Tracing the Geographic Distribution of the Tamazight Language in North Africa

By

Adam Roudjat

An Undergraduate Thesis

Submitted in Fulfillment for the Requirements of

Bachelor of Arts

In

Geography and Earth Science

Carthage College

Kenosha, WI

December 2016
Tracing the Geographic Distribution of the Tamazight Language in North Africa

Adam Roudjat

Abstract

The history of the Tamazight language in North Africa cites different factors which caused the shift of the Tamazight language over time. Using archives and Geographic Information Systems (GIS) as a methodology, this paper examines language patterns in North Africa in order to trace the prominence and the historical distribution of the Tamazight language in North Africa throughout the eighteenth and nineteenth century, and to determine what factors may have been associated with its decline and redistribution. It was hypothesized that the population exhibited clustering from west Egypt to Morocco and from Mediterranean Sea to Sahara desert throughout centuries and that increasing Arab populations led to a shift in its distribution. It was also hypothesized that the decline of the Tamazight language in North Africa began well before the French Colonialism. The main conclusion of this research is that the decline of the Tamazight language in North Africa during the nineteenth century was not caused by only the colonialism but that it was the combined influence of social, political and cultural pressures in North Africa.

This paper concluded that the distribution of the Tamazight language exhibited clustering in the North of Africa throughout the mid nineteenth century. Though the number of Tamazight speakers did decline to around 14% of the total population in the twentieth century, the largest population of Tamazight speaking remained in the North. Although colonialism did have an effect on the sustainability of the Tamazight language, due to the steady nature of decline, the colonialism cannot be cited as the cause of the near extinction of the Tamazight language by the beginning of the twentieth century.
Table of Contents

Abstract .......................................................................................................................... 1
List of Figures ............................................................................................................... 3
Lists of Tables ............................................................................................................ 5
Literature Review ........................................................................................................ 6
Introduction .................................................................................................................. 6
  Tamazight before the sixteenth century ............................................................... 8
  The period of colonialism .................................................................................... 12
  Distribution of the Tamazight Language in the twentieth Century .............. 14
  GIS .......................................................................................................................... 16
  Census data of Algeria ......................................................................................... 16
  Conclusion ............................................................................................................. 18
Research Questions and Hypotheses ..................................................................... 19
Methodology ............................................................................................................... 19
  Study area and data acquisition ....................................................................... 19
  Mapping and Spatial Analysis .......................................................................... 21
Results and Discussion ............................................................................................ 22
  Digitized paper map .......................................................................................... 22
  Statistical Analysis .............................................................................................. 23
  Mapping Spatial Trends ...................................................................................... 29
  Conclusions .......................................................................................................... 43
  Limitations ............................................................................................................. 46
  Future Research .................................................................................................... 46
Acknowledgements ...................................................................................................... 48
Appendix ...................................................................................................................... 49
  Additional Tables ................................................................................................ 49
  Additional Spatial Analysis Maps ...................................................................... 51
References .................................................................................................................... 57
List of Figures

Figure 1: Boundaries of the 48 states of Algeria and their names ............................................... 20
Figure 2: Vector states shapefile of Algeria, created from a scanned paper map ......................... 22
Figure 3: The graph represents the decline of population in Algeria from 1851-2014 ............... 23
Figure 4: The graph represents the total Tamazight and Arabic speaking populations from 1851-2014 ........................................................................................................................................... 24
Figure 5: The graph represents the percentage of Tamazight speakers in Algeria from 1851-2014 ........................................................................................................................................... 27
Figure 6: The graph represents the Tamazight population in Regions North Center, North West, and North East of Algeria 1866 - 2014. ........................................................................................................ 27
Figure 7: The graph represents the Tamazight Population in Region of Atlas in Algeria from 1966-2014. ........................................................................................................................................... 28
Figure 8: The graph represents the Tamazight Population in Regions of South East, South West, Hoggar and Tassili of Algeria from 1966-2014. ........................................................................................................ 28
Figure 9: The population density of the Tamazight language speakers 1966 ......................................... 30
Figure 10: The population density of the Tamazight language speakers 1977 .................................. 31
Figure 11: The population density of the Tamazight language speakers 1987 .................................. 32
Figure 12: The population density of the Tamazight language speakers 1998 .................................. 33
Figure 13: The population density of the Tamazight language speakers 2008 .................................. 34
Figure 14: The population density of the Tamazight language speakers 2014 .................................. 35
Figure 15: The percentage change in the Tamazight speaking Population of Algeria from 1966-1977 ........................................................................................................................................... 37
Figure 16: The percentage change in the Tamazight speaking Population of Algeria from 1977-1987 ........................................................................................................................................... 38
Figure 17: The percentage change in the Tamazight speaking Population of Algeria from 1987-1998 ........................................................................................................................................... 39
Figure 18: The percentage change in the Tamazight speaking Population of Algeria from 1998-2008 ........................................................................................................................................... 40
Figure 19: The percentage change in the Tamazight speaking Population of Algeria from 2008-2014 ........................................................................................................................................... 41
Figure 20: Percent of Tamazight speaking population 1966………………………………………51
Figure 21: Percent of Tamazight speaking population 1977………………………………………52
Figure 22: Percent of Tamazight speaking population 1987………………………………………53
Figure 23: Percent of Tamazight speaking population 1998………………………………………54
Figure 24: Percent of Tamazight speaking population 2008………………………………………55
Figure 25: Percent of Tamazight speaking population 2014………………………………………56
Lists of Tables:

Table 1: Percentage change in the total number of Tamazight speakers between each Census year from 1851-2014. .................................................................25

Table 2: Percent of the Tamazight speaking population in Algeria 1851-2014..................26

Table 3: Percentage change in Tamazight speaking in each Region between each Census year. .................................................................29

Table 4: Tamazight speaking population and Arabic speaking population in Algeria 1851-2014.................................................................42

Table 5: Amazigh Speaking Population per Country, 1966-2014........................................49

Table 6: Total Population in Algeria per Country, 1966-2014.............................................49

Table 7: percent of Tamazight speaking population per Regions 1966 – 2014....................50
Literature Review:

Introduction:

To keep the Tamazight language alive and promote its Geographical distribution over North Africa, Tamazight should be recognized as a national language by regional governments and introduced early in schools.

The loss of a language might not seem like a serious problem to some, but the loss of a language represents much more than losing the language itself. There is a great deal of problems that could rise from losing languages and with them the cultural secrets (De Dominicis 2006). There are thousands of endangered languages throughout the world that are likely to be gone in the near future. There is a connection between the diversity of linguistics with biodiversity, which is one of the reasons that endangered languages should be saved (De Dominicis 2006).

The problem of language extension is even more serious than endangered animals throughout the world. When a language is a healthy one, the language is continuing to gain new speakers and is passed down. Even if there are a large number of full grown speakers of the language, if younger people do not learn to speak that language, it will not survive (Haig, Nau, & Schnell 2012). Places such as Alaska and Africa have many endangered languages and one of the main reasons these languages are dying is because young people are not learning to speak them and do not see it as important.

One might wonder why endangered languages matter, when it would be easier if everyone in an area spoke the same language, but there is a serious need for the cultural elements and diversity that comes from many different languages being spoken. Similarly, to the problems that happen when a plant dies off, when a language is endangered and then gone forever, the possibilities it held for making human lives better dies along with it (De Dominicis 2006). When
a plant dies, it could take with it the possibility of curing a terrible disease. In a similar way when a language no longer exists, its death takes with it the loss of some possibilities that no one has discovered. In an area with a large population languages have a better chance, but smaller populations and young people not learning a language can cause extinction (De Dominicis 2006).

To fight of the disappearance of an endangered language, the most important way to keep it alive is to teach it to younger people who then teach it to others and their own children. Languages can also become extinct from other things such as people of one language having power over those of the endangered language.

For instance, the language of Latin was spread by political power and influence, which led to the loss of the languages of the Ancient Mediterranean (De Dominicis 2006). Another example of one language winning out is with the Native Americans, which were overtaken by the English speaking people. This Native Americans were both killed and pushed to isolated areas, which kept them from spreading their language well enough to keep them alive in large areas of the country (De Dominicis 2006).

Although in many western parts of the world the language of Tamazight is called Berber, the word Berber actually comes from the Greek barbarous, which means foreign. It was used by the Greeks to refer to foreign populations, including the Romans, who use any language other than Greek. The word Berber which became barbarous in Latin was later used by the Romans with the same meaning. It is with this meaning that it was applied to the populations of North Africa who later became part of the Roman Empire for a long period of time.

In the meanwhile, the word barbarous acquired a derogatory sense when it was applied to designate the populations from central and northern Europe who invaded the
territories located within the Roman Empire. The term was later introduced with the latter meaning in western languages in the form of barbarians or barbarous as in the historical episode called Barbarian Invasions. When the Latin literature was translated into modern European languages, notably French, the word barbarous, which was once applied to designate the populations of North Africa by the Romans, was translated as Berber so as to distinguish it from the word barbarous.

The Tamazight language can be compared to the language of native Australian people one of North Africa because there are no traces found for different races rather than Berber people in this region. The Amazigh are the people native to the northern part of Africa and they speak Tamazight (Iben Khaldoun 1999). Although the language still seems to cover a wide range of geographical areas in Africa, the language is in danger because it is not as far reaching as it once was. The limitation of the areas where Tamazight is now spoken is part of what is contributing to the endangered condition of the language.

**Tamazight before the sixteenth century:**

The language was once spoken in areas from western Egypt to the Canary Islands, including Algeria, Morocco, Libya, and Tunisia and from the northern coast of the Mediterranean Sea spanning southwards into the Sahara desert including Mauritania, Mali and Niger. Although Tamazight is still spoken in its various regional forms in all the mentioned countries, with the exception of the Canary Islands. The Tamazight language has by now lost a lot of ground in favor of local varieties of Arabic along with the Islamic religion, was introduced into North Africa as a consequence of successive military conquests by Islamic armies belonging to different dynasties coming from Middle Eastern countries (Iben Khaldoun 1999).
Tamazight language is in the family of Afro-Asian languages, but is a member of the African branch. Tamazight is different than other languages in that it has only three vowels U, A, and I, and it is made up of thirty-eight consonants. The people who speak the Tamazight language are known by the name Amazigh, which in their culture means free people (Maddy-Weitzman 2011). This culture is made up of people native to the land in both the Sahara desert and North Africa. However, the name Amazigh refers to the native people of the area not the Arabs and other people that would later invade the area and adopt the language as well. The culture of the Amazigh and their language Tamazight were decaying quickly because of the ruin of the economic and social problems of the people. This culture and ethnicity remains the dominant language and culture of Algeria and Morocco, but does not have a majority standing in either a political or economic (Maddy-Weitzman 2011).

In order to help preserve the culture of the native Amazigh people some objective were put into place for Algeria and Morocco. One change was to incorporate the Tamazight language as a national one along with the Arabic language (Maddy-Weitzman 2011).

There were also objectives set in motion to put the language of Tamazight down into a proper language with standard grammar and the means to teach the language to others (Maddy-Weitzman 2011).

The language of Tamazight, while endangered, was spoken in many areas of Africa such as Algeria, Morocco, Egypt, Niger, Mauritania, Burkina Faso and Canaries islands. Tamazight is one of the Berber languages and is still spoken in Algeria, Morocco and other parts within the northern areas of African. In Algeria and Morocco, Tamazight is spoken by many people in a large geographical area (Gautier 1937).
In the Northern part of Algeria the main Berber speaking Kabylia region between the Djurdjura mountain and the Atlas plateau which consist cities of Bouira, Tizi ouzou, Bejaia, Setif, Boumerdes these areas are very densely populated accounts high percentage of the Berber in Algerian. The other region that consist a high number of speaking Tamazight in southeastern of Algeria are Chaouias There are many other Berber groups in Algeria, but it is small residual islands, low importance, Ouargla, Ngouça, Gourara, and Timimoun region in the central of Algeria. The group of Chenoua is spread along the mountain Bess not far from the Capital Algiers. The most important group in the region southwest of Algeria is the Mzab in Ghardaia. The third great set Berber consists of the Tuareg populations straddling several countries around the Sahara-Sahel region mainly the south Algeria, Niger, Mali, Mauritania, and Burkina-Faso. They call themselves Imohag, translated as free man, Tamashek is another name of Tamazight spoken by Tuareg people.

Morocco has the highest number of population who spoke Tamazight. Spoken Tamazight is spread out in three large parts of the country that covers the totality of the mountains. In northern part of Morocco is the city of Taza, which is one area where Tamazight is spoken, and it sits between several mountain ranges. Taza is the border where Tamazight is spoken to the east and it goes westward towards the city of Rabat. Rabat is a more urban city than Taza, but the language is spoken in both areas.

This shows how diverse the groups that speak Tamazight are and they can be from the city, living in the desert, or many other types of living. The other groups of Berber people are spread out across Mauritania, Djerba is one of the cities where Tamazight is spoken in Tunisia, and in many different villages in the south part of the country, another groups of Berber people found in Libya are clearly larger and more resistant, and other groups of speaking Tamazight are
fond in the southwest of Egypt, all these areas are often threatened by the invasion of Arabic language (Gautier 1937).

In the past, a high number of people speaking Tamazight were pushed into the more inland and desert areas by things like military fighting and colonization. This means that many people who were native speakers were moved to areas like the Sahara and other mountainous areas (Maddy-Weitzman 2011). The percentages of the Tamazight speaking people in areas like Algeria, and Morocco have been the highest for some time. However, even in the areas with the most Tamazight speaking people, the amount of people who speak it rather than Arabic is very low. Many of the people who were native to these areas fell victim to the pressures of colonization and began using the Arabic language as a primary language, which made things easier on them. Although it was easier for many people to just move to speaking Arabic primarily when colonized, the language of Tamazight has suffered because of this change. Many people who would have kept speaking their native language, never passed it on to the younger generation, which has contributed to it being endangered.

Although the language of Tamazight is spoken in many areas it is still in danger of becoming extinct, and this is for more reasons than simply low populations of young people knowing the language. Another problem for the language of Tamazight is in anger also because there is an absence of the written language in an historical sense means that much of the culture is not recorded for the language and its people (Maddy-Weitzman 2011). In fact, it wasn't until the twentieth century that the language of Tamazight was even recorded by writing it down, and the language was primarily spread through the person to person, oral use and mostly in the more rural areas (Maddy-Weitzman 2011).
However, now the language is spread in written form and this makes it easier to spread and keep it alive and changes the amount of the population that has access to learning the language.

Although there were no formally written documents in the language, there are ancient traces using symbols that have been shown to be the Tamazight language (Camps 1995). The language was documented in ancient times, but not in a way that one would think of in modern times. Although this existed language was still not put into a form that could easily be shared and spread all over North Africa as ones was the main language of these area.

**The period of colonialism:**

The area of North Africa was colonized by the Arabs and this caused a serious shift to the language distribution in the area. Before the colonization and invasions the native people called Amazigh, spoke Tamazight and they passed the language down through stories and speaking. However, once they were colonized by the Arabs, many native speaking people adopted Arabic as their language instead of Tamazight (Camps 1983). Although there are many reasons that native people would decide to give up their own tongue and adopt the language of their colonizers, one of the main reasons was ease and familiarity. If things in the country were done in Arabic, then it would be necessary for the people there to learn the language, and their own language was not part of politics and other elements of everyday life. The extended period of time that the Arabs were dominating is surely part of why their language was adopted by the people of North Africa (Camps 1983).

The language of Tamazight was spread by things such as invasion and the spreading of culture. When the Arabic people conquered Algeria and Morocco many Arab people migrated to northern Africa. Algeria and Morocco have been mixed in language and culture because of
invasions by the Arab people and this split the people in these areas into two different groups the “Berbers” and the “Arabs” (Ennaji 2014). This split is between the two languages that each of these sides speaks, and not necessarily the culture because there are areas where the two overlap (Ennaji 2014). Although the native people or free people known as the Amazigh have been around since ancient times, the invasion of North Africa would have a serious impact on their culture and their language of Tamazight. Even when people in North Africa do not speak Tamazight, and speak Arabic, they are not necessarily of Middle Eastern in their ancestry (Ennaji 2014). Therefore, the split happened because of the invasion and many people not from the Middle East still speak Arabic in these areas. This is likely because there was no means of formally learning Tamazight until very recently, when the language was finally written down.

The religion of Islam was forced onto northern Africa by force and this pushed the native people towards the center of the land and towards the Sahara (Courtois 1942). The Arab people forced themselves into this part of Africa with military power and besides forcing their ways and languages on the people there; there was also the matter of the religion.

The language of the Arabic people was seen as the sacred language of God, and because of this, there was an imbalance between the native Tamazight speaking, people and the invading Arabs (Courtois 1942). The language and religion of the Arabic people was written down and could be accessed easily because of this, which gave the advantage to the invading people as far as spreading their religion (Courtois 1942). At this time the Tamazight language was still not written down and was being passed from one person to another through strictly oral means. In the areas of North Africa today the language of Tamazight is found in many countries including Morocco, Tunisia, Algeria, and many more (Salem 1998).
Although the language spoken in these areas it is still considered an endangered language and at risk of one day being extinct. The language of Tamazight is spoken in all these places, but the areas with the highest numbers of people who speak the language are in Morocco and Algeria (Salem 1998). These areas were the most resistant to the language changes by Arabic colonization and dominance. In these areas there is now a current change where the language is being used in modern ways. The language of Tamazight is now being used in the media and being used for literature.

**Distribution of the Tamazight Language in the twentieth Century:**

The percentage of the Tamazight speakers in Algeria, and Morocco continued to decrease throughout the end of the nineteenth century and into the twentieth century. Although the beginning of the twentieth century saw the acceptance of the government to include Tamazight language as a national language and introduced in schools. The language is still discouraged by families and the government alike. The first mark of progress for the preservation of Tamazight language came after the uprising in 1988 in Algeria. Tamazight started gaining ground slowly but surely had made some changes in the government allowed for the multicultural parties so Tamazight had a chance to be accepted as a native language and in the 1990 the government has moved slowly from hostility to a marginal tolerance. In 1990 and 1991 are the most notable years to the Amazigh people with the creation of the office of Tamazight Language and Culture at the Universities of Tizi Ouzou and University of Bejaïa in north east of Algeria. Another event that marked the history of Amazigh people is the speech that was given by the King of Morocco Hassan II, where he gave his approval to the teaching of Tamazight in schools but it was not accepted as a national language, the office of Tamazight language is created in Morocco by May 2002.
From 1988 to 1995 many association, affiliations, and groups were working closely together from all different region of the countries to take advantage of the opportunity that was given to Tamazight language and Amazigh people. In May, 1995 Amazigh people achieved the creation of the High office of Amazigh Affairs working closely with the Presidency of the Algerian Republic. The government accepted to introduce Tamazight language as an optional language courses in schools especially in Kabylia, and in May, 2002, the Algerian government made a constitutional modification which gave Tamazight language as national language in Algeria, with the official language is Arabic (Salem 1998).

In Algeria the language is spoken by around twenty-five percent of the total population of the area (Salem 1998). In Morocco there are around forty percent of the total Populations that speak Tamazight (Salem 1998). As one could estimate, these numbers are not very high even among these two countries that have the highest amount of Tamazight speaking people. Although it is true that many of the countries where Tamazight is spoken mostly in Algeria and Morocco, it is difficult to estimate just how many people speak the language today. The difficulty in assessing just how many people speak the language comes from the lack of censuses concerning language in many of the countries.

The Tamazight language is currently spread over a wide range in the area of North Africa and split into many different vernaculars (Salem 1998). Although there is a difficulty in spreading the various dialects between groups of Tamazight speaking people because of the distance that they are spread throughout the regions. However, many modern things have helped with this distribution of the language. Things such as radio and modern media have brought a new means of connecting groups of people who speak Tamazight, but who used to live far away from each other to communicate with each other (Salem 1998). Even with these new means of
communicating, the dialects of the different groups remain their own separate forms of the language.

**GIS:**

*Census data of Algeria:*

The use of GIS in research is a new concept and its implications have yet to be fully understood. Researchers and geographers have recently been using Geographic Information System and spatial data to visualize historical landscapes and demographics, many of which would be difficult to comprehend or invisible today (Gregory 2003). Using GIS allows for comparisons between certain factors over a landscape to be made. Comparing the data in textual format would be extremely time consuming and confusing, which has kept certain limitations on the types of comparisons that could be made by researchers in the past. With GIS software, researchers or geographer can visualize textual data found to create layers which can be added or subtracted to compare different variables such as populations (Cohen 2011).

New discoveries and connections can be made with the data and new answers can be found which would otherwise remain lost in time. Once a map is digitized and converted from raster to vector format, new layers can be created which can then be easily added to modern vector or raster layers to be compared in visual analysis. This tool allows for data to be added and subtracted in order to complete complex analysis and comparisons data which helps in answering questions and discovering new information on historical events (Knowles 2008).

The use of GIS in the study of demographics is extremely helpful in the study of past events or places because it allows analysis of change over time. With recent advancements in the abilities of GIS software and its capabilities for handling data, the possibilities for spatial analysis of historical maps and data are growing steadily and will only continue to do so (Lund & Sinton 2007).
Although GIS is useful and accepted tool in conducting a research, but it still have its limitations. This is due to the availability of data, issues with the data or data model itself, differing map scales, and errors in scanning historical maps. The incomplete information or data is also an issue that faces researchers and Geographers who attempt to use spatial analysis in a research (Ell & Gregory 2007). Complete records and census data from the past are hard to get hold of. Researchers can use different method to analyze incomplete sources; they can investigate specific parts of the sources and integrate them as evidence. When using such a data driven method of interpretation, missing data can often lead to incomplete results which may produce a map that is misleading or visualizes something incorrectly (Knowles 2008).

Another issue using GIS is changing boundaries. While research into the past so would bypass this limitation in many regions of the world, looking farther into the past can raise some difficult problems with spatial classifications. If a region has changed boundaries over the course of the period being studied or since the event occurred, analyzing the data or comparing the data becomes difficult. A study of population density, which relies completely on the spatial extent of an area, results would be inaccurate and the data analysis would not be concrete (Ell & Gregory 2007). Due to these issues, researchers must be aware of data limitation and avoid unnecessary analysis to achieve accurate results (Gregory 2003).

Even with these limitations, GIS is a powerful tool researchers can use when analyzing an event in the past. This analysis can give insights into events which would have otherwise gone unnoticed. Through the analysis of demographic data, patterns in population statistics, growth and density can be determined over space and over time (Cohen 2011).

Census data can be very helpful when analyzing a population, obtaining historical data can present many difficulties specifically historical censuses in countries where there is little or none of data available to researchers. Also, over time, the tracts that are used to collect the data
change, such as borders. This creates problems for modern researchers to compare historical census data with modern data (Crawford 2003).

The Algerian Census data is not clear or non-existed prior to the late nineteenth century; no systematic form for counting the people of Algeria existed. The first official census of Algerian population was taken by the French was in 1848 (Crawford 2003).

The French censuses hold information concerning the distribution of the Tamazight speaking population and the Arabic speaking population in Algeria as the nineteenth century progressed. Despite the wealth of information, the French left most of the original statistical books of early Census records of Algeria. But after the Algerian government took over most of this records were lost or destroyed (Crawford 2003).

**Conclusion:**

Through the use of GIS and spatial analysis, historical Algerian Census data can be visually analyzed to study the decline of the Tamazight language over time. This study will be completed in order to prove that the Tamazight language in Algeria was not directly amplified by the massive population loss during the colonialism, and that other factors were also at work, influencing the survival of the language. These factors include political, social and cultural pressures placed on the Amazigh by the government prior to the twentieth century.
Research Questions and Hypotheses:

The purpose of this study is to trace the historical distribution of the Tamazight language over North Africa and answer the question how to keep the Tamazight language alive and promote its spread over North Africa. Tamazight should be recognized as a national language by regional governments and introduced early in schools.

Null hypothesis 1: HO1: The number of Tamazight speaking population decreased during colonization.

Alternative hypothesis 1: HA1: The number of Tamazight speaking population remained unchanged or increased during colonization.

Null hypothesis 2: HO2: The number of Tamazight speaking population remained unchanged or increased in the regions where the Government used boarding schools for assimilation.

Alternative hypothesis 2: HA2: The number of Tamazight speaking population decreased in the regions where the Government used boarding schools for assimilation.

Methodology:

Study Area and data acquisition:

The study was conducted in Algeria. On the North the Mediterranean Sea which separates it from Europe, Morocco on the west, Tunisia on the east and the Sahara Desert on the South. Algeria has a different climate depending on the location in the North by the Mediterranean Sea the climate is humid cold in winter and hot in summer in the South it is hot most of the year. At one time Algeria was occupied by The Berber People as other countries in North Africa. Berber people lost the ground due the colonization of different ethnicities and religions (Gautier 1937).
Due to the changes that occurred throughout the years data for each census year does not exist on a very detailed level. The Algerian census bureau used nine regions to split the 48 states. The data for this research is acquired from the Algerian Censuses of 1966 to 2014 and the 2014 data from the high office of Tamazight available since 2012. In order to study or trace the Tamazight language in Algeria over the course of the nineteenth century, census data is needed. Obtaining this census data is very difficult and time consuming as most of the historical census records of Algeria have not been digitized and placed online.

Since none of the records are available in a digital format, data acquisition relies on manually collecting demographic data from the paper census records. Due to the fact that the
original records are no longer accessible. The complete records of the number of Tamazight speakers in Algeria were not kept and making data collection on a county level difficult. Most of the records of Tamazight speakers come from the first census conducted by the French in 1948, the Algerian census in 1966 - 2014. The government was not interested in collecting data of Tamazight speakers. The collected data must be input directly into ArcGIS or into tables using Microsoft Excel which can then be joined to map layers in ArcGIS for later spatial analysis.

**Mapping and Spatial Analysis:**

The main tool for spatial analysis used for this study is Geographic Information Systems (GIS). Through this Algerian census data can be visualized, analyzed and presented in a way that can be interpreted clearly and easily. A series of maps are used to map the population of Tamazight speakers in Algeria, by Region for each census year. A map can show the changes occurred over time. The unit of analysis in this research is set to regions. This is due to the way in which the census data has been collected and organized. The boundaries of the regions have remained constant. Other boundaries have not remained as consistent for so many years. Spatial analysis is also used to determine the Tamazight speaking population density.

In a similar way, demographic information on the Tamazight speakers can be used to determine how the Tamazight language was distributed between the regions, during the colonialization period and after.
Results and Discussion:

Digitized Paper Map:

A digital states map layer of Algeria was created using ArcMap. Through a process of georeferencing a scanned paper map of Algeria and hand tracing the states boundaries on screen, an editable polygon shapefile was created. An empty attribute table was also created with columns in which to enter data for each state. This map is shown below in figure (2).

States of Algeria

Figure 2: Vector states shapefile of Algeria, created from a scanned paper map.
Data, for each state, was then added into fields in the attribute table so that further analysis could be completed. Population data collected from the first Algerian Census 1851, the second Census in 1966, the third Census 2014, and the 2014 data from high office of Tamazight available since 2012. Was entered into fields in the attribute table at the state level. Information for each state, such as the total population, total Tamazight speaking, total Arabic speaking population and the total area per square mile were entered, creating a data layer. This data could then be used in the completion of further spatial analysis.

**Statistical Analysis:**

Initial descriptive statistics of the population trends in Algeria over the course of the nineteenth century, the twentieth century, and the twenty first century. A line graph was created showing the change in the total population, the Tamazight speaking population and the Arabic speaking population in Algeria from 1851-2014.

![Figure 3: The graph represents the decline of population in Algeria from 1851-2014](image-url)
The graph, shown above, serves as a visual tool to compare rates of decline in each population from 1851-2014. As this figure shows, the total population and the Arabic population in Algeria were increasing, it was not until after 1954. It was not until after this date that these numbers began to increase. On the other hand, as is shown by the red line above, the Tamazight population was already decreasing at a fairly steady rate prior to 1854. The trend in the decline of this line does not dramatically alter between 1851 and 1954, whereas the other two lines, denoting the total population and the Arabic speaking population, exhibit an increase.

The bar charts were also created and used to compare the total number of each population in Algeria over time. The figure (4) shows side by side graphical comparison between the Tamazight and Arabic speaking populations for each Census year.

Figure 4: the graph represents the total Tamazight and Arabic speaking populations from 1851-2014
The following tables Table (1) and (2) include the percent of the decline in the total Tamazight population in Algeria between each Census year and the percent of the total population who spoke Tamazight. These percentages were calculated in order to compare the rates of decline in the language over time.

Table 1: Percentage change in the total population of Tamazight speakers between each Census year from 1851-2014.

<table>
<thead>
<tr>
<th>Years</th>
<th>Population Change</th>
<th>Percent of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1851-1861</td>
<td>277,400</td>
<td>16.2%</td>
</tr>
<tr>
<td>1861-1872</td>
<td>-401,800</td>
<td>-20.2%</td>
</tr>
<tr>
<td>1872-1881</td>
<td>534,900</td>
<td>33.6%</td>
</tr>
<tr>
<td>1881-1891</td>
<td>463,800</td>
<td>21.8%</td>
</tr>
<tr>
<td>1891-1906</td>
<td>558,300</td>
<td>21.6%</td>
</tr>
<tr>
<td>1906-1911</td>
<td>126,400</td>
<td>4.0%</td>
</tr>
<tr>
<td>1911-1921</td>
<td>37,800</td>
<td>1.2%</td>
</tr>
<tr>
<td>1921-1931</td>
<td>311,400</td>
<td>9.4%</td>
</tr>
<tr>
<td>1931-1948</td>
<td>985,800</td>
<td>27.2%</td>
</tr>
<tr>
<td>1948-1954</td>
<td>645,200</td>
<td>14.0%</td>
</tr>
<tr>
<td>1954-1966</td>
<td>1,074,958</td>
<td>20.5%</td>
</tr>
<tr>
<td>1966-1977</td>
<td>694,389</td>
<td>11.0%</td>
</tr>
<tr>
<td>1977-1987</td>
<td>-298,910</td>
<td>-4.8%</td>
</tr>
<tr>
<td>1987-1998</td>
<td>-306,268</td>
<td>-6.2%</td>
</tr>
<tr>
<td>1998-2008</td>
<td>-91,270</td>
<td>-0.7%</td>
</tr>
<tr>
<td>2008-2014</td>
<td>-865,552</td>
<td>-12.5%</td>
</tr>
</tbody>
</table>
Table 2: Percent of the Tamazight speaking population in Algeria
1851 – 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent of Total Population</th>
<th>Tamazight Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1851</td>
<td>70.0%</td>
<td>1,715,000</td>
</tr>
<tr>
<td>1861</td>
<td>68.0%</td>
<td>1,992,400</td>
</tr>
<tr>
<td>1872</td>
<td>66.0%</td>
<td>1,590,600</td>
</tr>
<tr>
<td>1881</td>
<td>65.0%</td>
<td>2,125,500</td>
</tr>
<tr>
<td>1891</td>
<td>63.0%</td>
<td>2,589,300</td>
</tr>
<tr>
<td>1906</td>
<td>61.0%</td>
<td>3,147,600</td>
</tr>
<tr>
<td>1911</td>
<td>59.6%</td>
<td>3,274,000</td>
</tr>
<tr>
<td>1921</td>
<td>58.0%</td>
<td>3,311,800</td>
</tr>
<tr>
<td>1931</td>
<td>56.0%</td>
<td>3,623,200</td>
</tr>
<tr>
<td>1948</td>
<td>55.0%</td>
<td>4,609,000</td>
</tr>
<tr>
<td>1954</td>
<td>54.0%</td>
<td>5,254,200</td>
</tr>
<tr>
<td>1966</td>
<td>50.0%</td>
<td>6,329,158</td>
</tr>
<tr>
<td>1977</td>
<td>41.1%</td>
<td>7,023,547</td>
</tr>
<tr>
<td>1987</td>
<td>29.2%</td>
<td>6,724,637</td>
</tr>
<tr>
<td>1998</td>
<td>21.4%</td>
<td>6,418,369</td>
</tr>
<tr>
<td>2008</td>
<td>18.4%</td>
<td>6,327,099</td>
</tr>
<tr>
<td>2014</td>
<td>14.3%</td>
<td>5,461,547</td>
</tr>
</tbody>
</table>

The graph in figure (5) based on data in the table (2) was completed based to visualize the trend of the decline in the percentage of Tamazight speaking population in Algeria over the course of the nineteenth, the twentieth and the twenty first century. The rates of decline in the decades preceding and following, the percent decline are very high over time.
Figure 5: The graph represents the percentage of Tamazight speakers in Algeria from 1851-2014.

The following figures show a comparison of the number of Tamazight speakers in each of the nine regions of Algeria for a comparison of the change in the Tamazight population at a more detailed level.

Figure 6: The graph represents the Tamazight population in Regions North Center, North West, and North East of Algeria 1866 - 2014.
Figure 7: The graph represents the Tamazight Population in region of Atlas in Algeria from 1966-2014.

Figure 8: The graph represents the Tamazight Population in regions of South East, South West, Hoggar and Tassili of Algeria from 1966-2014.
Table 3: Percentage change in Tamazight speaking in each Region between each Census year.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North Center</td>
<td>19.9%</td>
<td>9.5%</td>
<td>7.4%</td>
<td>10.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>North West</td>
<td>7.1%</td>
<td>-30.4%</td>
<td>-42.7%</td>
<td>-15.9%</td>
<td>-9.7%</td>
</tr>
<tr>
<td>North East</td>
<td>-4.3%</td>
<td>-17.6%</td>
<td>-30.8%</td>
<td>-25.2%</td>
<td>-33.6%</td>
</tr>
<tr>
<td>Atlas Center</td>
<td>-34.2%</td>
<td>-22.0%</td>
<td>-30.3%</td>
<td>-19.1%</td>
<td>-46.0%</td>
</tr>
<tr>
<td>Atlas West</td>
<td>-16.0%</td>
<td>-23.2%</td>
<td>-52.2%</td>
<td>-25.1%</td>
<td>-20.1%</td>
</tr>
<tr>
<td>South East</td>
<td>14.1%</td>
<td>-15.5%</td>
<td>-13.5%</td>
<td>-27.4%</td>
<td>-89.3%</td>
</tr>
<tr>
<td>South West</td>
<td>-1.9%</td>
<td>-10.9%</td>
<td>-35.6%</td>
<td>-32.2%</td>
<td>-53.4%</td>
</tr>
<tr>
<td>Hoggar &amp; Tassili</td>
<td>19.8%</td>
<td>-18.3%</td>
<td>-9.6%</td>
<td>-17.3%</td>
<td>-15.6%</td>
</tr>
</tbody>
</table>

From this figure, it is easy to visualize which region of Algeria experienced a decline between years as well as tell which region had the most and least number of Tamazight speakers over time. Table (3) above, serves to show the rate at which the Tamazight language was declining between each Census year. From this data, patterns and trends can start to be seen. Between the years 1966 - 1977 the percent of the population was unchanged during the other periods there marked a decline in the number of Tamazight speakers. This curve was showed in Figures 4 and 5 above.

**Mapping Spatial Trends:**

Based on data collected from the Census records of Algeria, in depth, spatial analysis of the Tamazight language and its distribution in Algeria was completed. Density maps were created to gain a clear visualization of where the Tamazight populations were located from 1966 - 2014. Since each population record is normalized by square mile, these maps help explain where the population, is higher showing the difference between regions. The population would be denser in the north center region. With this density analysis, a map series was created, with a density map corresponding to each Census year from 1966 - 2014. Below are Figures (9) through (14) which demonstrate the changes in the population density of the Tamazight language speakers.
Figure 9: The population density of the Tamazight language speakers 1966.
Figure 10: The population density of the Tamazight language speakers 1977.
Figure 11: The population density of the Tamazight language speakers 1987.
Figure 12: The population density of the Tamazight language speakers 1998.
Figure 13: The population density of the Tamazight language speakers 2008.
Figure 14: The population density of the Tamazight language speakers 2014.
The above maps show, there is a significant trend of North center region and the region of Hoggar, Tassili of Algeria in which a high density of Tamazight-speaking population resided throughout the course of the nineteenth century. As the years progressed, the density of the Tamazight-speaking population in the Hoggar, Tassili of Algeria did decline, the region which has the highest density of Tamazight-speaking population are still those located in North center region.

While the above population density maps show a generalized idea of where the Tamazight populations were located throughout the years during the colonialization and after the independence. Density maps are the starting point for denoting during what ten year periods the largest change in the density of Tamazight-speaking occurred. From this starting point, decades were chosen for which to complete further analysis on the percentage change of the Tamazight-speaking population.

The following maps show the percentage change in the Tamazight-speaking population between each Census year. This was completed in order to track the change in population and the movement of the Tamazight-speaking population over time. The chosen decades demonstrates the most drastic and dynamic change in the Tamazight-speaking population.
Figure 15: The percentage change in the Tamazight-speaking Population of Algeria from 1966-1977
Figure 16: The percentage change in the Tamazight-speaking Population of Algeria from 1977-1987
Figure 17: The percentage change in the Tamazight speaking Population of Algeria from 1987-1998
Figure 18: The percentage change in the Tamazight speaking Population of Algeria from 1998-2008
Figure 19: The percentage change in the Tamazight speaking population of Algeria from 2008-2014
The above maps show the trend of Tamazight speaking population was declining in all the regions except the North center region of Algeria, while the Arabic speaking population was increasing in all the rest of the regions. The following graph indicates the number of Tamazight speakers in Algeria as compared to the number of Arabic speakers in Algeria from 1851-2014.

Table 4: Tamazight speaking population and Arabic speaking population in Algeria 1851-2014

<table>
<thead>
<tr>
<th>YEARS</th>
<th>Tamazight_POP</th>
<th>Arabic_POP</th>
<th>Total_POP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1851</td>
<td>1,715,000</td>
<td>735,000</td>
<td>2,450,000</td>
</tr>
<tr>
<td>1861</td>
<td>1,992,400</td>
<td>937,600</td>
<td>2,930,000</td>
</tr>
<tr>
<td>1872</td>
<td>1,590,600</td>
<td>819,400</td>
<td>2,410,000</td>
</tr>
<tr>
<td>1881</td>
<td>2125500</td>
<td>1,144,500</td>
<td>3,270,000</td>
</tr>
<tr>
<td>1891</td>
<td>2,589,300</td>
<td>1,520,700</td>
<td>4,110,000</td>
</tr>
<tr>
<td>1906</td>
<td>3147600</td>
<td>2,012,400</td>
<td>5,160,000</td>
</tr>
<tr>
<td>1911</td>
<td>3,274,000</td>
<td>2,216,000</td>
<td>5,490,000</td>
</tr>
<tr>
<td>1921</td>
<td>3,311,800</td>
<td>2,398,200</td>
<td>5,710,000</td>
</tr>
<tr>
<td>1931</td>
<td>3,623,200</td>
<td>2,846,800</td>
<td>6,470,000</td>
</tr>
<tr>
<td>1948</td>
<td>4,609,000</td>
<td>3,771,000</td>
<td>8,380,000</td>
</tr>
<tr>
<td>1954</td>
<td>5,254,200</td>
<td>4,475,800</td>
<td>9,730,000</td>
</tr>
<tr>
<td>1966</td>
<td>6,329,158</td>
<td>6,330,842</td>
<td>12,660,000</td>
</tr>
<tr>
<td>1977</td>
<td>7,023,547</td>
<td>10,054,427</td>
<td>17,079,974</td>
</tr>
<tr>
<td>1987</td>
<td>6,686,637</td>
<td>16,185,021</td>
<td>22,871,658</td>
</tr>
<tr>
<td>1998</td>
<td>6,273,369</td>
<td>23,093,398</td>
<td>29,366,767</td>
</tr>
<tr>
<td>2008</td>
<td>6,229,099</td>
<td>27,551,732</td>
<td>33,780,831</td>
</tr>
<tr>
<td>2014</td>
<td>5,449,547</td>
<td>32,640,456</td>
<td>38,090,003</td>
</tr>
</tbody>
</table>

As the table above indicates, while the Tamazight speaking population was decreasing at a high rate throughout the nineteenth and the twentieth centuries, the Arabic speaking population was increasing gradually with the increase of the total population. From the Table (7) a percent maps depicting the Tamazight speaking population of Algeria was also created. The following maps Figure (20) through (25) demonstrate a pattern of change in the Tamazight speaking population in this period.
Conclusions:

The studies of the Tamazight language in Algeria attribute the colonialization as the cause of its rapid decline throughout the nineteenth century, the data and analysis of this study have found the opposite to be true. While the colonialization did have an effect on the Algerian population as a whole, it did not have a major effect on the rate of decline of the Tamazight language. The research shows that there were other factors that contributed to the decline of the Tamazight language; factors which had been at work well after the colonialism. One of the factors is that the Algerian government used boarding schools for assimilation from 1966 to 1995.

The decline of the Tamazight language during the period 1966-2014 gives evidence for this claim, as can be seen in Figure (3) and Tables (1) and (2).

One of the key factors in the decline is the increasing Arabic speaking population in Algeria throughout the nineteenth century. As the Arabic speaking population in Algeria began to grow and spread all over the country, the Tamazight speaking population began to diminish in the regions of Algeria except the North center. While this decrease was occurring in all the other regions of Algeria, there was a slight increase in the North center region. This gives evidence to the claim that the colonialism did not lead to the near extinction of the Tamazight language. The correlation analysis completed also serves as evidence for Arabic influences on the decline of the language.

By the mid nineteenth century, the population of Arabic speakers had increased as seen in Figure (19). Although the Tamazight language did experience a drastic decrease in the number of speakers throughout the 1900’s, this decline did not increase greatly during the years of colonialism. The number of Tamazight speakers decreased at a higher rate after the colonialism. The percent of change between each Census year shown in Figures (3) demonstrate this.
In comparison to the total population, the decline in the Tamazight speaking population was higher than the decline in the population as a whole. The increase of the total population was much sharper than the decrease in Tamazight speaking population over time.

Just around one hundred and sixty years, the language had dropped from being the dominant language spoken throughout the country. Almost all the regions experienced the highest decrease of Tamazight language. Through this spatial analysis, it is clear that the population losses were the greatest in the regions where Tamazight was not introduced in schools. This analysis shows that Tamazight had decreased even where the language was introduced in schools. The greatest loss of population was clustered in other regions demonstrating that the population loss during the colonialism did not accelerate the decline of the Tamazight language to near extinction. This, along with the fact that the number of Tamazight speakers did not decrease at a more rapid rate during the colonialism, proves that the colonialism cannot be cited as the main cause for the Tamazight decline.

The population density maps created in this study shows the changing spatial locations of the Tamazight language throughout the nineteenth century and the twentieth centuries. This analysis demonstrates that it was not the French colonialism that led to the decrease, but that it was a gradual increase in Arabic speaking over time.

This analysis demonstrates that there was a high population of Tamazight speaking in the north center region of Algeria. Since the statistical significance of the clustering in the north center is located within the 95% and 99% confidence levels, it can confidently be claimed that there was a concentration of Tamazight speaking in the north center of Algeria.

The analysis shows that the northeast region and the Atlas east region of Algeria demonstrate a significant lack of Tamazight speaking population. This served as evidence for the hypothesis that the Tamazight speaking population in Algeria remained clustered in the north center of Algeria where Tamazight is introduced to early age in Schools.
One of the advantages of using GIS to study the demographics of Algeria is the ability to create many different maps, visualizing many different aspects of the Tamazight speaking population in order to study the distribution of the language. Many different types of maps can be created in the process of studying the distribution of the Tamazight language across Algeria. This can help determine what other factors contributed to the decline of the language over time.

The nineteenth century marked a turning point in the political and cultural situation in Algeria becoming independent from the French. From then on, Algeria was officially under the control of Arabic political and cultural pressures. Although the Tamazight population in Algeria had been mostly restricted to the use of Tamazight language, the nineteenth century marked a change in these demographics. As the nineteenth century wore on, more and more Arabic officials and boarding schools began in the East, west and south with them Arabic culture and language. As this continued, Arabic became the language of business and government, therefore the Arabic language was associated with the government and prosperity, while Tamazight was associated with poverty and harsh life in the Mountain and Sahara desert. Rapidly, Arabic took hold as the major language in the East and west of Algeria (Iben Khaldoun 1999).

The Arabic influence moved further and further to the North, West, East, and south as the native Tamazight speaking were pushed toward the mountains and the Sahara desert. Through statistical and spatial analysis, it is clear that the Tamazight speaking population did concentrate in the north center region of Algeria throughout the mid to late nineteenth century. Likewise, the analysis indicates that the increasing of Arabic population in Algeria during this time led to the shift in the distribution of Tamazight speaking population even where Tamazight is introduced in schools it did not help stopping the increase of Arabic population in Algeria. Although the colonialism did have a profound effect on the long-term stability of the Tamazight language and did contribute to the loss of Tamazight-speaking, other factors, dating to well
before the colonialism caused the drastic decline of the Tamazight language over time. With The government acceptance to introduce Tamazight language in schools there is hope that the trend will reverse in the year coming hopefully Tamazight will gain ground again and will be spoken by high number of people and become official language (Salem 1998).

Limitations:

This research is a comprehensive study of the distribution of the Tamazight language in Algeria in the nineteenth and the twentieth centuries, certain limitations to research did occur. Algerian Census data is not readily available in a digitized format so much of the data collection had to be completed by hand. At the same time, it was very difficult to access the census data due to the fact that most of the records were lost or destroyed during the transition from the French Government to the Algerian the government.

There is also a lack of Census information on the Tamazight speaking populations of Algeria. A comprehensive summary of Tamazight speaking populations in Algeria was completed by the newly created high office of Tamazight in Algeria 1995. Data was collected from the Census records that remained and a few of the detailed Census summaries but was only completed for the Regions of Algeria.

Tamazight speaking population data at the county level prior to this year does not exist. To conduct a study of the language prior to 1851, only total population counts could be used in the analysis.

Future Research:

Although the research completed for this analysis examined the distribution of the Tamazight language in Algeria over the course of the nineteenth century, additional research could be completed to make the analysis more comprehensive, and to conduct further spatial
analysis at a more detailed level. With access to greater resources and more time, analysis and
data collection at the county level would enhance the spatial analysis completed in this research.
With analysis at the county level, the population density of Tamazight speakers could be more
specific, possibly indicating exactly where the greatest concentration of Tamazight speakers was
located and how it changed over time. This could be used to hypothesize whether or not there
were any other spatial factors that affected the language’s distribution.
Acknowledgements

Foremost, I would like to express my sincere gratitude to my thesis advisor Professor Dr. Wenjie Sun for the continuous support of my thesis research, for her patience, motivation, enthusiasm, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. Besides my advisor, I would like to thank the rest of my thesis committee, Professors Dr. Kurt Piepenburg and Joy Nystrom Mast for their encouragement, insightful comments, and hard questions. I would also like to extend my thanks to my fellow peers in the Geography and Earth Sciences Department, as well as the rest of the Geography and Earth Science Department Faculty for teaching me the skills and knowledge that I have been able to apply to my thesis and the future.

Last but not the least, I must express my very profound gratitude to my parents and to my wife Lynda for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. Thank you.
Appendix

Additional Tables

Additional Spatial Analysis Maps

Table 5: Amazigh Speaking Population per Country, 1966-2014

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North Center</td>
<td>2922698</td>
<td>3505318</td>
<td>3837026</td>
<td>4120911</td>
<td>4544627</td>
<td>4805318</td>
</tr>
<tr>
<td>North West</td>
<td>803813</td>
<td>860648</td>
<td>598816</td>
<td>343047</td>
<td>288642</td>
<td>260648</td>
</tr>
<tr>
<td>North East</td>
<td>874687</td>
<td>837157</td>
<td>690234</td>
<td>477387</td>
<td>357118</td>
<td>237157</td>
</tr>
<tr>
<td>Atlas Center</td>
<td>55793</td>
<td>36724</td>
<td>28639</td>
<td>19956</td>
<td>16148</td>
<td>8724</td>
</tr>
<tr>
<td>Atlas West</td>
<td>42711</td>
<td>35867</td>
<td>27543</td>
<td>13156</td>
<td>9850</td>
<td>7867</td>
</tr>
<tr>
<td>Atlas East</td>
<td>1077316</td>
<td>1229632</td>
<td>1039049</td>
<td>899169</td>
<td>652923</td>
<td>69632</td>
</tr>
<tr>
<td>South East</td>
<td>429349</td>
<td>393256</td>
<td>355867</td>
<td>323963</td>
<td>305677</td>
<td>29256</td>
</tr>
<tr>
<td>South West</td>
<td>102093</td>
<td>100158</td>
<td>89201</td>
<td>57455</td>
<td>38968</td>
<td>18158</td>
</tr>
<tr>
<td>Hoggar &amp; Tassili</td>
<td>20698</td>
<td>24787</td>
<td>20262</td>
<td>18325</td>
<td>15146</td>
<td>12787</td>
</tr>
</tbody>
</table>

Table 6: Total Population in Algeria per Country, 1966-2014

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North Center</td>
<td>4053409</td>
<td>5927061</td>
<td>7575266</td>
<td>9392166</td>
<td>11967692</td>
<td>13851</td>
<td></td>
</tr>
<tr>
<td>North West</td>
<td>2166464</td>
<td>2905713</td>
<td>3951623</td>
<td>4604519</td>
<td>5326567</td>
<td>6288592</td>
<td>45148</td>
</tr>
<tr>
<td>North East</td>
<td>1837734</td>
<td>2712657</td>
<td>3646142</td>
<td>4612753</td>
<td>5179459</td>
<td>5788759</td>
<td>9891</td>
</tr>
<tr>
<td>Atlas Center</td>
<td>642964</td>
<td>897675</td>
<td>1311001</td>
<td>2003660</td>
<td>2539377</td>
<td>2834717</td>
<td>42545</td>
</tr>
<tr>
<td>Atlas West</td>
<td>1335417</td>
<td>1012705</td>
<td>1305920</td>
<td>1662669</td>
<td>1893455</td>
<td>2114019</td>
<td>53826</td>
</tr>
<tr>
<td>Atlas East</td>
<td>1688436</td>
<td>2310900</td>
<td>3239283</td>
<td>4276542</td>
<td>4895243</td>
<td>5474582</td>
<td>21038</td>
</tr>
<tr>
<td>South East</td>
<td>719218</td>
<td>949660</td>
<td>1311380</td>
<td>1854247</td>
<td>2291060</td>
<td>2560971</td>
<td>144265</td>
</tr>
<tr>
<td>South West</td>
<td>195577</td>
<td>307408</td>
<td>417166</td>
<td>574438</td>
<td>718924</td>
<td>804888</td>
<td>289024</td>
</tr>
<tr>
<td>Hoggar &amp; Tassili</td>
<td>40781</td>
<td>54174</td>
<td>113917</td>
<td>185774</td>
<td>228970</td>
<td>255783</td>
<td>325300</td>
</tr>
</tbody>
</table>
### Table 7: percent of Tamazight speaking population per Regions 1966 – 2014

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North Center</td>
<td>72.1%</td>
<td>59.1%</td>
<td>50.7%</td>
<td>43.9%</td>
<td>42.4%</td>
<td>40.2%</td>
</tr>
<tr>
<td>Nord West</td>
<td>37.1%</td>
<td>29.6%</td>
<td>15.2%</td>
<td>7.1%</td>
<td>5.4%</td>
<td>4.1%</td>
</tr>
<tr>
<td>North East</td>
<td>47.6%</td>
<td>30.9%</td>
<td>18.9%</td>
<td>10.3%</td>
<td>6.9%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Atlas Center</td>
<td>8.7%</td>
<td>4.1%</td>
<td>2.2%</td>
<td>1.0%</td>
<td>0.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Atlas West</td>
<td>3.2%</td>
<td>3.5%</td>
<td>2.1%</td>
<td>0.8%</td>
<td>0.5%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Atlas East</td>
<td>64.6%</td>
<td>53.2%</td>
<td>32.1%</td>
<td>21.0%</td>
<td>13.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>South East</td>
<td>59.7%</td>
<td>41.4%</td>
<td>27.1%</td>
<td>17.5%</td>
<td>13.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>South West</td>
<td>52.2%</td>
<td>32.6%</td>
<td>21.4%</td>
<td>10.0%</td>
<td>5.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Hoggar &amp; Tassili</td>
<td>50.8%</td>
<td>45.8%</td>
<td>17.8%</td>
<td>9.9%</td>
<td>6.6%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>
Figure 20: Percent of Tamazight speaking Population 1966
Figure 21: Percent of Tamazight speaking population 1977
Figure 22: Percent of Tamazight speaking population 1987
Figure 23: Percent of Tamazight speaking population 1998
Figure 24: Percent of Tamazight speaking population 2008
Figure 25: Percent of Tamazight speaking population 2014
References


