Ithaca Podcars: A Case Study of Student Education and Behavior Change

By

Nate Baker, Shannon Holm, and Claire Moloney

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Professor Stephan Schmidt
The Cornell community strives for environmental sustainability, both in theory and action. Cornell has recently implemented environmental initiatives, particularly the *American College and University Presidents Climate Commitment*, in which “President Skorton committed the University to develop a campus plan for Climate Neutrality by September 2009” (Cornell). One of the main criteria for change under the Cornell plan for climate neutrality involves alternative transportation. Currently, however, Ithaca is much like the rest of America in its unhealthy dependence upon automobiles. As Cornell works towards sustainability, alternative transportation systems must be considered. One of the most promising systems, already implemented in Europe and Morgantown, West Virginia, is personal rapid transit systems (PRT’s), or podcars. A podcar system is a public transportation concept that offers on-demand, non-stop transportation, using small, independent vehicles on a network of specially-built guideways this transportation system offers both low energy costs and high convenience, making it an extremely attractive transportation method to be explored in the Cornell community.

One of the most important factors in exploring the possibility of a personal rapid transit system in Ithaca would be the potential for student behavioral change; the system could only be successful if people would actually use it. Since we believe that education is a motivator of change, it is essential to understand the best ways that organizations can educate their audience and inspire a change of habit. This project aims to measure the potential for behavioral change and the most effective methods for organizations to reach the students with information about new sustainability measures, such as podcars.

**Methods**

In order to gauge the best possible way to educate Cornell students about podcars and to motivate behavioral change, we developed a ten-question multiple choice survey. The survey was meant to answer the following questions:

- How much do Cornell students already know about podcars in Ithaca?
- What are the most effective ways to educate Cornell students about podcars?
- What factors would affect a student’s support or use of a podcar system in Ithaca?
The survey was developed on www.surveymonkey.com, which only allows one response from each computer-user. This survey was distributed to students via a Facebook event and by means of fraternity list-serves. The three of us invited all of our Cornell friends to the event. The webpage did not show who chose to take the survey or who ignored the request, so the results were anonymous. The survey was also sent to the Phi Kappa Tau and Phi Sigma Kappa list-serves. The only other list-serves our group members had access to were for environmental activist groups or to the Green Cities class, which we deemed unrepresentative of the general Cornell community. While fraternities are generally like-minded, we decided that they are less likely to have a disproportionate knowledge of podcars or dedication to behavioral change. Also, the Green Cities class had prior knowledge of the survey and the temporary results because of the class presentation, so we predicted their responses would yield inaccurate results.

The survey results were collected from November 9th until December 3rd of 2008. The results were then graphed and analyzed.

Results

There were a total of ninety responses to the survey. Fifty-five, or 61.1%, of these students did not affiliate with a sustainability-focused major or club (Fig. 10). It can be assumed that most of these unaffiliated students, therefore, would not have learned about podcars in their classes or extracurricular activities or have an extreme interest in environmental issues. This confirms the need for sustainability outreach in the Cornell community, since a large number of students are likely unexposed to many sustainability concerns or possible solutions.

The majority of student respondents, about 49 students or 54.4% of respondents, had never heard of podcars, and only eight students, or 8.9% of respondents, said they felt they knew more or a great deal more than the average person (Fig. 1). Further, 66 students, or 73.3% of respondents, had never heard about the September Podcar Conference in Ithaca, and only one student attended the conference (Fig. 2). These results show the lack of publicity that podcars generated on the Cornell campus despite international press releases, including the popular publication The New York Times, which is free to students. These results urge the question: How can students be more
informed and interested in sustainable solutions, especially those which would directly affect campus?

The students who did hear about podcars or the podcar conference learned about them in a variety of ways. Fourteen respondents said they read about it in a local or national newspaper, 12 were emailed by their list-serves, 13 heard about it from a friend and 10 from a professor in class (Fig. 3). However, only four respondents saw advertisements on campus and only three saw it on the internet (Fig. 3.). Interestingly, despite the small number of students who saw it on the internet, 78 of the respondents said that if they wanted to learn more about podcars, they would research it online (Fig. 4). This implies that perhaps links to informative websites are useful, but only if well-advertised via list-serves, periodicals, and professors in class. Posters seemed to be less important in the advertising process, but this might depend on the number of posters distributed and the quality of the poster. Thirty-two respondents said that if they wanted to learn more, they would want to hear about it from a professor or friend (Fig. 4). This shows the importance of word-of-mouth advertisements and oral communication despite the growing dependence on internet for correspondence and information.

Environmental activist groups would likely find it important that the respondents prefer to learn about podcars, and likely sustainable issues in general, via the internet and word-of-mouth. The survey asked specifically how groups could best educate the Cornell community, to which 68.5%, or 61 students, responded that an editorial in the Cornell Daily Sun would be a good educational tool (Fig. 5). Forty-two students said that learning indirectly through professors was a preferred method, and 38 said they would learn well from a display on Ho Plaza during a campus event such as Earth Day (Fig. 5). Since these educational venues were preferred more than panel discussions, links on club websites, or quarter cards (Fig. 5). This is useful information for club planning, because with limited funds, club representatives have to pick and choose how to most effectively interact with the Cornell community. For example, perhaps an editorial by a club representative about a potential podcar system or another sustainability initiative would reach and inform more people than handing out quarter cards.

The survey also attempted to gauge the road-blocks to behavior change. Forty-six of the 90 respondents use a car about one to three times a week (Fig. 6). Only one
student never used a car (Fig. 6). Thirty-eight, or 42.7%, of the respondents said they travel by car primarily to go to the supermarket, and the rest of the results were scattered among field trips, sports arenas, class, extracurricular activities, and social events. This shows that if a podcar system were put in place, a station at the supermarket would be essential. An overwhelming majority, or 66.7% of respondents, said they would use the podcar system if it were more convenient than using a car, while cost, safety, and the environment were less important factors (Fig. 7). Only 4 of the 90 respondents said they would not give up their car if a podcar system were in place (Fig. 7). Forty-two, or 46.7%, of the respondents list their biggest concern as the cost of building the system, while aesthetics, safety, and demand for the system were other smaller concerns (Fig. 8). These results are important, not only for the feasibility of the podcar system in Ithaca, but are important targets for podcar education. In order for students to change their habits and want to use a podcar system, it might be useful to inform them about the convenience of the system and the reasons it can be economically beneficial to Ithaca and the Cornell community. The fact that few students use their cars extremely frequently shows that the student dependence on cars is probably a habit which can be lessened or changed completely.

These results are a useful indicator of the current awareness about podcars, the best ways to educate about podcars, and the areas of concern for students which should be discussed in a podcar education.

**Distribution of Results**

While the survey was specifically geared for podcar education and transportation behavioral change, the results had implications which would be useful for the environmental activist groups on campus. Many groups attempt to educate the student community about environmental problems and solutions, so student feedback on education methods would be valuable to groups with outreach initiatives.

The methods and results section of this document were emailed as an attachment to the following groups: Sustainability Hub, Kyoto Now!, Roots and Shoots, Engineers for a Sustainable World, Solar Decathlon, Greens, Society for Natural Resources Conservation, Cornell University Renewable Energy Society, and the Progressive
Activist Network. The Progressive Activist Network covers a broad scope of activist groups because it sends a weekly list of group events, information, and updates to the presidents of many clubs on the Cornell campus.

The results were sent as an attachment to the following email:

“Recently, for a group project for our Green Cities (CRP 3840) class, we polled Cornell students about the potential podcar system in Ithaca. While the results were podcar-specific, we did ask questions geared toward environmental education and outreach as well as behavioral change. The results may be interesting or useful to you, as sustainability leaders and educators on campus, because they show how students prefer to be informed or educated about environmental issues and solutions. We encourage you to look at the results of this brief, ten-question survey because they may be useful for your outreach planning in the future.”

Case Study: Morgantown, West Virginia

“It’s had an astonishing success, but it’s taken us 30 years to recognize that.”
- Christopher Perkins, chief executive of UniModal Transport Solutions

In order to determine the promises and pitfalls of erecting a podcar system in Ithaca, it is vital to examine some of the successes of other similar projects, and to avoid some of their failures. While there are several other personal rapid transit (PRT) systems throughout the country and around the world, the Morgantown case study is appropriate because it was built as a link between a college campus (West Virginia University) and the local downtown area. This is very similar to how a podcar system might be built in Ithaca. For this reason, and for its success and popularity among Morgantown residents, we have chosen to take a closer look at this example.

Morgantown had much of the same problems in the 1960’s that Ithaca has today. In the latter half of that decade West Virginia University decided to expand and they produced two separate campuses, linked by only two roads. Even with bus service, traffic congestion was so severe that, at one point, the university was forced to require
students to attend classes at only one of the university’s two campuses. Similarly, many students in Ithaca find that cars are a much more convenient mode of transportation, yet parking is expensive and limited.

In the late 1970’s construction was started on Phase I at a cost of $62 million and later Phase II was constructed at a cost of $64 million. 80% of the costs were covered using federal money. The project created 8.2 miles of guideway, five passenger stations, and a fleet of fully automated vehicles. At a cost of just fifty cents a ride, or a low-cost yearly pass, the Morgantown PRT system is the preferred mode of transportation to over 95% of the university students there. And with an average daily Ridership of 15,000 people (more than 2.5 million passengers per year!), the traffic congestion in Morgantown has dropped substantially. The pass is also paid for in undergraduate tuition and fees at WVU, which would be the likely parallel at Cornell University, were a PRT system put in place here. Imagine stepping in to a station on campus and swiping your Cornell Card to get the next podcar downtown!

Some critics of the system point to the enormous costs of the system. In 2004 dollars the cost has been roughly $319 million. However, the system was also experimental at the time and if more such projects were built, the costs would likely be lower. Also nearly 60% of the annual operating costs of $2.75 million is covered in passenger fares. Furthermore, the system has put 64 operating employees to work and has contributed significantly to the local economy in that way.

During low-traffic periods, the transit system cars stop at all stations. Later, during the high-traffic periods, the cars will bypass stations so that any station can be reached without stopping from any other station. When the car enters the station, passengers press a
button on the entry turnstile that signals exactly where they want to go. They then proceed to a specified platform to wait for the next available car to that station. While the different platforms serve different stations, some share destinations, and use an overhead electric sign to indicate the destination of the next car.

There are certainly critiques that can be made of the podcar system in Morgantown. Those critiques, however, often revolve around initial and maintenance costs. These costs were inflated because the project was experimental and there were high risks involved in such a new idea. The benefits of the system far outweigh the drawbacks. The system is extremely popular among students and local residents and can be used at a low-cost. It is also a very safe and convenient mode of transportation. While, many Cornell students worry about the costs and economic burdens of the system, the Morgantown example proves that the local economy benefits from the system and that the initial construction cost is not an insurmountable obstacle. Implementation of the system would not rid Ithaca of the car, but it would provide a convenient alternative and would dramatically reduce the amount of traffic in Ithaca.

**Conclusion**

The potential podcar system in Ithaca can be viewed as a case study for education as a stimulus for student behavior change. This project aimed to analyze the current awareness of the potential Ithaca podcar system, the best methods for educating Cornell students about podcars, and the areas of concern to target when educating students. A survey revealed that while most students know little or nothing about podcars in Ithaca, the best way to educate them about topics such as the economic costs and benefits of
podcars and their convenience is through means such as an editorial in the *Cornell Daily Sun*. These results of this survey will be distributed to different sustainability clubs on campus so they may be more effective in educating the student community about sustainability issues and solutions. A comparison to the on-campus podcar system in Morgantown, Virginia revealed that a congested student center, such as Ithaca, could create student behavioral change as shown by Morgantown’s large percentage of student ridership.
Appendix

Fig. 1. How much would you say you know about Podcars in Ithaca?

Fig. 2. How involved were you with the 2008 Podcar Conference?
Fig. 3. How did you hear about the potential personal rapid transit/podcar system for Ithaca or the Podcar Conference? Choose one or more of the following.

Fig. 4. If you wanted to learn more about a personal rapid transit system/podcars, how would you find out about it? Choose one or more of the following.
Fig. 5. If a student group wanted to teach you more about podcars/personal rapid transit, what would be the best way for them to educate you? Choose one or more of the following.
Fig. 6. How often do you travel by car when you are at Cornell?

Fig. 7. What is your primary destination when you travel by car or bus when you are at Cornell?
Fig. 8. Personal rapid transit (PRT), also called a podcar, is a public transportation concept that offers on-demand, non-stop transportation, using small, independent vehicles on a network of specially-built guideways. If a personal rapid transit/ podcar system were put in place in Ithaca (including at Cornell), which of the following would make it more appealing than driving a car?
Fig. 9. What is your biggest concern about having a personal rapid transit/podcar system built in Ithaca?

Fig. 10. Are you studying sustainability either within your major or concentration AND/OR are you in a sustainability-focused club?
Works Cited


