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Design as a second language. Design as a multicultural-multidisciplinary space of integration: Challenges and advantages of introducing design to non-design students, in a second language, in a new cultural context

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Abstract: *Teaching design to design-illiterate students is usually a common case for every first year class instructor at any design program. In addition to this, a particular combination of extra challenges makes Design Fundamentals at -the University of Alberta- a very special spot to learn and teach design. Most sections of this class are open to students from many other fields and levels, from psychology to engineering, and from first year students to senior students. Masters students, who usually come from various countries, are often appointed as teaching assistants as part of the graduate program experience. Some of them choose to stay and teach upon graduation. Diversity is even more distinct amongst undergraduate student. In 2010-2011 this university received about 5800 international students from more than 140 countries, three times larger than the figures of 2001, and increasing every year. The combination of multidisciplinary and cultural diversity from both sides, teachers and students, is a symbiotic and synergetic phenomenon that offers additional challenges and opportunities. This paper intends to describe the experience of teaching-learning design under this environment and ultimately depict the Design Fundamentals classes as a space of integration.*

Keywords: *Design education, Design Fundamentals, second language, multidisciplinary teaching, teaching non-designers.*

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Introduction

The authors of this paper are graduates of the Masters program in Visual Communication Design (VCD) at the University of Alberta, Canada. As novice graduate students, our experience with Design Fundamentals primarily came from assisting professors, but as we became more familiar with the course, we were invited to teach as Principal Instructors.

Design Studies is a division of the Department of Art & Design at the University of Alberta. It was recognized as a key field of research innovation when the Province of Alberta decided to consolidate, develop, and expand this division in 2002 (Faculty of Arts, University of Alberta 2007).

Design Fundamentals is an introductory course to two- and three-dimensional design-related studies. For students applying to the design program, taking this course along with Art Fundamentals, the course that focuses on art basics, is a pre-requisite. Likewise, students already accepted in the program have to take Design Fundamentals in their first year of design education.

There are two types of Design Fundamentals courses at the University of Alberta: one open to any student enrolled in any program at the University, and the other one for students already accepted in the Design Studies Program. The first course is intended as a preparation course for students to proceed into the Design Studies, while the other one is a required course for students who have already been accepted to the program.

Design Fundamentals at the University of Alberta is a particular educational experience that prepares students to a deeper outlook of the design practice.

Professor Emeritus Jorge Frascara defined the nature of this course, when he taught it in the early years of the program,

“This course marks a shift from the traditional foundations courses in art and design departments, in that it recognizes that in addition to visual issues, there are many other conceptual dimensions that concern design and the designer. The intention is to provide incoming students with a comprehensive panorama of what design entails. People have always been interested in the assessment of the territory they step in. Our intention is to facilitate the students’ understanding of the territory they are entering. This course is intended to outline the context and the purpose of design, as well as its conceptual tools and the manual and visual skills required.” (Frascara 2007, 1).

In addition to the approach described by Jorge Frascara, other two distinct and unique characteristics that define the Design Fundamentals course at the University of Alberta are multiculturalism and multidisciplinary.

Teaching design to non-design students. Advantages of applying Multidisciplinary, Interdisciplinarity, and Cross-disciplinarity in Design Fundamentals.

One remarkable aspect of teaching Design Fundamentals at this Design Studies program is the variety of backgrounds observed in new students taking the class. The design program uses a unique route system that allows second year students to follow orientations in engineering, business and marketing, computer science, printmaking and social sciences (Faculty of Arts, University of Alberta 2007), along a general route for either more traditional areas of design or more disciplinary combinations.

In the upper level-courses, it is also common to host graduate students from other disciplines like Humanities Computing (figure 1), English and Film Studies or other Social Sciences in the undergraduate design classes.

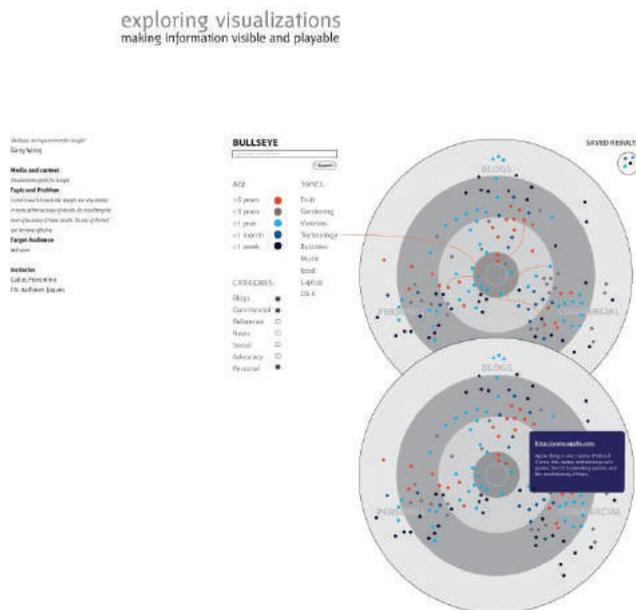


Figure 1. Information design project combining two fields: Visual Communication Design and Humanities Computing. (Image courtesy of Garry Wong, graduate student from Humanities Computing taking DES 493 Concepts and Systems in Visual Communication Design, 2008).

In Design Fundamentals, it is very usual to have students from other disciplines, or holding minors and majors, or already graduated from other areas. Only considering the courses the authors of this paper have taught in the past, the list includes students in the fields of Psychology, Education, Drama, Chemistry, Engineering, Biology, Human Ecology, Physics, Physical Education, Health Sciences, Music, Anthropology, and Computing Sciences.

This remarkable mix of disciplines and knowledge is also a source of inspiration and in-class collaboration, as opposed to the tendency of traditional design schools where programs work in silos.

Some may argue that the lack of a unified disciplinary language, the highly varied approaches and backgrounds under the same classroom, would add not much more than cons to the desired teaching excellence. However advantages surpass the disadvantages, especially for students from other fields taking this class.

Students are introduced to design methods and processes, allowing them to explore different ways of thinking, visualization and problem-solving techniques. These techniques can eventually be translated into their fields, increasing the opportunities of solving any difficulties they might encounter. Furthermore, due to the studio-based nature of this class, students get familiarized with various design approaches, methods and techniques, including: visualization of ideas, the brain-hand connection, exploration of ideas through research, two-dimensional sketching, drafting and rendering, and three-dimensional models and prototypes. Many students are first introduced to these skills in class. Jorge Frascara explains,

“There is a primary learning, that is connected to the acquisition of information, and is conscious; and there is secondary learning, that relates to the development of the skills, and is an automatic and unconscious effect of primary learning.” (Frascara 2008, 42).

This phenomenon is reflected in the classroom, for example: one of the first projects in the course introduces the Gestalt principles applied to design, students learn about composition and figure-ground relationship, among other skills that can be easily recognized in their future projects.

Another advantage is the exposure to concepts such as critical thinking. Design Fundamentals students are expected to participate in in-class project critiques by visually and verbally communicating their design ideas. Project critiques are essential to the class; every student has the opportunity to present their ideas and comment on others' work, establishing critical and constructive dialogues between students and instructor.

Michael Scriven and Alec Fisher define critical thinking as a “skilled and active interpretation and evaluation of observations and communications, information and argumentation” (Fisher and Scriven 1997, 21).

Critical thinking, sometimes referred to as critical-creative thinking, takes in consideration the ability of being imaginative and creative when criticizing. It is not enough to see faults in others work, but to be good at evaluating arguments and ideas you must be creative about other possibilities, alternative considerations, different opinions and so on (Fisher, 2011, 14). This concept applies to the dynamic of project critiques due to the fundamental principles of this theory. In class critiques are meant to evaluate positives and negatives attributes of the students' work by verbally communicating them. To do so students need to be creative and mentally agile to point out what works and what does not when discussing each design assignment. This is achieved by giving explanations and solutions based on previous knowledge and theory learned in class.

Multidisciplinarity, Interdisciplinarity, and Cross-disciplinarity in Design

Fundamentals.

Design is very opportunistic in that it can integrate knowledge from many disciplines and make that knowledge effective, but only if properly understood and studied (Buchanan 1998, 66). Seeing the world through more than one lens is the main appeal of multidisciplinary, interdisciplinarity, and cross-disciplinarity. Integrating and combining multiple approaches into the Fundamentals curriculum gives students a wider perspective of the design field and establishes a strong foundation for further design studies.

In context of this paper, interdisciplinarity, multidisciplinary, and cross-disciplinary are defined as separate methodologies used in Design Fundamentals courses. While the terms interdisciplinarity and multidisciplinary are often seen as synonyms, multidisciplinary involves “placing side by side of insights from two or more disciplines” (Repko 2008, 13), whereas interdisciplinarity is characterized as “centralizing and combining knowledge on a particular subject from various disciplines, knowledge which is taught during class and is unified under a common subject.” (Kampouroupoulou 2011, 60). For example, one of the projects in Design Fundamentals class focuses on Colour Theory and introduces students to colour foundations and basic painting techniques. To deliver the project objectives and make the learning experience more fulfilling, educators usually invite artists or painters to talk about their expertise which exposes students to multidisciplinary methods. In general all students introduce an interdisciplinary perspective into the classroom because they draw on their existing knowledge from their “home” disciplines to solve design problems. Lastly, a cross-disciplinary method, which is commonly defined as explaining aspects of one discipline in terms of another, is used in the Design Fundamentals course to explain new design concepts. For instance, the project on *Patterns and Modularity* is often delivered from the perspective of Natural Science by introducing students to patterns found in nature (Figure 2).

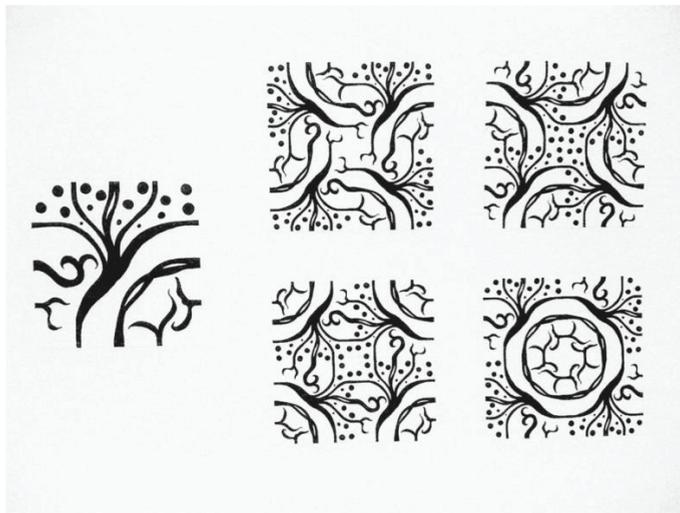


Figure 2. Patterns inspired by nature, as a part of Sequences & Modularity project from DES 135 Design Fundamentals, 2012.

While all three methods are present in the Design Fundamentals course, the most distinct one is interdisciplinarity since all students come from different academic backgrounds. There are many benefits to having students of various disciplines working on design problems. One of the most fundamental traits observed in students who partake in the course is a raised awareness of their own discipline. In successfully designed and planned Fundamentals projects students begin to filter the problems presented in their “home” discipline, i.e. design, through the mindset of an engineer, environmentalist, or social scientist. Students also gain an appreciation of perspectives other than their own, a tolerance of ambiguity, an increased sensitivity to ethical issues, and an ability to synthesize or integrate. Students enlarge their perspectives or horizons, become more creative through original or unconventional thinking, increase their humility and listening skills, and increase their sensitivity to disciplinary, political, and religious bias (Newell 1994, 35). Note that interdisciplinary learning does not claim that all students will become experts in multiple areas; rather, they become more aware of traits outside of their discipline. In other words, “designers do need to know more about science and engineering, but without becoming scientists or engineers.” (Norman 2010). In turn, some engineering students learn about design without eventually becoming designers. For example, in one of the projects asked students to investigate the issue of homelessness in the City of Edmonton and to provide three-dimensional solutions. This brought students of English, Music, Education, and other disciplines together to tackle a human-centered design issue (Figure 3).

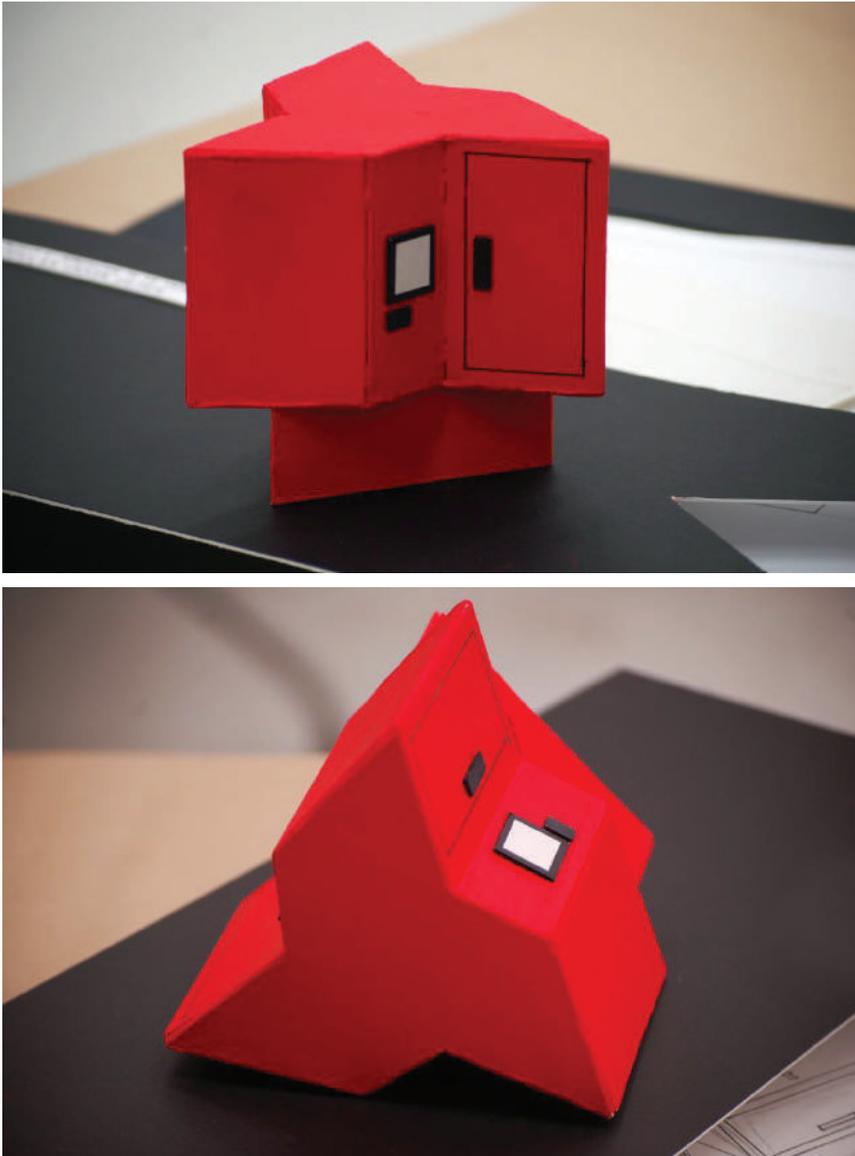


Figure 3. Three-dimensional design solutions provided to the issue of homelessness by DES 135 Design Fundamentals students.

Interdisciplinary learning can be a great addition to a traditional studio-based Fundamentals course. The conscious implementation of an interdisciplinary approach demonstrates a number of benefits such as development of wider perspective of design as an interdisciplinary subject, betterment of skills that are transferable across disciplines, improvement of critical and conceptual thinking, deeper knowledge of the

industry, ability to become well-rounded designers, and demonstration of motivation and creativity in students. Learning to work creatively and in interdisciplinary teams is “a critical part of successful design education” (Norman 2011). However, an interdisciplinary approach does not advocate against studio-based curriculum; instead, it invites educators to explore new ways of teaching design.

Teaching design in a second language, learning design in a second culture.

The Design Fundamentals course presents challenges and advantages for teaching and learning, given by the multicultural diversity of educators and students alike.

Classes are very often taught by international graduate or recently graduated students from the Masters of Design program. Graduate students from many countries come to the design program every year to study, and they are also appointed for teaching assistants as part of their regular duties. Some of them remain teaching for long time after graduation. The University of Alberta currently employs many contract academics and tenure faculty that have immigrated from other countries to Canada.

The multicultural diversity is even more noticeable in the undergraduate studies. In 2010–2011 the university received about 5800 international students from 146 countries (University of Alberta 2011, p.161), three times larger than the figures of 2001, and increasing every year. Canada is currently inviting more international students as the driving force of economic future under Canada’s International Education Strategy. This strategy strives to double the number of full-time international students, from 239,131 in 2011 to more than 450,000 by 2022 (FAITC, 2012). Many of these countries are represented in the Design Fundamentals classroom, creating unique multicultural situations.

A Spanish-speaking instructor teaching a Chinese-speaking student: language barrier or communication design opportunity?

A second language can sound like an additional barrier but also can be an opportunity for developing communication skills. Language educators sustain that learning a second language lays ground for individuals to acquire further languages with much less effort. This is particularly noticeable from early stages in bilingual education. In this sense, Professor of Linguistics Jim Cummins sustain that “bilingualism has positive effects on children’s linguistic and educational development”, adding to this:

“...When children continue to develop their abilities in two or more languages throughout their primary school years, they gain a deeper understanding of language and how to use it effectively. They have more practice in processing language, especially when they develop literacy in both, and they are able to compare and contrast the ways in which their two languages organize reality.” (Cummins, 2012).

Many research studies conducted during the past decades strongly suggest that bilingual students may also develop more flexibility in their thinking as a result of processing information through two different languages. Although this learning process takes a longer period in adults, the training dealing with additional languages seems also beneficial to design students.

Jorge Frascara also refers to “the language” as an important aspect of design learning process:

Design, one could say, is bilingual. There is the language of form, visual and three-dimensional, that one has to master. But there is also the need to verbally articulate the problem, the process to follow, and the solution. Designers normally work for people who are not designers themselves. When a client presents a problem, that problem is outlined in non-design terms. The task of the designer is to re-state the problem in design terms. When one develops a solution, it has to be articulated in ways the client can understand. It is therefore necessary to develop the skills required to verbally articulate one’s ideas clearly, simply and precisely. (Frascara 2007, 3).

In a way, every new student to Design Fundamentals, even those who only speak English, has to learn a second language: the design language. Those who are already dealing with two languages might find a third one easier to achieve under these particular circumstances.

Learning how to teach and teaching how to learn: a collection of experiences from the Design Fundamentals classroom

As graduate students the process of learning how to teach was acquired by experiential learning. The graduate program of design is focused in building student’s capacities in instructional preparation, specifically by assisting design instructors with their courses. Assisting the Design Fundamentals course is highly recommended for any graduate design student who has interest in teaching.

Two of the three authors of this paper are international graduate students originally from South America, who through experiencing the instructors’ approach and teaching techniques, got familiarized with the Canadian cultural and teaching methodology. Placing ourselves in the classroom as teaching assistants, gave us the opportunity of capturing the procedures and methods of teaching from different perspectives, from different cultures, that resulted in a vast collection of acquired knowledge.

Canada is a country with a multicultural policy that embraces the mixture of ethnicities. Having a diverse society results in a combination of unique knowledge and participation in communities, this contrast and harmonious feature is also projected in the Design Fundamentals classroom. Canadian and international students working together, create a unique blend in design production, each one contributing with distinctive aesthetics, ideas, and specially form and visual languages.

The following experiences were —among others- collected with the idea of building possible techniques, methods and strategies, to address teaching design for international students learning in English as a second language (ESL) and interdisciplinary students in Design Fundamentals classes:

Emphasis in the design process and the sense of context.

Giving a large number of examples to students during lectures or working periods sometimes can be counter-productive. By looking at various examples of two- and three-dimensional design work, some students can become biased, limited, or only mimic what they see. This is usually different when approaching ESL students. Without

exceeding a proper number of examples, a collection of selected images can make a big difference for students in understanding the subject, and make it easier for instructors to ensure that students are on track. It is beneficial as well, to gather these students in groups or individually to share examples, discuss details and follow the steps written on the project sheets. In addition, showing a documentation of previous students' work such as photographs of sketching stages, process materials, and notes from the sketchbooks is an advantage. As instructors, documenting students' work process and final project material is an important part of successful teaching. Students are usually asked to submit sketchbooks, rationales, samples and design process along with their final projects, which makes the selection of examples for our documentation versatile and diverse.

Ensuring verbal understanding

Greig Rasmussen, a design instructor with a vast experience teaching Design Fundamentals at the University of Alberta, uses a very simple technique to establish effective communication with students, in particular at the time when assignments, tasks and important projects details have to be well understood. Rasmussen explains: "I deliberately spend more time explaining projects and my criticism to them, and after that I often have the student tell me (in their own words) what they think I am saying; I have found this method works quite well and it serves as a good check to make sure they have understood my remarks."

Customized written translations

It is very common in ESL students to misunderstand even written words —project sheets, handouts, reading materials, etc. We noticed that students coming from countries with written languages other than the western alphabet, have an extra challenge to the spoken language barrier. This is the case of written characters like Chinese, Japanese, Arabic, Cyrillic, etc. Quite by chance we also discovered that many students facing this situation find good and creative ways to cope with the challenge. In many cases students "translate" instructions given into their own language, adding notes right next to the original in English. This simple technique is proven to be very effective for them, and for the teacher. As a result, we encourage students to adopt this habit. We show them examples and give them some extra time to apply their "translations" to the materials given.

Diminishing cultural barriers that prevent engagement

Another important aspect to an effective communication with ESL students is instructor's understanding of cultural differences. One of the curriculum requirements in Design Fundamentals course is students' participation and verbal contribution during in-class critiques and presentations. However, most Asian students would not participate, unless individually invited. According to one of the students who comes from the Northern China, the way teacher-student relationship work is that students are prohibited from speaking up, unless their teacher calls their name and talks to them directly. The same teacher-student relationship was observed in students from Mexico and Korea. As a result, it becomes the teacher's responsibility to engage students and create all-inclusive environment.

Conclusion

Diversity of cultural backgrounds, multiplicity of spoken languages and mixture of disciplinary fields, provide Design Fundamentals at the University of Alberta with a unique set of qualities that enriches the learning experience. All these variables add a layer of complexity to the class, and could be seen as a disadvantage. However, we have recognized this complexity as a resemblance of factors that affect numerous current design work or design projects in the world, making this class learning experience a true reflection of the present design practice.

This combination also makes teaching an extraordinary opportunity to explore additional qualities: design as a second language and design as a tool for further learning.

Design Fundamentals also demonstrate a unique combination of multidisciplinary, interdisciplinary and cross-disciplinary approaches to learning. Instructors use multidisciplinary and cross-disciplinary knowledge to explain design concepts while students contribute their interdisciplinary expertise to Fundamentals studio classes. Most students come from non-design disciplines and bring their knowledge of these "home" disciplines to the table thereby creating unexpected design solutions.

In addition to this context, young educators and graduate students currently working for the Design Fundamentals program will incorporate more approaches to the basic design training by introducing new interdisciplinary subjects in the next years, such as *Design Fundamentals for Sustainability*, *Participatory Design*, *Design Activism* and *Design for Social Change*. This promising prospect could bring new projects and assignments, pilot courses for further development, and in the long run would open the opportunity to the inclusion of new routes of expertise to the main curriculum. New graduate students joining the program in the future will also help to expand the design boundaries, bringing new conceptual tools and more case-studies through research.

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