The Innovation of Transportation 范植緯 Ryan 110201532

People say that “Time is money”. From then till now, people pursue to save time by commuting. Thus, trains have been invented. The first train was invented in England in the 1800s, it was not long before magnetic levitation was invented as the improvement of technology. **Although** the prototype of magnetic levitation was a train, there are still some similarities but also some differences.

There are some similarities between trains and magnetic levitation. First, both of them need a track to control their direction, thus they cannot change their route as they want it to go by. Second, they can take almost the same number of passengers. The magnetic levitation is about 360 to 600 people, another is about 500 to 600 people, the range is related to how long they have. Third, under the consideration of the cost and time, they become a better choice than other forms of public transportation.

On the other hand, they also have some differences between each other. First, because the magnetic levitation does not touch the trail, they just have air resistance. **In contrast**, the train has friction and air resistance at the same time, the top speed of magnetic levitation is two times that of trains, about 600km/h. Second, magnetic levitation is safe and comfortable. It can automatically work. In other words, it doesn't need a train conductor, they still need a conductor to avoid an emergency situation, which is a big difference. Third, because the cost of producing magnetic

levitation is higher than traditional trains, the penetration rate of magnetic levitation still has a huge gap to the train in the word. But the situation may change in the near future.

The most important similarities are the influence of the distance between cities and countries, because when people use these two modes of transportation, they can more easily and quickly arrive at each other. In other words, it can promote the interaction of both. By doing so, it will benefit each other. Countries can get the convenience of cities; cities can get agricultural products from the counties. The most important differences is the power of these two transportation, train use electricity to run, this may produce amount of air pollution because most of these electricity need fire to produce, On the contrary, the power of magnetic levitation is magnetic force, it wouldn't produce any air pollution, on the other words, it is more environmentally-friendly! Recently, humans even try to avoid air resistance. They called this kind of train" Hyperloop", **although** the train can only take a few people at the same time and still has a lot of problems. the average speed of this innovative transport is about 962 km/hr. I think this have a large opportunity to be carried out in the future.

Based on the above all, both of them do not need a track, and they can take almost the same passengers; however, they use different energy to work, magnetic levitation uses magnetic force and trains use electricity. I think magnetic levitation is better than a train, but the cost of produce is too high to carry out. If we can find much more cheap material, I think maybe it would appear in more areas than the train. word count:551

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