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## AI Assignment ENTR 101

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## **ENTR 101: AI research assignment**

(related to your famous entrepreneur term paper)

Purpose: The purpose of this assignment is to learn how to responsibly use AI (specifically ChatGPT for this assignment) to do background research and brainstorming for your famous entrepreneur term paper research assignment.

This assignment is divided into Part I (5 pts) and Part II (10 pts). Please see the instructions below. Read Part I which includes two examples of prompts and responses using ChatGPT by the instructor followed by the Part II instructions.

**Part I. Utilize ChatGPT to investigate some history about your famous entrepreneur. Start by providing a prompt to ChatGPT.**

### **Example 1**

#### **Prompt to ChatGPT:**

*“Please provide a one paragraph summary of each of five peer-reviewed sources on the history of entrepreneur, Andrew Freeman, who invented the headbolt heater. Provide APA-style citations in text and a list of references at the end of the document.”*

#### **Response from ChatGPT:**

Here are five peer-reviewed sources related to the history of Andrew Freeman, the inventor of the headbolt heater:

1. **Freeman and Electrical Innovation** (2011) discusses Freeman’s role in advancing rural electrification in North Dakota as the general manager of Minnkota Power Cooperative. His invention of the headbolt heater is framed as a solution to problems with car engines in cold climates, furthering regional technological growth (Bismarck Tribune, 2011).
2. **Technological Advances in Cold-Climate Solutions** (2014) provides an overview of Freeman’s invention, highlighting its impact on cold-weather automotive technology. It analyzes the engineering principles behind the headbolt heater, showing how it revolutionized engine block heating systems in frigid conditions (University of North Dakota, 2014).
3. **Midwestern Innovation in the 20th Century** (2015) examines Freeman’s innovation in the context of Midwestern industrial development. The paper explores how the headbolt heater became essential for car owners in cold environments, allowing reliable engine starts even in extreme temperatures (Minnesota Historical Society, 2015).
4. **Andrew Freeman and the Evolution of Automotive Heaters** (2018) details the development and commercialization of Freeman’s headbolt heater. This study

traces its adoption across the northern U.S., noting the widespread use and economic impact of the invention on the automotive aftermarket industry (UNL Press, 2018).

5. **Engineering Solutions for Extreme Climates** (2020) focuses on the technical aspects of Freeman's heater design. The article discusses the challenges he faced in designing an efficient, compact solution for engine block heating and its relevance to modern automotive heating technologies (University of Minnesota, 2020).

## References

Bismarck Tribune. (2011). Andrew Freeman and rural electrification. *North Dakota Innovation Review*, 3(4), 52-58.

Minnesota Historical Society. (2015). Technological progress in the Midwest. *Journal of Midwestern History*, 12(2), 134-150.

UNL Press. (2018). The impact of automotive heaters. *Technology Review Quarterly*, 23(1), 79-85.

University of Minnesota. (2020). Engineering for cold climates: The headbolt heater. *Journal of Engineering Innovation*, 19(3), 90-102.

University of North Dakota. (2014). Rural electrification and cold climate solutions. *Journal of Technological Advances*, 7(2), 45-61.

## Example 2

### Prompt to ChatGPT:

"Please provide a three paragraph summary using five credible research sources on the history of entrepreneur, Andrew Freeman, who invented the headbolt heater. Provide APA-style citations in text and a list of references at the end of the document."

### Response from ChatGPT:

Andrew Freeman, born in 1909 in North Dakota, is credited with inventing the headbolt heater, a crucial solution for vehicle owners in cold climates. Freeman's inspiration for the invention came from the challenges his family faced in starting their Model A Ford during harsh North Dakota winters. In response to this, he engineered a device that could preheat an engine block, thereby improving vehicle startup efficiency and reducing wear on engine components. In 1949, Freeman patented the headbolt heater, which became popular in cold regions across the U.S. for its effectiveness in allowing vehicles to start in sub-zero temperatures (Freeman, 1949; Prairie Public Radio, 2023).

Freeman's invention gained widespread commercial success shortly after its introduction, selling nearly a quarter-million units across 28 states within four years.

His headbolt heater was unique because it used an electric heating element placed in the engine block, which was a more efficient alternative to the common practices at the time, such as draining the engine oil or pouring hot water over engine parts to facilitate cold starts. By simplifying the process of starting engines in extreme cold, Freeman's headbolt heater became a standard feature in vehicles used in regions with cold climates (Minnkota Power Cooperative, 2023; State Historical Society of North Dakota, 2023).

Beyond the headbolt heater, Andrew Freeman played an influential role in advancing rural electrification. As the general manager of Minnkota Power Cooperative, he helped expand access to electricity in rural areas, further cementing his legacy as a problem solver and innovator. Freeman's contributions, both as an inventor and a leader, have had a lasting impact on North Dakota and the broader region. His work has been celebrated through various honors, including the annual Andrew Freeman Design Innovation Competition at the University of North Dakota, which fosters engineering ingenuity and honors Freeman's legacy of innovation (State Historical Society of North Dakota, 2023; Minnkota Power Cooperative, 2023).

### **References:**

Freeman, A. L. (1949). Electric head bolt heater for internal-combustion engines (US Patent No. 2487326). U.S. Patent Office.

Minnkota Power Cooperative. (2023). Andrew Freeman competition team takes the cake. Retrieved from <https://news.minnkota.com>

Prairie Public Radio. (2023). Andrew Freeman: Inventor of the headbolt heater. Retrieved from <https://www.prairiepublic.org>

State Historical Society of North Dakota. (2023). Andrew Freeman and the headbolt heater. Retrieved from <https://www.history.nd.gov>

## **Part II. Analysis**

After you have written a prompt or two to generate response(s) from ChatGPT (Part I), save the response to submit as Part I of your assignment. Then, please do the following:

1. Examine that response, and
2. Look up the sources provided by ChatGPT and indicate whether they actually exist or not, meaning are they “real” or “fictitious” sources.
3. Write an analysis of at least two paragraphs about ChatGPT's response's strengths and weaknesses.
4. After you look up the actual sources yourself, you may read them and utilize any credible sources provided that you would like to incorporate into your paper using proper APA-style for citing them.