Assignment 3

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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.

In complete openness, the above blurb is what I put in all my journal entries. I believe journal entries are exactly what you think of on the spot and put on paper. I have reviewed very professional journal entries from students in this class. It is obvious that individuals go back and edit what they originally penned to paper. I mean we all do.

In my own personal opinion that is not genuine. However, I will not count off anybody for that either. What I think at a particular moment, how I feel, what's crossing my mind, will come out and be scribbled in my journal. I was criticized in the past for this; however, since the class syllabus states this is *my* journal I will continue to write in this fashion

1.1 09/09/2019 – A little history.

In my past journal entries and in my past assignments, I have focused mainly on the 911 telecommunications emergency services field. I took it for granted that individuals who didn't read my first paper would not understand my second paper and why I was focusing on this field. It was suggested that I add a summary section explaining why my attention is on this field

Over the last 20 years, my wife has worked for several 911 agencies. While some of those agencies excelled in IT, computer services, and applications to help with their jobs - other agencies did not. I have single-handedly witnessed the lack of tools and skills associated with this field. For the most part, 911 dispatch agencies are usually housed under the Police Department. When it comes to budgetary items that are needed to improve their skills, training, or education - the Police

Department *needs* comes first and then the dispatchers needs come second. So now you know the motivation behind my desire to help out 911 agencies.

1.2 09/09/2019 – More reading.

Over the course of the past month, I continue to dig up papers through Google scholar or the IAED website that deals with emergency services (911). Some of the papers are very good reads and some papers are not. I typically do not cite any of the papers I've read in my journal because most of my effort so far has been in a discovery phase. However, I will list what papers I have combed through in my reference section. Up until this point, most of my research was dealing with how I could use some type of mapping-GIS system with 911 personnel who are deployed to disasters areas. While this makes for very interesting application - its use as an educational technology project was nonexistent.

1.3 09/10/2019 – Brainstorming with the wife.

Today proved to be a very fruitful day. In my typical fashion after work the wife and myself set down to watch TV. I took this opportunity to quiz her about items that she could use in her workplace that maybe I could apply to an educational technology type project.

One of the more interesting item that popped up was the CAD software that all dispatcher use. CAD which stands for computer-aided dispatch is used in the majority of all 911 centers. A CAD system does exactly what it stands for. Using the computer, they can dispatch multiple units like EMS, fire, and police to locations. It also tracts all locations and know how many of what personal is where.

There are multiple papers on the effectiveness of this software. It is a very pricey application and extends into their squad cars, fire trucks, ambulances, and in some places into schools. It has a plethora of functionality. However, it is very similar to Microsoft Word and Words enormous amount of functionality. But that is not a good thing for some folks like myself. I use maybe 5% of Words capabilities. I use it to write my paper, spellcheck, paragraph formatting. There is so much more you can do from mail merges to creating charts by integrating with other Microsoft applications. I still have zero idea about half the things that it is capable of doing.

I will quiz her more and try to get a demo of application. This might be something I can focus on for educational technology with the possibility of creating some type of trainer or simulation from

1.4 09/11/2019 – The visit.

Every day at lunchtime and during breaks – I do my best to try and read at least 3 to 4 papers for this class (the short ones anyway). I have come across a couple that are 40 plus pages long which I can't digest in the small amount of free time I do get. So far in my reading, there isn't a lot of substantial type of scholarly articles related strictly to 911 dispatch. Most are high-level ideas about *what* could be done in the future. I guess someone had to start the journey.

I took lunch to the wife's office (Prosper Police Department) and met her coworkers and the three new trainees. I'm referred to as her work husband so I already know most of the folks who work there. I've also have been introduced to the CAD system in the past. However, that introduction was via screenshots and powerpoint presentations.

An interesting action jumps out at me when the dispatchers are actively working a call. The very first step when the dispatchers take a call is everything gets entered into the CAD system - regardless if they dispatch an officer not. The CAD system is used as method of record-keeping or the source of truth for information about call history, legit calls, hang-ups, and dispatched personal to that address or phone number. What got my attention was is the dispatchers do not type full text they abbreviate a lot of words. They use a form of shorthand that the CAD system understands and then translates it to full text.

Why is this important? Well, the time it takes for a paramedic to get on scene of a heart attack victim is of the most utmost importance. The seconds lost between typing out a *current address* versus just typing in *CA* could actually cause loss of life.

My wife, of course, can type in full cryptic sentences all because of muscle memory and experience. The folks who've been there a few years – typically have to use a drop-down menu – which honestly – doesn't save time in my opinion. The newbies, sadly, have no idea and were creating flashcards to use on each other – in an effort to learn.

Bingo!

1.5 09/13/2019 – Great ideas!

There were several ideas that popped in my head after visiting the Prosper Police Department. Creating some type of interactive trainer for these shortcut words that the CAD system uses is an interesting idea. I don't know the extent of the library it has built-in. I also do not know if any are user-defined or if other vendors who sell different CAD systems use the same features. I have some investigation ahead of me.

Through my wife's career I have met numerous other individuals who work for other 911 agencies across North Texas so I'm not in shortage of users to ask.

I also come across a large amount of reference data that dispatchers, police, and firemen use for communications between each other. A very interesting note that according to Manning (1988) is the focus is always put on communications output such as response times and citizens satisfaction but very little focus on the internal mechanism that are responsible for this.

Now, my brain is trying to figure out how to take a limited dictionary type system and apply it to ed-tech project. It could be as simple as creating an interactive game or just passive computerized flashcards (like quizlet).

1.6 09/13/2019 – More and more ideas.

There are a few more ideas that I managed to generate from all of this. The CAD system uses has a command prompt type interface. It uses the same type of short-hand commands to perform actions. Also, another awesome idea I had deals with using the phonetic alphabet. Therefore, just in case folks don't know – officers use the phonetic alphabet when reporting a license plate over the radio to dispatchers. The reason why is for clarity and efficiency according to O'Toole, W. C., & Reyes, E. (2008, May 1).

1.7 09/13/2019 – In closing.

I plan on using a smart voice assistant application to create a training system for dispatchers with a focus on the phonetic alphabet and/or CAD commands. Also, according to Canbek, N. G., & Mutlu, M. E. (2016) – the advancement of intelligent

voice assistants opens the door to unlimited opportunities. Which begs the question – why not use something like a IPA in the office while working on calls?

2 ACTIVITY – PROBLEM STATEMENT

2.1 Background Information

Law enforcement agencies around the world use the phonetic alphabet to repeat license plates, names, and other information over two-way communications devices back to dispatchers and agencies. This is used to eliminate mistakes and establish a common language for radio traffic. The phonetic alphabet is the pronunciation of single letters into an assigned word. An example is *A* would be *Alfa*, *B* would *Bravo*, etc.

2.2 General Problem Statement

The general problem is that new hires into the any type radio traffic field (dispatchers, EMS, firefighters, law enforcement, aviators) have to learn this system through the oldest technique in the world - memorization. The only teaching tool that I have found consists of basic printable flashcards. It is possible that the rate of learning could be faster with computer-assisted learning tools.

2.3 Scholarly Support

Aleven, V. A. W. M. M., & Koedinger, K. R. (2010, February 11) put forth and experiment where one group of students used traditional methods on learning classroom materials and another group that used a computer-based cognitive tutor. According to the authors, "students acquired better-integrated visual and verbal declarative knowledge and acquired less shallow procedural knowledge."

Several researchers have compared the efficacy of digital flashcards versus paper flashcards and have concluded that using digital flashcards is more effective Azabdaftari, B.& Mozaheb, A. M. (2012).

2.4 Specific Problem Statement

The specific problem is that no type of education technology exists to help learners of the phonetic alphabet resulting in slower learning speeds and no standardize tool that could be utilized across all fields.

2.5 Closing Commentary

The mastery of the phonetic alphabet is key to any field that uses radiotelephony. Its implementation is used across the world so that regardless of language differences or the quality of the communication channel, the critical combination of letters and numbers can be understood by anyone. The time it takes to master this *language* has a direct impact:

- Budgets – the longer it takes to train personal in any field the more money it costs city, state, and private entities.
- Releasability – the faster a person learns their task the faster they can be released from training.
- Liability – misinterpreting this language could cause a delay in services, which could place liability on all entities involved.

A standardize educational technology tool could help limit the time of learning and provide an easier access method to the material. The training material could accessed through a phone, tablet, computer which would eliminate the need of physical cards. Side note: digital flashcards are more eco-friendly.

2.6 Next Steps

I plan to pursue further research to help aid me in the creation of a voice activated interactive tool that can be used in the effective learning of the phonetic alphabet.

3 ACTIVITY – RESEARCH

3.1 Research Question

How can educational technology improve the learning experience of mastering the phonetic alphabet?

3.2 Sub Question 1

What type of educational technology (simulation, AI, voice assistants, etc.) would be the best method?

3.3 Sub Question 2

Is it possible to create an interactive educational technology tool that could be applied to the phonetic alphabet?

3.4 Sub Question 3

To what extent could an educational technology tool reduce the learning time of the phonetic alphabet?

4 ACTIVITY – JUSTIFICATIONS

4.1 Complexity

While the clarity, focus, and conciseness of the sub-questions are obvious, the complexity is not.

Trying to decide on type of technology tool to create for a learning experience is complex task in itself. A simple example would be creating a python program that shows a user the letter *A* and has the user enter response such as *Alpha*. The inherent problem with this is the phonetic alphabet is a *spoken* language. How effective would be a type based educational tool be?

The question of is it possible to create a tool is just as a complex question. If it is possible, why hasn't a trainer been introduced to agencies? I have found numerous text-based translators and text-based trainers with a simple web search. However, only one poorly rated voice trainer. The complexity arises because of the identification of letters that sound like a word. For example, *B* could be deciphered by an AI or other application program as the word *Bee* or the letter *C* could be deciphered as the word *Sea*.

The complexity of measuring the learning efficiency of a control group who is using traditional methods vs using an educational technology tool is very complex task. What control methods do we use, the learning difficulties of one individual versus another individual, what medium is being used to test, all are very complex questions.

According to Lubiana-Alves, T., & Goncalves, A. (2018, November 30) – the simple use of a voice active assistance help doctors improve efficiency and patient safety. However, will I be able to quantify my findings?

4.2 Arguability

As previously, referenced, digital learning can increase the learning experience of students. According to Editorial, C. (2017, February 7), "students can use various types of technology to study topics from multiple angles." In the same article, according to Editorial, C. (2017, February 7), "students expose to subjects in multifaceted ways have a greater chance of knowledge retention."

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