FUTURE + Living: A Scenario-Based Graduate Design Studio

How will we live in the future? Will family units remain intact, sharing the same dwelling for several years, or will they split apart as family members move from opportunity to opportunity, using social media to connect with parents, children and partners? Will the separation between work and home become a thing of the past? Will the customization of dwellings become the norm, or will one design fit all? Architectural education and practice generally fail to address these questions.

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Studio or competition briefs generally specify size, cost, and products to be used, but often fail to consider how conditions and needs might fundamentally change in the years to come. At best, the typical design brief might allude to future needs through demographic predictions such as "the aging population will double by . . . ." Such briefs typically result in projects that provide more of the tried and true. It is a rare case in which unknown future needs form the basis for speculative work. In the event in which architects consider future developments, they traditionally use the *forecasting method*. This makes predictions largely on linear projections of the status quo and assumes that the future proceeds more or less within a 5% variance. This method does not allow for possibilities that could cause discontinuities. Architects simply rescale and redress past design solutions, assuming that the needs of one generation are, for the most part, similar to the one preceding it. At best, one or two parameters in the design brief will change, such as the inclusion of digital media in a library, or the presence of energy-generating devices within a home. Unfortunately, the role a library might play thirty years from now is hardly ever considered. What if—like the public baths so common 100 years ago—it becomes obsolete? Architecture is failing to recognize the potential impact of our rapidly changing society on the built environment.

Unlike architecture, other disciplines, organizations, and companies have begun to question commonly held assumptions about the future. Companies like Shell and Siemens, and organizations such as the Central Intelligence Agency and the European Union have been exploring the potential for radical change and using a form of scenario planning to prepare for the future. When researching a project, they develop several alternative scenarios instead of one future forecast, and employ writers to take the given parameters and create futuristic narratives that explore the various implications. This process allows companies and organizations to develop numerous alternative visions, and to use them to test their level of preparedness.

It is high time for architecture, whose products are supposed to have a 30-year lifespan, to begin exploring the impact of radical change. The development of scenarios, defined as "plausible and often simplified descriptions of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and relationships"[1] allows us to ask different questions. These, in turn, lead to narratives about the future that will provide new foci for our design ingenuity.

THE SCENARIO PLANNING PROCESS

In the spring of 2012, graduate students at the University of Cincinnati put the scenario planning process to the test in the design studio. *Future +living* challenged students to design a living environment for 2030 North America. We deemed this time frame to be sufficiently distant to allow speculation to be grounded, yet not so far away that it would verge on the fantastic. North America became the focal point so that contributing factors such as culture, climate, and customs would be familiar to the students. To appreciate the potential for drastic change possible during a fifteen-year period, the students watched television footage of news events from the mid 1990's, a time devoid of social networking, distance learning, and on-demand downloads of films, music, and books.[2]

Instead of following a design brief that specified a site, spatial and functional requirements, and construction type and materials, the students posed the question: "How will we live fifteen to twenty years from now?" They defined *Living* as an environment in which one can "sleep, eat, and entertain in safety." This interpretation became the focus of their design projects.

Mary Henkener, a scenario expert formerly at Procter & Gamble, conducted a scenario development workshop that helped the students flesh out potential future environments. She introduced the class to a diverse set of future scenarios and the resulting narratives developed by reputable companies and organizations such as Shell, PricewaterhouseCoopers, the European Union, the World Wildlife Fund, and the National Intelligence Council. The students extracted the data underlying the companies' final reports and identified three major trends: population change, economic development, and climate change. Further research allowed them to make the following predictions. Changes in population will result from an increase in life expectancy and a shift from rural to urban populations (90% by 2050). The global economy will outpace global population growth up to six-fold, leading to an increase in demand for skilled labor and a decrease in energy consumption due to more efficiency. Climate change will cause longer periods of drought, more intense heat waves, and greater rainfall. These predictions became the focus of their design project.

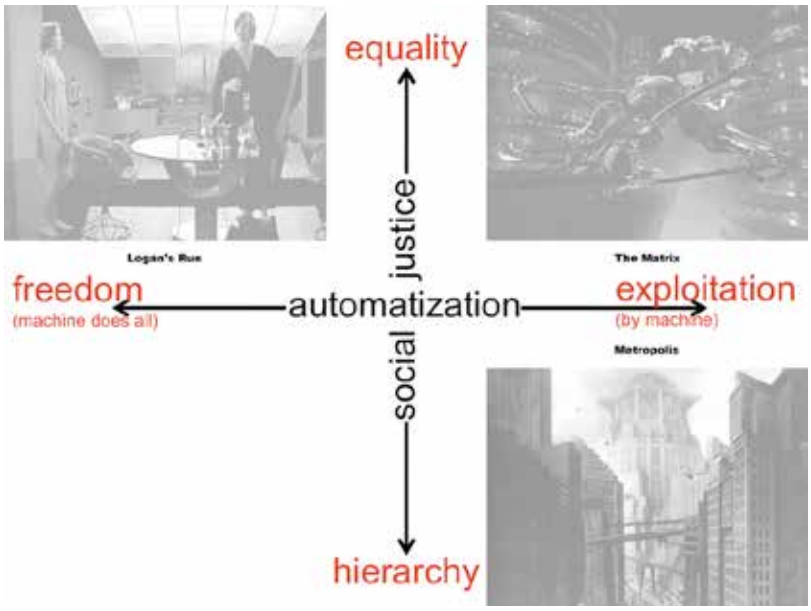
Based on these trends, the students came up with 87 hypothetical *driving forces*, or *drivers*, that might impact the way we live in the future. They accepted all suggested drivers—from immortality to a lesbian society—and ranked them twice: first, according to their impact and second, according to their likelihood. They found that the drivers they felt most likely to play a role in shaping future living were:

1) transportation; do-it-yourself
2) waste; uncertain energy
3) food availability; safety of food production; personal identity

In order to understand the relationship between *driving forces* and their resultant future environment, we studied *Metropolis* [1927] by Fritz Lang. The film renders

a stark contrast between those who work and those who enjoy the fruits of the workers' labors. The social hierarchy is clearly depicted by location; the wealthy live above ground and the poor live below. The power of the machine is omnipresent. It is a devouring Moloch, an evil robotic temptress, and the heart/lung machine without which life ceases to exist. The *drivers* behind this scenario are easily identifiable as the impact of automatization and social justice. By placing each driver on an axis with its polar opposite, it is possible to generate a matrix leading to several different future scenarios. In this scheme, *Metropolis* presents a scenario in which society is divided into those exploited by the machine and those who profit from it.

In order to help the students visualize other scenarios for this matrix, we turned to *Logan's Run* [1976] and *The Matrix* [1999]. *Logan's Run* presents a society of equals in which automatization leads to a life of leisure for everyone while *The Matrix* depicts a society in which the entire population is enslaved by the machine. The fourth quadrant remains undefined because it presents a paradox. The students deemed it impossible to have a hierarchical society, when the machine takes care of everything for everyone.



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In their next assignment, the students analyzed a science fiction film of their own choosing. After determining the underlying scenario, they examined its relationship to the set design. The ultimate goal was to discover what the narrative would reveal about society, people's living circumstances, the environment and the availability and use of space. The students extracted screenshots depicting living situations and analyzed both foreground and background information to see how space was used and what it contained. They presented their data through plan diagrams on a 3'x3' grid, the amount of space typically claimed by one person in Western society. They were asked to evaluate their film by answering the following questions.

- Does the film visually express its scenario?
- Does the set reveal about this time period?
- How do people live?
- How closely does the set design mirror their own ideas about future conditions?
- How great is the potential for the scenario to come true?

Figure 1: *Matrix as generator of scenarios.* (Illustration by author).

By studying the various ways that set designers realized a scenario, the students learned how to translate their own scenarios into designs for future living.

Through continued research and interviews with peers outside of architecture, the students created a more complete picture of the driving forces discovered in earlier brainstorming sessions. They established which drivers had the greatest degree of uncertainty and were most important for shaping the future. At the same time, they reevaluated the drivers and began to combine some of them in order to achieve more complexity and greater depth. The *nature of work* became *diversity in the nature of work*, and *waste & consumption* turned into *standardization & mass consumption*. The students then extrapolated the polar opposites of each selected driver and mapped them onto an axis.

Through trial-and error, the students identified three pairs of axes that would generate an interesting and workable framework for scenario building. They used these pairs to create three matrices: Privacy | Consumption; Commercialism & Resource Management | Identity; Waste & Consumption | Nature of Work. Each matrix yielded four possible scenarios.

The scenarios of Privacy | Consumption are derived from a matrix that ranges from the private to the communal and from the unique to the mass-produced.

1) Wild West Wiki: In this highly competitive future everyone is out for his or herself. Collaboration is temporary and voluntary; the society's operating system is open-source.
2) Private Guilds: This society keeps all knowledge within each association or guild. Collaboration and networking exist within each association, but not between them.
3) Blast from the Past: Here individuals neither share nor collaborate. As a result, innovation is minimal, and the society is stagnant.
4) Legos Ingenuity: This is a standardized world in which every product is uniform, and nothing stands out. The drabness goes hand-in-hand, however, with a counterculture that attempts to subvert its homogeneity.

The scenarios of Commercialism & Resource Management | Identity originate from a matrix that ranges from a utopia to a dystopia and from a nomadic to a place-bound form of identity.

1) Winners & Losers: The students realized that the film *Mad Max* [1979]had already explored this option and decided not to develop this scenario further.
2) Network Nomads: In this society partnerships and collaboration are common. The community relocates frequently, settling wherever the resources are that they currently need.
3) Trash Pirates: In this society recycling, urban farming, and scrapping are the main activities, and other people's trash is their treasure.
4) Us vs. Them: This society draws its identity from the exclusion of others. Social norms are enforced by a tight-knit community.

The scenarios of Waste & Consumption | Nature of Work are derived from a matrix that ranges from the use of human labor to automatization and from the individual to the mass-produced.

1) Human Waste: Due to the negative connotations of using humans as a resource, the students decided not to consider this scenario further.
2) DIY autonomous: This society is based on the apprenticeship system in which designers develop and produce on a small scale. Products are of a

high quality, and the emphasis is on repairing rather than recycling.

3) *Levis502.7543.HT*: In this society consumers have access to products that have been tailored specifically to fit their needs, but are still mass produced.
4) Levis 501: This society, in which stability and low risk reign, takes its name from the ubiquitous model of Levis jeans. Consumption of a limited number of quality goods is the norm. Standardized production makes recycling easy.

After generating ten scenarios, the students had to narrow their choices to a manageable three or four, each rich enough to capture their imagination without being overly dystopian. During this process they combined several scenarios to give them greater depth. The newly formed *re-Ikea*, *trashMoney*, *nomad.net*, and *Levis502.7543.HT* made the final cut.

re-Ikea is a consumer society dominated by the mass production of generic goods. It offers little choice and no individuality. A counter-culture challenges the status quo by reconfiguring its products.

nomad.net is a highly mobile society in which individuals spontaneously form new communities wherever needed resources are available. Flexibility, speed, and instant information are paramount.

trashMoney is a society in which resources have become scarce and where few new products are introduced. It is populated by entrepreneurs who hoard materials and convert them to new uses through reassembly.

Levis502.7543.HT is a society with abundant resources. Mass production is combined with mass customization. This society is focused on consumption and the attainment of creature comforts. It also values privatization and self-governance.

Each student chose one of the above scenarios as a point of departure for their design project.

ENVISIONING THE NARRATIVE

The next two assignments helped the students transition from their research to a visualization of their scenario. First, they collected images describing the colors, activities, materials, and landscapes that they imagined for the future. Then they took the visualization process one step further by producing a 30-second lifestyle advertisement based on AT&T's "You Will" 1993 ad campaign.[3]

During this time the scenario consultant, Ms. Henkener, used the students' scenarios to create four stories from the future. The following passage provides an example of her narrative.

> TRASH MONEY
>
> Place: Conurbation / Front Range Urban Corridor FRUCSE / Swap Meet
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> [Rozanna and Jonze have just fallen into conversation in a coffee-shop in the Lodo neighborhood of Denver. It's a hot Sunday morning at the end of the annual Front Range Urban Corridor Swap Meet, known as the "Front Range Swap'. Everybody looks weary from last night's concert, the culmination of the two-week Swap Meet. Rozanna and Jonze sit down together at a table to finish their ice coffees.]
>
> "So Rozanna, tell me about yourself."
>
> "Well, I'm Rozanna Hatfield, I'm 23, from Kentucky, and I trap and hunt game."

“Cool. So you’re in Denver for the Swap?”

“Kind of—and to check out the Corridor, and listen to some live music. I’ll be looking for work in a while. I got a gig in Estes Park, and I want to get something going someplace else in the Corridor, too.”

“What brought you to Estes Park?”

“I got work at the Estes Park Forest Harvest School. I skyperviewed, got the gig, and motorbiked & trained out here in April. My family in Kentucky has hunted forever. I bagged my first deer when I was 6, and do pretty much anything with venison—jerky, sausage, you name it. No offense if you’re a vegetarian?”

“Omnilocavore.”

“Me too, except for coffee. I’ve only been in Colorado 3 months and I wanted to check out Denver—it’s only two hours on Trainspur from Estes. So I’m here for the Meet and the music. I got this fab vintage scope for some summer sausage.

“Sweet—very retro. Tell me more about this Harvest thing..”

“It’s like a summer camp for city people. My class is on elk harvesting-- hunting, tanning, processing, food & clothing, art. If no elk is left over, you get an “A,” whatever that means—it gets the old people excited. Other classes are Forest Edibles, Welding, and Energy Improvisation. The Living Quarters rooms are simple but our Commons is spectacular.”

“Does Mimi Valdez teach Solar in Energy Improv?”

“Yeah, Mimi is great! She’s my Contact Improv buddy! How do you know Mimi?”

“She started gigging with SolarImprov a year before me. I took over her gig at El Jebel reclaiming all their outdated solar technology. It was Colorado’s first Solar Garden when it was installed back in 2012 and it’s just plain past its useful life, so we’re replacing it all. We’ll be done in 2 months and I’ll move back to Denver.”

“What’s it like in El Jebel?”

“It’s a literal ghost town, but we popped up some Yipped Airstreams and a WorkSpace. We struggle with the water of course. We dug a really cool underground bar ‘The Ratskeller.’ Ha ha. Complete with desert rats. Too small to shoot, right?”

“Not even worth my trouble. Where did you pick up solar?”

“Here along the Corridor. My folks were in it. My dad is originally from Detroit and learned scrapping and metals there, and then came to Golden to teach it at Colorado School of Mines.”

“So you live here in Denver?”

“Yeah—I share a warehouse situation with a few families only a few blocks from here. The little kids are actually having a party today and I’m invited. You want to stop by? You could check out the neighborhood?”

“Sure. My train doesn’t leave till 4:00. Thanks!”

FROM SCENARIO DEVELOPMENT TO PROGRAM

After spending almost a third of the ten-week design investigation on scenario development, the students were able to create programmatic requirements for each scenario with ease. These programs were later used to evaluate their final designs. For *re-Ikea* the students proposed the following:

- Housing: pre-fab; able to be easily assembled and disassembled; made with cheap materials, mass-produced with short lifespan; interchangeable parts, easy to upgrade.
- Waste: minimal waste; efficiency and recyclability paramount.
- Food: streamlined; small, sleek, more package material than product; the current trend of food fortification at a greater scale (milk with 20 g of protein; chicken with 100% daily required vitamin C; caffeine-infused, vitamin-enriched hard-boiled eggs).
- Rituals: confined living quarters, community life in shared spaces.

After establishing the framework of their project, each student began to develop his/her own design solutions. They examined how the concepts in their program, such as pre-fab housing, have been addressed in recent times. They were asked to improve upon existing practices and to propose a better solution, using three different scales. In addition, they were required to demonstrate how the different scales would influence issues of ecology, community, character, feasibility, transportation, security, privacy, and the wellbeing of the residents. The students used sketches, pictures, collages, and sounds to present their individual design proposals in the form of *reel-estate-ads*.[4] These short films communicated the relationship of the design to the lifestyle embodied in the scenario and helped the students articulate their ideas visually.

DESIGN AND DEVELOPMENT

Individual work, discussions, pin-ups, critiques, and reviews filled the remaining weeks of the studio. Students continued their individual research and shared their findings freely on the course wiki. They visited numerous avenues, retaining some ideas and abandoning others, some of which were picked up by other members of the studio. The jointly administered wiki allowed for greater collaboration than is common in design studios and helped the students resolve important issues.

By the end of week nine, each student had produced a working prototype of a future living environment. Before gearing up for final review presentations, the students tested their scenario-derived products in the marketplace. Each student was required to enter at least one design competition focused on the living environment. They had to adapt their project to the competition site and requirements while retaining the basic scenario-derived premise.

Week ten's final review concluded our investigation into scenario-based design. A broad group of jurors from architecture and industrial, urban, and interior design were favorably impressed by the student work and suggested minor improvements to individual proposals. The marketplace provided further validation of the student's efforts: two projects placed in the top 10% of submissions; one received a honorable mention; and a later submission garnered first price at an international design competition.

CONCLUSION

The FUTURE + living design studio succeeded beyond my wildest expectations. Although some of the students were intimidated by this design methodology, all of them eventually became excited and inspired by the new vistas it opened for them. They discovered the advantages of cross-disciplinary exploration and the potential rewards of stretching their imagination into unknown territory.

The emphasis of this undertaking was not on producing a "prescription" or a style for *how we will live in the future*. Instead it introduced the students to a method for generating a program based on eventualities. By providing them with a method rather than a specific design program, the studio taught them to make connections between needs, expectations, the economy, and the environment, and to develop their own programs accordingly. It helped them learn to question the status quo and encouraged their re-interpretation of existing building types and materials. Most importantly, this approach gave students the tools to question any program in order to achieve a creative solution in the realm of best practices for years to come.

It stands to hope that by actively questioning commonly held assumptions about the future, the profession of architecture will be better prepared to address the problems of our changing environment. Some planning agencies have already begun to follow this path in their search for solutions to the problems caused

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Figure 2: "Inside & Out" by Megan Jenkins, honorable mention, *Designing for Adaptable Futures Competition,* 2012. (Courtesy of Megan Jenkins).

Figure 3: "Redi Tablet Hotel" by Bridget Hedrick, rank 17 out of 210, *Rethink Hotels Competition,* 2012. (Courtesy of Bridget Hedrick).

Figure 4: "Hotel13" by Alex Gardner, rank 18 out of 210, *Rethink Hotels Competition,* 2012. (Courtesy of Alex Gardner).

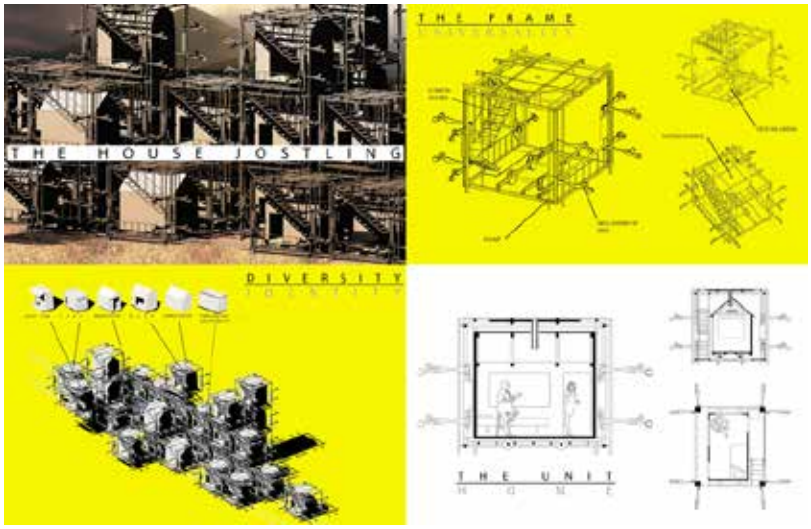

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Figure 5: “Housejostling” by Victor Roucaché. (Courtesy of Victor Roucaché).

by global warming or changing weather patterns. The provincial government of Ontario has considered a scenario in which Canada would replace the United States as a top agricultural producer and has investigated new public infrastructures to distribute its crops worldwide. The City of Chicago has responded to a drastic increase in heavy rainfall by deciding to cover its alleys with permeable surfaces, and to replace dying oak trees with swamp oak that is better suited to the anticipated warmer climate. Both initiatives have responded to non-linear, drastic change and intend to ready the environment for a different possible future. Architecture should follow their example and prepare for a future where new building types cater to drastic changes in the way we live, work, and socialize.

ENDNOTES

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