Signature Pedagogies: Exploring How Industrial Designers Acquire Their Professional Culture and Identity

Fabio Andrés Téllez Bohorquez
Universidad Jorge Tadeo Lozano
Bogota, Colombia
fabioa.tellezb@utadeo.edu.co

Abstract

This paper explores the conditions in which Industrial Design (ID) students acquire the identity and culture associated with their profession. For this purpose, the author uses—as a framework—the concept of *signature pedagogies* in order to identify those conditions and explore how these mold the identity of future industrial designers.

Shulman (2005) defines *signature pedagogies* as the particular forms of teaching and learning that preserve and transmit the culture of a profession. These pedagogies are used to instruct future practitioners in how to think, perform, and act with integrity according to the canons of their profession, and are defined by three structures: *surface structure*—the observable actions of teaching, *deep structure*—assumptions about how to best transfer knowledge and skills, and *implicit structure*—beliefs, attitudes, values, and dispositions held by faculty.

In this paper, these structures are used to describe and analyze ID education, aiming to explain identity development in their future practitioners.

The paper concludes that the interplay between these structures are partially responsible for molding the identity of the future industrial designers, but raises questions about how rigid or fluid this identity is to tackle the challenges of an uncertain and ever-changing world.

Author Keywords

Industrial design; design education; signature pedagogies; professional identity.

Introduction

How do industrial designers acquire the culture and identity of their profession?

This paper explores this question and proposes a partial answer using—as a framework— the concept of signature pedagogies. These pedagogies are "characteristic forms of teaching and learning" (Shulman, 2005, p. 52) that reflect and transmit the culture of a profession, preserve its practices, traditions, base knowledge, and values, and are used to educate future practitioners of a profession.

Based on Shulman's definition, this paper understands *signature pedagogies* as the set of practices that generate the conditions in which students—in this case Industrial Design (ID) students—develop their identity as professionals. As a consequence, exploring and understanding these pedagogies—and the conditions they create—provide a hint to understand how ID students acquire the culture of their profession and become industrial designers.

These pedagogies have three dimensions: a *surface structure, a deep structure*, and an *implicit structure* (Shulman, 2005). In the following pages, these dimensions are defined and described for the case of ID, aiming to explain how these participate in molding the identity of future practitioners.

Surface Structure

This refers to the set of concrete attributes that characterize a *signature pedagogy,* including the physical conditions of the learning environment, the teaching and learning actions that occur there, and the interactions between the different parties (Brandt et al., 2011; Shulman, 2005).

Physical Space and Instructional Resources

Signature pedagogies are supported by the physical space where instruction takes place. In ID education, most of the instruction typically happens in the design studio, which is characterized for enabling multiple types of interactions between faculty, students, models, sketches, and virtual designs (Brandt et al., 2011; Shulman, 2005).

Additionally, a series of instructional resources are

used to educate future industrial designers, such as *representations*—models, sketches, and prototypes—that make ideas concrete and expose the students' thinking process, *sketchpads* that visually document the students' design process, and the *design brief* that defines the problem to be addressed in the project and its criteria of success (Davies & Elmer, 2001; Sims & Shreeve, 2012).

Teaching and Learning

ID education is characterized by being project-based and problem-oriented, and by using strategies like experimentation, prototyping, and iteration. This reflects a basic principle of ID education: students learn by doing (Brandt et al., 2011; Sims & Shreeve, 2012).

ID learning process occurs within a community of practice (Lave and Wenger, 1991) formed by students, faculty Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. members, and practitioners. Additionally, this process typically involves dealing with real-world problems that entail a real setting and a community of stakeholders, which exposes students to the realities of the practice.

Additionally, the education of future industrial designers requires permanent *dialogue* that makes explicit their thinking process, that promotes reciprocal feedback, and that enables formative assessment. Also, ID education makes an intense use of diverse research methods that allow students to explore in depth the problem they address, connects them with the real world, and prepares them in developing disciplinary ways of thinking (Brandt et al., 2011; Sims & Shreeve, 2012).

The Critique

Another characteristic element of ID's *signature pedagogy* is *the critique*: the moment when the students present their work to faculty, classmates and external jurors. This is typically conducted both throughout the design process and at the end of the project, usually accompanied by more informal desk critiques in between (Brandt et al, 2011).

The purpose of the critique is to evaluate the students' projects, to provide feedback on their progresses (or finished work), to stimulate their reflection and their critical abilities, to offer them an opportunity to acquire practice in articulating their thoughts, and to implicitly teach them the value system of the profession (Brandt et al, 2011, Sims & Shreeve, 2012).

Deep Structure

This refers to the "assumptions about how best to impart a certain body of knowledge and know-how" (Shulman, 2005, p. 55), comprising those assertions underlying ID education, the subject matter addressed in ID instruction, and the connections between the practice and the signature pedagogy.

Underlying Assertions

One of the most pervasive ideas underlying ID education is that the *studio pedagogy* has the potential to prepare the students for professional life. This is manifested in the central role that this pedagogy plays in most ID programs around the world—where the studio is virtually omnipresent—and in the resemblance between this pedagogy and the professional ID studio.

Also, in ID education it is assumed that faculty is in charge of creating an appropriate learning environment and in guiding the students' process. They do not provide the responses to the students, but rather they help them in developing their own original solutions.

Subject Matter

The kind of knowledge that ID education promotes tends to be more procedural—knowing how—than declarative— knowing what (Sims & Shreeve, 2012), which comprises "complex skills, processes, understanding about cultural practices, and current esthetic notions" (p. 59).

Some of these skills are: dealing with competing priorities, coping with uncertainty, and managing ill-structured problems.

Understanding ill-defined problems require from the students to consider the perspective of diverse stakeholders, and the social context that surrounds the project. As a consequence, ID students are also expected to acquire an understanding of the people and the context, and the tools required to build it.

Connections with the Profession

The design studio prepares students for professional life by mirroring the professional design studio. The

educational design studio works as a bridge between the academic and the professional realms (Sims & Shreeve, 2012) and becomes a "sheltered practice community" (Brandt and et al., 2011, p. 346), where students experience is similar to that of the professional studio, under the circumstances and particularities of an academic environment.

Additionally, ID education establishes connections with the profession by challenging students with design briefs that resemble those that they would receive from a real client, by implementing design methods used in the industry, and by providing students with opportunities to interact with practitioners, studios, and companies (Brandt et al., 2011).

Implicit Structure

This refers to the "set of beliefs about professional attitudes, values, and dispositions" (Shulman, 2005, p. 55), comprising the values and principles of a profession, as well as the hidden curriculum underlying the profession's education.

Values and Principles

One of the most important values for ID students to develop is their *sensitivity* for the users' reality, which is exercised and developed when they explore and interpret the project's context and community of stakeholders.

This sensitivity needs to be accompanied by *good judgment* to balance competing priorities from different stakeholders, being able to meet the client's expectations (in this case, the instructor's criteria) and to satisfy the users' concerns.

Additionally, ID's signature pedagogy fosters values like *autonomy*—when faculty provide guidance instead of a definitive response to the students, *self-criticism*—when students are encouraged to critically evaluate their work, and *professionalism*—when evaluation criteria progressively requires students to behave more like practitioners and not just like apprentices.

Hidden Curriculum

This refers to the unstated values, attitudes, and norms that are conveyed through tacit messages that students receive in their learning environment apart from the official curriculum (Cornbleth, 2003).

A manifestation of the hidden curriculum is what students and practitioners consider "good design." According to Carvalho and colleagues (2009), "designers describe what makes a good design via 'codes of legitimation'" (p. 484). This means that the concept of "good design" that students learn comes from the dominant view in the field that is transmitted tacitly through ID education.

Conclusions

ID students are exposed to a wide range of learning experiences throughout their education. These experiences and conditions mold how they develop their identity as professional industrial designers.

Concrete conditions of ID education—like the studio pedagogy, the learning-by-doing approach, and the critique based evaluation—create a set of shared experiences among ID students that make them feel identified with their peers and make them develop a sense of belonging for their community of practice.

Assumptions underlying ID education—like the potential of the educational studio to mirror the conditions of the practice, the importance to work on projects that tackle realworld problems that affect real people and contexts, and the role of faculty as guides and facilitators—scaffold the future industrial designers' transition from students to practitioners and plant the seeds of their professional identity.

Beliefs and values associated with the practice of ID—like the notion of what "good design" is—are gradually confronted or incorporated by future industrial designers throughout their education and their interaction with peers, faculty, and practitioners.

However, these conditions associated with the ID *signature pedagogies* tend to be blindly replicated by the same educational system due to its efficiency to transmit the culture, traditions, and practices of the profession. This represents the greatest vulnerability of these pedagogies: they become a source of rigidity for the profession, preserving outdated practices, mindsets, and professional identities.

As a consequence, as ID educators, our role is to critically evaluate our teaching practices and adapt them to our current context, for the good of the profession and their future practitioners.

References

1. Carol B. Brandt, Katherine Cennamo, Sarah Douglas, Mitzi Vernon, Margarita McGrath, and Yolanda Reimer. 2011. A theoretical framework for the studio as a learning environment. *International Journal*

of Technology and Design Education 23, 2: 329–348. https://doi.org/10.1007/s10798-011-9181-5

2. Lucila Carvalho, Andy Dong, and Karl Maton. 2009. Legitimating design: a sociology of knowledge account of the field. *Design Studies* 30, 5: 483–502. https://doi.org/10.1016/j.destud.2008.11.005

3. Catherine Cornbleth. 2003. Hidden Curriculum. In *Encyclopedia of Educaiton* (2nd ed.), James W. Guthrie (ed.). Macmillan Reference USA, New York, NY, 537–539.

4. Trevor Davies and Roger Elmer. 2001. Learning in Design and Technology: The Impact of Social and Cultural Influences on Modelling. *International Journal of Technology and Design Education* 11, 2: 163–180. https://doi.org/10.1023/A:1011296803717

5. Jean Lave and Etienne Wenger. 1991. *Situated Learning: Legitimate Peripheral Participation.* Cambridge University Press, New York.

6. Lee S. Shulman. 2005. Signature Pedagogies in the Professions. *Daedalus* 134, 3: 52–59.

7. Ellen Sims and Alison Shreeve. 2012. Signature Pedagogies in Art and Design. In *Exploring More* Signature Pedagogies, Nancy L. Chick, Aeron Haynie and Regan A. R. Gurung (eds.). Stylus Publishing, Sterling, VA, 55–67.