

The perception of environmental sustainability and adaptive reuse



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In a post-industrial society many cities struggle as manufacturing is increasingly outsourced to foreign countries. The resulting loss of manufacturing has undoubtedly contributed to a density decrease in urban cities like Detroit, Michigan and other auto dependent cities. Depopulation is a factor of area job loss. As a result, large commercial facilities and areas are abandoned and neglected. The abandonment contributes to more infrastructure problems with every vacant building, piece of land and forgotten home left to decay. The vacancies require city departments to waste resources maintaining empty roads, sewer systems and performing other functions. Many Metropolitan areas have an abundant amount of vacant industrial properties which may have potential for adaptive use projects. In Detroit, it's the auto industry that is responsible for many of the neglected properties. I feel that the same industry that has contributed to urban decline can play a key role in the redevelopment of struggling metropolitans.

I think there is a need to better understand how reuse of architecture in the urban environment can contribute to the public perception of an area and business by demonstrating an ability to adapt and overcome changes with sustainable practices of reuse. If the auto industry was to reuse some of these structures it would change public opinion of the companies themselves and soften the image of ailing cities. However, to date there is little empirical evidence to support this claim. Still, there is literature on the subject matter involved in the theory. Building on the existing literature, further research is needed to develop a methodology and increase support of more information. To test my theory I put together a small research project, a short survey to

help answer some specific research questions about perception of adaptive reuse. I am confident that further investigation can contribute to the architectural profession and automotive industry.

For instance, study of Environmental Sustainability encompasses a range of responsible practices. Adaptive reuse is one such practice that can help protect the environment and effect behavioral science. The purpose of this research is to examine what effect adaptive reuse of industrial structures may have on the social perception of a company and social attitude towards a geographic area. My research seeks to investigate how the reuse of industrial architecture can influence social change, a topic associated with the study of social psychology. The field of architecture is in my opinion closely related to social psychology. It is important then for architects to understand how reuse of a facility may have a strong presence in the development of human attitude, and how attitudes change with interaction of the physical environment. By focusing on industrial buildings the research is mainly focused in the urban and suburban context surrounding the auto industry. The research focused on Detroit, Michigan for a majority of the historical data on the rise and fall of industrialism in urban areas with an interest in the auto industry. The historical research is important to understand the social impact with occupied and unoccupied buildings.

I believe many of the industrial buildings the auto industry abandoned can be adapted as research and design facilities or training facilities that retool workers with new sustainable technology skills, driving the future. If the practice of sustainable adaptive reuse of industrial building can alter the social and organizational complexity of a company then the consequences of <https://assignbuster.com/the-perception-of-environmental-sustainability-and-adaptive-reuse/>

such designs should be known so that they are more openly embraced by corporations, governments and private owners as a more favorable means of architecture in the future. Despite the fact that sustainable design is growing in recognition, I feel adaptive reuse is still an underutilized form of design. I believe it is important to develop a framework to facilitate the use of adaptive design practices. Understanding the current perceptions and attitudes of consumers is a step in the right direction to achieve this goal. The small research project was designed to capture the tone of current perceptions and attitudes. This report describes the findings of my survey and builds a foundation for future research on the topic. The research for this study has been focused on finding answers to the following question:

What is the current perception of adaptive reuse?

Can adaptive reuse of industrial facilities by auto companies improve the image of the company, city and environment?

Literature review overview

The research of adaptive reuse as phenomena with industrial structures deals with a range of complex subject matter across many disciplines. Adaptive reuse is the process of adapting old structures for purposes other than those initially intended. I've found that there are numerous publications and sources of information to research adaptive reuse. The majority of literature has been on historical data related to abandoned structures. Many sources of literature reviewed emphasized how sprawl is contributing factor to the dilapidation of structure. Sprawl refers to the spreading outwards of a city and its suburbs to its outskirts. Areas that are low-density and auto-

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dependent developments on rural land that encourage car dependency. Yet, some authors have written vast amounts of information on these topics closely related to the situations and circumstance of my research, many relating directly to architecture, but unrelated to the benefit of ownership or sponsorship of sustainable projects in industrial structures. This is a weakness that shouldn't be overlooked. Adaptive reuse may help grow the communities, but unless the primary stakeholders realize potential in the developments for their businesses, they will be less inclined to pursue it as an option. The concepts that form sprawl, with the historic backgrounds of industrial structures do add value to the research, but equally, if not more important, is the literature involved in the research of behavioral sciences. To understand how the physical environment affects behavior sciences dealing with adaptive reuse of industrial automotive facilities both industrial structures and their history are necessary to understand the social history and 'spirit-of-place' engaged with industrial structures and ownership. The 'spirit of place' is a term Christopher Day has said refers to certain memories, beliefs & history of a place.

Another contributing science is Environmental Psychology which deals with behavior in relation to the environment. The principles of both behavioral sciences and environmental sciences are similar in concept. Environmental Psychology attempts to provide norms for better management of the environment for better life and personality development. It studies effective ways of promoting conservation of the natural environment and better ways of designing buildings, towns and cities, taking into consideration the behavioral needs and responses of people (Mathew, 2001). The importance

of this field investigates the instinctual behavior patterns of human beings. The science believes that there is tendency to break down under artificial and overpopulated urban conditions (Mathew, 2001). It has been hypothesized that our environment influences behavior on several levels. Unfortunately, I didn't discover the term ' environmental psychology' while reading about sprawl or historical situatedness of industrial buildings.

The American attitude towards industrial heritage has been an important influence in the perceptions and policy decisions about what sites are significant to preserve. The public has a voice on which sites to preserve through organizations like The American Historical Association (AHA), but they have almost no voice in determining which sites are left abandoned by private owners or government agencies. The concept of businesses reusing their own dilapidated property sites is much less common and unregulated. However, a company's perceived brand is based on what consumers or users think about the company (Franzen and Moriarty, 2009). I believe sustainable architecture can influence what people perceive about a company based on these principles. If architects and their clients learn to integrate adaptive reuse into the social balance we can bring about change. Projects are developed for many reasons most seem to be concerned with earning a profit by appealing to an array of audiences in different ways. When we consider a new design for a well known brand or place that has a strong heritage adaptive reuse can be powerful tool for maintaining or rebranding an image and perception.

For companies like Ford, General Motors and others that have made adaptive reuse as part of their business plan it's unclear how affective the lure of <https://assignbuster.com/the-perception-of-environmental-sustainability-and-adaptive-reuse/>

sustainable, adaptive reuse has been at changing public attitude of both the area and the company due to a lack of research. The literatures as a whole may suggest that adaptability has the potential to create satisfaction and positively influence social attitude. Through this literature I gained an important insight into the issues and complexity of this topic. The recognition of multiple sources and realities allowed my theoretical position to evolve as the research influenced me.

Methodology

The organized investigation to test my hypothesis of sustainable adaptive reuse practices on industrial building begins with a methodology for my research. In order to reach the objectives of my research I believe that the best approach would be to work within a naturalistic paradigm. I feel the naturalistic paradigm is best suited to my particular goal which is to demonstrate understanding of architectural research. I believe growing up in metro Detroit had an influence on the decision to choose this topic.

Considering the objectives of my research and available resources, my interaction with the people and setting add value to the overall outcome and success of this project. I believe that the evidence from much of what I have researched depends upon the acceptance by the community and beyond.

The design of any research must begin with theory and questions on a particular subject. Then, as the research statement develops the researcher begins to indentify a clear subject matter. The next step is to familiarize yourself with the literature on the subject and understand how others have approached or dealt with the topic and hopefully build off that. As I reviewed

literature to gain an understanding of behavioral sciences and factors that influence adaptive reuse I found other related topics that I felt were connected to my research. It's not uncommon to reconsider the initial theory as the research develops either. In fact, it's part of the naturalistic paradigm to change as the researcher and setting or people influence each other (Groat & Wang, 2002). The standards of quality with this paradigm are credibility, transferability, dependability and confirmability. These are the standards to which I have designed my non-experimental research.

Correlational research is one classification of method type. Research methods are characterized by the strategies and techniques they use to collect and analysis data. The strategies of each method have their own strengths and weaknesses to consider. Correlational research focuses on naturally occurring patterns, the measurement of specific variables; and the use of statistics to clarify patterns or relationships (Groat and Wang, 2002). In my research the goal was to understand what impact certain events and thoughts have on one another. The goal has been to measure the variables between human psychological patterns and the built environment dealing with perception and attitude.

There are many techniques that can be used in Correlational research. Observation, interviewing, surveying, historical interpretations, testing and even others are techniques that can be used solely or in collaboration. Observation is one tactic of this type of research, it's important to observe the setting when possible. The communication behaviors of certain groups can be instrumental in any research project which deals with humans.

Gaining access to those people or settings is important, and can influence <https://assignbuster.com/the-perception-of-environmental-sustainability-and-adaptive-reuse/>

the questions and research. There are multiple variations of observation in research which describe the length of time and the way the researcher is involved in the setting or interaction with the participants. In my future research I would benefit from observational tactics. I might choose to strictly observe the participants of study over a short or extended period. The setting or area surrounding the adapted structure may provide additional phenomenon to explore. I would like to establish quality relationships with the participants, so, in my case I may benefit from a sustained observational period. Observation can lead to the identification of new or different variables just as the literature may have a similar effect. Still, there are other techniques that can be used in Correlational research. Another tactic is to interview and survey participants which is one of the most widely associated techniques with this strategy.

Surveys are a popular way to collect data. “ Indeed, its ubiquity is so well established that the terms survey research and Correlational research are sometimes considered interchangeable” (Groat and Wang, p. 219). The survey allows the researcher to collect information on a variety of backgrounds which may include demographics, behavioral sciences and more to name a few. They provide information about behaviors that can't be observed directly. They reveal what isn't written in history, but what is present. They quickly provide information from a large pool of people in a short time frame. The information typically results in a broad understanding of the subject matter. A survey is usually conducted by individuals or sponsors because of its flexibility, low expense, accuracy, and time constraints. It is common that a sponsor of a survey might like to influence

beliefs or behavior, or persuade an audience to think a particular way (Alreck & Settle, 1995). Businesses may wish to sway the audience or learn the perception on policy or services. Political parties, organizations and professionals alike use surveys to learn results and what to expect from actions and policy they plan to implement.

To predict the outcome of sustainable adaptive reuse for the automotive industry I choose to conduct a survey for many of the reasons. To conduct a small research study on my topic I concluded that a survey would provide the best results. Working with the typical constraints involved in most projects which are scope, time, and budget, I felt the survey was the most appropriate method for a few reasons. The scope of the project is to provide a broad understanding of a complex problem. A survey allows me to ask questions on a variety of subject matter and collect data that will provide insight to the topic.

The time constraint is another factor. The final research project for the semester imposes a deadline for completion. The goal is to find out what percentage of the population has an opinion on adaptive reuse of industrial facilities and what that opinion is. There is no completed historical data on the subject to date. Therefore, the survey offers an appropriate method to reach a result of the present. My budget for the project was low, and yet I still wanted to yield valuable results. An evaluation survey can measure specific information reviewed in the literature. The other techniques of correlational research have different strengths and weaknesses suited to collect data. Correlational studies, specifically relationship studies, are best suited for my own project which is why I choose to conduct a survey.
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Survey

Survey Overview

Considering the goals and objectives of my research and available resources, I thought it was best to use the survey research method to demonstrate my understanding of architectural research methods. I felt this method would be best to conduct a small research study on the perception and attitude of people on sustainable, adaptive reuse practices by the automotive industry dealing with industrial facilities. My survey was designed to understand and predict human behavior for professional work. My survey aimed to collect data from a total sample of fifty Michigan residents in metro Detroit. The survey was distributed at random using the drop-off method, a hybrid of mail surveys and face-to-face interviews.

Sampling Design

The survey sample was designed to be representative of the population in metro Detroit based on the 2000 census statistics for southeast Michigan. The population for this study is defined as likely consumers of automobiles, the target audience for the automotive industry. This made it difficult to apply random sampling. Still, random sampling is the most desirable kind for almost every survey. Random samples are extremely important to the reliability and validity of the data (Alreck & Settle). The purpose of random sampling is to eliminate bias in the persons being picked to survey. I used an area probability sampling frame approach which focuses on a small geographic location to frame the sample using census information. The 2000

population demographics and diversity information on metro Detroit revealed the following:

Non-Hispanic White 70. 5%

Non-Hispanic Black 22. 8%

Non-Hispanic American Indian . 3%

Asian/ Pacific Islander 2. 4%

Hispanic 2. 9%

With a target population for the survey I was able to determine the most appropriate survey method and approach to gathering information. Using the statistical data from the census I was able to choose a sampling base on the demographic percentages. I directly delivered surveys to a predetermined number of people of race.

Survey Method

The survey method I chose to use is called the drop-off method. The drop-off method is essentially a hybrid of two survey methods. To collect data the drop-off survey combines face-to-face interviews and mail surveys. The way a drop-off survey is conducted starts with the researcher picking individuals or individual businesses, in my case at random to a set number of Hispanics at random, personally delivering questionnaires. The respondents accept to complete the surveys in a short amount of time, and in most cases return

them by mail using the self stamped envelopes. The hybrid method allows the researcher to benefit from both methods.

As stated the drop-off method begins with face-to-face interviews. The concept is best suited for samples like mine where there is no list to choose from, but rather a sample area and demographic. Face-to-face interviews allow the researcher to have one-on-one contact with the potential respondents and introduce the survey and discuss the procedure. Upon agreement to participate in the survey the respondents, not the researcher, fill out the surveys similar to mail surveys. As the sole researcher without a team, time and resources play a large role in the selection of method. A main benefit of the chosen method unlike face-to-face, telephone or internet related surveys alone is that they do not require high pressure immediate responses to the questions. Another strength associated with my method is the sense of privacy it affords to the respondents. Separate studies not reviewed by myself have been conducted on privacy and its relationship to error. A typical error is the response rate. However, the idea of first conducting face-to-face interview techniques as the drop-off method getting acceptance to participate should reduce the non-response error rate associated with mail surveys. One weakness of the drop-off survey is that the researcher has no control once the survey is delivered. I distributed fifty questionnaires along with self stamped addressed envelopes and relied on the responders to return them. Another limitation is people might not fill it out correctly, although the procedure is explained during the face-to-face interview.

Survey Summary

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The design of a survey is a complicated task that relies heavily on the responders to be successful. “ Designing a good questionnaire involves selecting the questions needed to meet the research objectives, testing them to make sure they can be asked and answered as planned, then putting them into a form to maximize the ease with which respondents and interviewers can do their jobs” (Fowler Jr. P. 99) To be successful three traits must be present in the design of each question. Those three traits are Focus, Brevity, and Simplicity (Fowler Jr., 1984). What this means is that a survey should focus on a topic or issue, keep the questions short to maintain the attention of the respondents, reduce the risk of errors, and stay simple enough that virtually everyone who encounters the survey will be to understand and interpret the questions equally. The vocabulary should not extend beyond the idea of a person’s wider vocabulary, which is words they might recognize but seldom use (Alreck & Settle, 1995) My survey questionnaire represents use of structured, close-ended questions using a range of strategies from categorical measurement, ordinal scales, ratio scales, and more to collect the desired results.

The first few questions were designed to make the participants comfortable and at ease. The questions asked about basic practices used in the respondents homes. While the next few questions were designed to gauge the responder’s attitude on current practices by automotive companies. Then, I asked a couple of questions to understand the importance of sustainability and its uses in general. Finally, I concluded the survey with more sensitive type questions relating to demographic data and personal information. Often the sensitive type questions are inherently threatening

because people fear they may be identified (Salant and Dillman, 1994). I choose to allow the respondents to remain completely anonymous by purposely excluding the names of individuals. In all, the questionnaire comprised thirteen questions. Ten questions asked the participants to circle the answer of choice, two on a scale of one to five and one 'yes or no' question. A sample of the survey can be found in the appendix.

Survey results

Beginning April 1, 2010 I started distributing paper surveys to metro Detroit residents. The responses were collected through April 21, 2010. Of the fifty surveys I gave out, I received a total of twenty-nine surveys back. The responses to the questions vary question to question, so it was interesting to review the surveys collectively. The results of the survey questions were analyzed. The questions designed to gauge information about the respondents own particular sustainable practices included the following responses. When asked, how often do you recycle in your home, the results favored recycling. See the chart below:

What this means is that recycling is important event in many lives of many people. Recycling is component of modern waste reduction, it is a way for the households to help reduce a multitude of harmful processes including energy use, consumption of raw materials, air pollution, gas emissions etc. From the results of the questions it is evident that people believe in recycling. A second question meant to understand the personal practices of the average respondent yielded considerably different data about carpooling to work or school. The question asked the respondents to rank how often

they carpoled. Surprisingly, there was not a single person who claimed they 'always' carpoled and overwhelmingly said they never carpoled. The responses included the following:

The next few questions were designed to gauge the responder's attitude on current practices by automotive companies and provide the first glimpse into the psychological mind of human behavior and the importance of sustainability in automotive practice. The literature review indentified this subject matter as important for the research. These questions form the foundation for my research question. What is the current perception of adaptive reuse? The survey's third question asked, what is your current perception of the effect on the environment by the auto industry?

It appears that the majority of people believe that the industry represents harm to the environment yet the perception is shifting from negative to positive. Seventeen people thought that the industry is showing signs of improvement. Yet, to improve on something the situation has to be poorer to begin with. The numbers suggest that the tide is changing. I think now is a good time to capitalize on the shift in attitude.

My next question asked, in general, how satisfied or dissatisfied are you with sustainable practices by the automotive industry? The questionnaire allowed respondents to choose one of four responses. From the data analyzed it is conclusive that the majority of the population sampled feels satisfied with the current practices by automotive companies. Still, the numbers reflect room for improvement with eleven respondents choosing either somewhat

dissatisfied or very dissatisfied. The following represent the responses to this question.

The final question I designed to gauge the responder's attitude on current practices by automotive companies is, who do you feel is most responsible for vacant industrial building? I listed four options and asked the responders to circle one. The possible answers included local government, private ownership, foreign manufacturers, and unsure. The results were interesting. An overwhelming amount of people felt that government and private ownership were to blame for the current vacancies and dilapidated structures in our city.

The next series of questions will understand the importance of sustainability and its uses in general. Questions number six and seven used an ordinal scale method to determine the ranking of issues. Although, in the initial face-to-face interview I may not have properly explained how to correctly fill out the survey for these two questions. Of the twenty-nine responses I received these questions had the worst response rate. Seven of them were filled out incorrectly. Of the seven incorrect responses one person skipped the questions all together, while the remaining six responders selected just one answer indicating a single interest rather than using the scale of one-to-five. I did receive twenty-two correct responses. These responses are much more difficult to summarize given the range of variation. In review of the twenty-two correct response types I collected the following data:

Question Six scaled from 1-5, 5 being the most important

Question Seven scaled from 1-5, 5 being the most important

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Question eight asked, in general, which of the following sustainable practices is most important to you for the car company you choose to buy a vehicle from? At this point in the questionnaire I reverted back to a single answer.

The results of this question are provided here:

Finally, the questionnaire concluded with five more sensitive type questions relating to demographical data and personal information. First, have you or a family member at home currently or previously owned/leased a motor vehicle? The response was twenty-nine in favor of a 'Yes' response. Next is a question on gender? Eleven participants or sixty-two percent said they were female, the remaining eighteen or thirty-eight percent were male. When asked to respond to what race the respondents were they provided this data shown below:

The responses did resemble the census information. I had a larger response of Asian. Pacific Islanders than anticipated. I didn't have any responses from American Indians. The respondents all answered the question of age. The responses to the question of age are shown below:

To conclude the survey the final question asks respondents to tell what level of education they had. The responses to the question of education are shown below:

Limitations

So far I've spent a lot of time describing the positive traits associated with surveys. However, despite the positive features of this methodology there are still some weaknesses and limitations. A major limitation is that it is

difficult to measure causality using survey research. Causality is a component of cause and effect. It is hard to access why something is the way it is. Survey questionnaires provide answers to questions but they don't provide the researcher with a reason for the answers. Another limitation is that even though people are allowed time to respond and answer questions in private during a drop-off survey they might still mislead in the survey because their embarrassed or threatened by the questions. For example, I am sure that people might not be truthful when answering demographic questions I have in my own survey. Surveys which rely on self-reporting data can be misleading at times. In particular, questions on education for instance, people tend to exaggerate their educational backgrounds. It is important to receive a degree in society now and it is expected for certain occupations. Still, a few decades ago people may not have needed the same training to remain competitive. Therefore, it is not uncommon for older and younger generations to feel insecure about the level of education they have, thus skewing the data. Due to the nature of the collection method I believe a longer collection period would be better. More time would have allowed sampling a larger pool. We should keep some areas for the leisure of prosperity than the expansion of it.

Future Work and Conclusion

My long term research objective is to improve the relationship of consumers and automotive professionals while helping the environment. Through conservation of existing buildings and building sites the architectural industry will benefit from an increased awareness of public attitude and perception of sustainable design practices including adaptive reuse of <https://assignbuster.com/the-perception-of-environmental-sustainability-and-adaptive-reuse/>

industrial structures left vacant by the auto industry. The research I've completed date is the first step. I sought to understand the present thoughts on sustainability and automotive manufacturing. Future development of this research would build appropriate tools to market the car companies and demonstrate how increasing adaptive reuse of old facilities may actually improve consumer sentiment and interest in products. I gained valuable insights into the issues facing industrial redevelopment. I found that consumers and residents in areas surrounding vacant structures realized that adaptive reuse is a method to help correct and reduce the demand of Greenfield construction. The survey results clearly put the blame of vacancies and dilapidated building on the local government and private companies or publicly traded companies, which means that they have interest in the success of adaptive reuse. Architects and the architectural profession in my opinion may be hurt in the future due to excessive vacancy rates and abandoned buildings. There are multiple stakeholders with an interest in the success of adaptive reuse. To achieve the goals of my research I need to identify the complexities inherent in the setting which I studied. I used a variety of sources to identify these complexities. Some of the sources and tactics used include information from observation, historical data, residents, and notes. The use of multiple sources is important for creditability.

Another aim of my research is to be transferable between settings. While the survey research method I used to conduct my small research project focused on metro Detro