needs of several schools and literacy programs located in two different countries, Qatar and the United States. Relying on observations, semi-structured interviews, and focus groups with students and their teachers, this paper documents and analyzes the variety of educational technology needs and preferences of five organizations that span three different populations of English language learners: children with special needs/learning disabilities, postsecondary English as a Foreign Language students, and adult learners. Results indicate that among all three populations, educational technology has the potential to encourage student interaction with educational material as well as facilitate class planning and content creation for teachers. Furthermore, our needs assessment results provide suggestions for future educational technology developed for these populations.

Acknowledgments – Many individuals and organizations supported the work presented in this publication. This publication was made possible by NPRP grant # 4-439-1-071 from the Qatar National Research Fund (a member of Qatar Foundation). The statements made herein are solely the responsibility of the authors. Partner involvement has been essential for this work and we were fortunate to collaborate with several groups who supported various aspects of this project. Colleagues from our five partners have been involved in needs assessment and encouraged their networks to participate in our research. Furthermore, many individuals participated with our needs assessment, generously volunteering their time. Due to research compliance procedures we cannot name these participants individually, but we are grateful for their involvement and enthusiasm for the project. The authors also thank many research team members who assisted with needs assessment; notably, Dr. Yonina Cooper, Aysha Siddique, Swapnil Joshi, Abhaya Nivarthi, Kim Fernandes, Alina Al-Aswadi, Natalia Gatti and Haya Thowfeek.

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Introduction

Technology as a means to enhance literacy instruction has been used in the classroom for several decades (Murray, 2008). It has the potential to facilitate teaching and to motivate students to learn and participate (Beal-Alvarez & Cannon, 2014; Cullen et al., 2013; Park & Son, 2009). It also provides students with the added benefit of learning computer skills (van Rensburg & Son, 2010). Beal-Alvarez & Cannon (2014) reference sources that claim technology also increases students' academic performance and improves students' disposition towards their classes, whereas Cullen et al., (2013) shows how Computer Assisted Instruction (CAI) software allows for more individualized instruction with immediate feedback, and frequent opportunities for independent practice. Furthermore, students understand the value of computer literacy in their professional and personal lives (van Rensburg & Son, 2010) as it could lead to a better paying job and facilitate everyday activities.

There is a vast body of literature on educational technology developed for English Language Learners (ELL). However, there is limited research that investigates the point of view of ELL and their instructors in this space. Furthermore, we have not come across studies that examine the needs and preferences of a diverse population of ELL and educators among different locations. This article aims to contribute to the literature by assessing the educational technology needs and preferences of a variety of ELL populations. While each ELL population has unique needs, we aim to identify general needs that surpass location, context, age, gender, disabilities, etc. to make learning and teaching experiences more efficient and engaging through the use of technology. For our study, we worked with five partners in Qatar and the United States, which involved the following ELL populations:

1. Children with special needs/learning disabilities
2. Postsecondary EFL students
3. Adult learners

This paper provides background on the different ELL populations listed above, discusses our needed assessment study, presents results, and reviews the literature on the educational technology needs for each population. We conclude this paper with a discussion of our findings and future work.

Background

Literacy is a crucial skill that is often linked to quality of life. English literacy, in particular, is a powerful skill that can help several populations gain access to opportunities for improving their quality of life. Within English-speaking countries, English literacy is crucial to academic, career, and social success (Luckner et al. 2005). Internationally, the popularity of English as the language used in international commerce, tourism, and academia means that students who live in non-English speaking countries and who wish to study, conduct business, participate in the tourism industry, or travel internationally, benefit from English literacy (Kam et al., 2009; Anyaegbu et al., 2012).

However, access to English literacy for diverse populations is not always universal. For children with special needs/learning disabilities, literacy education must address the particular challenges they face on a daily basis in addition to their current curriculum. Left unaddressed, their performance could suffer as curriculum requirements increase and become tougher in high school and college (Kennedy & Deshler, 2010; Olinghouse & Colwell, 2013). For postsecondary English as a Foreign Language (EFL) students, whose formal education was conducted in their

native language, it can be difficult to adapt to a curriculum conducted in a language they have limited background in. Literacy for this population is crucial in preparing them for more challenging college-level academic literature (Troia, 2004). For adult learners who have varying life experiences and differing levels of formal education, tailoring learning content to specific needs is nontrivial. Despite these constraints, achieving literacy is essential in order for adult learners to advance economically and create a better quality of life for themselves and their family (Finn, 2011).

The language learning needs of ELL are unique and diverse. Next, we provide background on the needs and challenges of the three ELL populations we are investigating. In particular, we focus our background on children who are deaf and hard-of-hearing, children who have learning disabilities, postsecondary students studying outside of the U.S., and adult learners studying in and outside of the U.S.

Children with Special Needs/Learning Disabilities

Most deaf children educated in the U.S. are either taught via the American Sign Language (ASL) method, where students learn English for written communication and ASL for verbal communication or via the auditory/oral method where they learn speech and lip-reading. The average deaf adult in the U.S. reaches only a 4th grade English reading level, and approximately 10% of 18 year olds can read at or above an 8th grade level (McCoy & Masterman, 1997). One reason may stem from the fact that 90% of deaf children are born to hearing parents (Gallaudet Research Institute, 2000). Hence, many deaf children, whose parents are not familiar with or fluent in ASL, do not have the opportunity to practice ASL at home.

Cullen et al. (2013) discuss how deficits in sight word recognition, decoding skills, reading fluency, and comprehension often result in the low reading abilities of students with special needs and/or learning disabilities (LD). Other researchers discuss data that shows how language learning disabilities (LLD) account for more than three-quarters of special needs' disabilities (Montgomery & Hayes, 2005). Students with LLD experience difficulties reading because they have “verified and significant language, cognitive, memory, and learning difficulties,” and are not taught with the proper resources and teaching methods (Montgomery & Hayes, 2005).

Postsecondary EFL students

Outside the U.S. and in other English-speaking countries, many post-secondary students learn English as a foreign language or schools use English as the medium of instruction. However, many students lack the necessary preparation to conduct all academic work in English. One challenge is being able to communicate orally in English while another is being able to read and write academically. These challenges are further augmented when English is not the primary language at home (Greenwood et al. 2001). If these communication skills are not developed, students find it difficult to engage with subject matter such as math, science, history, as each discipline has its own language demands. Given the language needs of their students, teachers often find it challenging to merge “English language instruction with subject matter instructions” (Greenwood et al., 2001). This is true for ELL at all levels of the educational system, from kindergarten to pre-university or university students (Short & Fitzsimmons, 2006; Schleppegrell, 2004).

Adult Learners

The population that makes up adult ELL is varied and ranges from skilled immigrants to low-level migrant workers to refugees (Bigelow & Schwarz, 2010). These learners join adult education programs with different levels of literacy in English and in their native language, as well as different levels of formal education, if at all. Adult learners also join English programs with very different life experiences. Not surprisingly, students have different motivations for learning English (Bigelow & Schwarz, 2010). Furthermore, these differences can make learning and acquiring English challenging for adult learners and also for the instructors that teach them. Many adult learners are unable to fully participate in classes (Johnson & Owen, 2013). While most classes are free, their work schedules, child care costs, and travel expenses can prevent them from coming to class (Bigelow & Schwarz, 2010). As a result, instructors face the challenge of attendance as well as the challenge of catering to the varying needs of the adult learners that attend on any given day (Johnson & Owen, 2013). In difficult financial times, programs may not always have the means to offer tailored classes (Bigelow & Schwarz, 2010).

Needs Assessment Study

We conducted a needs assessment study with our various partners in Qatar and the U.S. to gain a better understanding of the educational technology needs and challenges of their students and teachers.

Participants

In order to understand the educational needs and preferences of teachers and students from diverse ELL populations, we formed partnerships with five schools and literacy programs in Qatar and the U.S. Following [UNIVERSITY]'s Institutional Review Board (IRB) procedures, a protocol was set up and approved for this research project and participants were recruited with help from main contacts within the partner organizations. In total, the pool of participants included 189 students, 39 teachers, and two staff members among our five partners. These participants primarily informed the needs disseminated in this work.

Assessment Method

We employed a combination of observations, interviews, focus groups, and reviews of secondary data (e.g. class syllabi, curriculum material, class worksheets, etc.) to enhance our understanding of the educational technology needs and preferences of English learners, teachers, and principals (see Appendix for materials). The majority of data was collected over a three-month period in 2013, but also includes data from interviews conducted in 2010. In order to preserve the privacy of research participants, all interview, focus group and survey data were recorded anonymously.

Qatar partners

Needs assessment efforts in Qatar relied on class observations, semi-structured interviews, focus groups, and a review of secondary data, such as class syllabi, curriculum material, class worksheets, etc. Approximately 160 students/learners, and 14 teachers took part.

The research team first approached the main contacts of a school for students with special needs/learning disabilities and a postsecondary foundation program to describe the project and to identify potential teacher participants. Once identified, we began the observation process. The research team visited each partner multiple times over the course of a few weeks to observe their classes. In particular, the team observed teaching methods (particularly teachers' use of any technology tools) and students' interactions and engagement with class material. The research team then scheduled one hour interviews with teachers to learn about their students' learning challenges, the technology tools they utilize in class, the roles they believe educational games could play in their teaching approach, and their thoughts on game ideas their students would enjoy. The research team then scheduled twenty minute student focus groups with each of the classes taught by the teachers. The purpose of these focus groups was to understand which English literacy concepts students found challenging, which activities they enjoy in class, what kind of games they play in their free time, and the type of educational games they would be interested in playing.

The researchers also worked with a migrant workers' adult English literacy program. Due to language barriers, the researchers could not interview some of their learners in the same manner used with our previous subjects. As a result, our needs assessment was informed by the opinions of their teachers, whom we interviewed for twenty minutes. The researchers were able to conduct focus group discussions with more advanced learners who could more easily express their opinions and views on their education and technology use. Hence, interviews were not conducted with their teachers. Consistent with other Qatar partners, the researchers observed the program's teaching methods, and students' interactions with class material.

U.S. partners.

Needs assessment with U.S. partners consisted of observations, interviews, focus groups and surveys. Activities mainly took place over a period of three months in 2013 and also included interview results from 2010. 29 students and learners, 25 teachers and instructors, and two staff members participated in the study. Consistent with Qatar partners, the researchers approached the main contacts at a refugees' English literacy program and a school for the deaf to describe the project and identify potential teacher participants.

At the refugees' English literacy program, researchers individually interviewed 10 instructors and two staff members, observed five classes, held separate focus groups with two classes (a total of 19 students were involved), and surveyed 13 volunteer teachers. Interviews with teachers focused on demographic information, how they prepare their lessons, what types of exercises they assign to students, how they assess student performance, what challenges they face in teaching English, what aspects of English literacy their students struggle with, and what tools (technical and non-technical) they currently use in class and what tools (real or imagined) they wish they had. Interviews with staff members focused on demographic information, what tools they currently have and what tools (real or imagined) they wish they had. Surveys questions for volunteer teachers were similar to the interview questions for teachers but also asked about their volunteer training experience and if technology might help enhance their experience.

The focus groups were conducted by the teachers to promote familiarity and trust (the researchers collaborated with the teachers to come up with the questions). Students in the two classes were asked to comment on their preference for class activities (e.g. working together, working alone, writing on the whiteboard, matching, stories, etc.), extracurricular activities (e.g.

watching television, sports, music, cooking, etc.), and their technology access and usage (e.g. mobile phone, computer, etc.).

Needs assessment with the school for the deaf consisted of individual interviews with two teachers and 15 students in 2010. Teachers were asked to comment on the challenges their students face, what concepts they need additional practice in, and what motivates students when it comes to learning English. Teachers were also asked to provide general demographic information and comment on their technology usage in the classroom. Students were asked comment on the challenges they face when learning English, what type of English lessons they like and to provide examples of English story books they enjoy reading. They were asked if they have a mobile phone and how they primarily use their phone. Lastly, the students were asked to comment on their hobbies and personal interests.

Table 1 introduces each partner and Table 2 provides details about the technology infrastructure for each partner.

ELL Population	Partner & Location	Background Information	Demographic
Children with Special Needs/ Learning Disabilities	School for Students with Special Needs/Learning Disabilities, Qatar	<ul style="list-style-type: none"> Educates students with learning disabilities and/or special needs Disabilities ranges from Down’s syndrome to Attention Deficit Hyperactivity Disorder to low English and Arabic language communication skills Adopts Explicit Direct Instruction (DI), particularly when it comes to foreign language learning Implements “Walking To Learn” where students alternate to different classes based on their skill level 	<ul style="list-style-type: none"> Research conducted with Elementary and Middle School classes and their teachers Most students are Qatari nationals Many students spend most of their time with their nannies and drivers who usually come from South East Asia who, according to school administrators, may not have a strong grasp of the English language and may not necessarily engage the children in meaningful dialogue
	School for the Deaf, U.S.	<ul style="list-style-type: none"> Provides educational services and a complete extracurricular program to deaf and hard-of-hearing children from birth through grade 12 in the U.S. Communication is determined by individual student needs, with the development of both English and ASL All students sign while speaking 	<ul style="list-style-type: none"> Research conducted with Middle School students and their teachers Students’ hearing ability varied from completely deaf to mild hearing loss Some students utilized hearing aids, while some had cochlear implants, and others did not utilize an assistive device
Postsecondary EFL Students	Postsecondary Foundation Program, Qatar	<ul style="list-style-type: none"> One-year foundation program Admits high school graduates interested in admission to an English-medium university in Qatar or abroad Offers Math, Computer Skills, English and Science classes Places students in one of two levels: Foundation level which targets students with lower reading and grammar skills and Academic Level which places more emphasis on Literature and Writing 	<ul style="list-style-type: none"> Most students are Qatari nationals, with other Arab nationals (i.e. Saudi Arabia, Libya, Egypt, Kuwait, Sudan, and Iran) Many Foundation level students require more guidance and supervision, as they struggle to complete their work independently and on time Teachers believe Foundation-level students would benefit from a second year in the program, but because sponsorship is only for one year, many leave at year’s end
Adult Learners	Migrant Workers’ Adult English Literacy Program, Qatar	<ul style="list-style-type: none"> Adult English literacy program where university students volunteer to teach English to migrant workers Utilizes a detailed curriculum designed by university faculty and staff with four levels: Basic, False Beginner, Intermediate, and Advanced Basic curriculum targets learners with limited to no formal education as well as limited to no literacy training in their native language and in English Advanced curriculum targets learners who have learned English in school or by living/working in an English speaking environment 	<ul style="list-style-type: none"> Research conducted with Basic and Advanced classes Basic learners work as janitorial staff Most Basic learners are male, but there are a few female employees Almost all Basic learners are Sri Lankan and Nepalese. Advanced learners are mostly service attendants and cleaner supervisors There is roughly the same number of male Advanced learners as females Almost all Advanced learners are Filipino

	Refugees' English Literacy Program, U.S.	<ul style="list-style-type: none"> • Provides literacy programs for adults and out-of-school young adults • Offers classes in conversational English for adults from foreign countries • Also focuses on teaching American culture • Helps connect immigrants and refugees to available social services • Works with immigrants and refugees to help reduce barriers to service acquisition • Class attendance varies depending on students' personal lives, with financial difficulties being the biggest impact on class attendance rates • Other issues that often take precedence over students coming to class include children's school schedules and needs, illness and holidays, and competing commitments (e.g. doctor's appointments, getting a Social Security Number, etc.) 	<ul style="list-style-type: none"> • Research conducted with refugees and immigrants • Students come from Bhutan, Bosnia, Burma, Burundi, China, Congo, Ethiopia, Haiti, India, Iraq, Mexico, Morocco, Nepal, Rwanda, Sierra-Leone, Somalia, Sudan, Turkey and Uzbekistan • Students are required to sign up for ESL classes in the first two weeks of arrival, as part of their refugee status agreement • Students are eager to improve their spoken English so they can succeed with everyday living in the U.S.
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Table 1. Background information of partner organizations

ELL Population	Partner & Location	Technology Use
Children with Special Needs/ Learning Disabilities	School for Students with Special Needs/Learning Disabilities, Qatar	<ul style="list-style-type: none"> • Elementary classes equipped with iPads • Middle School classes equipped with Dell laptops • iPads had several handwriting and letter applications to practice the alphabet • Elementary and Middle School classes practice Math problems with a program called IXL² • Students assigned homework to practice their reading skills using an application called Raz Kids³
	School for the Deaf, U.S.	<ul style="list-style-type: none"> • Every classroom utilizes technology, mainly SmartBoards and Apple products (i.e. Macbook, iMac, iPad) • Students browse the internet via the Mobicip browser⁴, which allows for parental controls • Mobile phone use is not allowed in the classroom and phones are collected in the morning before class and returned to the students after the school day ends
Postsecondary EFL Students	Postsecondary Foundation Program, Qatar	<ul style="list-style-type: none"> • Teachers use technology-based tools in the classroom (i.e. email, screen projector, Microsoft Office Suite, textbook CDs, and the Internet) • Teachers use the Internet to locate pictures and videos as well as to find additional worksheets and resources that complement their teaching • The Computer Skills teacher utilizes two software programs (i.e. Moodle and Skills Assessment Manager⁵) to manage her students' homework assignments, training exercises, tests, and projects • Most students have smartphones
Adult Learners	Migrant Workers' Adult English Literacy Program, Qatar	<ul style="list-style-type: none"> • Teachers utilize the classroom projector to show images and videos to communicate concepts • Most Advanced learners have smartphones (mainly Samsung) • Most Basic learners have Nokia feature phones while others have low end Samsung smartphones • Some Advanced learners have their own laptops, which they use to access YouTube and Google to look for job vacancies, and to play games • Advanced learners use their phones and/or laptops to communicate with their family and friends using email, Facebook and Skype
	Refugees' English Literacy Program, U.S.	<ul style="list-style-type: none"> • Downtown office has one computer lab with nine Windows desktop computers • Students used computer lab to access the internet (e.g. learn and practice English, prepare for the Driver's License written exam, watch video tutorials on YouTube, log onto their online bank account, etc.) • Students also used computer lab to access software and applications already on the computer (e.g. practice typing, practice pronunciation, prepare for the U.S. naturalization exam, etc.) • Downtown office has a SmartBoard • Staff have received initial training with the SmartBoard and expressed interest in using the SmartBoard but have yet to incorporate it in their lessons • Students have a mix of smartphones (iPhone, Samsung, LG, etc.) and feature phones

² <http://www.ixl.com/>

³ <http://www.raz-kids.com/>

⁴ <https://itunes.apple.com/us/app/mobicip-safe-browser-parental/id299153586?mt=8>

⁵ <http://www.cengage.com/samoffice2013/>

- Students use their computers at home for Internet, Facebook, Skype, email and YouTube; some students use their phones for these activities, instead of or in addition to using their computer
- Some students said their children use the computer more

Table 2. Technology infrastructure of partner organizations

Results

The findings of our needs assessment study are detailed in Table 3, organized by ELL population. Naturally, we encountered language barriers for some of the populations we worked with. For the deaf population, their teacher served as an interpreter when conducting interviews. Due to similar language barriers, we could not interview the basic adult English learners. As a result, we had to rely on the opinions of their teachers. For the Arabic speaking populations, some members of the research team spoke Arabic and served as an interpreter during needs assessment activities.

ELL Population	Partner & Location	Educational Technology Needs	Educational Technology Game Preferences
Children with Special Needs/Learning Disabilities	School for Students with Special Needs/Learning Disabilities, Qatar	<ul style="list-style-type: none"> • Tools to make class more interactive and engaging for all students (teachers cater to a variety of cognitive needs) • Tools to make teachers' class planning and management process easier 	<ul style="list-style-type: none"> • Develop games with the following themes: social (requested by female students), adventure and sports (requested by male students) • Develop games students can play individually and games where students can play in competition with each other • Must have audio prompts and instructions since their students have limited reading skills (positive audio prompts can motivate and encourage students while playing)
	School for the Deaf, U.S.	<ul style="list-style-type: none"> • Tools to make class more interactive and engaging for all students • Tools to assist teachers with class planning 	<ul style="list-style-type: none"> • Should be challenging, include multiple levels, images, and provide the ability to customize the game environment • Develop games where students can play in competition with each other • Develop games for mobile phones
Postsecondary EFL Students	Postsecondary Foundation Program, Qatar	<ul style="list-style-type: none"> • Tools to make class more interactive and engaging for all students • Tools to make teachers' class planning more effective (currently time-consuming for teachers) 	<ul style="list-style-type: none"> • Should be competitive, include multiple levels, and difficult challenges • Should take into account the different backgrounds and contexts of students (teachers often rely on outside activities and materials to make content more relevant) • Develop games with the following themes: puzzle (requested by female students), sports, and chasing (requested by male students)
Adult Learners	Migrant Workers' Adult English Literacy Program, Qatar	<ul style="list-style-type: none"> • Tools to make class more interactive and engaging for all students • Tools that bridge the language barrier between teachers and students (many teachers do not speak the language of their students, and students can hardly speak, write, or understand anything in English) 	<ul style="list-style-type: none"> • Should combine audio and visual elements • Should take into account the different backgrounds and contexts of students • Develop games students can play individually and games that encourage teamwork • Develop games for mobile phones and computers • Develop games with the following themes: adventure, puzzle, strategy • Help students improve skills (e.g. listening comprehension, pronunciation, communication, spelling, computer)
	Refugees' English Literacy Program, U.S.	<ul style="list-style-type: none"> • Tools to make class more interactive and engaging for all students • Tools that bridge the language barrier between teachers and students • Tools to assist teachers with class planning and management 	<ul style="list-style-type: none"> • Should be competitive and allow players to see their scores and scores of their classmates • Develop games students can play individually and games where students can play in competition with each other • Help students practice content during class and outside of class (e.g. practice for job interviews, conversational dialogue, reading comprehension)

Table 3. Educational technology needs and recommendations of partner organizations

Literature Review

Classrooms have incorporated Information and Communication Technologies (ICTs) around the world for over two decades (Maryam et al., 2013; Murray, 2008). More importantly, the role ICTs have been playing is increasing (Li, 2013). What started out as drill, text manipulation and word processing has evolved into more interactive applications such as email, chat and web- and mobile-based programs, and games (Murray, 2008). Some teachers find that they cannot do without certain technology tools, such as the computer (Park & Son, 2009). According to Murray (2008), ICTs have primarily been used in three categories: “(1) tools that help learners organize (e.g. word processor, spreadsheets and presentation applications), (2) tools that facilitate communication (e.g. e-mail, chat, IM, blogs) and (3) tools that provide information (e.g. internet).” Furthermore, the internet provides educators with authentic materials to facilitate language learning and acquisition of computer skills (van Rensburg & Son, 2010).

This section summarizes educational technology findings from the literature for each ELL population and provides insight into additional educational technology needs and preferences of learners and teachers. In particular, we focus our literature review on children who are deaf and hard-of-hearing, children who have learning disabilities, postsecondary students studying outside of the U.S., and adult learners studying in and outside of the U.S.

Children with Special Needs/Learning Disabilities

The literature emphasizes how CAI and other technology tools (e.g. multimedia software programs, DVDs, speech synthesis programs, CAI text-to-speech program, and computer-assisted peer tutoring) can help deaf and hard-of-hearing students and students with LD improve their reading comprehension skills and vocabulary acquisition (Cannon et al., 2009; Cullen et al., 2013; Forgrave, 2002; Hasselbring & Glaser, 2000; Nikolarazi et al., 2013; Wood et al., 2013). Moreover, Forgrave (2002) addresses how organizational software can help improve students’ thinking and brainstorming processes, and how voice recognition software can help students write more nuanced stories.

Despite the various options available, technology use to assist students with LD seems to be the least adopted teaching practice with some instructors (Soukup & Feinstein, 2007). This could be due to the lack of teacher training and high costs of technology equipment (Cullen et al., 2013; Hasselbring & Glaser, 2010). Similarly, teachers of deaf and hard-of-hearing students are not always aware of available technology interventions and software programs (Luft et al., 2009). Moreover, the literature reveals that teachers do not find that current technology tools complement and reflect their teaching practices (Kennedy & Deshler, 2010, Woodward & Rieth, 1997). As a result, the literature recommends frequent assessments of assistive technology needs of students with LD (Holmes and Silvestri, 2012) and more “naturalistic research” that takes into account how technology tools function practically in real teaching contexts (Woodward and Rieth, 1997). Furthermore, students’ motivation and willingness to learn must also be seriously considered as it is equally important in fostering a positive and engaging learning experience that could eventually lead to higher academic achievement (Woodward & Reith, 1997).

Postsecondary EFL Students

The literature provides several examples of technology tools that have been incorporated in classrooms. Blogs and Microsoft Word allow students to practice their writing skills and

brainstorm ideas (Yunus et al., 2013). Other teachers utilize Microsoft PowerPoint and the Internet in addition to CD-ROMs (Park & Son, 2009). The Internet can help improve students' writing skills through email communications (Park & Son, 2009) and composition pieces (Fránquiz & Salinas, 2013). Technology can also facilitate the process for teachers to find context-specific class material (Maryam et al., 2013). For example, the Internet can be a valuable source for finding “authentic language contexts and materials that contain important cultural aspects of the target language” (Park & Son, 2009).

Many factors impact EFL teachers' decision to use educational technology in the classroom. For example, English language teachers in Korea identified several factors including teacher training, school computer facilities, finances, support from school's administration, rigid curriculums, lack of time and technical support, and their opinion on the use of computers in class (Park & Son, 2009). For teachers who incorporate educational technology in the classroom, some disadvantages they face include “difficult class control” and “distraction” (Yunus et al., 2013). Also, teachers found that they had less time to teach when they incorporated ICT tools (Yunus et al., 2013). Park & Son (2009) discussed how teachers would require training to use such technology particularly when incorporating them with writing lessons (Yunus et al., 2013).

Interestingly, teachers have not had much of an opportunity to express their experience using educational tools in questionnaires, surveys or interviews (Park & Son, 2009). As a result, Park & Son (2009) stress the importance of ensuring that the technology tools created factor in the needs of students and teachers, and actively involving them in development. Also important is ensuring that any technology intervention must have the ability to maintain student interests (Park & Son, 2009). Similar to the deaf and hard-of-hearing/LD literature, we did not find EFL literature that addresses tools designed specifically to meet the needs of EFL students.

Adult Learners

Similar to the postsecondary EFL population, the literature provide several examples of how existing technology is utilized by teachers in the classroom (e.g. computers, computer games, Internet, web-based games, multi-media CDs, digital tutorials, e-mail, online chat, etc.) (Ball, 2011; van Rensburg & Son, 2010; Li, 2013). However, the literature did not provide examples of technology designed specifically for adult learners. While the Internet is a great resource for authentic materials (van Rensburg & Son, 2010; Li, 2013), we did not come across examples of technology solutions developed specifically for teachers of adult populations that assist in synthesizing these resources. An important consideration to the success or failure of technology in the classroom is teachers' attitude towards the tools (Ball, 2011). As a result, new tools developed should take into account teachers' preferences and efforts made to support teacher buy-in.

Several recommendations for teachers have surfaced from the literature based on needs and challenges of adult ELL. It is important to note that these recommendations provided by the literature are targeted towards adult ELL instructors rather than educational technology developers. However, given the increasing role of ICTs in the classroom, future technology solutions developed for adult ELL should take these insights into consideration to further support teachers and facilitate student learning. To increase comprehension, teachers can employ a few strategies such as providing relevant contexts (e.g. background information and examples), connecting learning to prior knowledge and experiences, and using visual aids and physical artifacts (e.g. photos, pictures, graphics, images, body images, language intonation and cue) (Li,

2013). Johnson & Owen (2013) recommend scaffolding instruction and Bigelow (2010) further recommends scaffolding that “includes teaching emergent literacy skills (e.g. identifying shapes, using picture to aid oral comprehension and predict events in a text). Moreover, supportive and non-threatening learning environments can help learners feel secure enough to practice the target language and to make and correct their own errors without embarrassment or anxiety (Johnson & Owen, 2013). Interacting with their peers can help learners to absorb new concepts (Li, 2013).

Discussion

Given the diverse ELL populations we studied in different geographical contexts, two themes surfaced with respect to how educational tools can address student and teacher needs. First, educational technology has the potential to encourage student interaction with teacher content. Second, teachers believe that educational technology can facilitate class planning and content creation. Furthermore, our needs assessment results revealed several recommendations for what future educational technology games developed for these diverse ELL populations should include.

Consistent with the literature (Beal-Alvarez & Cannon, 2014; Cullen et al., 2013; Park & Son, 2009), our needs assessment with several ELL populations reveal that technology can be utilized to encourage student learning and participation in the classroom. For children with special needs/learning disabilities, educational technology can be designed to cater to the various cognitive needs of students. For the postsecondary EFL population, educational technology can be designed to be more relevant to students from different backgrounds and concepts. For adult learners, educational technology can serve as a fun, alternative way to learn teacher content.

Coming up with customizable and relevant content is often time-consuming for teachers across the different ELL populations we studied. Our results revealed teachers’ belief that technology has the potential to facilitate classroom planning and content creation. Examples of ways technology could assist them include creating more interactive class materials, engaging students of different levels in a single class, tracking student progress, and collaborating with other teachers on lesson plans. Interestingly, the literature suggests that teachers do not find currently available technology tools to complement and reflect their teaching practices (Kennedy & Deshler, 2010, Woodward & Rieth, 1997). Perhaps this perception could change with more frequent assessments, including this publication, of the educational technology needs of teachers and their students.

Participants of our various ELL populations offered several suggestions for what educational technology games developed for students should include. All populations suggested games that were challenging and included multiple levels. Many students wanted to compete against their classmates, while some wanted rewards, and others wanted to be able to customize the game environment, such as the game background or their personal avatar.

While this study captures needs and preferences of different categories of ELL and their teachers and in different contexts, the way in which needs assessment conducted was not entirely uniform. For example, language barriers with adult Basic learners prevented us from speaking directly to participants and as a result, had to rely solely on the perspective of their teachers. Naturally, differences in needs assessment collection will occur due to the unique constraints of our partners. Future needs assessment studies conducted can place more emphasis on uniformity.

Conclusion

This needs assessment study demonstrated the potential technology has in addressing the educational needs and preferences of three ELL populations in Qatar and the U.S. Despite the unique needs of each partner, study results revealed that for all ELL populations assessed, educational technology has the potential to encourage student interaction with teacher content as well as facilitate class planning and content creation for teachers. Furthermore, the needs assessment results provided several recommendations for what future educational technology games should include when developing for diverse ELL populations.

Based on these findings, we provide the following recommendations for educational technology experts and developers. First, work closely with teachers and students of the ELL populations you are developing for. This will help ensure that technology solutions developed meets their needs and addresses their preferences and contribute to the success of the tool in the classroom. Second, consider developing technology solutions that can be beneficial to multiple ELL populations, as common needs and preferences are likely to occur. We hope that the results of our needs assessment study will encourage educational technology experts to develop meaningful and relevant tools that can be used by a variety of ELL populations, in close partnership with teachers and students.

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Appendices

Interview/Focus Group Questions

Teachers in Postsecondary Foundation Program, Doha, Qatar

1. Tell me a little bit about your background: Your training and experience, how you ended up in [city], how long you have been at [school name], your experience working with [school name] students.
2. Describe the student population at [school name]: What are the students like? What are their strengths and weaknesses? What are their major challenges?
3. Describe your experience with the curriculum/textbook you are currently. How long have you used it? Did you have any experience with it before [school name]? What do you think are the major strengths and weaknesses of the current curriculum?
4. Do you already use technology in your classroom to enhance literacy? How so?
5. How often does games/technology complement your teaching?
6. How do you think technology can supplement what you might be doing in class this academic year?
7. What do you think are some areas your students might need help with?
8. Talk to us about the curriculum schedule for the remainder of the academic year- are there subjects/areas your students might need help with next semester? Will you be teaching the same students next semester?
9. How can technology work to bridge those gaps- what kinds of services/games and on what platform?
10. How often would you want students to use technology to supplement their learning? How do you see it helping you as a teacher- what features would you use or need to inform your planning and instruction?
11. What games/technology is already popular among your students? Why? How effective is the technology you use on your students' learning experiences?
12. Would you be willing to develop content for the newly-designed technology?

Students in Postsecondary Foundation Program, Doha, Qatar

1. Do you like studying at [school name]? Why/why not? What do you like most about school? What do you not like about school?
2. What is your favorite part about this class? What do you like learning the most? Why?
3. What is your least favorite part about this class? What do you not like learning? Why?
4. Which part of the class do you find the easiest?
5. Which part of the class do you find most difficult?
6. What activities do you enjoy doing the most during class?
7. What do you do after school when you go home?
8. How do you like spending your weekend?
9. Do you like playing games? What kinds? Car racing/sports/fighting? Or some of the trendy games: Candy Crush?

10. Where do you play the games? On a computer, iPad, iPhone?
11. Do you have a computer, iPad, iPhone at home? Do you know how to use it?
12. Where do you like playing games?
13. How many times a week do you use the computer/iPad?
14. Do you have games on your phone? Which ones? Are the games in English or Arabic?
15. Do you like playing games with friends/siblings, or do you like playing alone?
16. Do you play games during class? Which one is your favorite? Why?
17. Have you ever played a game that helped you learn something? Such as learning the English language? Or math?
18. Would you like to practice your school subjects using a game?

Teachers in School for Students with Special Needs/Learning Disabilities, Doha, Qatar

1. Tell me a little bit about your background: Your training and experience, how you ended up in Doha, how long you have been at [school name], your experience working with children with special needs.
2. Describe the student population at [school name]: What are the students like? What are their strengths and weaknesses? What are their major challenges?
3. Describe your experience with direct instruction. How long have you used it? Did you have any experience before [school name]? What do you think are the major strengths and weaknesses of the method?
4. Do you already use technology in your classroom to enhance literacy? How so?
5. How often does games/technology complement your teaching?
6. How do you think technology can supplement what you might be doing in class this academic year?
7. What do you think are some areas your students might need help with?
8. Talk to us about the curriculum schedule for the remainder of the academic year- are there subjects/areas your students might need help with next semester?
9. How can technology work to bridge those gaps- what kinds of services/games and on what platform?
10. How often would you want students to use technology to supplement their learning? How do you see it helping you as a teacher- what features would you use or need to inform your planning and instruction?
11. What games/technology is already popular among your students? Why? How effective is the technology you use on your students' learning experiences?

Students in School for Students with Special Needs/Learning Disabilities, Doha, Qatar

1. Do you like coming to school? Why/why not? What do you like most about school? What do you not like about school?
2. What is your favorite subject/what do you like learning the most?
3. What is your least favorite subject/what do you not like learning?
4. What is the easiest subject for you?
5. What is the most difficult subject for you?
6. What activities do you enjoy doing the most at school?

7. What do you do after school when you go home?
8. How do you like spending your weekend?
9. Do you like playing games? What kinds? Car racing/animal games/doll games/fashion girls/singing games
10. Where do you play the games? On a computer, iPad, iPhone?
11. Do you have a computer, iPad, iPhone at home? Do you know how to use it?
12. Where do you like playing games?
13. How many times a week do you use the computer/iPad?
14. Do you have your own phone? Do you have games on your phone?
15. Do you like playing games with friends/siblings, or do you like playing alone?
16. Are the games in English or Arabic?
17. Do you play games here in school? Which one is your favorite? Why?
18. Have you ever played a game that helped you learn something? Such as learning the English language? Or math?
19. Would you like to practice your school subjects using a game?

Teachers in Migrant Workers' Adult English Literacy Program, Doha, Qatar

1. What range of English skills do the learners in your class have?
2. Do you think learners are engaged in class and genuinely interested in learning English? Why or why not?
3. What aspect(s) of English do learners in your class struggle with the most? (e.g. vocabulary, reading, writing, speaking, etc.)
4. What aspect(s) of English are learners in your class most comfortable with?
5. Do you use pictures or any other material to help convey lessons to the learners in your class?
 - a. If so, what do you use?
 - b. If not, do you think such material would be useful?
6. What is your process for preparing for class?
 - a. How much time do you spend preparing for class?
 - b. Do you use any technology to help prepare for class?
7. What are some of the key challenges you face when teaching this class?
8. What types of teaching techniques work well with the learners in your class? (e.g. repetition, role playing, etc.)
9. Do you use educational games or competitions in your class?
 - a. If so, can you please describe these activities? Do learners enjoy them?
 - b. If not, do you think learners would enjoy this kind of activity?
10. Have you observed learners in your class using their phones? If so, have you seen them playing games, sending text messages or doing anything other than making a call with their phone?
11. Do you think learners in your class would be able to use (or learn how to use) a touch screen interface? Why or why not?
12. Do you have any other comments or thoughts you would like to share with us about the learners in your class?

Teachers in Migrant Workers' Adult English Literacy Program, Doha, Qatar

1. What activities/aspects of class do you enjoy?
2. Is there anything you dislike about class?
3. Through this class, what skills would you like to improve?
4. What do you aspire to do in the future?
5. Do you practice English outside of class? If so, what do you do to practice?
6. What recreational activities do you like to do outside of work?
7. Do you have access to a computer? If so, how often do you use a computer? What do you use your computer for?
8. Would you like to improve your computer skills? Is there anything in particular you would like to learn?
9. Do you have a smartphone?
10. If yes, what do you use your smartphone for (e.g. Internet, Facebook, YouTube, etc.)
11. Are you comfortable using a touch screen?
12. Do you have an iPad or touch screen tablet? What do you use it for?
13. Do you like playing games on the computer or your phone?
14. What kinds of games do you like?
15. Do you prefer competitive games or individual games?
16. Would you play educational games to improve your English?

Teachers in School for the Deaf, Pittsburgh, U.S.

1. How many students do you teach per class?
2. What subjects do you teach?
3. What is the age group of students in your class?
4. What are the challenges faced by deaf and hard-of-hearing students in learning English?
5. What concepts do you think they would require additional practice in?
6. What, in your experience, motivates the students to learn English?
7. Do you use technology to support your teaching? If so, what do you use and how?
8. Do the students use computers in class?
9. How many students have mobile phones?
10. Are the students allowed to use their phones in class?
11. Have you experimented with teaching exercises through games? If yes, please explain and provide examples.
12. What are the challenges faced by deaf and hard-of-hearing students in learning English?
13. How do you think your students would react to practicing learning exercises via playing games on mobile phones?

Students in School for the Deaf, Pittsburgh, U.S.

1. Do you enjoy studying English?
 - a. If no, why not?
 - b. If yes, why?
2. What do you find difficult about learning English?
3. What kind of English lessons do you like?
4. Do you read English story books?

- a. If yes, what kind of books do you like?
 - b. Please mention a few books that you have read.
5. Do you have a phone?
6. If yes, what phone do you have? (Nokia, Sony Ericsson, Samsung). What model number and brand?
 - a. What features do you like about this phone? (camera etc)
 - b. How do you mainly use your phone?
 - c. Do you use text-messaging service?
 - d. Do you use Bluetooth services on your phone?
 - e. Do you play any games on your phone?
 - i. If yes, what kind of games?
 - ii. What do you enjoy about those games?
7. What do you do during your free time? (sports, TV programs, arts, etc.)
8. Is there anything else you would like to tell us?

Staff members at Refugees' English Literacy Program, Pittsburgh, U.S.

1. How long have you been working with [program]?
2. What is your role at [program]?
3. What do you like most about working here?
4. What are some of the challenges you face with your work?
5. Can you give us a breakdown of the number of, teachers, staff, students and volunteers currently working with [program]?
6. Are you able to share a breakdown of students by nationality, age, gender, English proficiency or any other demographic metrics?
7. What are the State or Federal requirements that [program] needs to comply with in order to qualify for funding support?
 - a. In particular, are there specific targets for English proficiency or fluency levels that [program] students need to progress toward?
 - b. If so, how is this progress assessed by the State or Federal government?
8. What type of technology does [program] currently invest in and why?
9. Do you think there is use for more educational technology at [program] to assist with:
 - c. Teaching classes (ESL, VESL, GED, Citizenship, etc.) – if so, how?
 - d. Student learning & motivation – if so, how?
 - e. Volunteer training – if so, how?
 - f. Volunteer teaching – if so, how?
 - g. Computer training – if so, how?
 - h. Other [program] activities – if so, how?
10. Are there any other thoughts or comments you would like to share with me?

ESL Teachers at Refugees' English Literacy Program, Pittsburgh, U.S.

1. How long have you been working with [program]?
2. What do you like most about being a teacher here? What do you like the least?
3. What is your process for preparing for class?
4. How long does it take you to prepare for class?

5. What type of technology do you use for class preparations?
6. What aspects, if any, of your class preparation and teaching do you wish were automated?
7. What classes do you teach?
8. How many students do you have in each of your classes, on average?
9. What is the average attendance rate for the classes you teach?
10. Do you think your students enjoy learning English and coming into class?
11. What aspect(s) of literacy do you focus on in your lessons?
12. What do your students struggle with the most in your classes and what types of strategies or tools do you think would help students improve in these areas?
13. What aspects of English literacy are your students most comfortable with?
14. What teaching techniques work best with your ESL students (e.g. repetition, use of visual aids, etc.)?
15. Do you use educational games or competitions in your class?
 - a. If so, can you please describe these activities? Do students enjoy them?
 - b. If not, do you think students would enjoy this type of activity?
16. What other types of exercises/activities do you assign students in class (or as homework, if applicable)?
17. What are the key challenges you face when teaching English at [program]?
18. How do you assess student performance and progress?
19. What types of metrics on student performance do you have to submit to qualify for State or other funding?
20. What tools (tech and non-tech) do you currently use in class?
21. Do you know if your students use mobile phones or have access to other technologies?
 - a. Do you know if your students have smartphones or feature phones?
 - b. How comfortable do you think your students will be with smart phones or other touch screen devices?
22. Do you think your students will be motivated by educational games?
 - a. If so, what kind of games do you think they would find appealing?
 - b. If not, why not?
23. Do you think technology could assist you with the following activities:
 - a. Creating visual aids; if yes, how?
 - b. Presenting visual aids to class; if yes, how?
 - c. Tracking student progress (e.g. hours spent on lessons); if yes, how?
 - d. Developing content for lessons; if yes, how?
 - e. Other; if yes, what and how?
24. If you could dream up one or more tools/devices to help you with class preparations and teaching, what would they be? (feel free to get back to us on this)
25. Do you have any other thoughts you would like to share with us?

GED Teachers at Refugees' English Literacy Program, Pittsburgh, U.S.

1. How long have you been working with [program]?
2. What do you like most about being a teacher here? What do you like the least?
3. What is your process for preparing for class?
4. How long does it take you to prepare for class?

5. What type of technology do you use for class preparations?
6. What aspects, if any, of your class preparation and teaching do you wish were automated?
7. What classes do you teach?
8. How many students do you have in each of your classes, on average?
9. What is the average attendance rate for the classes you teach?
10. Do you think your students enjoy learning and coming into class?
11. Do you think the English literacy level of students affects their performance in other subjects as well? Why or why not? (please explain)
12. What do your students struggle with the most in your classes and what types of strategies or tools do you think would help students improve in these areas?
13. What subjects or lessons are your students most comfortable with?
14. What teaching techniques work best with your students (ESL students in particular - e.g. repetition, use of visual aids, etc.)?
15. Do you use educational games or competitions in your class?
 - a. If so, can you please describe these activities? Do students enjoy them?
 - b. If not, do you think students would enjoy this type of activity?
16. What other types of exercises/activities do you assign students in class (or as homework, if applicable)?
17. What are the key challenges you face when teaching GED classes at [program]?
18. How do you assess student performance and progress?
19. What types of metrics on student performance do you have to submit to qualify for State or other funding?
20. What tools (tech and non-tech) do you currently use in class?
21. Do you know if your students use mobile phones or have access to other technologies?
 - a. Do you know if your students have smartphones or feature phones?
 - b. How comfortable do you think your students will be with smart phones or other touch screen devices?
22. Do you think your students will be motivated by educational games?
 - a. If so, what kind of games do you think they would find appealing?
 - b. If not, why not?
23. Do you think technology could assist you with the following activities:
 - a. Preparing for class (e.g. creating any visual aids or other course material); if yes, how?
 - b. Tracking student progress (e.g. hours spent on lessons); if yes, how?
 - c. Other; if yes, what and how?
24. If you could dream up one or more tools/devices to help you with class preparations and teaching, what would they be? (feel free to get back to us on this)
25. Do you have any other thoughts you would like to share with us?

AmeriCorps Members at Refugees' English Literacy Program, Pittsburgh, U.S.

1. How long have you been working with [program]?
2. What is your role at [program]?
3. What do you like most about working here?
4. What are some of the challenges your face with your work?

5. What classes do you teach or assist with?
6. Do you think [program]students enjoy learning English and coming into class? Why or why not?
7. What do think students struggle with the most in terms of English literacy?
8. What aspects of English literacy do you think students are most comfortable with?
9. What teaching techniques do you think work best with the ESL students you work with (e.g. repetition, use of visual aids, etc.)?
10. Do you use educational games or competitions in the classes you work with?
 - a. If so, can you please describe these activities? Do students enjoy them?
 - b. If not, do you think students would enjoy this type of activity?
11. What tools (tech and non-tech) do you currently use in class?
12. Do you know if [program] students use mobile phones or have access to other technologies?
 - a. Do you know if [program] students have smartphones or feature phones?
 - b. How comfortable do you think [program] students will be with smart phones or other touch screen devices?
13. Do you think [program] students will be motivated by educational games?
 - a. If so, what kind of games do you think they would find appealing?
 - b. If not, why not?
14. Do you think technology could assist you and [program] teachers with the following activities:
 - a. Creating visual aids; if yes, how?
 - b. Presenting visual aids to class; if yes, how?
 - c. Tracking student progress (e.g. hours spent on lessons); if yes, how?
 - d. Developing content for lessons; if yes, how?
 - e. Other; if yes, what and how?
15. If you could dream up one or more tools/devices to help you with class preparations and teaching, what would they be? (feel free to get back to us on this)
16. Do you have any other thoughts you would like to share with us?

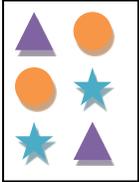
Volunteers at Refugees' English Literacy Program, Pittsburgh, U.S.

1. How long have you been working as a volunteer teacher with [program]?
2. What is your age range?
3. What is the highest level of education you completed?
4. Did you have prior teaching experience before signing up as a volunteer with [program]?
5. What type of students do you teach?
6. How many students are you currently working with?
7. Do you think your students enjoy learning English and coming to classes?
8. When did you complete your volunteer training with [program]? (Please enter month and year)
9. Which training workshop(s) did you enroll in?
10. What was the most useful component of the training workshop(s) you participated in?
11. Was there any material you received at the workshop(s) that has been particularly useful to you in your teaching?

12. Would you find it useful to have online access to the material covered during the training workshop(s) to assist with your teaching?
13. Have you ever taken a web-based training course or any other online workshop?
14. Do you think it would be useful to have supplemental volunteer teacher training through online course material?
 - a. Please explain why
 - b. Please explain why not
15. Do you have any ideas for how technology might help enhance the volunteer training workshop(s)?
16. How much time do you spend preparing for your lessons each week?
17. What do your students struggle with the most in terms of English literacy?
18. What aspects of English literacy do you think students are most comfortable with?
19. Which teaching techniques do you think work best with the students you work with?
20. Do you use educational games or competitions with your students?
 - a. If yes:
 - i. Please describe these activities
 - ii. Do students enjoy these games and competitions?
 - iii. Do you think your students are motivated by these games and competitions?
 - iv. Do you have suggestions for other kinds of games that you think students would find appealing?
 - b. If no:
 - i. Why don't you use these types of activities in your lessons?
 - ii. Do you think your students will be motivated by educational games?
 - iii. Do you have suggestions for other kinds of games that you think students would find appealing?
21. What are the key challenges you face while teaching English as a volunteer for [program]?
22. Do you use any of these technologies to help with your lesson preparation?
 - a. Please list any websites you use to help with your lesson preparation
23. Do you currently use any of these technologies during lessons with your students?
 - a. Please list any websites you use during your lessons
 - b. Please list any mobile phone apps you use during your lessons
24. Do you know if your students have access to these technologies outside of lessons with you?
25. How do you think your students will handle working with smart phones or other touch screen devices?
26. Do you think technology could assist you with the following activities:
27. If you could dream up one or more tools/devices to help you with class preparations and teaching, what would they be?
28. Do you have any other comments or suggestions to share with us about any aspects of your experiences volunteering with [program]?

Students at Refugees' English Literacy Program, Pittsburgh, U.S.⁶

⁶ Images in this section sourced from <http://www.morguefile.com/>

<p>What do you think of these class activities?</p>	 <p>Working together</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Working alone – 1 person</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Standing up (being active)</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Sitting down</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Writing on the whiteboard</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Matching</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Stories</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
	 <p>Working with pictures</p>	<p>(1) Good? (2) So-So? (3) Bad?</p>
		<p>(1) Good? (2) So-So? (3) Bad?</p>

		
	Working with numbers/money	
		
	Flyswatter game (or other games)	(1) Good? (2) So-So? (3) Bad?
Do you like watching TV and movies at home?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
Do you like sports?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
	Basketball	
		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
	Soccer	
		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
	Volleyball	
		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
	American Football	
		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
	Cricket	
		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
	Baseball	

Do you like music?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
Do you like dancing?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
Do you like shopping?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
Do you like cooking?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
Do you like playing video games?		(1) Yes I like it a LOT (2) I like it a LITTLE (3) No I do NOT like it
What type of mobile phone do you have?		
(Optional) Do you play games on the phone? If so, what games do you play?		
How many of you have a computer at home?		
If you have a computer at home: How often do you use the computer?		(1) Everyday (2) Sometimes (3) Never
If you have a computer at home: What do you use it for?		(1) Internet (2) Facebook (3) Skype (4) Email (5) YouTube (6) Games – what games?