

**Concrete Canoe**

**The Modern Decline in the Third Place and the Loneliness Epidemic**

A Thesis Prospectus

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By

**Madison Cannon**

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

ADVISORS

**Prof. Pedro Augusto P. Francisco**, Department of Engineering and Society

**Prof. Ryan Henry**, Civil Engineering

## **Introduction**

My capstone project is focused on creating a concrete canoe with concentrations in concrete mix design, hull design, and optimal construction of the canoe. We intend to create a canoe that is both more lightweight and maneuverable than the concrete canoe constructed in 2022. The design of this canoe is also to meet the ASCE competition challenge of a concrete canoe design which could be marketed to a wider audience. The concrete canoe capstone is also heavily involved in the establishment of the UVA Concrete Canoe Team, where members from outside the capstone team and from multiple disciplines take part in the club in order to continue its legacy following the original team members' graduation in 2024. The concrete canoe team is meant to improve each year upon the previous generation's design and our team is setting up the foundations for concrete canoe for years to come.

My STS research focuses on the concept of the third place and its decline over the 20th and 21st centuries. As stated by Ray Oldman, the creator of the term, the third place is a public and easily accessible communal area. In the past decades there has been a marked decline in third locations, an immediately obvious example being the death of the shopping mall. The decline of third places has resulted in a potentially growing culture of loneliness in the modern world as people lose locations in which to gather and meet new people. This increasing loneliness has been indicated to contribute to higher rates of depression, illness, and earlier deaths than previously recorded.

I intend to delve into the potential relationship between the growth of suburban sprawl and the internet in the United States and its impact on third places. My hypothesis is that the growth of urban sprawl and subsequent car-centric areas has resulted in division of communities,

further amplified by the rise of the internet which paradoxically grows the network of people the average person can communicate with while also increasingly isolating individuals in everyday life.

A large part of the concrete canoe is the communal aspect of it, both in the establishment of a team and partaking in a competition. There are multiple meetings each week, both to discuss canoe design elements alongside team-building exercises such as communal exercise and meeting for social dinners. The goal of concrete canoe has equally been forming strong team bonds and creating an optimal prototype canoe. Given that the capstone focuses just as heavily on the community aspect of the project as the material aspect, I found it prudent to look into the larger infrastructure of community in society and how a foundational aspect of it has been on the decline. Those who partake in this club for reasons outside of capstone find themselves partaking in a third location– yet while finding communities and areas to socialize in university is relatively easy, it is more difficult to find outside of the small community bubble of university.

### **Concrete Canoe**

Students are tasked with designing and building a prototype concrete canoe along with a product display featuring relevant information on the design, materials, fabrication, and durability of the canoe. Mix design will determine the concrete composition, including but not limited to the aggregates, types of cementitious material, and admixture. Aggregates make up the body of concrete and tend to be made of particles such as sand or gravel in order to make creation of concrete more efficient, improve mechanical strength of the mix, and make the mix more compact. Concrete is used as the “glue” of the mixture alongside water to bind the aggregates together. Admixtures such as superplasticizer and air entrainment are utilized to change concrete qualities, such as decreasing viscosity or adding air bubbles to the mixture.

Combinations of materials are tested in slump tests, compressions tests, and four point bending tests. These determine the strength of the materials with respect to compression and tensile forces. The optimal composition for mix design will be determined from the results. Hull design similarly generates and models slope designs to determine optimal steering and speed. Factors such as width and depth of air pockets and relative comfort for paddlers are also taken into consideration. Construction will create a canoe mold based on the design specifications determined and construct the canoe. This includes adding a mesh to the concrete canoe as a skeleton for the concrete to bind itself to once inside the mold. Final touches for presentation and aesthetic design will then be added to the body of the canoe.

Teams are also mandated to deliver a technical proposal and presentation to a panel of judges. These submissions are used by the judges to evaluate the innovative design, aesthetic, cost, and paddling performance of the product. Finally, the canoe will undergo testing in a series of races to demonstrate its quality in the water. First a sink test is performed to determine if after submersion a canoe is watertight enough to continue floating. Teams of two men and two women will compete separately in slaloms, sprints, and finally a coed sprint.

The ASCE Concrete Canoe Competition is a unique and prestigious event within the civil engineering community that serves several essential purposes and fulfills specific needs, including promoting innovative engineering solutions, enhancing concrete technology knowledge, fostering teamwork and collaboration, encouraging sustainable practices, promoting competition and sportsmanship, building networking opportunities, and showcasing academic excellence and learning. The ASCE Concrete Canoe Competition serves as a multifaceted platform that not only challenges civil and general engineering students but also addresses the pressing needs of the civil engineering profession, including innovation, sustainability,

teamwork, and networking opportunities. This competition plays a crucial role in shaping the future of the industry by nurturing well-rounded and skilled engineers.

### **The Third Place and Loneliness**

The third place, as established by Ray Oldman, is “a generic designation for a great variety of public places that host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work.” They are considered a foundational building block for communities, used by people from varying backgrounds. Jeffres indicates that the existence of third places improves quality of life by offering a sense of community beyond that of the home and workplace. While the shape of the third place may change depending on the location, be it rural, suburban, or city, there is an inherent social quality to third places that surveys have indicated improved the quality of life of the residents. Formation of community, in turn, helps alleviate the cost of living, provides support groups for those with children, and improves mental health. Oldenberg observed that such places are most effective when local and within walking distance.

Jeffres indicated that roughly a third of survey respondents could not list an existing third place between their home and residence. Oldman argues in “Our Vanishing Third Places” that, following WWII, third places have been on the decline in America. There are a variety of reasons for this decline, including but not limited to modern zoning codes which prohibit businesses from establishing locations nearby residences. It is my belief that with the growth of the internet and suburbs resulting in car-dependent locations followed by the COVID-19 pandemic which resulted in the closure of many remaining communal areas, there has been an accelerated decline in the existence of third places.

I believe that the loss of third places has also contributed to the growing sense of loneliness and isolation in America, resulting in what some experts call a “loneliness epidemic.” Jeste indicated that isolation in America has contributed significantly to the American mortality rate due to mental health issues associated, citing that the rapid growth of technology and globalization had contributed to the sense of distance from peers and community.

I intend to make my paper a historical perspective documenting the decline of third places in the modern age following the growth of suburbs and modern technology. This will be performed through historical analysis of urban planning, research into the loneliness epidemic and survey responses on possible factors, and determining if there is a connection between the decline in public spaces following both the COVID-19 pandemic and expansion of the internet. I will also be looking into how inadequate transportation affects American’s social lives and sense of isolation as it indicates how loss of mobility impacts community.

## **Conclusion**

My capstone, concrete canoe, focuses both on the material aspect of creating a prototype concrete canoe alongside the importance of forming a community in engineering. To extend on the importance of community, I am looking into the decline of third places in America and possible causes in the decline following Ray Oldenberg’s initial analysis in the 1990s. I believe that the growth of technology and COVID-19 pandemic have accelerated the disappearance of third-places and significantly impacted the mental health of Americans.

I intend to create a historical perspective detailing both the decline in third places in the modern world and the rise in the loneliness epidemic alongside how those two growing issues may intertwine. Given the continued expansion of American suburban housing, the rise in mental health issues, and the growing dependence on cars in America, I believe it is prudent to

investigate the relationships between all three in order to improve the quality of urban planning in the future.

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