

Assignment 2

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Abstract— Investigation into finding an educational technology project that can be applied to the 911 Telecommunicators field and/or their area of work.

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 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 09/02/2019 – Where to start?

This was a very bad day. I submitted my assignment one and total missed the activity section. When I was reading my feedback, thank goodness a kind student notified me about it. This was not how I wanted to start the semester off. I guess, I just got caught up in reading all the other papers and somehow I missed it. No excuses really, I just dropped the ball.

I reached out to my mentor and informed on what I did. I was under the assumption it would be kicked back to me so I could resubmit (according to the class syllabus). That assumption would turn out to be wrong. Basically, if you don't submit a completed assignment – then it won't be returned for the chance of a regrade. My mentor informed me that I needed to fix my issue and resubmit as soon as possible.

Here I was sitting at work at 8:00 am to 4:00 pm with no access to my draft copy. I would have to wait until I got home. My fear was that the re-submit option on canvas would close before I got the chance to fix my paper. Once I got home, I hammered out a paper that, honestly, I was embarrassed to call my own.

An interesting fact, when I took CS6750 with Dr. Joyner, I accidentally submitted the assignment I completed a week prior to the wrong week on canvas. It was because my organization for the material in that class was lacking. I got it rectified

and as I did peer reviews each week, I noticed that I wasn't the only one who suffered from doing this.

1.2 09/03/2019 – Crisis.

Everything fell apart at work. I spent my whole day and part of the evening handling work issues. My brain hurt.

1.3 09/04/2019 – Informal investigation.

While our primary tasks are to read research papers and articles to help guide us, I can't continue to just randomly search for stuff. Since my focus is 911 Telecommunicators and dispatchers – any search for 911 brings up of course, 9-11 instead of 9-1-1. Also, I'm struggling with figuring out anything that might be considered a contribution to the field. I posted a note to my mentor because I had an idea to design some type of portal for workers in that field. My mentor provided some good feedback and it got me to thinking about how I was approaching this subject.

Instead of trying to find research papers or scholar articles, I spent some time browsing training instruments provided to the 911/EMS field. I wasn't sure how to exactly word that. In summary, I found very few resources, most that were commercial, that provided training via simulations, books, or software to the 911/EMS field. A eye-opener was the sticker price of some of this software.

One site, called [911Trainer](#) has simulators for personal in the 911 field. The basic package for one instructor and two student's price was \$22,340.00! Suddenly, I understood why, through the years, the 911 centers my wife had previously worked for - never had any of this type of software. Almost all 911 centers are run by cities. Which means, they all fall into the cycle of creating and submitting items for budgetary approval by the city managers. New employee slots usually rank top on that list of items – getting a software approval for a small dispatch center for \$22k would be a hard sell.

1.4 09/04/2019 – IAED.

If there was one set of standards for 911 Telecommunicators it would be the International Academies of Emergency Dispatch - [IAED](#). Sadly, this site is horrible to traverse and finding information on it is absolutely terrible. Yet, at the moment, it's the only place I that I can actually find any content related to the field I'm

interested in. Also, it will be the only place where anything I might produce could be published.

1.5 09/05/2019 – New Direction.

I finally found the research section of the IAED - it was called the Annals of Emergency Dispatch & Response – another acronym - [AEDR](#). Finally, some food for thought! The first paper that caught my eye - dealt with the artificial intelligence. Basically, the call volume data that is collected through the year for 911 calls could be a prime candidate for ML/AI (Nudell, N. 2017).

With this one article, I was able to finally realize that my search for a project was too targeted. I needed to step back one level and look at the area through a more fuzzy lens

While I continued to read more papers, a common theme started to show up that dealt with data analysis to help EMS and dispatchers in their current role. Beneficial insights can be generated from collected data, such as identifying ways to reduce response times (Yerram SR. 2016).

1.6 09/05/2019 – My idea.

After reading all these articles and logging them – I actually know what I'm going to do now. I'll review with my mentor and in the next paper – I'll reveal it!

2 ACTIVITY – PAPER ONE

Nudell, N. (2017) [Artificial Intelligence for us?](#) In: *Annals of Emergency Dispatch & Response*. vol. 5, issue 1, Perspectives.

2.1 Need

There is a need for faster analysis of huge volumes of data. Since the yearly volumes for data is in the billions of calls it's very inefficient for humans to analyze it.

2.2 Method

The author was just in the ideation stage of tackling this issue. His next task was to develop machine learning algorithms to help cluster topics, recognize levels of threats, and respond accordingly.

2.3 Audience.

The audience that was targeted included emergency medical services, police, fire, and dispatch centers.

2.4 Results.

Since the author is still in the ideation stage of his work, there isn't any practical results. Only, hypothetical results to scenarios can be ascertained.

2.5 Critique.

In my personal opinion, this type of work in this field is way overdue. I have been a part of this field for over 20 years as an IT outsider. The major obstacle is all this data in silos across 1000s of agencies around the world. Tackling this task is no easy feat. I applaud the author for actually *getting the conversation started*.

3 ACTIVITY – PAPER TWO

Yerram SR. (2016) [Challenges in Utilization of Statistical Software in Emergency Dispatch Data Analysis and Advances in Data and Technologies](#) In: *Annals of Emergency Dispatch & Response*. vol. 4, issue 2, Perspectives

3.1 Need

All data collected in an EMS situation needs to be analyzed statistically. The proper analysis of this data could lead to a path for improvements. However, fundamentally, getting this type of data into a statistical package like R or Micro Strategy is a challenge.

3.2 Method

The author, again, was *starting the conversation*. He tried classifying the data and theoretically trying to figure out the best landing place for dispatch and EMS data types. His final assumption was to classify that data as Big Data due to the enormity of it.

3.3 Audience.

The audience was other authors in the emergency medical services, police, fire, and dispatch centers

3.4 Results.

There isn't any at the moment.

3.5 Critique.

The author is correct in assuming that vital information can be gained by analyzing the large volume of data gathered by dispatch and EMS. Myself, having taken a R class, also understand the challenges of normalizing data in an effort to analyze it. I think the article was good introduction to those who might not understand out-of-the-box statistical analysis software and the requirements of each.

4 ACTIVITY – PAPER THREE

Wertheim K. Badgett K. (2015) [FBI National Data Exchange System's On-Line Tool Enhances Dispatching by Law Enforcement Agencies throughout the US](#) In: *Annals of Emergency Dispatch & Response*. vol. 3, issue 2, Perspectives.

4.1 Need

The ability of individual law enforcement centers to be able to share data. When an officer is approaching a situation, they need to be aware of all the data when entering that situation.

4.2 Method

A system by the FBI called N-DEx – National Data Exchange. It's a system created and maintained by the FBI. N-DEx connects into other systems such as the National Crime Information Center (NCIC), Criminal Justice Information Services (CJIS), and System Officers (CSO). As new versions roll out, more connections into other data services become available.

4.3 Audience.

The audience was all law enforcement and dispatch agencies.

4.4 Results.

The results have been fantastic. Actual cases have officers who pull over trucks for a minor offense. As an additional step, they would run the bill of lading through the Law Enforcement Information Exchange (LInX) which fires off a search in N-DEx. In seconds the results came back that the destination of the

goods on the truck was a wanted suspect by the ATF. A sting was set up and the truck allowed to lead the authorities to the suspect.

4.5 Critique.

This was a great article. I already know about CJIC and NCIC and their ability to integrate. As each year goes by, more and more systems are being connected digitally. A lot of the information provided to NCIC is provided by over 5300 law enforcement agencies around the U.S. The article was great overview for anyone who doesn't not understand how the system works.

5 ACTIVITY – PAPER FOUR

Wagner, K. D., Verdugo, S., Stout, T., Selters, J., Reuther, P., Lee, B., Davidson, P. (2018). [Optimizing the Use of Pre-Hospital Emergency Medical Data to Identify Opioid Overdoses](#)

5.1 Need

The opioid overdose in the leading cause of accidental death in the US. Agencies are attempting to analyze data such as electronic patient care record (ePCR) in an attempt to identify opioid overdoses cases early on.

5.2 Method

The researchers queried all medical emergency calls in a year using a few triggers. They looked for definitive overdoses reported those where naloxone was administered, and 127 keywords that matched to opioid and drug items. Then that data was correlated with ePCR to confirm overdoses.

5.3 Audience.

The audience was all dispatch and EMS services.

5.4 Results.

By querying pre-hospital emergency medical data on naloxone administration had shown the highest percentage of cases 72%.

5.5 Critique.

This was an interesting paper. Again, with the ability to analyze post-event data, doctors were able to identify factors that could in fact help in the case of a overdose. Their future work was to help design an algorithm to analyze these indicators and see if they can identify opioid overdoes cases.

6 ACTIVITY – PAPER FIVE

Tazzioli, T., Cornish, D. (2018). [Exploring Current Data Collection Practices on the Effectiveness of Dispatcher Assisted Telephone Cardiopulmonary Resuscitation.](#) vol. 6, issue 2, Original Research.

6.1 Need

Evaluate the effectiveness of telephone assisted CPR and the role in patient survival.

6.2 Method

The researchers investigated the data for 13 instances of tCPR from one public safety answering point, one EMS department, and one fire department. This was the first paper I've come across where the primary method to measure the data collected deemed impossible to analyze. The research then shifted to the actual data collection practices regarding tCPR.

6.3 Audience.

The audience was all dispatch centers and EMS services.

6.4 Results.

Sadly, due to the state of data collections practices in Iowa, quality evaluation of tCPR data collections was not possible. It was suggested that establishing a framework for uniform reporting would allow the primary research objective possible.

6.5 Critique.

I really liked this paper. The full paper was 24 pages long and one the larger ones I've stumbled across. It clearly conveyed how data collection processes across different areas are inadequate. That the analysis of the quality of a lifesaving services

- that it is paramount to have procedures and standards in place to gather and store pertinent data.

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