UNIVERSITY OF CALGARY

UNIVERSITY OF CALGARY | Program for Undergraduate Research Experience (PURE)

FINAL REPORT AND REFLECTION

"GEOGRAPHICAL VIEW OF CHOPIN'S MUSICAL INFLUENCES"

Name Here

Project Duration: May 6th, 2019 – August 30th, 2019 "16 weeks"

Date of Submission: "September 2, 2019"

Supervisor Name: Dr. Emmanuel Stefanakis

Supervisor Signature:

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Section 1 – Report

INTRODUCTION

The purpose of this project is to show the footsteps of musical composer, Frédéric Chopin, through map visualization. It aims to build upon preliminary knowledge about the composer, allowing young musicians to better understand the music they are playing. With a never before seen aspect of geographical association with Chopin's biography, it will allow users to make a straightforward connection between Chopin's life and the geographical map. The goal is to instill users' knowledge of the composer. Ultimately, it is to better their understanding of music history and the way it had evolved. Taken all together, contemporary musicians will have the resources they need for a more accurate interpretation of the music they are playing. Insight on the composer's interpretation (e.g. circumstances which may have influenced their music – war, love, etc.) allows young musicians to replicate the piece the way it had originally been written.

PROCESS

Part I: Data Collection

At first, the plan was to base the research off of musical composer, Felix Mendelssohn. A very basic overview ("Felix Mendelssohn", 2019), showed that he visited a multitude of cities and countries in and around Europe. Ultimately, this is what is required for this project. But after some more preliminary research (Lockspeiser, n.d.), it revealed that mentions of his stay in the different countries were very vague. This jeopardized the precision of detail, and thus Mendelssohn was discarded. Preliminary research on seven other composers (Abraham, 2019; Sadie, 2019; Searle, 2019; Simpson & Geiringer, 2019; Snapp & Budden, 2019; Landon, Geiringer, & Knapp, n.d.; Plantinga & Hedley, n.d.) were conducted in order to determine which one would be more suitable for this project. In the end, the choice was Frédéric Chopin.

While conducting an intensive search on Chopin (Sam, 2016; "Frédéric Chopin", 2019; Chopin Institute, n.d.), reliability of the sources had to be taken into account. Analysis of grammar and tone of the language used in the source were considered for reliability of the data. While gathering information, a document was created on Microsoft Word to aid the process of organization. This helped to keep track of the chronological sequence of events. The vast amount of data proved to get really confusing really fast, as Chopin frequently returned to locations he had previously made visits to. This Word document took the integrity to account for even the smallest of details.

Part II: Map Assembly

Following data collection, the means to present the information using an appropriate technology was determined. The decision was to use StoryMap. StoryMap is an online platform that has the ability to recount a series of events while having the association with a geographical map. This was suited to the purpose of this project, and thus was used to conduct the research. Full-text descriptions were written to describe Chopin's life alongside accompanying photos and videos to further understanding. As there was an extensive collection of data, choice of data inclusion was important to not bore the audience, yet to be informative.

Upon completion of the initial version of StoryMap, ArcGIS Desktop was used to create the time-lapsed map of Europe between 1810-1850. The original idea was to use georeferencing (georeferencing is a method of associating real-life coordinates to a raster) but, the time lapse feature on ArcGIS Desktop uses shapefiles, and georeferencing an image does not create shapefiles. Thus, the appropriate shapefiles needed for this project had to be made, as they were not found to be readily available elsewhere. As Europe is composed of a huge number of countries, this proved to be quite tedious work. But upon completion, a time lapse was created. Initially, the shapefiles would only appear for the duration of the specified year, leaving the majority of the time-lapse with a blank canvas. This issue was fixed by adding a new field in the attribute table and declaring an interval of time for the time-lapse of each specified shapefile.

Having already populated the points on ArcGIS Online (with the use of their search function to locate the cities with top precision), this layer was exported for use in ArcGIS Desktop. An issue arose when the pin-pointed locations and the map of Europe shapefiles were added to the same map. The two types of shapefiles did not overlap where they were expected to be. This was due to the fact that the coordinates of the points and that of the maps did not align, thus georeferencing was required. Undertaking georeferencing posed even greater problems. When inputting new real-life x and y coordinates for select points on the raster, they did not auto-update despite having that option turned on. And when the raster did auto-update, a point that should have been in the vicinity of Europe, ended up being somewhere in Africa. Quantitative comparison determined that the georeferenced points on the image were far from the real-life coordinates inputted. Upon closer examination of the georeferencing tool, it was realized that only four control points were allowed, any more and the raster would not auto-update. But even with four control points, the map strictly did not line up with the basemap which had been used to populate the points. Further

investigation showed that this was due to the use of different coordinate systems between the raster and the basemap. Thus, georeferencing did not accurately depict the map the way it should have been and the idea of georeferencing was scraped.

Returning to the original shapefiles created, the pin-pointed locations were re-populated and html pop-ups were re-established. This proved to be more accurate than georeferencing, thus saving more of the integrity of the data. A final version of StoryMap was created to include a geographical component. Issues occurred transferring the final time-lapsed map made with ArcGIS Desktop onto the online platform, thus videos were created of the time-lapse to be included in the final version of the StoryMap instead.

Part III: Surveys/Feedback

Following the initial completion of the whole project, a survey was made for the creator to receive constructive feedback. Questions inquired users about the enjoyability and insightfulness of the app. Questions were geared towards seeing whether or not the app helped users to learn about Chopin. Qualitative research was conducted to infer that it did in fact help users to learn more about Chopin. In the surveys, feedback on how to improve the app were also greatly encouraged (e.g. one survey participant requested there to be more photos present, consequently more photos were added.)

RESULTS

A StoryMap was created to show all aspects of the research. Complete with text, photos, and videos, this interactive geographical map follows Chopin's movements throughout Europe (Figure 1, 2). This gives users a chance to get to know Chopin through explanatory text, visual aids, and audio perception. It helps to engrain knowledge about the composer through multiple means in order for users to fully understand Chopin's perspective in his musical compositions.

Using ArcGIS Desktop, a time-lapse showing the boundary changes (Reed, 2019) and cumulation of locations Chopin had visited between 1810-1850 was created (Figure 3). Each point is labelled with the name of the city and country, showing exactly where he travelled to. An alternate version of the map was also created. It used a basemap and points labelled the chronological sequence of events, showing repetitions of Chopin's travels (Figure 4).

(Refer below for Figures 1-4.)

Figure 1: StoryMap Layout – Main Page Complete with Overview of Europe Outlining Chopin's Destinations

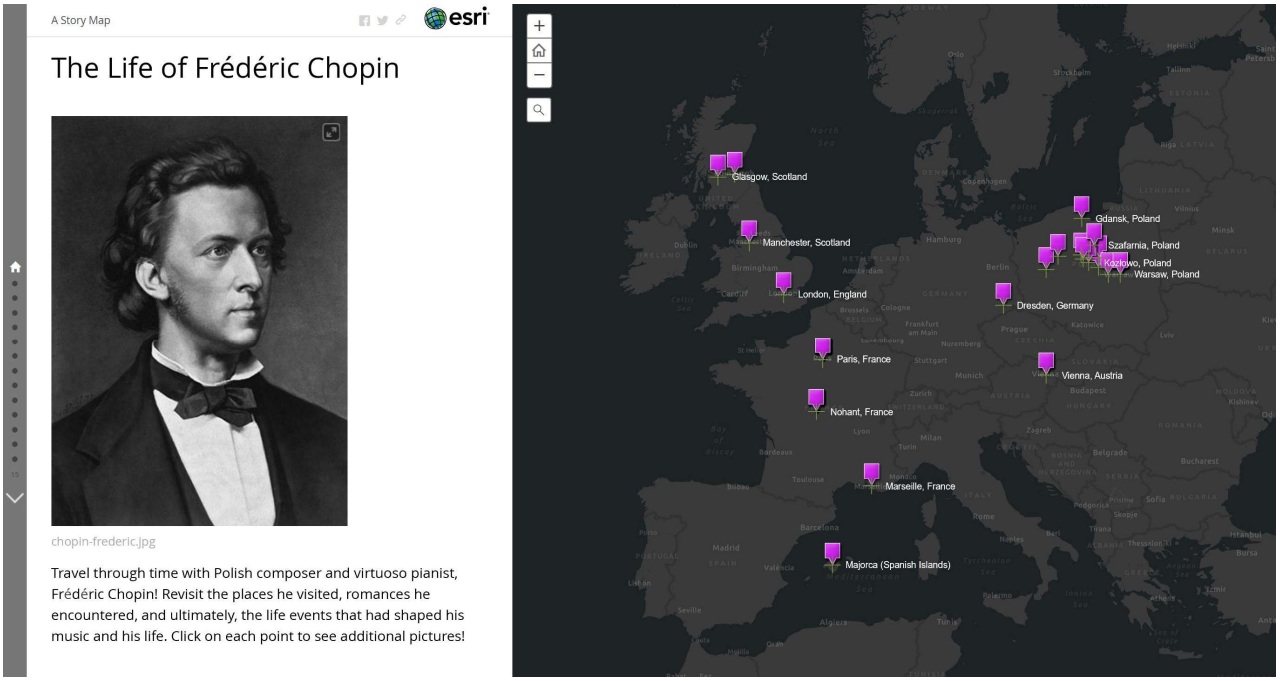


Figure 2: StoryMap Layout – Example Slide Complete with Text Alongside Photos/Videos

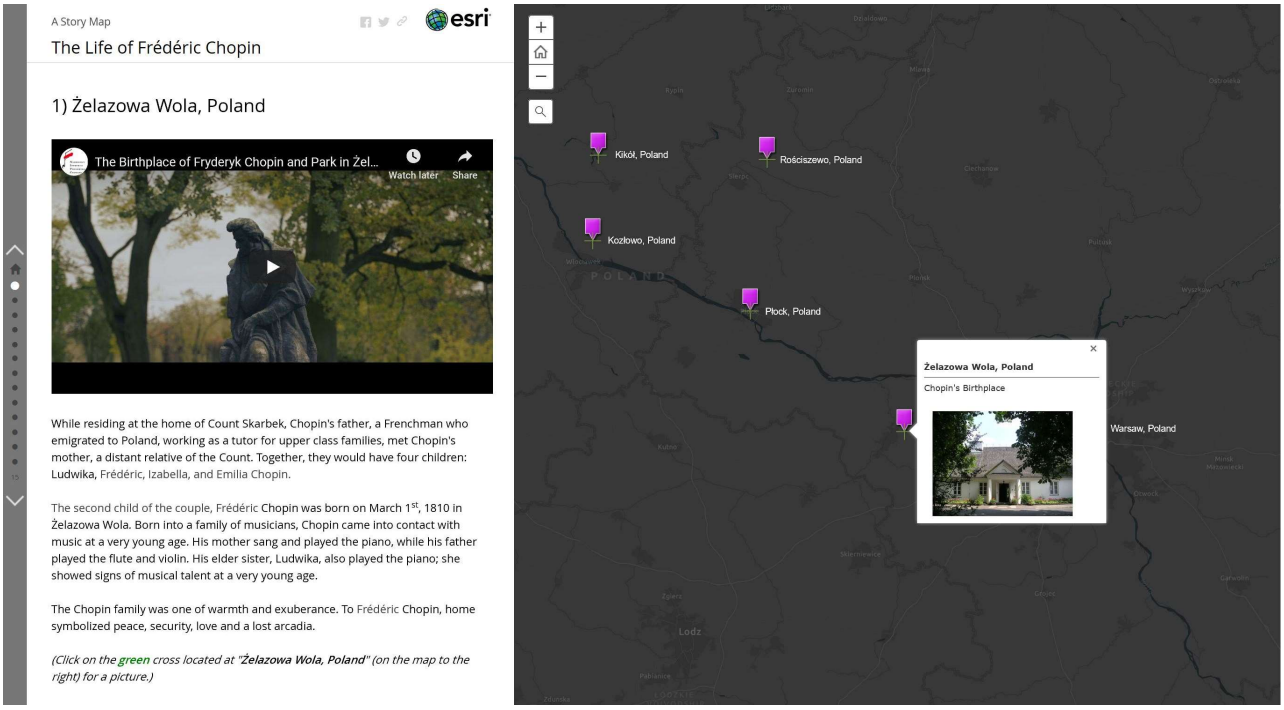
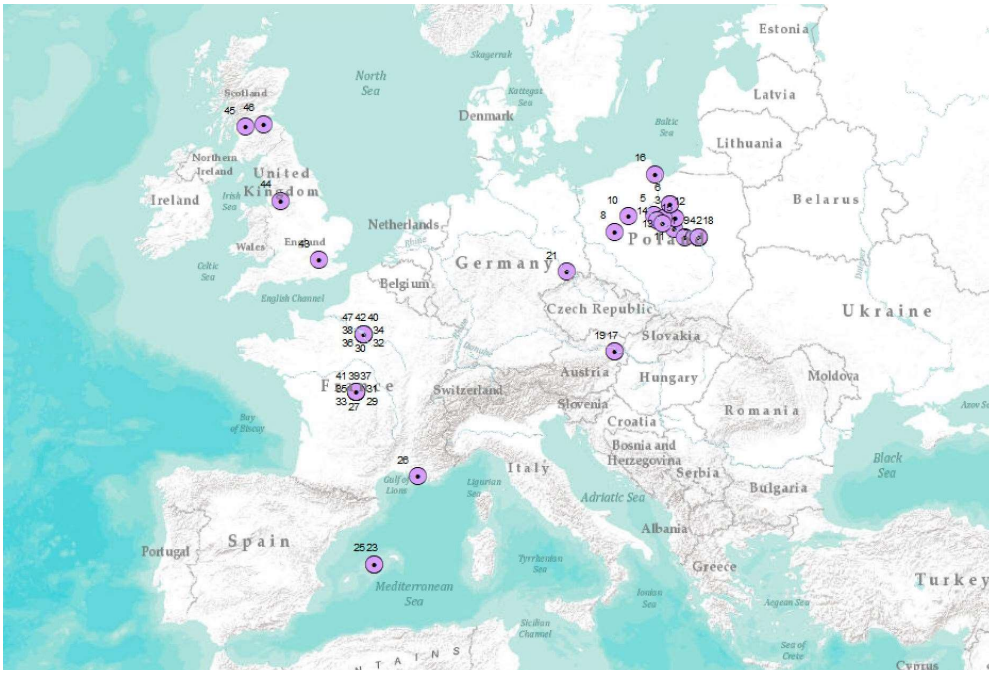


Figure 3: ArcGIS Desktop Created Map with City and Country Name Labels

Figure 4: ArcGIS Desktop Created Map with Chronological Order Labels



CONCLUSION

This project was a success in capturing Chopin's movements throughout Europe. In turn, embedding the background knowledge of the composer for young contemporary musicians, allowing them to understand the perspective of the composer as the piece had been composed. This aids their interpretation of the piece to give an authentic replication.

Moreover, there is still room for improvement. With a greater duration for the project, footsteps of multiple composers could be depicted, establishing the influence one composer had on another. This would clearly show the dissemination of idea and interconnectedness of the music world, giving users a better understanding of how music evolved throughout the years.

However, due to the learning processes from the PURE experience, there has been a significant amount of personal development undergone this summer. Unforeseen technical difficulties throughout the project increased the PURE recipient's capability to adapt to changing circumstances. Weekly meetings served well in its ability for team members to receive and give constructive feedback in a safe space. As well, invaluable technical knowledge about the functionalities of ArcGIS increased significantly, due to this project.

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Section 2 – Reflection

LEARNING & SKILLS DEVELOPMENT

During the first phase of my PURE experience, I focused mainly on gathering and organizing information. I conducted preliminary research on seven different composers before choosing to base my project on Frédéric Chopin. It was vital to stay organized during data collection. If information were to be misplaced from one composer for another, the end project would have been inaccurate. This experience taught me the importance of being organized, as it can prevent setbacks and increase productivity, ultimately eliminating any unnecessary stress.

The second portion of my PURE experience focused on creating the map visualization. Mapping elements in ArcGIS are generally created by uploading shapefiles, but I did not have the shapefiles I required for my project. Thus, my options from there were to georeference images of Europe or manually create the shapefiles myself. I decided to create the shapefiles of Europe that I needed, but later realized that the map did not align with the pin-pointed locations I had populated on ArcGIS Online. I could not alter either files without losing accuracy of the data, thus resorted to georeferencing. But georeferencing posed even greater problems. The georeferenced map was lopsided and greatly distorted due to the use of different coordinate systems between the basemap (which I based my pin-pointed locations off of) and the image of the map of Europe that I was using. In the end, I determined the best way to maintain as much of the original data as possible was to re-populate the points to align with the shapefiles of Europe that I had created. I lost a bit of accuracy in the process, but it was far less than the amount of accuracy I would have lost if I decided to stick with georeferencing. This whole process (creating my own shapefiles, then georeferencing, then going back to my shapefiles) became quite tedious, but it was because of these struggles that I learnt to be

proactive and assertive while solving problems. I learnt that getting frustrated does not help to solve the problem in any way or form. Instead, one should be proactive and break the problem up into smaller manageable chunks. This will seem less overwhelming, allowing the individual to tackle the issue without having a severe mental breakdown in the process. In the workplace, instructions are not going to be spoon-fed to their employees. It is up to the employees to find an efficient and effective solution to solve the task at hand. For future professional and academic learning, I will keep in mind the importance of taking a mental break, as it can increase productivity while problem solving a complex situation.