DESIGN LIKE A CHEF
WHAT WE CAN LEARN FROM COOKING

Amy Kern / **Dan Griner** / **Ted Shin**
Metropolitan State University of Denver
akern@msudenver.edu / dgriner1@msudenver.edu / jshin2@msudenver.edu

INTRODUCTION AND RATIONALE

It is proven vital to nurture a creative and curious examination of the world in students at a young age. Brief and immersive design workshops and programs tailored to grade school students offer opportunities in core skill-building and problem-solving confidence. This paper explores how a chef tackles problems and creates innovative dishes to best serve customers with the intent of using that understanding to teach complex elements at the foundation of design. Ultimately, it presents an answer key to the question that *every* industrial designer invariably fields upon introduction, "so what, exactly, is an industrial designer and what do they do?" Unlike the dynamically morphing roles of an Industrial Designer, everyone has a pretty good grasp of what a Chef does and why. Even the youngest students have likely grown up watching their meals prepared in kitchens everywhere, making the similitude exceedingly accessible.

BACKGROUND

For hundreds of thousands of years, man walked the Earth taking on and evolving the roles he needed to survive. The role of designing was inseparable with that of cooking and so, when critically examined, designers and chefs have connections that go far beyond the obvious and touch on essential motivations, mindsets, methods, and priorities. Drawing from these striking parallels between an Industrial Designer and a Chef, design educators can clarify many driving principles in a very digestible way for new design students.

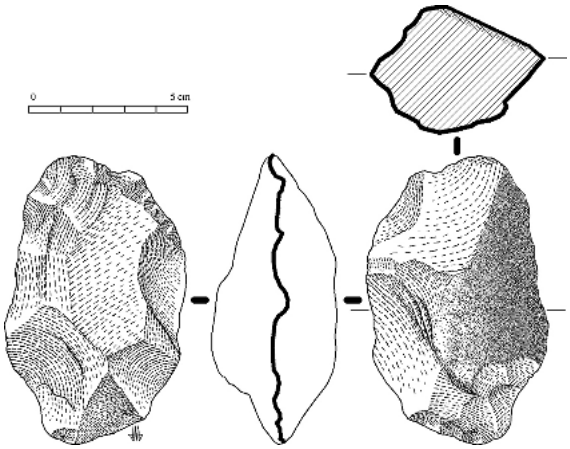


Figure 1. First tools; Borg, L. (Contributor), (2001) *Oldoson* [Drawing]. Retrieved March 7, 2015, from: http://en.wikipedia.org/wiki/Oldowan

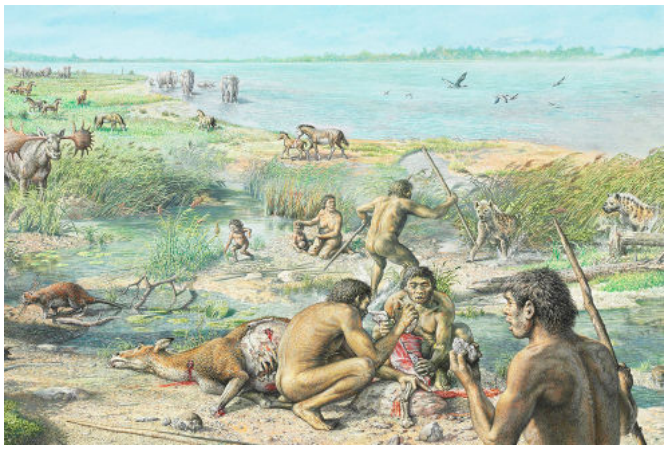


Figure 2. Hunting for food with tools; Sibbick, J. [Painting], Retrieved March 5, 2015, from: http://jonfitzoddly.blogspot.com/

It is at the very beginning of man's evolution, propelled by a most basic human motivation-the search for sustenance, where the two activities of cooking and designing are inevitably intertwined. Here they are stripped of ego, artifice, and business and market constraints. The task of preparing food is what spawned the first tools and genesis objects (Figure 1). Finding a way to prepare, clean or kill food led our earliest ancestors to improve their lives and their meals by design (Figure 2). As meals became more diverse and people found new ways of procuring food and preserving it, so too, new products and tools were developed to facilitate these processes. As human societies became more complex, both design and cooking grew exponentially to push both past mere necessity and into highly stylized and beautiful exercises in human thought and experience. From eating food raw to cooking it with fire, from fashioning a stone knife to perfecting the stronger metal knife, people always experiment to find a better result or outcome leaving behind previous and inferior conditions.

In the same way that contemporary man's appetite has dramatically changed from our ancestors, today's designer has moved aside from mere invention for survival. Namely, we are often motivated to style and form our innovations to differentiate them in the marketplace, attract the eye, and conform to the body ergonomically. Comparatively, a chef's menu might be influenced by location. She also endeavors to appeal visually as well as gastronomically and makes each bite the right size and consistency to be consumed. In both fields, at any level you consider, they converge upon identifying an opportunity for improvement and then offering an informed and progressive solution.

DESIGN AND COOKING

Throughout history we find many design professionals, some known and some that are unexpected, who were very involved with culinary arts. It is a little known fact, for example, that Leonardo da Vinci was passionate about cooking and left several notebooks of cookery and table etiquette (Shelagh & Jonathan Routh, 1987). Some people even say that he was a chef (Susana Alonso, 2010) and he tried every dish in his painting "The Last Supper" (Francesca Fornasari, 2011). Raymond Loewy also found inspiration in cooking and even dedicated a chapter to talk about food in his book "*Never Leave Well Enough Alone*" (1951). It's clear that cooking played into his design philosophy. In 2006, the Raymond Loewy Foundation awarded a Spanish chef Ferran Adrià as a winner of the Lucky Strike Designer Award, Europe's highest-endowed designer award. Usually awarded to an Industrial Designer, the award is for positive contributions to the development of contemporary design in homage to Loewy and his vision. Seemingly it is the similarities between the acts of designing and cooking that prompts practitioners of each to appreciate the other.

The problem solving process involved with the culinary arts, from beginning to end, bares undeniable similarities to that of design. Table 1 shows development processes from each field; Culinary Innovation Process outlined by Ottenbacher and Harrington (2007) is very similar to the stages of new product development process by Booz, Allen and Hamilton (1982). To begin, an industrial designer and a chef both rely upon research and experimentation. A chef frequently takes traditional recipes or ingredients and reinvents them into something altogether fresh. This brings new flavors and previously untried methods or applications of spices and ingredients. An industrial designer does much the same; he must look at existing challenges with products or user interactions and articulate new advancements or enhancements with materials and technologies.

"It's part constructive discontent (it could taste better), part empathy (what do those who will eat the food expect, anticipate), part savvy (you have to know some of the basics to cooking), topped off with a good dose of creativity (seeing beyond the given parameters or the confines of the recipe)." (Abaster, 2009)

The Innovation Development Process of Michelin-Starred Chefs	**Stages of New Product Development**
Strategy Generation	New Product Strategy
Idea Formulation	Idea Generation
Screening	Screening and Evaluation
Trial and Error	Business Analysis
Concept Development	Design and Development
Testing and Training	Testing
Presentation	*Presentation*
Commercialization	Commercialization

Table 1. Comparable Development process: Ottenbacher and Harrington, 2007 (left), Booz, Allen and Hamilton, 1982 (Right)

A Chef and Industrial designer both share curious minds that desire to take apart the things around them and see how they can work best. An altogether more comprehensive understanding of all the pieces that make the whole is needed to get the best results or end product. From a chef's perspective, it requires knowledge of how a dish evolves from farm to table and then translates to a wonderful well-rounded experience for the customer down to her very health. This, in part, is analogous to the 'cradle to cradle' (McDonough & Braungart, 2002) approach to sustainability in industrial design. A products' entire life cycle, material origins, production choices, user experience and post-consumer recyclability and adaptability are all considerations that a holistic designer embraces. Noting these and other similarities highlight to new students which characteristics should be nurtured throughout their design careers: curiosity, creativity, continuous experimentation and an unrelenting striving for perfection. For at the root of both professions is a simple desire to be original and make something which others will enjoy.

A NEW PERSPECTIVE OF DESIGN EDUCATION

The more we can demystify our profession and empower youth to take up its challenges, the more we can invigorate and refresh our workforce for greater things in the future. The comparable pedagogy between the two disciplines reveals design's more intrinsic values and approaches. Both culinary and design schools require a student to not only understand theory but to make a practical application and achieve a result that is both pleasing to the consumer and is repeatable. Additionally, both fields are deeply entrenched in learning through making. Figures 3 and 4 depict the physical environments in which chefs and designers *actively* create and collaborate. In the same way that you couldn't create a five star meal if you've never even boiled an egg, you shouldn't expect to design a good product without practicing basic fundamentals: design semantics, ergonomics, materials and processes, creative problem solving skills, idea visualization skills, etc . In each of their roles, specific skills are practiced and honed to a fine edge and time management is critical.

Figure 3. Scene at a kitchen: Wetzel, G. (Producer). (2011). *El Bulli: Cooking in Progress* [DVD]. Available from http://www.elbulli-themovie.de/HOME.html

Figure 4. Collaborative work at IDEO: Sneller, J. (Contributor). (2014). *Kick off Workshop* [Photograph], Retrieved March 7, 2015, from: http://www.ideo.org/stories/kicking-off-with-health-leads

Arguably most important is the meticulous disciplining of the hand and eye to recognize excellent design. "Creative confidence is like a muscle- it can be strengthened and nurtured through effort and experience" (Tom and David Kelley, 2013). The future of design education includes reaching students early with personalized experiential learning that builds this creative confidence rigorously. The principles of 2 and 3 dimensional design with color, form, and visual communication provide a platform on which to later build skills. Training in various traditional and new materials, their properties and the tools necessary to shape them, makes students understand how to physically adapt their skills to form tangible designed objects. Culinary schools also have an exhaustive iterative hands-on approach. Every student must understand the physical properties, potential and limitations of their ingredients. Safety and health play a constant role in what is created and what eventually ends up in a dish. Like industrial design's sub-disciplines, different types of foods like sauces, international dishes, and pastries, all require subsequent specialized training.

Contemporary design pedagogy is likewise concerned with teaching an understanding and empathy of people and contexts. When Thomas Keller said, "*A chef should serve a dish that the customer wants, not a dish you would like your customer to eat.*" (Kim, 2012) he could have been speaking about User Centered Design. A design student experiencing the results of their work as if in archetypical user's shoes and a culinary student simply tasting their food forces them to share the role of those they are creating for and helps motivate the best versions of their work. Designers are further taught to research through observation, interviews and other tools to validate their designs, just as novice chefs may employ taste testing and soft openings to garner valuable user feedback.

It is through their first positions as practitioners in industry that both design and culinary students refine and reinforce their young skills into a process that provides a marketable product within actual business, financial and temporal constraints. Understanding trends and how dishes and prices are affected by season, dietary issues, and public health policies must be taken into consideration to stay relevant in a working kitchen. A Sous Chef will spend an average of eight to ten years to learn their trade. The majority of that time is spent arduously working and perfecting their craft for little pay and long workdays. It is a profession which requires passion and dedication- just like that of an industrial designer.

Often, today's customers of cuisine and design seek out more inventive and memorable experiences. We are living in an "experience economy" (Pine & Gilmore, 1999) or "experience society" (Schulze, 2003) where businesses create and sell memorable events and that memory, that experience, itself becomes the product. (Pine & Gilmore, 1999) The process for an exemplary chef doesn't end when the plate is served to patron, nor does it end for the designer when the product hits market. Customer feedback based on a satisfying user experience is the real measure of a products success. The connection to the user should be bolstered to inspire further iterations and innovations.

While design is everywhere, if you know where to look; food is clearly universal. Perhaps it is the immediacy of enjoyment that comes with the first bite of an excellently prepared meal, maybe it is the warmth of comfort food or the anticipation of an epicurean first but food is deeply appreciated in a way that design sometimes is not. When comparing and contrasting design and cooking, even an accomplished industrial designer can uncover forgotten truths about our profession's core and are better able to explain them to others.

For example, one of the most notorious arguments in the design field "Form Vs. Function" can be easily explained by simply using a compelling cooking metaphor. "Presentation Vs. Flavor" captures the essence of the design argument. You *can* have one without the other but the combination of both provides for the most enjoyable dining experience. Most everyone can relate to this approachable metaphor and thusly, even the earliest design student can understand the point Frank Lloyd Wright made when he said *"Form follows function—that has been misunderstood. Form and function should be one, joined in a spiritual union."*

One of the challenges at the root of design education is the unwillingness of designers to be easily defined- sometimes a boon to the professional but a confusing state for beginning design students. Vague or ambiguous design definitions are a consistent challenge and often a barrier to acceptance. Teachers are often tasked with explaining the validity of the most elemental roles and processes within the profession. In the absence of straightforward answers; which would invariably limit flexibility and strangle innovation; utilizing an analogy for explanation or clarification steps away from the dogmatic and allows room for later growth and interpretation.

Targeted to emerging Industrial Design students often still in grade school and the wholly uninitiated alike, teaching how to think and design like a chef is a powerful and provocative introductory concept that culminates here as a workshop series. Interactive activities, games, and coursework are outlined to stimulate a deeper understanding and appreciation of all of the many methodologies inherent in Industrial Design's best practices. Capitalizing on the simplicity and immediacy of the culinary arts, some of the most intangible qualities that make the best and most successful designers are illuminated.

'DESIGN LIKE A CHEF' WORKSHOP

Below are activity tools developed by the writers that will facilitate an educational workshop to fuel young students' passion for and understanding of design. These are only a few of the many tools the writers recommend which a facilitator can tailor to engage students. The sampling chosen here promote observation, collaboration, and conceptualizing solutions using the proven development stages and skills of professional Industrial Designers.

Figure 5. Students are participating Design/Cooking Process activity in a design studio environment.

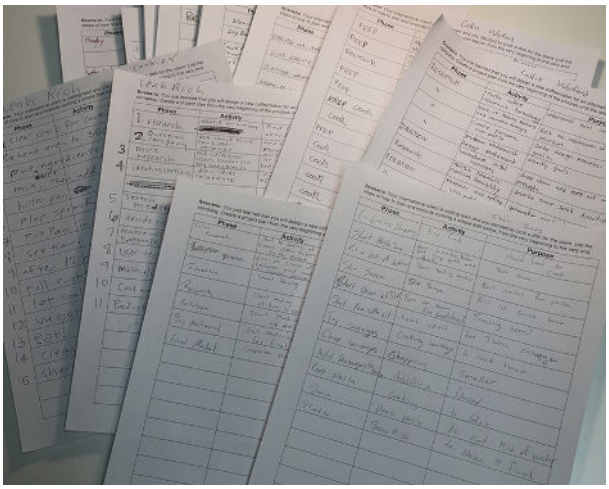


Figure 6. Design/Cooking Process sheet.

This Cooking Challenge interactive activity was designed to juxtapose culinary skills needed to build a menu with those a Designer needs to develop a viable product concept (Figure 5, 6). The end result needs to be responsive both to particular patrons and contextual constraints. Team building and collaboration are essential to industrial design. The teams form and choose a card that specifies a unique environment or end goal associated with being a chef. The challenges easily translate to the type of contextual cues a designer delineates when creating convincing user scenarios. Each team should then work together to perform the following tasks: (Table 2).

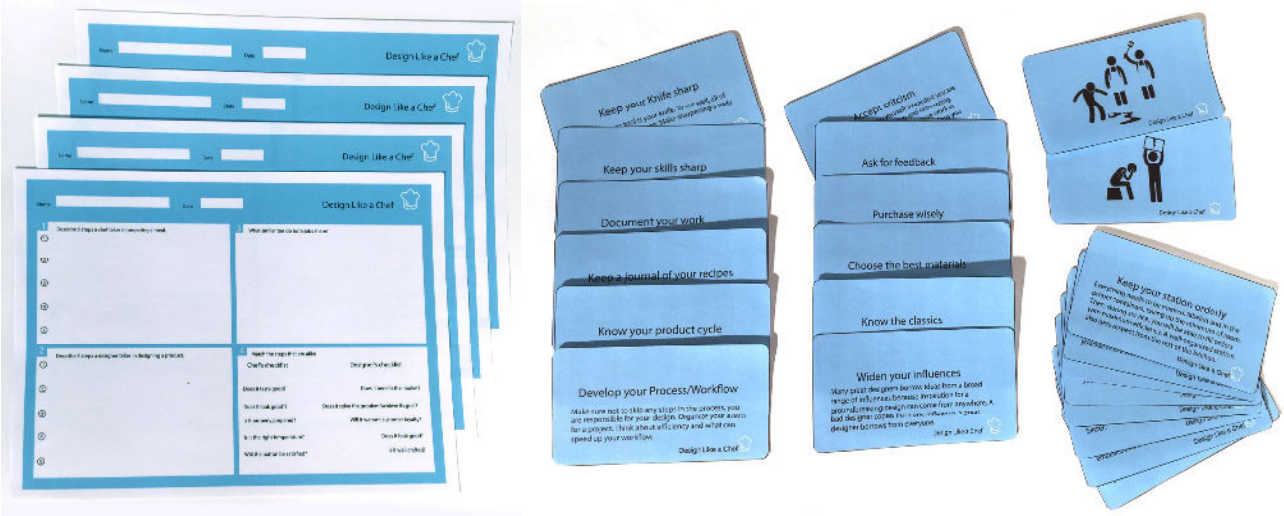
Tasks	***Design Process Correlation***
Identify your patrons and their wants	*User personas and motivations*
Define 3 dishes that would satisfy most of your patrons	*Brainstorm/ideation*
Make a shopping list of ingredients	*Materials list*
Choose the kitchen tools you'll need	*Production list*
Decide how you'll serve your dishes	*Concept development*
Draw, how your 3 dishes will look when they leave the kitchen	*Form development*

Table 2. Cooking Challenge activity task list

After completing the tasks, the team presents, or serves, to the other teams who take the roles of various archetypal customers defined by the facilitator. The activity concludes when the customer teams write hypothetical online reviews *(user feedback)* and the facilitator points out the correlations to Industrial Design practices.

The Matching Card Game consists of twenty cards. On ten of the cards are the ten commandments of a chef and on the other ten are the corresponding steps for a designer, on the back of each card are icons to help give a clue to their matching pair. Each of the cards gives advice that is essential to the two professions and helps to reinforce the similarity between a chef and a designers thought processes.

A series of worksheets was also created to facilitate the coursework for the workshops. They include varying exercises to help draw out students existing knowledge of a Chef's process and better identify a Designer's process. Simple yet enlightening games and checklists allow students to draw direct parallels between existing processes in each field and also review each of the targeted learning points.



CONCLUSION

Designers must have a practical, imaginative and analytical set of skills that allow them to tackle barriers, see the bigger picture and be able to come up with a creative solution. Opening doors to creativity and teaching problem solving skills will help young students navigate any career or life path. Although applicable and adaptable to students of all ages, the workshop and the very crux of this paper's objectives and insights are calibrated best for the K-12 educational segment. This paper proposes a concept that is still in development, the hope and intention we have in clarifying industrial design's practices is to closely connect young students to the environment they live in and to empower them to understand how they can make meaningful change and contributions to it. The future of design, increasingly faced with greater challenges and complex problems, is becoming a more interactive, interdisciplinary, and synergetic activity. As the young students move through this fun energetic workshop, they will be learning to think like a designer, solve problems like a designer, and present their solutions with clear intention. By understanding the processes that govern our creative industry and shedding light on design's critical role in shaping the world we live in, a student can begin to comprehend the almost invisible strings that guide designer's movements and motivations when bringing an idea into reality.

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