

Time Travel for Beginners

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The Time Machine

As a former car designer for General Motors, I have always been fascinated with the far-fetched dream cars that the film and automotive industries introduced us to. Some of these vehicles included flying cars, spaceship cars, hovercrafts, gadget cars like Speed Racer, and cars repurposed as time travel machines. The closest we have come to any of these dream machines is Elon Musk's Space Tesla. On February 6, 2018 a Tesla Roadster and its dummy driver, fondly referred to as Starman, left Earth atop SpaceX's Falcon Heavy rocket. Unfortunately, it is highly unlikely that Tesla space travel experiences will be made available anytime in the near future.

Quite possibly the ultimate time travel machine is the DeLorean Time Machine created for the movie *Back to the Future*, in which Dr. Emmett Brown, Ph.D. (also known as Doc) creates his most successful invention. As the story goes, this ultimate time travel vehicle gives passengers a smooth ride through the space-time continuum during temporal displacement. Standard equipment on this DeLorean Time Machine is the flux capacitor, which according to Doc *"is what makes time travel possible."* In this 1985 American adventure movie Marty McFly is sent back in time while driving the DeLorean when he reaches the magic speed of 88 miles per hour. At this point sparks erupt in erratic patterns and then organically form into what appears to be an electrically charged shield in front of the car. Then, without notice the DeLorean abruptly disappears, leaving tire track flames literally burning the pavement.

We are all familiar with the concept of time travel. Such fantastical stories abound. However, we rarely fully grasp the transformative effect these journeys can have in reality. If we travel back in time we have the opportunity to witness significant historical events, which are important when associating these past legacies that connect with conditions today. When we make these associations, we understand the significance of building connections between the past and present-day events. Lengthening our sight through the past gives us a different view of such relationships. Comprehending the present situation from this vantage point is valuable because with this extended vision, we can more appropriately respond to our current situation.

Creating time machines that reveal the past, connect with the present, and uncover the future can be compelling tools for exploration. While it may start with fantasy, conceptual time travel is anything but. When we time travel with an open mindset we see people and situations anew. This vision can change our lives.

The Practical Application of Time Travel

Although time travel is not a practical option, its benefits can be realized through the creation of timelines. You may recall those timelines that hung on the walls in your old classrooms that you never really paid much attention to. Maybe the information was not of interest. Perhaps you just did not get how that data could possibly relate to you. Or you associate the concept of timelines with development schedules that build steps for managing projects, which are functional but not new. Well, guess what, timelines are actually valuable tools. There are many different timeline topics to select from. For example, timelines on trending topics like the environment, political and civic activism, or technology can tell stories that reveal important information. When we compare different timelines that relate it

gives us a holistic perspective, which is beneficial in finding clarity on complex issues. Utilizing timelines as a research tool can be extremely effective for discovering solutions today for future challenges such as, for example, population increases or creating a sustainable future.

How Time Travel Changed My Life

I realized how powerful timelines can be when I created a timeline of my life while I was working at General Motors (GM). In 1999, after a decade of working as a car designer, I was content with my career path. I was respected, worked with teams of talented people, and had achieved a good level of success. Although I was enthralled with cars and the many ways they improve the quality of human life, I was conflicted by the fact that the process of creating, operating, and disposing of vehicles was a detriment to the existence of non-human life. As I tried to imagine my long-term future at GM I decided to make this future visible. On a wall in my house I laid out a 100" long horizontal line with 1/8-inch black crepe tape and marked it off into 5" increments. Each inch represented one year of my life. I admit, my generosity was brimming as I gave myself one-hundred years to live, remain physically fit, and have all my mental capacities completely intact. After making a thicker mark on this timeline that represented my current age, I began filling out Post-it notes of all the things I had accomplished up until that moment. Each note had one major achievement written on it and I placed them on my timeline in the appropriate spot.

Next, I filled a tall stack of these sticky notes describing all the things I wanted to experience before I exit stage left. Yes, this was my bucket list. Everything I sought to complete before I leave this physical form on planet Earth. I thoughtfully completed my list. As an avid scuba diver, I wanted to swim with whales to behold their majestic presence. Backpacking through remote areas of the wilderness would immerse me in nature with pristine lakes, glaciers, and mountain peaks. Long had I desired to stand within the Sistine Chapel. The list went on and on. When I ran out of ideas I began to place these notes on my 100-year timeline. Things started out just fine. Then, events got a bit tight, so I rearranged them. I was packing it in by reorganizing the notes, shifting events, and moving items closer together. Eventually, I found myself becoming frustrated. This was supposed to be fun, so I took a moment to pause. Puzzled, I sat down to take a good look at my life timeline. Then it hit me. I had completely filled in my life of 100-years and I was still holding a stack of Post-it notes. I knew in that moment that I would never accomplish my bucket list even if I lived to be 100-years old. So, I went into work the next day and quit my job. A drastic change was necessary to give me time to check more items off my bucket list. Consequently, this began my philosophical journey to find some reconciliation between industry and the natural world. Time travel changed my life.

Timelines in Research

When I came to academia I continued this search. One way this was accomplished was to integrate timelines into the fundamental design research process, which developed into a module within a Systems Thinking and Systems Design methodology. Early on, these approaches largely focused on transportation related issues. Later, timelines were incorporated into the courses I taught at both the graduate and undergraduate levels within the design disciplines. Eventually, they were applied to a broad spectrum of transdisciplinary teams. Students as well as professionals benefitted from creating timelines. Seeing the bigger picture through the past, present, and future helps to train the mind in understanding what is really there to be seen in a holistic way. This insight inspires us to see the world around us with new eyes and with an informed mind. From this viewpoint, we can observe aspects of our immediate surroundings or our global communities in ways that are unique to our individual perspectives. This insight can change experience and reveal alternative ways to interpret everyday challenges or complex global issues. Creating timelines provides more accurate and complete information, and this knowledge becomes a guiding force for developing suitable solutions to challenges we face today and in the future.

There are many different types of timelines:

1. Single Themed Timelines state the facts as they have occurred through time and are specific to one topic, such as the history of the Earth,
2. Overlapping Timelines state facts as they have occurred through time with two or more relating threads of information that are comparable, like comparing the history of the oceans, extinction, and the Arctic,
3. Real and Invented Timelines are a combination of events that have occurred in the past along with events that are imagined, such as the history of education along with various invented scenarios of education in the future,
4. Projected Timelines combine historical facts that have occurred with calculated statistical projections that stretch out into the future based on these historical facts, such as the history of solar panel production and the projected rate of production in the future,
5. Scaled Timelines create comparable relationships that organize complex ideas into simple concepts that are easily understood. Scaled timelines can be the hardest to imagine. To clarify this the following is a simple example, from an unknown source, of a scaled timeline. ‘Consider that the Earth is 4.6 billion years old. If it is scaled so that it is 46 years old, we can say that humans have been on Earth for 4 hours and our Industrial Revolution began 1 minute ago. In that one minute we have destroyed more than 50% of the world’s forests.’

There are many other types of timelines. However, *Life Timelines* are the most transformative, largely because they focus on our individual lives. Personal focus can be significant when it comes to inner growth. Life Timelines are similar to the aforementioned timeline I created when I changed my career. These timelines show us various paths to take as we experience life-changing events we encounter as we travel through time. Also, Life Timelines reveal what is most important to us so we can look at life in new ways and make more deeply informed decisions as we travel through our journey called life. At this point, our broadminded awareness is a catalyst for beginning new projects and activities that reflect our life values.

Different types of timelines tell stories that reveal essential information. Such knowledge gives us a holistic perspective, which is beneficial in finding clarity. Fully utilizing timelines as a research tool can alter future trajectories on a broad range of topics.

Time Travel for Beginners

To further explore the transformative aspect of timelines, I created an Honors Course at the University of Cincinnati called *Time Travel for Beginners*. In this course the main focus of investigation evolved through the creation of timelines. There was a cross section of students from various disciplines across campus including accounting, industrial design, chemical engineering, civil engineering, computer science, medical science, international affairs, nursing, business, social work, and marketing. These students learned the fundamentals of Systems Thinking that apply to many different situations. They were exposed to a broad spectrum of subjects and systems of varying scales. Building on this, special attention was given to developing timelines that gave them a grounded perspective on a variety of past and present issues so they could anticipate what might be coming next. This ability to predict upcoming events expanded their sense of awareness into various topics. With this inner consciousness they developed more informed opinions and choices. This foresight allowed them to reshape their exterior world to align with their individual values. In this course, students traveled through time and discovered how meaningful things today connect to the past and influence their future.

Creating Life Timelines were especially potent in this course. They revealed unique connections that directly related to the student’s individual lives. The process divulged areas to make changes and improvements as it related to unique life goals. Through creating and reflecting upon Life Timelines students began to clearly see patterns and recurrences of circumstances. Many individuals who had

developed Life Timelines consider this to be a uniquely transformative experience. Other students expressed challenges that, when discussed in class, became bits of information that uncovered their unique character. Exploration and contemplation of Life Timelines produced several outcomes including: 1) students had a more complete sense of self-identity by connecting life events, 2) students found meaning that connected life in the present with relationships from the past and future, 3) students understood how strategic planning of experiences can better prepare them for future challenges, and 4) students understood how their past responses to significant life events have shaped their character into who they are today.



Figure 1 Life timeline completed by Alexis Begnoche, student at the University of Cincinnati.

Students were given choices on how to be resourceful when developing the physical form of their Life Timelines. Granting creative freedom allowed for the development of many different approaches. Self-expression inspired students to evolve their ideas with subsequent timelines. There were a few students who had experience in design and they took full advantage of their digital and visual skills when creating timelines. However, the variety of imaginative interpretations of various timelines was stimulating. Figures A, B, and C are samplings of this creative expressions in the development of Life Timelines.

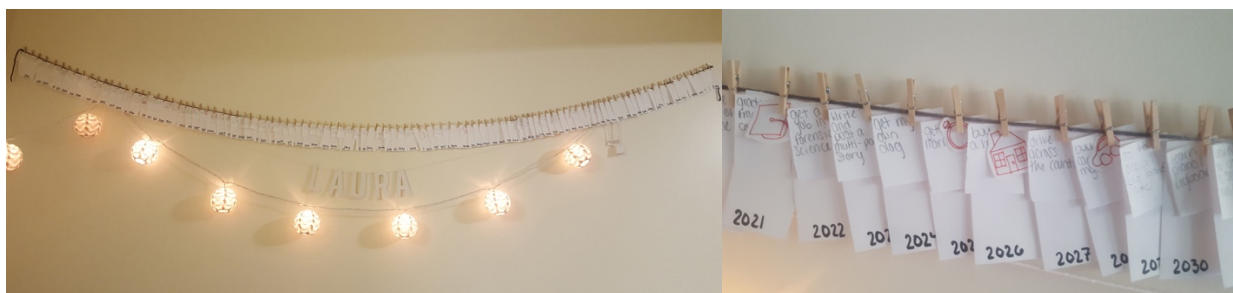


Figure 2 & 3 Life Timeline completed by Laura Cox, student at the University of Cincinnati.

Inevitably, when addressing issues of time travel, conversations about the future can become challenging. We do not need to travel through time to have ideas about what is forthcoming. Today, there is an overwhelming amount of scientific evidence and research to suggest climate change will drastically change the Earth. As we think our way through a range of imminent scenarios brought on by global warming we ponder our role within this bigger picture. Worldwide challenges that humanity is currently dealing with include the decimation of the Earth's environments, the extinction crisis, and the

depletion of natural resources. Regional challenges are also of great concern, especially when considering the anticipated increases in population and urban density. This future can be difficult to grapple with. Students calculated family timelines to see how old they will be when New York City is underwater as sea levels rise. They struggled to understand what this would mean for their children and grandchildren. Reality settled in when these time traveling students went deep into the more profound mysteries of the future and glimpsed this from afar. Then, they ask questions. How are we contributing to these challenges? How do we address these issues while maintaining the quality of life we have achieved today? How do we create a sustainable future for generations to come?

When conversations about the future go dark, I encourage students to create timelines that include the light and the shadow. These are split timelines that include the good and the bad, the brighter outlook with the more challenging outcomes. Approaches like this provide a balanced perspective. Figures D and E show an example of a timeline based on the light and the shadow. In this timeline, the upper half is based on the light and the lower half is based on the shadow. Depending on the topic, students used good judgment to decide on which side of the timeline information should be placed. Allowances for such personal interpretation were discussed and debated in class.

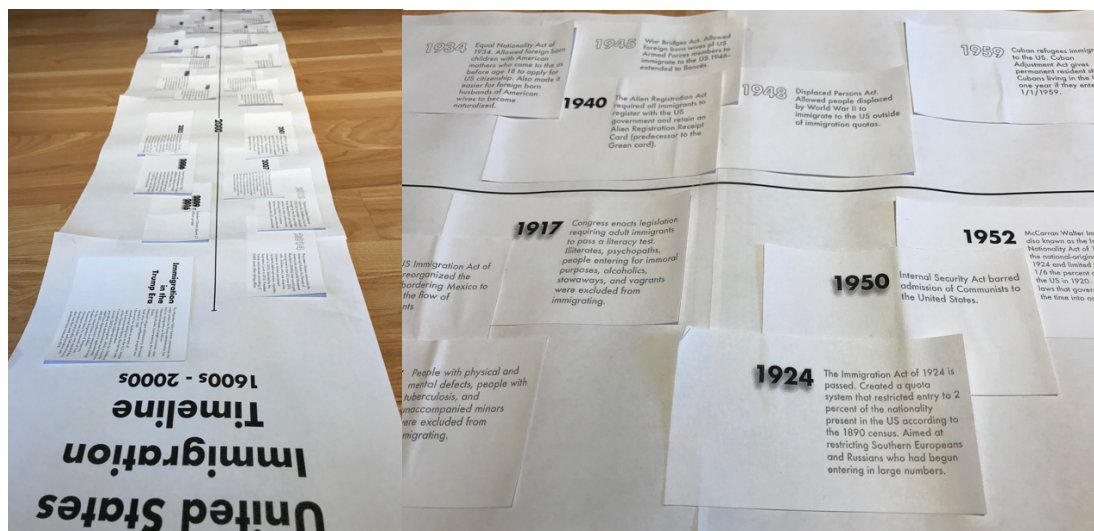


Figure 4 & 5 Light and Shadow Timeline, by Elena Jordan-Keller, student at the University of Cincinnati

Additionally, *Time Travel for Beginners* fostered a connected community of students that prioritizes transformational personal development, civic participation, and global responsibility. Participating students generated information to understand situations and circumstances beyond a base level. They were challenged to select topics that were of great interest to them and explored authentic questions for a broadened understanding. Critical inquiry encouraged students to ask why these topics were important to them and how best to address specific needs to enhance life. Because sensitive topics were openly discussed, the students generated a mutual respect for each other. This created a safe environment where these travelers felt safe saying what needed to be said, even if it was personal or made them feel vulnerable. These authentic shares were the true gifts that enhanced the overall course.

When structuring the content of this course, I was intentional about mixing up some of the more challenging timelines with assignments that were whimsical. Integrating timelines that were lighter in topic with heavy timelines was a strategy to maintain an overall healthy mindset within the course. One playful example was creating a story that detailed the ultimate time travel adventure. Another lighthearted timeline required students to select a food that was meaningful to them and create a

timeline that related to this food. As always, I encourage students to use good judgment and be open to creative interpretation. On the day when these Food Timelines were presented each student came to class with their chosen food to share. Together we enjoyed this meal. Figures F and G show images of this event.



Figure 6 & 7 Students in the *Time Travel for Beginners* course presented their Food Timelines. On that same day each student came to class with their chosen food to share as a meal.

Within the *Time Travel for Beginners* course, the use of timelines contributed to our ability to generate provocative conversations around sensitive subjects. We imagined solutions ranging from simple experiences to complex world problems. Creating a variety of different types of timelines recorded essential information on diverse topics including projects, artifacts, global challenges, environmental concerns, economics, social conditions, technologies, and products. These approaches introduced students to different ways of seeing, thinking, and relating to these subjects. In this class, the positive influences of timelines were realized.

With Great Power Comes Great Responsibility

There is an incredible amount of accessible data that people and corporations mine for different purposes. Some use this information for the greater good, others do not. However, what we use this information for makes a difference in how the future is shaped. Looking at the data to reveal the bigger picture is no longer enough. Additionally, many of us find ourselves on an endless cycle of doing and reacting. We are so busy we get caught in repetitive patterns of busy work that we react to, then more work. Rather than time travel, these are time loops. The ability to react is good but limiting. When we are always in reaction 'mode' we are unable to thoughtfully respond to the information we access. Timelines can break this cycle. In addition to stepping back to see the bigger picture, we must reflect on it to make better decisions. If we do not do this we will keep getting things wrong. When creatively imagined, timelines are an invitation for us to thoughtfully broaden our minds so we can more appropriately respond to our current circumstances.

Based on predictions that forecast the trajectory of humanity's future, it appears that we will be facing some great challenges in the not so distant future. At this time, we need to make better use of the information that is so readily available through science, technology, and history. Scientific data gives us the facts, but is devoid of meaning, mystery, emotion, and ethics. Ideas generated in isolation creates partial solutions, which causes future problems. We are witnessing this today. Additionally, technology and science continue to permeate our culture at an ever-increasing rate. Even with these accomplishments we are, oddly enough, unable to comprehend the significance of our own achievement. Nor are we able to comprehensively grasp how these rapid changes will affect the future. We need to consciously examine the information we have access to in order to use this knowledge

wisely. To achieve this goal a holistic perspective is necessary. Integrating both rational scientific thought with conscious meaningful reflection is our path into an optimistic future. Timelines are one useful tool to release us from endless small-view loops, and enable skillful navigation into a broader perspective, one where we can better control the results of our actions through the mastery of time travel.