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A history of the Pigtail Bridges in South Dakota

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Abstract

The history of the Pigtail Bridges in the Black Hills of South Dakota is an interesting historical story that in children's non-fiction books has not told. Three questions that guided this research were what the best layout/design is for a children's book on the Pigtail Bridges, how does an author select the content for a children's book on a local history topic like the Pigtail Bridges, and what is the most appropriate text structure for this content? The purpose of this research project was to create a non-fiction children's book about the history of the Pigtail Bridges in the Black Hills of South Dakota. *A History of the Pigtail Bridges in South Dakota* is a non-fiction book that teachers could use to enhance South Dakota State curriculum. It may also appeal to anyone interested in learning more about those who helped open the Black Hills to visitors.

A HISTORY OF THE PIGTAIL BRIDGES

IN

SOUTH DAKOTA

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ABSTRACT

The history of the Pigtail Bridges in the Black Hills of South Dakota is an interesting historical story that in children's non-fiction books has not told. Three questions that guided this research were what the best layout/design is for a children's book on the Pigtail Bridges, how does an author select the content for a children's book on a local history topic like the Pigtail Bridges, and what is the most appropriate text structure for this content? The purpose of this research project was to create a non-fiction children's book about the history of the Pigtail Bridges in the Black Hills of South Dakota. *A History of the Pigtail Bridges in South Dakota* is a non-fiction book that teachers could use to enhance South Dakota State curriculum. It may also appeal to anyone interested in learning more about those who helped open the Black Hills to visitors.

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CHAPTER 1

INTRODUCTION

"To do the scenery half justice, people should drive 20 or under. To do it full justice they should get out and walk." – Peter Norbeck

The Pigtail Bridges are located on the section of U.S. Route 16A called Iron Mountain Road in the Black Hills of South Dakota. The three bridges on Iron Mountain Road are a part of Peter Norbeck Scenic Byway. The roads through the Black Hills in South Dakota were designed to flow with the land and not take away from the rustic beauty of the Hills (Waymarking.com, 2006).

The Peter Norbeck Scenic Byway, named after Senator Peter Norbeck, a native-born South Dakotan, is a 66-mile scenic double loop that winds its way through the Black Hills. The Byway provides visitors with an "intimate contact with the forest, the rocks, and the streams" (U.S. Department of Agriculture, n.d). The Byway includes three granite tunnels that frame Mount Rushmore as you drive, bike, or walk through them, as well as the Pigtail Bridges (South Dakota Office of Tourism, 2010).

Peter Norbeck served as governor of South Dakota from 1917 to 1921 and as senator from 1921 until his death in 1936 (Biographical Directory of the United States Congress, 2010). He first visited the Black Hills in 1905, when he fell in love with the Hills. This researcher's grandfather, Dale Stumer, used to say, "It is the lure of the Hills." Once a person has experienced the Black Hills, they keep coming back. This was true of Norbeck; his love of the Hills led him to want to open them to the public. Therefore, he proposed a road through the Needles, which are eroded granite pillars, spires and towers of rock in the Black Hills of South Dakota (GORP, 2008). Cecil Clyde Gideon designed

the Pigtail Bridges. His inspiration came after Norbeck told him of his plans for connecting Mount Rushmore and The Needles. Gideon and Norbeck spent many hours making plans as to how Iron Mountain Road, the tunnels, and the bridges would look. Road engineers at this time said, "It could not be done" (Waymarking.com, 2006), that it would be too difficult because of the elevation drop. When Norbeck asked his engineer, Scovell Johnson, if he could build the road, Scovell said, "If you can supply me with enough dynamite!" (U.S. Department of Agriculture, n.d.), and Norbeck did. It took two years and 500,000 pounds of dynamite to blast through the mountains and carve out the tunnels and roads that wind through the Black Hills and make what is known today as the Peter Norbeck Scenic Byway (U.S. Department of Agriculture, n.d.).

Why Teach History

Every fourth or fifth grade classroom is required in their state standards to study their local history (South Dakota Department of Education, 2006). The question is: why is it required? Why do people, let alone children, need to know about their local history? According to Stearns (1998) there are two main reasons to study history; (a) history helps us understand people and societies, and (b) by studying history, we can understand how and why we as a society have changed and came to be. History is important for our lives because it gives us a base for living. Stearns says, "History contributes to our moral understanding" (Para. 12). We can look back at what people have done before us and see what they have done. We then can compare their stories to our own lives and learn from them. History gives us a sense of identity. It tells us of our ancestry.

It is also "essential for good citizenship" (Stearns, 1998, p. 2). When students study history, they learn information that is vital for responsible public behavior, whether

as a national or community leader, an informed voter, a petitioner, or a simple observer (Stearns, 1998). They are able to participate in this continuum of history in a very personal and meaningful way. They develop the ability to assess evidence, the ability to assess conflicting interpretations, and gain experience in assessing past examples of change (Stearns, 1998)). The study of history leads to a well-informed citizen.

Wherever people are located, everyone has a history, and each one deserves to be told. Eckert describes an instance where a friend asked him why he did not "study more interesting personalities" (Eckert, 1979, p. 31). Local history opens doors so that people can look into the past from the present perspective. It gives the learner a new "awareness of the importance played by his own community and ancestors" (p. 32).

A child's view of our world is limited. Their world consists of family and community; the former provides love, warmth and security, while the latter provides friendship (Eckert, 1979). "It is difficult for him to think beyond that – to conceive of state and national boundaries." (p. 33) Local history can be very personal for students when they study about people and places that they know or have an attachment to such as their family, town or city they live in, or state. What better way to teach students about history than to tap into their prior knowledge and personal interests, than to talk about history that is close to their hearts.

"Unfortunately, local history is clearly the stepchild of the historical profession" (Eckert, 1979, p. 33). Eckert observed that historical society meetings tend to be frequented by more of the older generation, than by children or the younger generation. The older generation sits around and shares stories of the past, "as though passing on an

oral tradition" (p. 33). Sadly, there is "no one to receive and preserve these stories for future generations" (p. 33).

McCullough said in an interview with Bruce Cole, "...we are raising a generation of young Americans who are, to a very large degree, historically illiterate" (Cole, 2002, p. 1). He attributed fault to teachers' lack of history courses in their background. Teachers are teaching from lesson plans with no background knowledge. He stated that if we think about our history in school, the courses that were the most interesting were the courses that interested and excited our teachers. He stated that this is true with the children of today.

The fact that children do not know history is not only something to sadden us, but also to anger us. "They are being cheated and they are being handicapped, and our way of life could very well be in jeopardy because of this" (Cole, 2002, p. 2). He said that history is important, especially at the present, when our country is on alert for terrorist attacks. He suggested history as a source of encouragement, knowledge and strength. "If we don't know who we are, if we don't know how we became what we are, we're going to start suffering from all the obvious detrimental effects of amnesia" (p. 2).

In his interview with Bruce Cole, McCullough said we need to get to them (the children) young and that they can learn anything. He asserted that too often history has been taught out of textbooks or by teachers who lecture. History needs to be taught in exciting and fun ways (Cole, 2002). He gave an example of a classroom of fifth graders studying the presidents; at the end of the unit, there was a party where they came dressed as their favorite president or first lady. When asked about the presidents, the students knew a lot about them and were excited to talk about them. Children have a natural thirst

to know about the past. A non-fiction book about the history of the pigtail bridges can give teachers and students alike a tool to make history fun and exciting.

Curriculum

The South Dakota Department of Education has set the history curriculum for South Dakota schools forth. The national standards for grades K-4 for history are as follows:

> Standard 3. The History of Student's Own State or Region.
>
> 3. Understands the people, events, problems, and ideas that were significant in creating the history of their state (McREL, 2008).

The state standards are as follows:

> Indicator 2: Evaluate the influence/impact of various cultures, philosophies, and religions on the development of the U.S.
>
> 4. US.2.1. Students are able to describe the impact of significant turning points on the development of the culture in South Dakota.
>
> * Gold Rush.
>
> * Treaties with the Native Americans
>
> Example: Treaty of 1868 resulting in Red Cloud's War
>
> * Controversy over statehood
>
> * Native American wars
>
> Examples: Red Cloud's War, Wounded Knee
>
> * Establishment of religious colonies
>
> Example: Hutterite colonies

4. US.2.3. Students are able to describe the influence of notable South Dakotans on the development of our state.

Examples: Red Cloud, Sitting Bull, John B. S. Todd, Frederick Taft Evans, Laura Ingalls Wilder, James Scotty Philip, Niels E. Hansen, Gertrude (Zitkala-Sa) Bonin, Peter Norbeck, Francis Case, Spotted Tail, Crazy Horse, Ben Reifel, Billy Mills

Rapid City Community Schools at this time do not have curriculum standards. They are in the process of forming committees to develop curriculum standards. Therefore, teachers and administrators use the national and state standards to guide their teaching of the various subjects.

Purpose

The purpose of this research project was to create a non-fiction children's book about the history of the Pigtail Bridges in the Black Hills of South Dakota. This resource can enhance the fourth grade Social Studies curriculum in South Dakota, specifically standard 4.US.2.3 that states, "Students are able to describe the influence of notable South Dakotans on the development of our state" (South Dakota Department of Education, 2006, p. 29). It gives fourth grade students a historical resource at their level that provides information on more than just Peter Norbeck, but also others who participated in designing and constructing the Pigtail Bridges and the opening of the Black Hills to visitors.

Significance

Researching the history of the Pigtail Bridges for the development of a children's book was significant for the reason that the history of the Pigtail Bridges, especially the lives of those who were involved in designing and constructing them, is not covered in the South Dakota Social Studies Content Standards. The South Dakota History Standard 4.US.2.3 states, "Students are able to describe the influence of notable South Dakotans on the development of our state." There are examples of notable South Dakotans. Peter Norbeck is mentioned as a suggestion for teachers, but a resource providing age-appropriate relevant information could encourage inclusion of Norbeck in lessons. The Pigtail Bridges are a part of that history as well as the history of Senator Peter Norbeck. Knowledge of this part of South Dakota history could give local students historical background knowledge.

Knowledge of their local history connects students with history in a way that learning about the world or national history does not. Because local history is more personal to students, they may be more interested in learning about history. According to McCullough (Cole, 2002), history is a source of pleasure for students, and history teachers must make it interesting – by telling the stories of history that make a difference to them such as those of significant people and/ or places in their state.

Another source of significance was the lack of children's books on this particular topic. A search of the Library of Congress catalog about Peter Norbeck resulted in two records for *Peter Norbeck: Prairie Statesman* by Gilbert Courtland Fite. One is copyrighted 1948 and the other is a 2005 electronic edition of the 1948 copyright. A search for books on the Pigtail Bridges and C.C. Gideon yielded no results. In addition,

when limiting search to children's reference materials for Peter Norbeck, C.C. Gideon, Pigtail Bridges or even the Black Hills, there were no results. There were 976 books on the general subject of South Dakota, but when limited to the Children's Literature Reference Collection, there were no results.

Problem Statement

The history of the Pigtail Bridges in the Black Hills in South Dakota is an interesting historical story that has not been told in children's non-fiction books.

Related Questions

Through this project, this researcher attempted to answer the following questions:

1. What is the best layout/design for a children's book on the Pigtail Bridges?
2. How does an author select the content for a children's book on a local history topic like the Pigtail Bridges?
3. What is the most appropriate text structure for this content?

Assumptions

The researcher assumed that most people are aware of the Black Hills and their general location as well as where the State of South Dakota is located. The researcher also assumed that most people know of Mount Rushmore and the significance it holds in United States history.

Limitations

This research project topic was limited to the history of the Pigtail Bridges in the Black Hills of South Dakota. Other limitations for this study were the accessibility of materials as well as the limited children's reference books on this particular research project topic.

Definitions

Pigtail Bridge – a type of road bridge, where the road curls and passes over itself. (Wikipedia.com, 2007)

Needles Highway- a road named after the The Needles

The Needles formation - granite formations left over from eroded sediment (Waymarking, 2007)

Iron Mountain Road – also called Highway 16A, is a scenic United States highway, which divides from U.S. Route 16 in the Black Hills of South Dakota. (Wikipedia.com, 2007)

CHAPTER 2

LITERATURE REVIEW

The purpose of this project was to create an age-appropriate historical book for children in the fourth grade. This book provided students with information about the history of the Pigtail Bridges and the people who were involved in planning and building them. Related research falls into four categories: geographical background of the Black Hills, historical background of the Black Hills, non-fiction structure, and the availability of nonfiction books on the subject.

Geographical Background

In 1927, Freeman Ward conducted research on the geography of South Dakota to debunk some misconceptions about South Dakota. Ward wrote that many of the people in his time thought of South Dakota as part of the "Great American Desert." He contended that the people of South Dakota lived in "sod houses, burned hay to keep warm, were constantly menaced by savage Indians, and had three blizzards a week" (Ward, 1927, p. 236). This was not so.

Ward (1927) described the diverse scenery of South Dakota. He characterized the Prairie Plains, located east of the Missouri river as "probably the flattest part of the state" – the center of eastern South Dakota. He added that the eastern part of the state also has "rolling country as well as sharp downward departures from the prairie" (p. 237). He stated that the Great Plains, located in the western part of the state "are flatter plains-like portions, and there is the gentle to steep rolling surface" (p. 240). The Badlands, named for its topography, Ward considered the most famous feature of the Great Plains with bare slopes, bright colors, and small and large canyons that delight all that see them. The

Black Hills, which are real mountains, can be seen 25 miles away as a dark outline and as one gets nearer; they become more visible and more impressive. Ward stated, "it's not until one is within the Hills themselves that the beauty and charm of the high peaks, deep valleys, wooded slopes and sparkling streams really descend upon one" (p. 241). The valleys are "100 – 300 feet below the general prairie level and are bordered by steep bluff or by sharp "breaks" (p. 242). Ward said that a physiographer would find the drainage pattern in this region interesting. He thought that a dominant pre-glacial drainage must have been southeast before it developed the eastward trend that is common today. Part of the reason South Dakota is so attractive is because of the forests in the Black Hills that contrast with the rest of the state.

Campbell (2006) conducted research on the landscape history of the Black Hills. Examining the landscape of the Black Hills from the 1700s to the 1930s, he described forest structure, stone memorials, mining, and names of places, roads and tourism. He detailed what the Sioux saw, from 1775-1874, then how the Black Hills impressed the Lakota, 1775-1990, the Black Hills in white minds, 1742 – 1875, white people in Black Hills, 1874 – 1900, and finally dirt roads, railroads, and tourism, 1874 – 1941.

Campbell (2006) found that during the years 1775 through 1874, the Hills' rock walls bore imprints from that period; depictions of guns, horses and wagons. According to him, these depictions "were not expressing worry but pride from seizing them" (Campbell, 2006, p. 64). He found that from the years 1742 – 1875, the landscape of the Hills was important to neither white man nor to the Native Americans. Neither group did the Hills justice. The Native Americans depicted their spiritual connectedness with nature through pictures of the spirits that live in the Hills. The white people took away all life

and left only the stone of the Hills. From 1874 – 1900, the landscape of the Black Hills changed dramatically. This was the time of the gold rush. Now instead of having the respect of the people, the Hills became the background for the hunt for gold. During the years between 1874 and 1941, a new industry started to take hold – tourism. It was during this time that the Black Hills region was really opened to white people. Railroads and roads made it possible for anyone to experience the Black Hills.

In conclusion, Campbell (2006) found "that all of the elements of the Black Hills' present-day landscape were present by 1930" (p. 201). He found that all the major factors were in place: nature, mining, agriculture, and tourism. It took the Native Americans and white people both to change the landscape of the Black Hills to what it is today.

John Hudson (1973) also conducted research on the landscape of the Dakotas. He focused on the transformation of the northern plains from Indian reservations to a farming frontier for white people. He analyzed the changing settlement patterns during the colonization phase. He focused on the early stages rather than the competitive adjustments in the patterns. He found in 1879, there were three types of hinterland exploitation that had begun to emerge, which led to the division between northern and southern Dakota. This division constituted an east to west axis, centered around the Northern Pacific Railroad and its land grant in North Dakota. South Dakota did not have a significant amount of land grants but the southeast developed around Sioux Falls and the Missouri River. The Black Hills was the third division. It began to emerge as an economic entity in the mid-seventies because of the gold rush; the area would not be connected to eastern South Dakota for another 30 some years. He also found that there were two major settlement booms, one in the 1880s and the other one from 1905 – 1920.

It has been many years since the settlement boom in the Dakotas. According to Hudson (1973), both Dakotas, at the time of his research, had declining populations. He reported that the dams and the interstate highway could be the Dakota's redeeming feature. The dams were built to revolutionize the plains, and the highways were built to drive millions of tourist dollars into the Dakotas, specifically the Black Hills and the Badlands. The image of the Dakotas has transformed from "a place where the frontier was hostile and open, to a rich empire where fortunes could be made" (p. 462).

Historical Background

In 1861, the Dakota Territories (North and South Dakota) were created; until then South Dakota was part of the Louisiana Purchase. In 1889, the separate states of North and South Dakota were created. The Black Hills are located on the west-central border of South Dakota and the eastern border of Wyoming. They were formed about 40 million years ago in a "massive eruption of the earth's bowels" (Lee, 1996, p. 168). This upheaval was "created from the rocky bed of an inland sea that covered the region eons ago" (p. 168).

The Black Hills are more than just hills. They are mountains, and to the Native Americans that lived there, they were the Paha Sapha, which means "Black Mountains" because from a distance, the mountains look dark. The white people who were used to the towering snow-capped Rockies called the Black Mountains "the Black Hills." The Black Hills has the highest peak east of the Rockies to the Atlantic Ocean, Harney Peak. Harney Peak is 7,240 feet high and is in the "granitic center of the Black Hills" (Lee, 1996, p. 169).

Archaeological evidence showed that humans inhabited the fringes of the Black Hills in prehistoric times (Lee, 1996). The first white people known to have been there were the Verendrye brothers. They were French-Canadian explorers who came to the region in 1742. They were looking for the mysterious Sea of the West. The next report of white people in the Black Hills did not come until fifty years later, when most of the reports were of white fur traders following the Missouri River to the Yellowstone. It was a whole century after the Verendrye brothers visited the Hills that the first evidence of white men as gold prospectors was uncovered. Black Hills historians know them as the ill-fated Kind party, who were pioneers that died from sickness or were killed by American Indians. They may have been the first known prospectors in the Hills, but they were definitely not the last. Many prospectors met the same fate as the ill-fated Kind party.

According to Lee, Native Americans did not live in the Black Hills for a prolonged time. They would make pilgrimages to the Hills because they considered them sacred. The local tribes were a nomadic people. They roamed the Great Plains in search of buffalo herds. The Black Hills were full of game and had "level, wooded bottomlands cradled by tree-clad bluffs or ridges" (Lee, 1996, p. 169). These bottomlands were perfect for winter camping grounds as well as a refuge from the settling of the Black Hills by white people.

In 1868, the white people made a treaty with the Sioux called the Laramie Treaty. According to the Laramie Treaty, armies would leave their posts in the Indian Country and be no additional posts would be authorized. It also set aside all of the country west of the Missouri River as well as the Black Hills for the occupation of the Sioux Nation. Six

years after the treaty was signed, George Armstrong Custer, a famed Civil War hero, led the Seventh Cavalry and 1,000 men, which included one woman, and an African American cook and several other important men to the Black Hills. The "purpose of this expedition was to thoroughly explore the interior of the Black Hills and to select a suitable site for a future military post" (Lee, 1996, p. 170). What they found was the pristine beauty of the region, a grazing paradise and gold. That was the end of the Laramie Treaty and the beginning of the settling of the Black Hills of South Dakota with white people (Lee, 1996).

According to William Patric (2003), the official reason Custer took the expedition into the Black Hills was to find a communications route and find a site for a military post. The establishment of a military post would be so that the Army could respond to Indian raids. However, most people during this time had a sense that something was not quite right. Custer requested a geologist to accompany the expedition. At this time, George Bird Grinnell joined the expedition, as well as, a botanist and two miners, who were interested in finding gold.

Custer too was interested in find gold. Patric quoted Custer's brother-in-law saying that he (Custer) has stated on many occasions the he wanted to explore the Black Hills for the reason that "it would open a rich vein of wealth" (p. 37). After acquiring the personal needed for the 60-day expedition, the group set off. On the plains of South Dakota, the groups experienced blistering heat, swarms of grasshoppers, cactus, rattlesnakes, wind and more. When they reached the foothills, Custer could not find a way into the Black Hills. It was on July 23 that his company found a well-worn pony path going into the hills. They followed the path until it came to an Indian camp (p. 38).

As Lee (1996) stated, days in the Black Hills were idyllic in contrast to the time spent of the plains. It was during these pleasant times that the miners arrived. Gold was not supposedly discovered until August, but even Custer himself when writing his reports cautioned that until the gold reports were examined further that 'no opinion should be formed' (Patric, 2003, p. 39). As in modern times, the press learned this and flashed it across newspapers and telegraphs. The commander's report contained a report that was more glowing stating, 'On some of the water courses almost every panful of earth produced gold in small, yet paying quantities' (p. 39).

On their way out of the Black Hills, the expedition came across a prairie fire which, Patric (2003) speculates, may have been started by the Indians. It forced the group to go a different route. Even with that setback, they returned on schedule. Because of Custer's expedition to the Black Hills and their discovery of gold, the rush to the hills to mine gold began. The government took contradicting actions to combat the influx of miners into the hills.

> On one hand, the government seemed determined to violate the Laramie Treaty with an incursion into the Sioux's dearest holding and a gold strike sure to provoke an explosive response, but on the other hand, it righteously adopted stern measures to uphold solemn treaty commitments (p. 40).

According to Patric (2003), Newton Winchell, professor of geology, claimed that he had not see gold and that the miners had brought the gold with them. Fredrick Grant backed him up, and Custer said that the professor had simply not looked for it (gold). During the time, Custer's group was making their way through the Black Hills; another smaller group was making their way from the south looking for a site for a new Sioux agency.

This group included minister and Indian agent Samuel D. Hinman who had a military escort. According to Patric (2003), he heard Custer's report and was surprised, for he described the hills as 'bleak' and 'sterile' and that there was no gold there (p.40,41).

In the summer of 1875, a corps of civilian scientists under the Office of Indian Affairs headed to the Black Hills to see if Custer's claims of gold were true. They tested the streams and rocks. They concluded that the Black Hills indeed had gold, but a person could not pan or rocker for it. It would require special equipment. During this time, the United States was in a severe depression. The gold was one way of "kick-starting the economy". Patric (2003) found that the army half-heartedly tried to keep prospectors out the Hills, but in late 1875, it had given up and "the doors to the Hills were flung open" (p.41).

Availability of Books

Three databases were searched for the availability of books and materials on the history of the Pigtail Bridges on Iron Mountain Road in the Black Hills of South Dakota. Table 1 shows the results of the search. Both keyword and subject searches were constructed. The databases searched were *Books in Print, the Library of Congress Online Catalog,* and the *South Dakota Library Network. Book in Print* indexes materials that are currently in print. *The Library of Congress Online Catalog* (http://catalog.loc.gov) includes more than 2.9 million books and other printed materials. It is the most inclusive database because it has entries dating back to 1898. The *South Dakota Network of Libraries* has access to multiple library catalogs in South Dakota at once and represents the project region.

Subject/keywords searched were; South Dakota – Juvenile, Black Hills, Black Hills – Juvenile, Pigtail Bridges – Juvenile, Peter Norbeck, Peter Norbeck – Juvenile, C.C. Gideon, C.C. Gideon – Juvenile, Civilian Conservation Corps in the Black Hills, and Civilian Conservation Corps in the Black Hills – Juvenile. There are many titles about South Dakota and the Black Hills, but the number of hits decreases when the search is limited by adding Juvenile to the search term. The shortage of juvenile books on the specific topics for this project is evident in Table 1.

Table 1: Availability of Books about the PigTail Bridges in South Dakota

Subject/Keyword Heading	Books In Print (BIP)		Library of Congress (LOC)		South Dakota Library Network (SDLN)	
	KEY	SUB	KEY	SUB	KEY	SUB
South Dakota	1088	1202	10,000	25	103553	76940
South Dakota – Juvenile	0	0	107	37	0	0
Black Hills	176	89	694	76	9721	6728
Black Hills – Juvenile	0	0	12	0	41	18
PigTail Bridges	0	0	0	0	0	0
Pigtail Bridges – Juvenile	0	0	0	0	0	0
Peter Norbeck	1	1	25	5	38	23
Peter Norbeck – Juvenile	0	0	0	0	0	0
C.C. Gideon	0	0	0	0	0	0
C.C. Gideon – Juvenile	0	0	0	0	0	0
Civilian Conservation Corps in the Black Hills	1	1	1	1	12	9
Civilian Conservation Corps in the Black Hills – Juvenile	0	0	0	0	0	0

KEY = Keyword SUB = Subject

The largest number of both subject and keyword hits emerged from the South Dakota Library Network. Of course, keyword searches afford less precision and these

titles lack extensive information on the topics of interest, whereas subject searches are more precise and hold greater promise for information of particular interest.

Table 1 demonstrates that there are many books about the general subjects of *South Dakota* and the *Black Hills* but no books on the *PigTail Bridges*, *Peter Norbeck*, and *C.C. Gideon* and other people involved in the planning and construction of the bridges, let alone books written for children.

Non-Fiction Text Structure

Christine Pappas (1991) published an analysis of a kindergartener's readings. The reason for this analysis was to discuss the romantic views about early literacy that narrative is primary and that primary age students are not able to understand informational text. The paper outlined some of the book language that was found in stories and nonfictional books. Pappas looked at the ways a five-year-old girl, named Jean, read, and acquired the distinctive properties of a book from each genre.

She considered three distinctive patterns of text. They were co-preferentiality versus co-classification, past versus present verb tense, and the degree of relational processes. Co-preferentiality, the identity chain – the use of nouns and pronouns to "refer to the same character" (p. 451) – is commonly used in narratives, while the same use, co-classification is found in information books. The second feature was verb tense; the story analyzed was written in past tense, while the informational text was written in present tense. The last feature Pappas considered was the extent to which descriptive constructions were included in each text. Informational books include a plentiful quantity of descriptive constructions where stories have a limited amount in them.

There are global structure differences in the two genres. Each genre has necessary and optional elements. Pappas (1991) referenced Hasan, who stated that a story's necessary elements are Initiating Event, Sequence Event, and Final Event, while information books necessary elements are Topic Presentation, Description of Attributes, Characteristic Events, and Final Summary. The optional elements in stories are Placement, Finale, and Moral, while informational books' are Category Comparison and Afterward.

Texts collected in October over three days were read to Jean and then she "read" the book back. On the first day, the story was presented to her, but on the other two days Jean chose which book to read first. The first reenactment of *The Owl and the Woodpecker* showed sustained co-referentiality as well as global elements of the story (Pappas, 1991, p. 454). On the second and third reenactments, she showed the same control of text properties as the first reenactment but in these reenactments, she had more content in global elements and an expansion of details.

The first reenactment of *Squirrels* showed that she appreciated the co-classification properties of nonfiction books because she used plural pronouns and used present tense verbs (Pappas, 1991, p. 457). In the second and third reenactments, her reading was comparable to her reading of the narrative story. She showed that she gave even more details as well as demonstrated that she was adept in reenacting both genres.

Pappas (1991) then reexamined the narrative as primary ideology. She posited that teachers should share and encourage children to read and write both genres on their own. In conclusion, Jean demonstrated with the readings and reenactments of both genres

that a primary age child was "both capable of, and eager to, read information books" (p. 461).

Duke (2000) conducted research on the scarcity of informational text in first grade classrooms. She contended that even though scholars have called attention to informational text in the early grades for some time, there has been little to no reported data to show the extent of use.

Duke (2000) began her research with a conceptual framework. She used these nine features as the definition of informational text: (a) The function is to communicate information about the natural or social world from someone with knowledge to someone who is less knowledgeable; (b) the factual content is long-lasting; (c) the verb construction is also timeless; (d) there is generic noun structure; (e) technical vocabulary is used; (f) the material can be classified and defined; (g) the text structure is compare/contrast, problem/solution, cause/effect, etc; (h) there is a repetition of the theme of the topic; and (i) other elements such as diagrams, indices, page numbers, and maps are provided.

Duke (2000) divided informational texts into three types: narrative-informational text, informational and informational-poetic. Narrative-informational texts are stories that use fictional characters to teach information, like the Magic School Bus series. She assumed that people learn to read or write a genre by actually reading and writing that genre. Informational-poetic texts are poems about the natural or social world, while texts that are considered informational are neither narrative nor poetic in form.

Duke (2000) conducted a descriptive, observational study of 20 first-grade classrooms in 10 different school districts. She chose six schools from the highest and

four of the lowest SES districts in the greater Boston metropolitan area. Then two classrooms were chosen from the low SES districts and three classrooms from the high SES districts.

Duke (2000) visited the classrooms three times and recorded the displayed print, the print materials in the classroom library, and any written language activities. The second and third time, new books and magazines added to the classroom library were noted. The genre, and the learning activities, and the length of the writing activity were noted.

The recorded text displays from all visits were tallied as well as the total number of informational text displayed. The number of information texts displayed was calculated as a percent of total texts displayed. The total number of books and magazines recorded as informational was tallied as well as the total number of books and magazine in all was tallied. A ratio of informational text to total books and magazines was computed and related, and then was applied to the number of children and per classroom. For both data analyses, descriptive notes were made. For the written language activities, the total number of minutes spent in whole class activities were tallied, as well as the total number of minutes spent on informational text. The time was then calculated into a percentage of time as a whole class, time spent with written language in general, time in class and time in school. Descriptive notes were also included in this section as well (Duke, 2000).

The results of this study revealed an overall scarcity of informational text in the observed first grade classrooms. Little informational text was displayed in classroom libraries and in the written language activities. The rate was particularly low in the low

SES classrooms. Many more books and magazines were found in high-SES classroom libraries compared to the low-SES classrooms. The mean enrollment for low-SES classrooms was higher than for the high-SES classrooms.

Several tentative conclusions emerged from this study. The first was that not all those who had been trying to affect classroom practice have succeeded. Second, narrative genre still predominated in early schooling. Third, the informational text instruction did not necessarily constitute a substantial part of the first grade experience. Fourth, the difficulty of information text should not be attributed to the low achievements in reading and writing of informational text. Fifth, informational text showed potential to be productive in early-grade curricula. Finally, children in low-SES districts are provided with even less access and experience with informational text than those in high-SES districts (Duke, 2000).

Duke (2000) suggested some strategies for addressing the scarcity of informational text in early-grade classrooms. The first was to encourage publishers of literacy programs, basals, etc. to use/include informational text into their materials. The second was to link informational reading and writing to science success. A third was to utilize parents – sending informational text to be read at home and offering parent workshops and family literacy programs. Parental support to encourage informational text in the classroom was another strategy. The final strategy was to increase attention to informational text but not through decreasing attention to narrative text (p. 222).

Duke suggested these studies for future research: look specifically at the development of informational genre knowledge; compare different approaches to incorporate informational text in the early grade classrooms and determine if some

practices are more positive than others on students' literacy achievement. Duke finally posed the question of how much informational text experience is enough (p. 223).

Moss et al. (1997) examined how elementary teachers can improve students' comprehension of informational text by the reading and writing of informational trade books. They posited that, if students' today are to survive in the Information Age, they need to become more familiar with and understand informational text.

Underpinning this research was the assumption by literacy teachers and researchers that narrative was primary and that informational text was too difficult for early grade children to understand. Moss et al. suggested two possibilities as to why informational texts have been too hard for children. The first reason was that children have not been exposed to it at an early age, and the second was that until recently there has not been informational text written for young children, therefore their exposure has been limited.

They found that research clearly indicated that linking reading and writing experiences in the classroom is vital to children comprehending text. As they read informational text, children need to get a sense of text organization, search for relationships among the pieces of information, use how the text is organized for their own personal recall and readily recognize and produce written work of different types of text structure (Moss et al., 1997).

Moss et al. (1997) suggested that children need a rich variety of experiences with informational texts and that if children are to become familiar with the structure, they must have up-to-date information trade books available in their classrooms. They advised that one-fourth of the books in the classroom library should be informational and should

address a wide range of topics and encompass many different reading levels. Book selections should be based on the five A's: authority of author, accuracy of text content, appropriateness of book, literary artistry and the appearance of the book. They noted that informational books cannot only be expository but can be combined with narrative and with other genres.

Moss et al. (1997) stated that children should explore informational texts in the classroom. To do this, children need many opportunities to interact with them. First, they need to hear excellent information trade books read aloud. Teachers then can use the novels in their classroom as a springboard for exploration of information and then use informational text in a thematic study.

They observed the classroom of Bea Rebenack. Rebenack uses the book *The Book of Animal Records* to illustrate the characteristics of informational books. She first read the book aloud to her students and then went through the book again pointing out the organizational structure of the book. She discussed with her students the locational devices: table of contents, indices, glossaries and headings. Finally, she pointed out the visual information; charts, graphs and maps. She also used questions to guide her teaching.

Moss et al. (1997) wrote about different ways they observed the teacher helping students to respond to informational text. They reported that young children responded through prompts and visual stimuli. The older children maintained response journals. The students recorded open-ended questions and sometimes-specific questions about the trade book that was being read using a two-column journal. On the right side, children recorded personal feelings about the information, while on the left side, they wrote notes or

phrases from the text that they have found interesting. For younger children, the responses could combine visual descriptions as well as verbal ones.

A second way to link reading and writing was to pattern student's own work to the information trade book. An example of this was making an ABC book pattern since children know the text structure. A third way was through written retelling. Written retelling demonstrated how much information children retained after they read or listened to a text though the researcher did point out that this link was best used with children in grades three and up.

In conclusion, the researchers found that the informational text movement has encouraged teachers to involve students in written responses to nonfiction trade books. They still were not reading sufficient expository text. They also found that use of written response and the reading of expository text helps with problem-solving and critical thinking skills.

Summary

The research has noted that for the Native Americans, the Black Hills was a sacred land and that for the white people it held the promise of gold and the tranquility that the hills bring to weary travelers. Research has focused on the history of the landscape and how people have changed the landscape of the Black Hills. Research has shown how the Native Americans and white men have changed the physical and the economic landscape. Research has also examined Custer's role in the opening of the Black Hills to white people.

Of the many books written about South Dakota and the Black Hills, few were written for elementary age students. The search revealed books for adults or elementary

age students on the topic of the Pigtail Bridges and the people who were key players in the planning and construction of them. The lack of children's materials on the specific subject of the Pigtail Bridges and the people involved affirmed this researcher's proposal to write such a book.

Research has also examined how children respond to the structure of non-fiction text. The results of the research have shown that children are fascinated with non-fiction text. They are capable of understanding and responding to the text (Pappas, 1991). Research has also shown that, although literacy teachers have been encouraged and made more aware of the need to include informational text, most classrooms still use narrative text more frequently (Moss et al., 1997).

CHAPTER 3

PROCEDURE

At the time of this research, there was not an age–appropriate informational book for elementary age students about the history of the Pigtail Bridges on Iron Mountain Road in South Dakota. The purpose of this research project was to provide such a book to support South Dakota State school curriculum in social studies standards for development of knowledge of the culture and the influence of notable South Dakotans.

Fourth grade students and teachers in South Dakota can use this book to supplement or enhance their study of South Dakota history. This book contains information about when, why and how the Pigtail Bridges on Iron Mountain Road in South Dakota were built, as well as information about the people who were involved in building the bridges and what their contributions to building the bridges were. The book is appropriate for upper elementary age children.

Project Format

Text features include maps, a glossary, illustrated timeline, and photos to support comprehension and to add interest for young readers. The book features photographs of the bridges both present day and the past, as well as photographs of the men who were involved in building the bridges. Most of the photographs are in black and white, but photos that are more recent are in color. The layout of the book depended upon the photos available from the past. They are large enough to capture the students' interest but allow enough room for text. A table of contents and index are included.

The beginning pages have a map of the Black Hills locating the Pigtail Bridges in the Black Hills region. The researcher determined the placement of a glossary, as well as

a map of the Black Hills showing where exactly the Pigtail Bridges were located. The cover of the book includes the title as well as a photograph of the Pigtail Bridges.

The information is on a two-page spread with some of the pictures being on the left side of the page and the text on the right. The placement of the photographs depended on their shape and size (See Appendix A). See Appendix B for a list of sections for the book.

Procedures

The researcher began the project by searching for articles from newspapers, magazines, and books about the Pigtail Bridges, as well as any letters that may have been written during the planning stages of building the bridges, and interviewed people who had connections to the pigtail bridges. The researcher created a form to complete for reviewing materials for a research bibliography, provided in Appendix F.

The researcher identified people to interview through contacts at the South Dakota State History Museum. The researcher contacted interviewees via email using a letter format (See Appendix C). At the time of an interview, the interviewee was asked to sign a release form saying the s/he is would be to answer questions about the topic and that any information obtained could be used for inclusion in the book provided in Appendix E. When interviewing people for the book, the researcher used a questionnaire to help focus the interview, provided in Appendix D.

Next, photos from the past were identified, evaluated, and chosen to be placed in the book. Permission for the photos was obtained from the Digital Library of South Dakota, Library of Congress, South Dakota Magazine, Marilyn Oakes, individual

pictures from Cowcard.com, Wikipedia and flickr.com are considered public domain and current photographs of the bridges were taken by the researcher.

The text was written and evaluated at a Fourth grade reading level using the Spache Readability Index and the Flesch-Kincaid grade level readability guide provided in Appendix G. The researcher determined the text structure. Some possibilities for text structure were chronological and problem-solution. The researcher chose the informational format that is not narrative or poetic. It also includes some chronological aspects. The researcher chose the font of the text. The font of the text is Bookman Old Style, size 18. The research felt that this font and size was more legible than other fonts and sizes.

When the text was completed, the book was submitted to evaluation by selected sources knowledgeable in fourth grade reading materials: Mrs. Leanne Vogel, 4th grade teacher at Zion Lutheran School Rapid City, South Dakota; Mrs. Angela Beerman, 4th grade teacher at Concordia Elementary School Concordia, Missouri; Mr. Brett Frerking, Principal at L.J. Daly Elementary at Fayette, Missouri; Mrs. Mary Watson, former school librarian at General Beadle Elementary School Rapid City, South Dakota.

Adjustments resulting from these reviews included reorganizing the format of page 22. The researcher had the photograph of the historical marker in the center of the page with the text of the marker surrounding it. Mrs. Watson commented that it was hard to keep your place while reading it that way and suggested placing the picture on one side or the other of the page with the words next to it. Comments made on grammatical and spelling errors as well as the placement of the full map, as well as, a suggestion to make

Peter Norbeck's timeline look like C.C. Gideon's, allowed the researcher to correct the mistakes and make the book more understandable.

CHAPTER 4

PROJECT

The project, titled *A History of the Pigtail Bridges in South Dakota,* accompanies this paper.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this project was to write and illustrate a nonfiction children's book about the history of the Pigtail Bridge in South Dakota. *A History of the Pigtail Bridges in South Dakota* was meant to serve as a resource to enhance the fourth grade Social Studies curriculum in South Dakota, specifically standard 4.US.2.3, which states, "Students are able to describe the influence of notable South Dakotans on the development of our state" (South Dakota Department of Education, 2006, p. 29). This book gives fourth grade students a historical resource that is at their level. It provides them with not only information about Peter Norbeck, but also the others who participated in designing and constructing the Pigtail Bridges, and the opening of the Black Hills to visitors.

Summary

A History of the Pigtail Bridges in South Dakota is a non-fiction book that teachers could use to enhance South Dakota State curriculum. It may also appeal to anyone interested in learning more about those who helped open the Black Hills to visitors. The book includes two maps: one of the Black Hills area, the other a close up of where the Pigtail Bridges are located. Other sections include sections on C.C. Gideon and Peter Norbeck, the Civilian Conservation Corp, the building of the Pigtail Bridges, Present Day Pigtail Bridges, and two timelines: one about C.C. Gideon and the other on Peter Norbeck's time in Office. The researcher felt that each person, C.C. Gideon and Peter Norbeck, needed to have their own timelines. Each person had specific roles that they played during the planning and building of the Pigtail Bridges, therefore each

needed separate recognition. There is also a section on other accomplishments of C.C. Gideon and an Index of Terms as well as a Glossary of words that may be unfamiliar to students. The book includes both color and black and white photographs.

The author and her husband took many of the color photographs. The author sought other pictures online; other photographs were found in *Digital Library of South Dakota* and on other state websites, as well as from the *South Dakota Magazine*. Each photograph was selected to enhance the text.

The researcher interviewed Marilyn Oakes, granddaughter of C.C. Gideon, as well as read copies of letters between Peter Norbeck and C.C. Gideon. Magazine, newspaper articles and websites were consulted to find the history of the Pigtail Bridges and the men involved in building them. South Dakota State University, the South Dakota State Historical Society and the School of Mines and Technology in Rapid City, South Dakota all provided information for this research.

The book was produced using Microsoft Word 2007. Photographs were inserted to accompany the text. Two timelines describe major accomplishments of C.C. Gideon and Peter Norbeck. Pagination required the researcher to learn how to set section breaks and format sections.

Discussion

Three research questions guided this project; what is the best layout/design for a children's book on the Pigtail Bridges, how does an author select the content for a children's book on a local history topic like the Pigtail Bridges, and what is the most appropriate text structure for this content?

This researcher looked at several nonfiction children's books to compare the different layout/designs of nonfiction books. This researcher was looking for components of nonfiction books that would complement the information presented in the book, such as the timelines and the font type and size.

One book was about a state. It listed the name of the state and important facts that students could remember about the state and then went on to talk about them in detail. Another book, was more like a narrative, but had a timeline at the end to help the reader visualize the life of the person. The researcher wanted the book to be easy to read and to understand, as well as be aesthetically pleasing to the reader, and felt that those components went well with the content found in the book.

While researching the subject matter, this researcher thought about what students would find interesting and what would be required of them for research on the topic of historical people who had a great impact on the Black Hills. This researcher also wanted to include information that was not well known, but interesting. Another goal was to give a background as to why the Pigtail Bridges were built and the importance of the connected history: for example, the Civilian Conservation Corps and Peter Norbeck. The history of the Pigtail Bridges cannot be told without talking about Cecil Clyde (C.C.) Gideon, the C.C.C and Peter Norbeck.

This researcher thought about the text structure that would be the most appropriate for this subject as well as the researcher's abilities. The researcher attempted to use text features such as photos, maps, and line drawings to complement the text, to support reader comprehension and to add interest.

Conclusions

This book can be distributed in the surrounding schools and in the Black Hills area at tourist attractions. Students and adults alike can read and learn about the history of the Pigtail Bridges and the men involved.

It was discovered through the research process for this book that, while the Pigtail Bridges on Iron Mountain Road are the most photographed bridges and popular bridges in South Dakota, they are not on the National Registry of Historic Places. The Pigtail Bridge that is on the registry is located in Wind Cave National Park, South Dakota. While the bridge in Wind Cave was built in the 1930s, the plans were based on the original blue prints of C.C. Gideon, the designer of the Pigtail Bridges on Iron Mountain Road. The Civilian Conservation Corp built the first two bridges, but a state highway crew built the third. It was also discovered that a state highway crew that built the Pigtail Bridge in Wind Cave National Park.

This researcher also discovered that her great grandfather, Edwin Bretschneider, may have been on the highway crew that built the third Pigtail Bridge on Iron Mountain Road. It was because of this connection that motivated this researcher to research the history of the Pigtail Bridges.

The researcher recommends either self-publishing or proposing the South Dakota State Historical Press to publish this book. Further research into the best way to publish this book is required, as well as, how to make the schools and business in the Black Hills area aware that there is a book appropriate for them on the subject of the history of the Pigtail Bridges.

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APPENDIX A

STORY BOARD

Back Cover

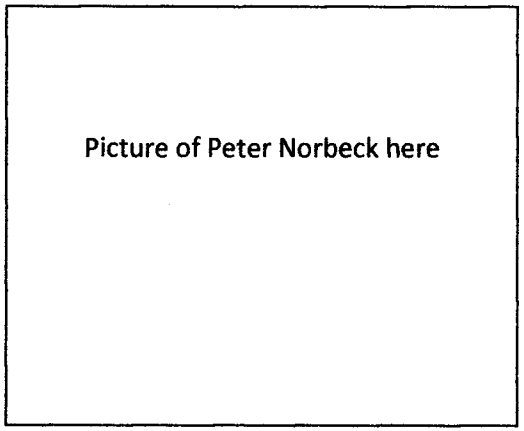
History of the Pigtail Bridges in South Dakota

Picture of one of the Pigtail Bridges here

Written by Krystol Frerking

Map of the Black Hills with the Pig tail Bridges on it

Peter Norbeck



Born: August 27, 1870

Southeast of Vermillion, Dakota Territory

Died: December 20, 1936

Redfield, South Dakota

9th Governor of South Dakota

In Office: 1917-1921

Political party: Republican

Religion: Lutheranism

Peter Norbeck was born in a **dugout** August 27, 1870 southeast of Vermillion in Clay County, Dakota Territory (now South Dakota). He was the oldest of six children. His father was a Lutheran pastor. His family was not rich so he stayed home from school and helped with the chores on the family **homestead**. He also looked after his younger **siblings**. His parents taught him basic education and religious training. He wanted more education. His parents scrapped together enough money to send him to the newly well-known University of South Dakota (1887).

APPENDIX B

PROPOSED LIST OF SECTIONS FOR PROJECT

Pages to be determined

Cover of the book
(Picture of Pigtail Bridges with the Title *A History of the Pigtail Bridges in South Dakota* Written by Krystol Frerking)

Title Page
(Looks just like the cover of the book)

Table of Contents
* Acknowledgements
* History of the opening of the Black Hills to Tourism
* Peter Norbeck
* C. C. Gideon
* President Calvin Coolidge
* Civilian Conservation Corp (C.C.C)
* Building of the Pigtail Bridges
* Present Day Pigtail Bridges
* Pigtail Bridge in Wind Cave National Park
* Map
* Timeline
*Index of Terms
* Glossary

APPENDIX C

LETTER REQUESTING INTERVIEW

Dear _____,

I am a graduate student at the University of Northern Iowa in Cedar Falls, Iowa. I am currently working on writing a book to fulfill a graduation requirement for receiving a Master's Degree in School Library Media Studies.

My book, A *History of the Pigtail Bridges in South Dakota* will be a nonfiction book for third through sixth grade students.

I plan to interview people who live in the area to get their reactions and insights into the history of the Pigtail Bridges. You were suggested to me as an interview source by _____ for information about the Pigtail Bridges. Would you be willing to meet with me, at your convenience, so that I may ask you some questions regarding the history of the bridges? I anticipate the interview to be 60 minutes in length. If you are willing, please email me or mail the enclosed postcard so that we can set up an interview time.

Thank you for your cooperation.

Sincerely,

Krystol Frerking

scott_krystol@yahoo.com

APPENDIX D

SAMPLE INTERVIEW QUESTIONS

1. What is your name?

2. What is your connection to the Pigtail Bridges on Iron Mountain Road?

3. Do you have any pictures of the building of the bridges?

4. What materials were used?

5. How were the materials used?

6. What were the difficulties in constructing the bridges?

APPENDIX E

RELEASE FOR INCLUSION IN BOOK

This is to certify that _____ agrees to the use of his/her name, along with information told to this interviewer, in the book *A History of the Pigtail Bridges in South Dakota* being written by this researcher as a fulfillment of the graduation requirement for a Master's Degree in School Library Media Studies.

If _____ prefers to stay anonymous, initial here _____ and no mention of his/her name will appear in the book.

It is also agreed that _____ will have an opportunity to view the information from the interview that has been included in the book before its publication.

Interviewee:

Signed: _____ Date: _____

Interviewer:

Signed: _____ Date: _____

APPENDIX F

MATERIALS WORKSHEET

Date printed/copied/received:

Title:

Author:

Copyright Date:

Web address:

1.) Who was involved in the building of the Pigtail Bridges on Iron Mountain Road?

2.) When were the Pigtail Bridges built?

3.) What was the purpose of the Pigtail Bridges?

4.) How long did it take to build them?

APPENDIX G

READABILTY TEST

Flesch Reading Ease

Use the following computation to determine the ease of reading text.

- Calculate the average number of words per sentence.
- Calculate the average number of syllables per word.
- Multiply the average number of syllables per words by 84.6 and subtract if from the average number of words multiplied by 1.015.
- Algorithm: 206.835 – (1.015 * average _ word _ sentence) – 84.6 * average _ syllables _ word)

This formula rates the text on a 100-point scale. The higher the score, the easier it is to understand. Authors are encouraged to aim for a score of 60 to 70.

Spache Readability Index

Use the following computation to determine the readability of text.

- Count the total number of words.
- Count the number of sentences.
- Calculate the average sentence length by dividing the number of words by the number of sentences.
- Count the number of words that are not found on the Spache Revised Word List (difficult words) Note: Count each difficult word only once.
- Calculate the percentage of difficult words by dividing the number of difficult words by the total number of words in the sample and multiply by 100.
- Algorithum: 0.141*_average sentence length + 0.086*_ percent difficult words + 0.839 = grade level.