Assignment 4

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1 JOURNAL

My name is Leonard Johnson and this first part is my journal for the class. I'm going to assume that the individuals who read my first assignment will not be the same ones who read assignment one or two. I'll be extremely honest, for putting my thoughts to paper – I'm all over the place. I hope that my journal will be easy to follow and will make sense to the readers.

1.1 09/16/2019 – A history rehash.

I learned from assignment two, that the readers of future assignments might not have the historical understanding of where I'm going with my project or the history behind its focus. This section will be a brief historical record of what I'm trying to accomplish.

My focus has strictly been on the 911 Telecommunicators field. My wife has worked in this field for close to 20 years. She has helped create educational material and training programs for multiple agencies and for the state of Texas. I have witnessed firsthand the lack of educational technology applied in this field. That is why I've spent my time and focus as to where I possibly could apply an educational technology type of project.

In assignment one and two, I focused on an application that would help the deployment of emergency Telecommunicators across the state of Texas for disaster relief. However, that was more of an application and really didn't provide any applicable educational technology.

For assignment three, I done some investigation in the 911 center itself and witnessed trainees using flashcards to learn different types of codes. I decided to change my focus and investigate the possibility of using voice-activated assistant such as Alexa to create a training program for the dispatchers.

1.2 09/17/2019 – Which Project?

At this point, I haven't generated a specific project to work on. I'm still investigating two different possible projects. The first project deals with the possibility of creating an Alexa skill that could be used to train dispatchers on the phonetic alphabet.

The phonetic alphabet is a system used across the world, where an alphabetic letter is spelled out over telephonic equipment in an effort to reduce failures of communication. A prime example is when an officer reads a license plate such as *JWL-TRA* over the radio to dispatch – he will say *JOHN-WILLIAM-LINCOLN-TOM-ROBERT-ADAM*. It is a universal alphabet that can be understood by multilingual personal and intra-agencies. Various forms of this alphabet are used across military, aviation, and other agencies. It is vital that new hires into a 911 center can understand and transpose this effectively and efficiently. According to Skidmore, L., & Moore, R. K. (2019) using a voice-assisted device like Alexa for a learning tool is not only efficient but had a lot more unexplored potential.

1.3 09/17/2019 – A revisit to my first idea.

My wife is part of a group that is deployed when national disasters hit in the state of Texas. This special group of Telecommunicators relieves the personnel in 911 centers that have been hit with these national disasters. What the public doesn't understand, is that the firefighters, law enforcement, medical emergencies, and 911 centers stay on the job during these disasters yet they are affected just like everybody else.

During hurricane Katrina, my wife was deployed to a 911 center, where the employees had been on the job for three days straight. When those individuals were relieved, they discovered the hurricane had wiped out all their homes. By having other agency personnel come in, it allows the workers in the affected area to take care of personal issues.

A few days ago, my wife was notified that she might be deployed again, down in Houston. This got me to thinking; my first attempt at a project was creating an application that would allow a state coordinator to deploy individuals by using an interactive map. While this doesn't have an educational technology application, if I turned it into a simulation it could be used as a teaching tool for discovering multiple areas of failure.

For example, currently FEMA dictates the specific classes that these dispatchers need in order to be deployed to these disasters areas. Not everybody has the same training, some are trainers themselves, some are managers, some have specific hazmat, others are bilingual, etc. It is highly possible, that I could create a simulation that would mimic a request for assistance to a specific agency and a set of criteria needed for that agency. Then have the simulation show possible best scenario response from team members. This could reveal gaps in training. It could also provide coordinators data on possible location gaps were the response times could be too long. According to Bartel, L. (2018, February 22), simulations can be used to mimic real-world situations and allow trainers to be more effective when specific scenarios arise.

1.4 09/18/2019 – 09/21/2019 - Research.

I decided to break up my research into two distinct fields. I read papers on simulation-based training and I read papers on using voice-assisted devices for skills training.

In my annotated bibliography, entries 1 through 15 are research I found extremely helpful in my quest on using simulation-based training in a non-technical skills field. The entries 16 through 30 deal with research and analysis on using voice-assisted training.

I didn't put my personal thoughts on each of the annotated entries. I found all of them very intriguing. My fear was that if I put my personal thought on each one, I could honestly; bias the reader from investigating the full story.

1.5 09/21/2019 – Style?

According to APA style, there are no guidelines for the color of hyperlinks. The one article I found stated that APA style was for reading in print and that colored hyperlinks would serve no purpose. I found the colored links distracting.

If I'm reading someone's paper, and I'm interested in one of his or her bibliography articles, I would like to click on it and read the full article. I decided to use my creative license and do two things. First, I formatted the hyperlinks with no color but let them remain as hyperlinks. On some hyperlinks, the links of the hyperlink caused abnormal spacing issues in the bibliography. So secondly, I left original hyperlink but I changed the text of the hyperlink to fix my spacing issue.

In the PDF, just because it doesn't show the hyperlink - you can still click on it and review the full article.

In addition, a few research papers require login to various systems. If a student is going to review a bibliography entry, I believe it would be nice for them to actually read it. What I did, is I left that hyperlink text to the original source, however I changed the actual URL to a viewable version of the research paper to other places on the web that doesn't require logins.

1.6 09/21/2019 – The content track.

Each of my proposed projects deal with the content track (I could be wrong). Creating a simulation or an Alexa skill for training – deals with creating demonstrable content to users.

1.7 09/21/2019 – A quick overview of my research.

While investigating the simulation possibility, a majority of all papers I read (1-15) dealt with using simulations to the medical field. A huge emphasis is put on personal and patient safety and it seems that simulations provide the ability to train individuals without harming an actual person during the training. My proposed simulation deals with the response times and the efficiency of the employees being sent to a disaster area. Which equates into effective public safety.

The interesting part about researching the voice-assisted project was the amount of nomenclature that varies in papers (16-30). The Voice Assisted Personal Assistant (VAPA), Intelligent Personal Assistant (IPA), and Mobil Learning all dealt with similar topics – intelligent voice assistant. All projects and research showed that voice assistance devices and technology was more efficient than traditional lecture-based or flashcard learning. My project would help dispatchers actually here possible phonetic word sequences and allow them to translate it back to its original alphabetic sequence.

1.8 09/21/2019 – Suggestions?

Now, I'm open to suggestions on which project I should actually follow through.

ANNOTATED BIBLIOGRAPHY

1. Cook, D. A., Brydges, R., Hamstra, S., Zendejas, B., H, J., Wang, A., … Hatala, R. (2012, October 1). Comparative Effectiveness of Technology-Enhanced Simulation: Simulation in Healthcare. Retrieved from https://journals.lww.com/simulationinhealthcare/Fulltext/2012/10000/Comparative_Effectiveness_of_Technology_Enhanced.6.aspx

   This research paper is a in-depth look at how effective simulation technology is when applied to real student training. The research included evaluating over 10000 articles that covered numerous educational technology tools used in the educational field. The results did show that simulations were indeed more effective than other delivery methods. Also, depending on the specific educational field, the total effectiveness of the training method would vary in success.

2. Salas, E., Wildman, J. L., & Piccolo, R. F. (2009). Using Simulation-Based Training to Enhance Management Education. *Academy of Management Learning & Education*, *8*(4), 559–573. doi: 10.5465/amle.2009.47785474

   This research paper takes a deep dive into a simulation-based training (SBTs) and how they can help management decisions. The majority of the paper is focused around setting up a framework to effectively apply SBTs in a training environment. Also, the paper covered how a lot of failure in the management field fails due to teaching through theory and not experience. This is where SBTs come into to play and help recent management employees make better decisions.

3. Lloyd, M. (2018, September 4). Simulation-based training: applications in clinical pharmacy. Retrieved from https://www.pharmaceutical-

journal.com/research/review-article/simulation-based-training-applications-in-clinical-pharmacy/20205302.article?firstPass=false

This research paper is an in-depth look at using simulation-based training in clinical pharmacy. That the simulation-based training is an effective training tool and is critical for learning new skills and adjusting to new breakthroughs in the medical field. Its use has not involved in the field of pharmacology as much as it has in other fields. However is potential is staggering since it can be applied to training entire teams, resource management, optimization and most of all patient healthcare.

4. Khan, R., Scaffidi, M. A., Walsh, C. M., Lin, P., Al-Mazroui, A., Chana, B., … Grover, S. C. (2017, August 4). Simulation-Based Training of Non-Technical Skills in Colonoscopy: Protocol for a Randomized Controlled Trial. Retrieved from https://www.ncbi.nlm.nih.govPMC5562936/

   This research paper was an investigation into using simulation-based training in a non-technical skills category. The study took a group of endoscopists and separated them into two different groups. One group was taught six hours of interactive traditional-based lecture training. The other group was provided a skills-based training simulation for six hours. The results are still out however the conclusion was by using simulation-based training in a non-technical skills category could enhance patient safety and the confidence among trainees.

5. Bartel, L. (2018, February 22). How simulators will transform police use of force training in 2018. Retrieved from https://www.policeone.com/police-products/training/simulator/articles/471480006-How-simulators-will-transform-police-use-of-force-training-in-2018/.

   This article was a discussion about increased efficiency of law enforcement officers when it come to training in the use of force. Up until a use of force simulator was created, law enforcement officers had to deal

with situations that they have never experienced before. This led to a national crisis when it came to officers using use of force. With simulation-based training officers became accustomed to recognizing threats, how to handle stress, and de-escalate situations that before were only encountered in the real world. Simulations can be programmed with difficult scenarios that proved problematic for offices to handle in the past. It also allows trainers to become more effective when it comes to teaching these scenarios.

6. Staff, S. (2018, August 21). Simulation-Based Training: The Evidence is In. Retrieved from https://www.chieflearningofficer.com/simulation/

   This article dives into multiple employment disciplines to uncover facts that simulation-based training is actually viable. The author surveyed multiple areas that included pilot and aircrew operations, medical specialties, equipment maintenance, military combat, education, law enforcement, driving and trucking. Surveys showed that on average every employment disciplined showed a increase in competency when using simulation-based training. A simple example was driving and trucking showed that by training new hires with simulation-based driving that there was a 21% reduction in preventable accidents. The conclusion was there is no need to question whether simulation-based training is effective because it was showed to be superior than any other training method.

7. Bilotta, Werner, M., S., D., S., Rosa, Giovanni, & Federico F. (2013, November 7). Impact and Implementation of Simulation-Based Training for Safety. Retrieved from https://www.hindawi.com/2013/652956/

   This research paper discusses why simulation-based training should be implemented in medical facilities to help improve the safety of patients. It states that one in every 150 patients that is admitted to a hospital dies in a situation that could have been avoided with the proper training. The research concludes that in multiple disciplines, a simulation can improve communications, procedures, and management. However, the paper

also states that there is a limitation because there is no substitution for real person. Yet, situational exposure can be duplicated with a simulation and is highly effective.

8. Lateef, F. (2010, October). Simulation-based learning: Just like the real thing. Retrieved from https://www.ncbi.nlm.nih.gov/PMC2966567/

   This research paper went over the framework needed to set up simulation training curriculum inside medical facilities. It covered multiple areas where simulation-based training increased teamwork, competency of doctor-patient interactions, and the cost-effectiveness of using such programs. That early adopters need to be engaged and stay on top of medical trends so they can keep their simulations up-to-date. Depending on the situation and what is actually needing to be trained, simulation programmers can tailor the simulation to whatever environment is needed in the facility.

9. Scalese, R. J., Obeso, V. T., & Issenberg, S. B. (2007, December 19). Simulation Technology for Skills Training and Competency Assessment in Medical Education. Retrieved from https://link.springer.com/article/10.1007/s11606-007-0283-4

   This article talked about how simulations can be applied in the medical field. That the safety of patients is paramount. Simulation technology has the ability to mimic real-life patient symptoms. This allows the training of medical staff across a broad spectrum to diagnose issues with patients. Simulations can be a teaching tool which improves physicians training of life-threatening procedures. It has been known that typical lecture-based teaching and writing about outcomes versus experiencing a simulated experience has its disadvantages. Students who use simulations in conjunction with mannequins have shown higher levels of competency.

10. Pharmacy Student Response to Patient-Simulation Mannequins to Teach Performance-based Pharmacotherapeutics. (n.d.). Retrieved from https://www.ajpe.org/doi/full/10.5688/aj700348

This research paper dealt with creating a patient simulation for case assessments using a mannequin for training. During the second year of pharmacy school, all students must take a critical care class. During this class a mannequin was programmed with various illnesses to teach students how to diagnose those illnesses. It was concluded, that using this approach was widely successful. Instructors were able to demonstrate various types of symptoms that could not be done in the real world. It allowed instructors also to control the speed of learning, adapting the environment, and using actual past cases for training. This program created more confident pharmacists.

11. Eksi, H. (2003, May 1). The Effects of Computer Simulations On Students' Success and Attitudes in Teaching Chemistry. Retrieved September 21, 2019, from https://www.academia.edu/1456226/eof

    This research focused on an experiment on a group of eighth-graders that dealt with measuring the aptitude of chemistry test from a control and test group. One group was taught chemistry through basic lecture-based instruction while another group of students were teach to chemistry through computer-based simulation. Both groups had taken pretests before the start of the semester which showed that all students were at the same level of knowledge when it came to chemistry. The posttests of both groups after the instructional period was over- showed those in the computer-based simulation group scored significantly higher than those in the traditional lecture-based group.

12. Johnson, T. E., & Gedney, C. (2001, May). Learning support assessment study of a computer simulation for the development of microbial identification strategies. Retrieved September 21, 2019, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3633117/

    This research paper dealt with creating a simulation for students to help them learn the proper steps of identifying unknown microbes. The research was focused not on efficiency but on quality. For this specific field the steps needed to identify microbes has more emphasis than how

many you can identify during a certain time. It was shown that the simulation and the students who were involved followed the steps needed in proper order for this type of job. The research concluded that other fields that rely on technology could use simulation-based training for a higher degree of success.

13. Deneve, K. M., & Heppner, M. J. (1997). Role-play simulations: The assessment of an active learning technique and comparisons with traditional lectures. *Innovative Higher Education*, *21*(3), 231–246. doi: 10.1007/bf01243718 Retrieved September 21, 2019, from https://link.springer.com/article/10.1007/BF01243718

    This research paper was an attempt to compare the efficiency of a traditional lecture-based teaching and role-playing simulation learning. The main difference between these two methods is that lecture-based is passive whereas role-playing simulation is active. The researchers measured memory recall at different times during the study. It was shown that those who interacted in the role-playing simulation made higher on the test questions than those from the traditional lecture method.

14. Amory, A., Naicker, K., Vincent, J., & Adams, C. (1999). The use of computer games as an educational tool: identification of appropriate game types and game elements. *British Journal of Educational Technology*, *30*(4), 311–321. doi: 10.1111/1467-8535.00121 Retrieved September 21, 2019, from https://www.mackenty.org/images/uploads/3251778.pdf

    This research article took a group of students and introduce them to playing games try to identify what elements was more attractive for the experience. By identifying these elements such as graphics sound storyline is important aspects it allows researchers to create a pedagogical model and use these elements in a learning environment. Their conclusion was that students favored 3D adventure games and strategy games the best.

15. Kindley, R. (2002, September 17). The Power of Simulation-based e-Learning (SIMBEL). Retrieved from https://www.elearningguild.com/des-h.pdf

this research article goes over how simulation-based training is more effective than asynchronous e-learning, scenario, or game-based training. That game-based training is artificial or uses an artificial reality, asynchronous e-learning is informational and recall, however simulation-based training uses intuitive and emotional skills. By using this type of skill set in the situation being near pseudo-reality it allows the user to be fully immersed in the training. This type of experience sticks because they are learning by doing.

16. Mettler, L., Ibrahim, M., & Jonat, W. (1998). One year of experience working with the aid of a robotic assistant (the voice-controlled optic holder AESOP) in gynecological endoscopic surgery. *Human Reproduction*, *13*(10), 2748–2750. doi: 10.1093/humrep/13.10.2748 Retrieved from https://academic.oup.com/humrep/article-pdf/132748.pdf

This research paper compared the efficiency and accuracy of using a voice-controlled surgical robot versus manual controls. Surgeons, in the past, used knobs and foot controls to maneuver robotic arms during surgical procedures. This research utilized a voice-controlled robotic arm instead of manual controls and was monitored for a year. The conclusion of the research showed that using a voice-controlled robotic arm was faster, more efficient, less errors, and allow the surgeon to free his/her hands to do other things as needed.

17. Shi, Y., Xie, W., Xu, G., Shi, R., Chen, E., & Mao, Y. (2003). The smart classroom: merging technologies for seamless tele-education. *IEEE Pervasive Computing*, *2*(2), 47–55. doi: 10.1109/mprv.2003.1203753 Retrieved from https://pdfs.semanticscholar.org/6840/iee.pdf

This paper was a detailed set up of creating a smart classroom for e-learning. It covered the layout of computers, monitors, interactive

screens, voice assistants, cameras, laser pointers, and everything else that is needed to do a remote learning effectively. It provided visual diagrams of how students should interact with the equipment provided. A lot of the equipment needed was hidden from the user visually to facilitate a less pervasive use of technology which could have an adverse effect on learning.

18. Han, J., & Kim, D. (2009). r-Learning services for elementary school students with a teaching assistant robot. *Proceedings of the 4th ACM/IEEE International Conference on Human-Robot Interaction - HRI 09*, 247–268. doi: 10.1145/1514095.1514163 Retrieved from http://cdn.intechweb.org/pdfs/8632.pdf

    The research from this paper deals with the pedagogical effects of service robots. It goes in-depth on the interactions between the learner in the robot learning service. It is proposed that learning from a robot where physical interaction can occur versus a computer has shown to be more of a positive learning experience. It states that most of the research done in this field deals with data of content and technology and almost no pedagogical effect. That more research needs to be done with a focus on the pedagogical knowledge.

19. Jeonghye, H. (2012, October 1). EMERGING TECHNOLOGIES ROBOT ASSISTED LANGUAGE LEARNING. Retrieved from https://scholarspace.manoa.hawaii.edu/bitstream/10125/44291/1/16_03_emerging.pdf

    This research paper covers the effectiveness of using robots in an assisted language learning environment. Robot-Assisted Language Learning has continued to grow in popularity and also its usage in educational institutions. While numerous advancements in this field have been made the author concluded that a more structured approach in designing this type of tool needs to be researched. Also, that this type of tool might be applied to various other activity. There could be a paradigm shift instead of using computers in everyday life we could switch to robots.

20. Abdolrahmani, A., Kuber, R., & Branham, S. M. (2018). "Siri Talks at You". *Proceedings of the 20th International ACM SIGACCESS Conference on Computers and Accessibility - ASSETS 18*. doi: 10.1145/3234695.3236344 Retrieved from https://userpages.umbc.edu/~rkuber/pubs/assets2018.pdf

    This research paper dealt with a study on how Siri can interact with the blind. The goals of the paper were to figure out if Voice Activated Personal Assistance (VAPAs) could improve the quality of life of those who are truly blind. The paper's conclusion was that more research was needed. The research study did not include those who could see. The sample group which was blind included younger individuals who were familiar with technology and did not cover a larger spectrum of those who might not be familiar with it.

21. Nordin, N., Embi, M. A., & Yunus, M. M. (2010). Mobile Learning Framework for Lifelong Learning. *Procedia - Social and Behavioral Sciences*, *7*, 130–138. doi: 10.1016/j.sbspro.2010.10.019 Retrieved from https://cyberleninka.org/article/n/145044.pdf

    This research paper summarized what is needed to create lifelong learning through mobile applications. It distinctly separates out the mobile learning environment versus typical e-learning environment that is conducted on computers. It covers different learning theories, generic mobile content, the learners experience, and the learners objectives. The paper is geared towards those who would like to learn continuously and should be encouraged to never stop learning. It touches on the topic of how mobile learning is available to the masses were at one point education used to be only for the elite.

22. Chinnery, G. (2006, January 1). EMERGING TECHNOLOGIES Going to the MALL: Mobile Assisted Language Learning. Retrieved from https://scholarspace.manoa.hawaii.edu/bitstream/10125/44040/1/10_01_emerging.pdf

This paper that with a research into using mobile assisted language learning through items such as iPads, iPods, cell phones. The research included surveys from universities that had sent out text messages, little mobile messages, introductory speeches, and small test prep exam questions to various students with mobile devices. The conclusion from the research was that as more mobile devices proliferate the world more teachers and students will be able to use this medium to create their own curriculums. From the author's perspective computers provide a better environment for e-learning however not everybody has a computer and mobile phones are quickly taking over.

23. Canbek, N. G., & Mutlu, M. E. (2016). On the track of Artificial Intelligence: Learning with Intelligent Personal Assistants. *International Journal of Human Sciences*, *13*(1), 592. doi: 10.14687/ijhs.v13i1.3549 Retrieved from https://j-humansciences.com/ojs/index.php/IJHS/article/view/3549/1661

    This paper was a more in-depth study on the possibilities of using intelligent personal assistants that use cognitive computing technologies and Natural Language Processing (NLP) for learning. Within the timeframe of the paper voice assistants such as Cortana, Siri, and Alexa had been revised. More research will be needed but the paper suggested that it was highly feasible to use IPAs for learning second languages.

24. Polson, M. C., Richardson, J. J., & Soloway, E. (1988). *Foundations of intelligent tutoring systems:* Hillsdale, NJ: Erlbaum. Retrieved from https://content.taylorfrancis.com/books/download?dac=C2007-0-03549-1&isbn=9781134988891&format=googlePreviewPdf

    This book was a collection of articles written about human-computer interaction and the use of intelligent tutoring systems (ITS). It is a quick overview of all elements that are required in an ITS. It provides the reader a summarized version of the history and the foundation of implementing an ITS. The was no conclusions, just material from the different parts of the fields collected and sorted in a logical manner.

25. Lubiana-Alves, T., & Goncalves, A. (2018, November 30). Introducing a Virtual Assistant to the Lab: A Voice User ... Retrieved from https://www.researchgate.net/publication/326485408_Introducing_a_Virtual_Assistant_to_the_Lab_A_Voice_User_Interface_for_the_Intuitive_Control_of_Laboratory_Instruments

    This article was a summary of the in-depth research using a system such as Alexa to control equipment in a laboratory. Using Alexa to control equipment and control experiments resulted in quicker experiment time and more qualified results. The code developed from this experiment was modular and facilitated the betterment of productivity. The low cost of implementing this type of technology was huge positive.

26. Hills, M. M., & Abu Naser, S. S. (2017, January 10). Knowledge-based Intelligent Tutoring System for Teaching ... Retrieved from https://www.researchgate.net/publication/314242075_Knowledge-based_Intelligent_Tutoring_System_for_Teaching_Mongo_Database

    Intelligent Tutoring Systems (ITS) have been used in the education field for years. This paper was an evaluation of using an ITS (which includes intelligent voice assistant) in the use of training students of using the NoSQL database MongoDB. The outcome of the study dealt with how effective of the training was between students and teachers. The overall outcome showed that by using an ITS, the learning rate was indeed faster and a lot more promising than traditional methods.

27. LochaN, S. (2018, June 3). CHATBOTS IN EDUCATION A passing trend or a valuable pedagogical tool? Retrieved from https://pdfs.semanticscholar.org/533e/bc0255c36749e1f46b8d3662464d6ee5d4f0.pdf

    This paper deals with the task of trying to analysis the various results from other chatbot papers. Numerous papers have been published on the effects of chatbots and their role in education. These researchers do their best to take those results from these studies and create a

summation of it. They acknowledge that chatbots are one of the most popular trends and in use in this day and age. Chatbots are only limited by their creators imagination and creativity. The conclusion of the paper was that chatbot could do anything we wanted and the future holds a lot more discovery and awesomeness in this field.

28. Ashwin, Prasad, Rohit, Khatri, Chandra, Venkatesh, … Gene. (2018, January 11). Conversational AI: The Science Behind the Alexa Prize. Retrieved from https://arxiv.org/ftp/arxiv/papers/1801/1801.03604.pdf

    This article was about the self-realization from Amazon that the conversational aspect of Alexa is very basic. Amazon, in its infinite wisdom created a contest that is open up to 16 universities. The contest will award 2.5 million dollars to the first team who can create a conversational Alexa chatbot that can maintain an intelligent conversation for 20 minutes. The topics of the conversations could range from sports, science, or any other category. The conclusion was that most successful teams used a lot of conversational user experience (CUX), Natual Language Understanding Module (NLU), and Dialog Manager (DM).

29. Lopatovska, I., & Oropeza, H. (2019, February 1). User Interactions with "Alexa" in Public Academic Space. Retrieved from https://irenelopatovska.files.wordpress.com/2018/08/asist18-alexa-in-public-02.pdf

    This article was an investigation into how an intelligent personal assistant (IPA) Alexa would be utilized in a public setting. The majority of research data up until this point has been collected from IPAs used in a private settings. The research concluded that the use of the IPAs in a public setting was humble and lacked any real interaction the consisted of a true emphasis. Most questions were topical and delt with salutations and questions about how the device was doing. The authors believe it was because of the lack of understanding of the device and that more research was needed.

30. Skidmore, L., & Moore, R. K. (2019). Using Alexa for Flashcard-Based Learning. *Interspeech 2019*. doi: 10.21437/interspeech.2019-2893 Retrieved from https://www.isca-speech.org/2893.pdf

This article was a tactical approach to evaluate Alexa for a flash card-based learning system. The authors were under the impression that Alexa had the potential to be an educational tool. However, they made the assumption that the tool had limited capabilities when it came to the training and learning a new language. The authors research reflects their findings by developing a Japanese Language flashcard skill for Alexa. Their findings show that the effectiveness of using a voice-assisted learning tool was not only feasible but had so much more potential.