



An Industrial Design Education Model for Mexico's Creative Economy CENTRO's New Industrial Design Program is Founded on the Value of Design Intelligence

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This paper explores the attributes of the new program in Industrial Design career at the Mexican school CENTRO, which is a multidisciplinary approach, focusing on the user and the innovation of products, among other features.

Keywords: Industrial Design; human-centered design; Creative Economy

Design Education In Mexico's Creative Economy. Accurately quantifying the impact of the creative industries in the economy of a specific country is challenging. In the case of Mexico, it is undeniable that the creative industries in general, and design, in particular, are becoming increasingly important for the economy and the social development of the country in the present century. A recent report commissioned by the Organization of American States (OAS), the Inter-American Development Bank (IDB) and the British Council (BC) and prepared by Oxford Economics, estimates that the contribution of the creative industries in Mexico is between 2% and 7% of its GDP, versus 10% in the two largest economies of the continent: Brazil and the United States (British Council, 2014). According to Goldman Sachs, Mexico will be the fifth largest economy in the world by 2050 (the catalyst, 2010).

Mexico is slowly positioning itself as an innovation engine in the region. In the last decades, the importance of creative industries has had an effect in design education: the majority of Mexico's more than 20 Schools and Universities offering Industrial Design programs—some of them with a number of satellite centers around the country—have been launched in the last two decades in response to the increasing demand of professionals in the fields of creative economy. More importantly, Mexico has embraced innovation as the face of its recent economic transformations. Entrepreneurship and business innovation have found common ground with the design disciplines, and the merging has been one of convenience but, also, one that has generated real opportunities. In this context, the understanding of the role of design education in the transformations that the country will undergo in the next decades should not be downplayed.

A New Industrial Design Program For CENTRO

CENTRO de Diseño, Cine y TV began its operations in Mexico City in 2004 with four undergraduate programs (Licenciaturas) in Visual Communication, Film and TV, Interior Architecture and Product Design. Between 2006 and 2012, it added three more programs in Fashion and Textiles (2006), Marketing/Advertising (2010) and Digital Media (2012); and its first graduate program

in Design Studies (2011). Currently, the School is considering a number of new undergraduate and graduate additions to its current academic offer as well as rethinking some of its current programs to better respond to Mexico's demands.

CENTRO's current Industrial Design program has been active, with slight modifications, since the opening of the School in 2004. It is structured around a broad range of Skills, Abilities and Aptitudes—the official terminology used by the local accreditation board, SEP—toward educating industrial designers capable of adequately responding to new opportunities and evolving market demands.

According to a recent in-house survey involving industrial design alumni, the three main industries that employ CENTRO graduates are furniture and home accessories, POP display and packaging. The survey also reveals that almost 50% of graduates are entrepreneurs or independent professionals versus 32% of graduates employed by the private sector (CENTRO, 2014).

CENTRO's original Industrial Design program has a broad reach in terms of its pedagogy and the range of professional opportunities available to its alumni. The Schools educates resilient designers capable of adapting well to both subtle and drastic economic

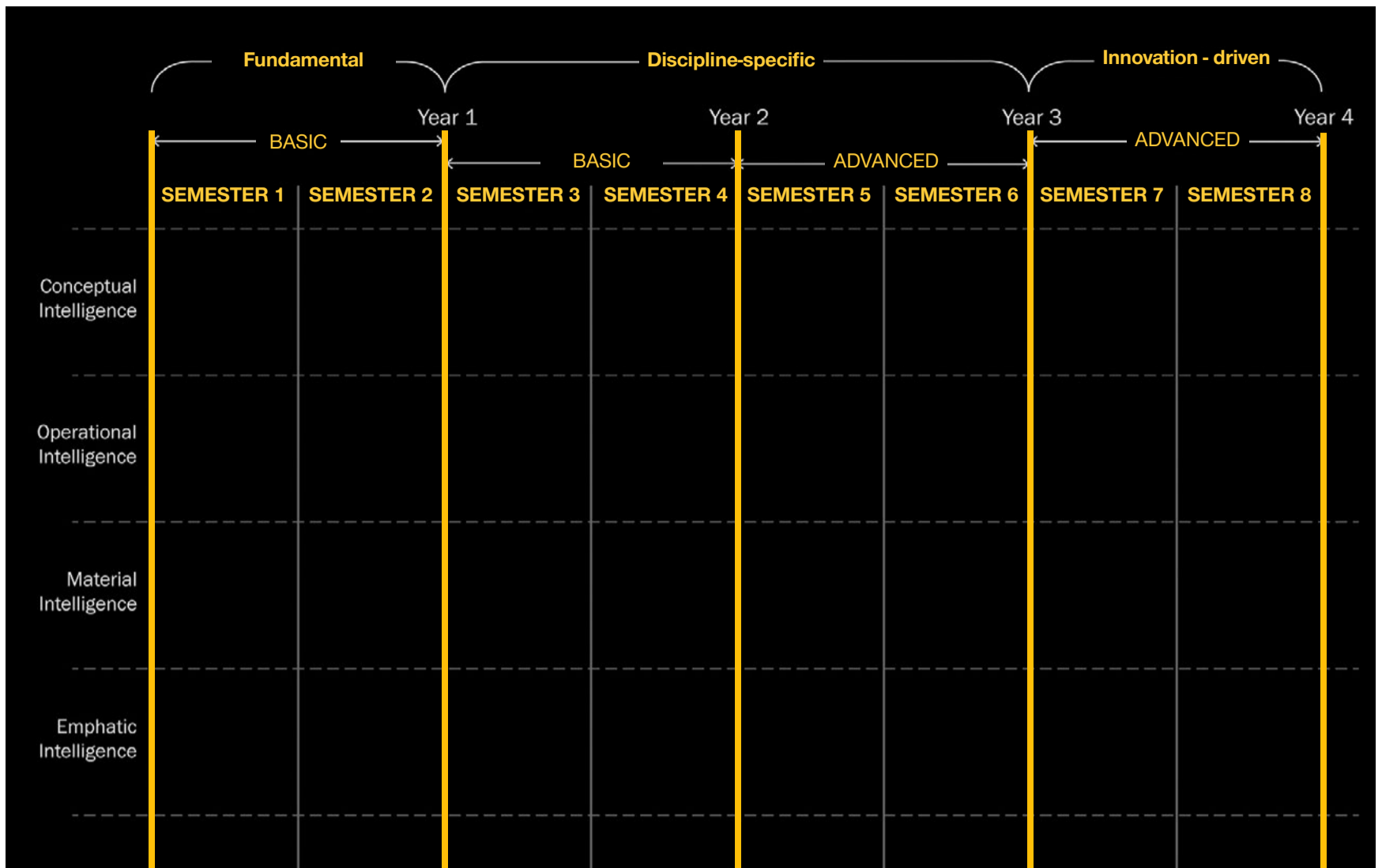


Figure 1. Materials experimentation workshop at CENTRO open to students from all undergraduate programs.

changes and cultural trends. With a truly international spirit that has established an impressive number of productive bridges with individuals and institutions all over the world, CENTRO's current drive to update its Industrial Design program responds to the School's commitment to design innovation and collaborative work.

The Process That Generated The New Program

The context of CENTRO, a dynamic organization still relatively small and nimble, with a flexible administrative structure and an inclusive pedagogical was ideal for this project. The School keeps bureaucratic hurdles to a minimum and actively fosters a culture of self-driven growth and responsibility among faculty and administrators. The main priority in the process of redesigning its Industrial Design program was to keep all those positive qualities intact:

1) There was a small core team assembled for the project, comprised of an external advisor (myself); the director of the School; the Academic Sub-director; the Head of the current Industrial Design program; and an adjunct faculty member in the program. In addition, the core team had the

support of CENTRO's Research Office, as well as permanent access to the larger community of faculty, students and administrators.

2) The consensus was that rather than creating something from scratch, it would be more efficient, economic and institutionally sound to develop the new program from the analysis of the shortcomings of the existing one. This was also important for two reasons: first, because the existing program embodied the values of CENTRO that the new program should preserve and enhance, such as its entrepreneurial orientation, the broad-based knowledge and action-based education, and the preeminence of process over result. In addition, starting from what already exists would allow us to build on the successful areas of the previous program and identify more easily the areas that required to be readjusted, removed or consolidated into larger content units. This provided a critical platform that could measure the success of the project from the beginning.

3) Throughout the project, there were frequent conversations with international experts outside of the School, who

provided an account of their different experiences and thoughts on the future of design education. These voices had a broad range and came from fields as diverse as product design, strategic design, ethnography, design research, user-centered design, technology, etc. The feedback we received that way was instrumental in the development of the new program.

4) We felt that we needed to find a strong story and a clear differentiator behind the new program, something that would set it apart from other programs, addressed its evolution in the future, and integrated parts of the existing program with the newly proposed content areas.

5) We realized early on that what works in other Schools –both Mexican and international- might not necessarily work in the context of CENTRO. Even if during the initial research phase we looked carefully into other Industrial Design programs, our main drive was that the context of 21st century Mexico has its own demands that should be considered very carefully.

6) The new program had the ambition to establish even stronger links with the rest of the programs at the School and reinforce the original spirit of collaboration and exchange among disciplines: it was always understood by the development team as a part of a larger design platform in order for its strengths to have positive consequences beyond the program itself.

Principles of The New Program

CENTRO's new program in Industrial Design evolves from four main principles:

1) It proposes a comprehensive education that includes a broad spectrum of disciplines organized in curricular sequences (courses that build on previous courses). These sequences present knowledge streams in specific areas that span the duration of the program.

2) It is user-centered in response to the current social, technological and economic status quo, one driven by change as the common currency effecting individual and social behavior.

3) It is product innovation-centered, as it expands the role of the industrial designer and strengthens its connections with the worlds of business and entrepreneurship, engineering, industrial production and social innovation.

4) It incorporates a fundamental making component that merges materials, fabrication and material-related computation in a broad platform that recuperates the value of

materials and making as one of the unique domains of the industrial designer, something that, unfortunately, has faded from many Industrial Design programs around the world.

Elements Of The New Program

One of the essential elements of the new program is the evolution of Foundation Studies into what we call the Vertical Foundation program.

After 10 years of implementing a successful Foundation Studies program in the first and second semesters of all its undergraduate programs, the development of a new Industrial Design program was an excellent opportunity to revise CENTRO's position on the role of Foundation Studies in the education of the future industrial designer. Beyond that, we were interested in offering students from all undergraduate programs the possibility of converging in certain courses that would broaden their education and strengthen CENTRO's community.

Following these principles, a new concept of Vertical Foundation was proposed as a group of courses that would extend throughout the duration of the program rather than concentrating in its first and second semesters only. The initial idea was that foundation courses would have a more intense presence in the early semesters and would slowly taper down as discipline-specific courses become increasingly important (Fig. 2).

The benefits of this approach were multiple. A foundation structure having a presence in every semester of the program could customize courses to the maturity of the students, pushing the more advanced courses –in business, social sciences, etc.- to a later time that would make them more productive for students. This was a consequence of the fact that the new foundation structure was proposed as reaching beyond visual and conceptual skill-building (drawing, 3-D explorations, etc.) into other basic fields basic of relevant content in the education of today's industrial designers, such as business, humanities and social sciences, computing, ethics, etc. Last, but not least, the new foundation structure was more flexible when it comes to updating or changing courses, or finding synergies between foundation and non-foundation content, as the needs of the curriculum and the program evolve in future years.

Following an inclusive process of debate and input, it was agreed that the Vertical Foundation would include courses belonging to the following categories:

- a)** Basic design skills
- b)** Humanities, social sciences and general culture
- c)** Business and entrepreneurship
- d)** Design Thinking and design process
- e)** Computation, programming and technology

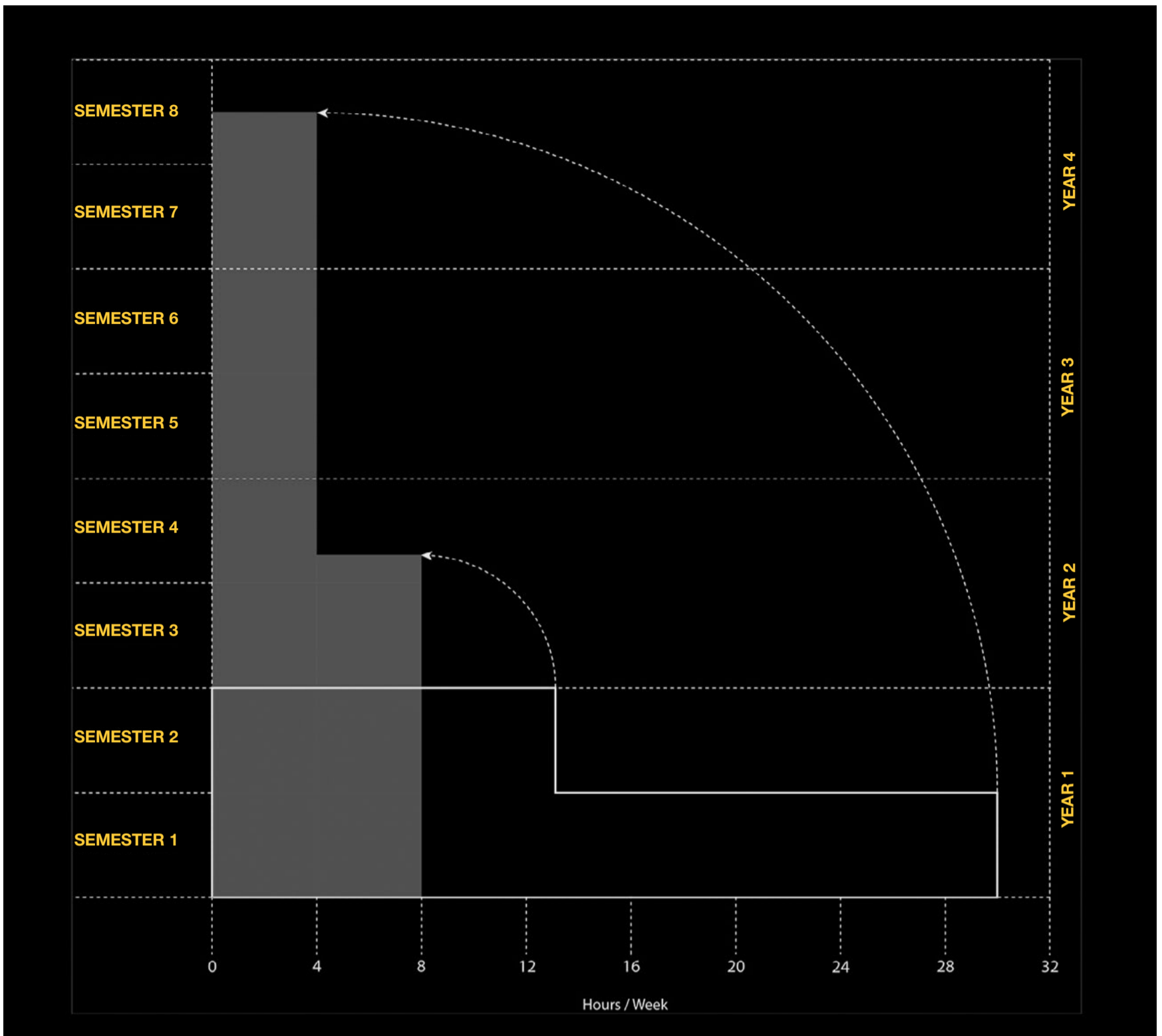


Figure 2. Vertical foundation studies as part of the curriculum through the program

Structure Of The New Program

The concept behind the new program understands the activity of design as a mindset rather than a collection of skills and abilities. Four “intelligences” were proposed as structural vessels that would organize and connect all the courses of the program, providing educational rigor and consistency as well as the curricular bridges that would facilitate new ways of thinking and acting.

According to Howard Gardner, an intelligence is:

- 1) An ability to create something with value in a culture,
- 2) A set of skills to help a person problem-solve, and
- 3) The aptitude in gathering new knowledge.

This definition fits well with the structure of Skills, Abilities and Aptitudes that establish the accreditation criteria for higher education programs in Mexico. In addition, the new program would be based on four intelligences that would provide the framework to sustain the content and curricular objectives, the relationships among its courses and components, and the larger curricular sequences of courses that will facilitate deep knowledge and know-how development.

The four intelligences structuring the new program provide the framework to establish the breadth and depth of the new ways in which courses and learning experiences will connect .



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1) The Conceptual Intelligence (CI) is the ability to translate a problem into a design. It allows the designer to respond to concrete or abstract problems by means of schematic design and emerging ideas. It identifies with the initial stage of design in which both questions and answers are defined.

CI is embodied by keywords such as ideate, explore, question, program, draw, conceive, etc.

2) The Operational Intelligence (OI) is the ability to translate a design into a product. It is a toolset that allows designers to evolve ideas using the means and modalities of the discipline of Industrial Design, the know-how that expands to multiple, adjacent, fields, and manifests itself in the ability to prototype, fabricate, use technology, understand user-centered approaches, etc. OI is embodied by keywords such as research, simulation, resolution, management, entrepreneurship, criticism, etc.

3) The Material Intelligence (MI) is the ability to understand materiality in the context of the design process. Materiality is a basic quality in Industrial Design and manifests itself in both the conceptual and the operational phases. In this particular program, MI is defined by two interlocking areas of content: materials and technology. Both of them converge in the modern means of digital fabrication, robotics, etc. MI is embodied by keywords such as assemble, fabricate, optimize, prototype, produce, model, etc.

4) The Empathic Intelligence (EI) is the ability to incorporate to the design process and practice values, ethical considerations and social responsibility. It provides the humanistic and ethical foundation from which the other three intelligences emanate, so that the process of design is always subjected to high standards.

EI is embodied by keywords such as understanding, respect, solidarity, collaboration, sustainability, etc.



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Conclusion

There is an abundance of voices concerned with the future of design education, and how should design schools evolve to remain relevant and graduate apt professionals capable of responding to the challenges of our time.

To summarize the fundamental elements of CENTRO's new Industrial Design program:

1) A comprehensive, deep-reaching, multi-disciplinary vertical foundation with roots in the humanities, business, methodologies, skills and technology.

2) An integral education that places design in a network of disciplines and factors and must establish links with them in order to address the complexity of the world today.

3) The importance of cultivating both non-digital (thinking and making) and digital (managing and output) skills, and find bridges between them throughout the design process.

4) The importance of developing a deep awareness on creative processes and methodologies.

5) Materials and materiality as means of knowledge, exploration, expression and problem-solving.

6) A collaborative approach that understands learning as an ongoing activity with multiple prongs and changing relationships with real-life sources.

An increasing degree of specialization in some design programs, particularly in the United States, provides heightened skills in particular disciplines, and more marketability for the ID graduates. But too much specialization may also lead to professional lives with shorter expiration dates, given the speed of change that we see today in the demand for professional qualifications. Even if Mexico is a very different context, in the United States increasing tuition costs have had an effect in design programs in two main ways: first, schools are creating increasingly specialized design programs, in order to capture market segments and prepare professionals for newer professions; second, some schools are slowly shrinking credits and teaching hours, as a way to respond to the cost of education.

The great opportunity that Mexico presents is the fact that it is a country in the process of redefining its modern approach to design and design education. The program explained in this paper responds, specifically, to the reality of the design profession in Mexico, but may also have important lessons for the US and other areas, in terms of what are the relevant tenets of an Industrial Design program today.

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