The Industrial Designers Society defines Industrial Design as “the professional practice of designing products used by millions of people around the world every day. Industrial designers not only focus on the appearance of a product, but also on how it functions, is manufactured and ultimately the value and experience it provides for users.” This definition leaves room for just about anybody to call themselves an “industrial designer”, whether they have visual skills or not.

Most large manufacturers and the business media equate industrial design with the appearance of products. Large manufacturers have their own design and production engineers, who develop for the functionality and manufacturability. They have separate marketing experts, who determine the need for a product and then communicate this need to the consumer in order to sell it.

**Industrial Design’s Major Contribution**

There is only one thing that industrial design brings to the development of a product that no other profession engages and that’s styling and sophisticated aesthetics. The appearance of a product, the primary responsibility of industrial design profession, is being subjugated by non-visual areas. In response industrial design education has diverged from its primary mission, to train students to design relevant and beautiful products. Marketers, engineers, anthropologists, physiologists and many other professions all have their specialties, but none are skilled at determining the overall appearance and aesthetics of the objects or forms that we use in our daily lives.

![Student exercise addressing the aesthetics of form and surface qualities.](image-url)
Aesthetics and Beauty

Aesthetics is the level of beauty or pleasure perceived by the stimulation of one or more of the senses. There is a level of beauty to the visual, such as nature and art, to the functional as in engineering and mathematics, to the intellectual as in poetry and philosophy, to the auditory in music, to the tactile with the feel of a surface and to the taste of food and drink. No matter the area of interest, aesthetics concerns the mind’s perception of combinations of stimuli giving interest, contrast, balance, clarity and unity.

What is the essence of beauty? The symbolic feeling of form as in art and design is as myriad as feelings of the wonder of music, dance, architecture, poetry in all its variations and permutations. To quote Susanne Langer’s seminal work on the meaning of form and aesthetics:

“The exhilaration of a direct aesthetic indicates the depth of human mentality to which that experience goes. A work of art, or anything that affects us as art does, may truly be said to “do something to us”, though not in the usual sense… What it does to us is to formulate our conceptions of feeling and our conceptions of visual, tactile and audible reality together. It gives us forms of imagination and forms of feeling: that is to say, it clarifies and organizes intuition itself. In art, it is the impact of the whole, the immediate revelation of vital import that acts as the psychological lure to long contemplation.” (Langer 1953, 71) These philosophical ideas also apply to the creation of beautiful objects in design and architecture.

Form and space methodology is the process for putting it together – of making beautiful, sensitive aesthetic decisions. The results of such approaches are found in numerous cultures from the Japanese bento box to Porsche automobiles. Abstraction in this methodology is a process for exploration of form surface qualities and is the connection between the experiences of seeing and knowing. Thus perception and cognition become a powerful design tool. The commanding principle of two- and three-dimensional abstraction is conceptualizing and articulating a visual idea through the use of complex visual experiences and organizations.

An exploration of the mechanics of vision and its integration in design was formulated in the late 1930’s by Alexander Kostellow and Rowena Reed, founders of Pratt Institute’s industrial design department. They introduced a systematic and sequential study of the structure of abstract visual relationships underlying art and design. Alexander Kostellow defined the “component elements of this material embodiment as line, plane (surface), volume (positive and negative space), value (light and dark), texture and color. These are the concrete elements the designer has at his or her disposal.” (Hannah, 2002, 27)

The way perception works with the eye and hand, giving insight about the process of creating beauty, is the first step in understanding form and space cognition. Using all the concrete component
parts as outlined by Kostellow the possibility of defining an object is endless. The combinations of groups of forms, the juxtapositions of spatial relationships, the interaction, the contrasting proportions and forms, movement, rhythm, position, tonal values, color and style; these are the component elements and principles of visual aesthetics.

Form and space methodology as a verb, gives designers powerful creative thinking through imaginative exercises, analogies and metaphors within the organization of component elements. As the philosopher Susan Langer states about organizing principles: “The importance of this principle increases as the forms become more unordered, asymmetrical and subtle, created not only by obvious means like outlines and pure colors, but also by illusions of receding space and orientation of units of design toward each other. The interpretation of such units as forms of objects is an inestimable aid in the creation of new spatial relationships, in distributing centers of interest and composing them into a visual unity.” She sites Leonardo DA Vinci using a similar method of abstraction. “Leonardo, in his “Treatise on Painting”, advises students to look at chance forms like cracks in plaster and knots in boards and try to make figures out of them, i.e. to read shapes of people and things into them. This he says “is very good for the painter’s imagination.” It sounds silly; but was Leonardo silly? Or did he feel that visual “reality” is made out of the forms that express man’s inner life?” (Langer 1953, 71)

Industrial Design’s Dilemma

The history of industrial design in its early conception had a meaning and intent that was well defined. Industrial design was a practice that enabled sophisticated, honed and refined forms to emerge from human hands, intellect and spirit. They designed the appearance of objects. The major components of industrial design were style, aesthetics, function and behavior. Style reflects cultural, functional and psychological meaning while aesthetics addresses universal concepts of beauty.

Later the parameters expanded into other areas non-specific to industrial design. This allowed for the inclusion in the profession of those with little or no visual expertise. Many of those concerned with manufacturing consider styling and then aesthetic adjustment of the appearance of a product to be less important than consumer research, function, strategy, engineering and marketing. “The thing has to work and has to be made efficiently before the look is worried about.” It’s the last thing needed before a product goes to manufacturing. Therefore those who specialize in the appearance of a design are considered to be less important than those who execute the other components of the development of a product: resulting in the profession of industrial design becoming insecure about its major contribution.
This makes it more difficult for the industrial designer to “sell” the time and effort required to develop a compelling style that results from the analyzing and adjusting of physical and surface qualities toward a meaningful, sophisticated and aesthetically beautiful visual statement.

It’s difficult for designers to explain the benefits of an appropriately stylized and beautiful appearance of a design. And more difficult still to show why a particular appearance of a product is suitable for a particular company and product, and more difficult yet to explain why a specific style is aesthetically better with precise refinements. Only the highly trained, confident and skilled visual practitioner can distinctly explain the reasoning and process.

In reaction to the difficulty in rationalizing the appearance of a design industrial design has encroached into the areas of corporate strategy, marketing research and engineering, areas that are better served by trained marketers, design and production engineers and anthropologists. Industrial design said it could do it all. But, the idea of the industrial designer as a “Renaissance man” is a myth. Designing a product and bringing it to market involves numerous complex skills. No one can be an expert at all of them.

Designer and educator Paul Rand reflects this larger viewpoint and states “Grace, dignity, passion and pleasure signal the presence and suffuses the atmosphere of anything worthy of the accolade art: a persuasive poster, a painting, an elegant room, a Gothic cathedral or a simple utensil.” (Rand 1996, 22)

**The Digital Effect**

The requirement that entry level employees in industrial design possess a high level of competence in CAD design and digital presentation has resulted in the erosion of fundamental drawing and aesthetic expertise. The use of digital methods with their high degree of finish and precision is seductive for teachers and students, giving a false sense of quality. The use of powerful digital tools produce “perfect” renderings and models that give students the idea that their results are sophisticated and beautiful. The machine does most of the work making design seem easy, but many times, these results, while perfectly rendered or modeled, are aesthetically mediocre at best. In contrast the visualization and development of a three-dimensional object or place by analyzing and adjusting in three-dimensions brings students and even experienced designers closer to the actual product than any digital method can.
The use of the hand, the eye and the mind together are always aesthetically more powerful than the digital screen. With the computer, another level of disconnect occurs. The tactile connections to drawing and model making give way to mouse manipulation and computer driven prototyping machines. Initial drawings and models are of such technical precision and polish that it is difficult for designers to ponder the aesthetic flaws of their concepts as they develop them. For example, presently in the automotive industry the design for a vehicle is rendered with a computer and a clay or foam model is then perfectly formed by a computer guided machine. Designers must look at this precisely formed model, make aesthetic judgments about the surfaces and in most cases make changes on the computer. Even though in some cases work by hand is done on these machine-built models, the hand of the designer is far removed from the initial forming of the surfaces. The time component and judgment put the designer in closer touch with the surfaces and forms of a product. Although the computer is a useful system we cannot forget that design should not be a slave to the computer. This is why it is so important that designers be educated directly in the appearance of forms and qualities of surfaces in order that their designs don’t fall victim to the powerful computer forces of ease and speed.

At a talk Jonathan Ive, the design VP at Apple, gave at the Royal Academy a few year ago he said “So many of the designers that we interview don’t know how to make stuff, because workshops in design schools are expensive and computers are cheaper. That’s just tragic, that you can spend four years of your life studying the design of three-dimensional objects and not make one. Students were being taught to use computer programs to make renderings that could make a dreadful design look really palatable”. (Jonathan Ive, VP of Apple design talking about design education.)

Visual Literacy In Design Education

Most students studying art and design, whether they are in primary, secondary, or college, have an innate talent for making visual statements. That's why they chose to study in this field. But, in order for that talent to flourish they must have a clear understanding and control of the visual world. They must become visually literate.

Randomly formed visual skills may be fine in the short-term, but when they are working in the profession they may never gain the skills that allow them to understand and execute the subtle visual changes that make unique and sophisticated products.

Visual literacy can come by discovery or chance, indirectly, or explicitly from ordered sequences that build on each other toward specific educational goals that achieve visual understanding and control.

The methods of trial and error for learning may have been fine when an apprentice worked for
years or even decades with a master before becoming a journeyman, but in this day, at all levels of education visual skills must be learned more efficiently and directly.

These skills can be indirectly learned over a long period of time through repetition and comparison. Or, they can be efficiently taught to anyone with innate visual talent through exercises that specifically address the major aspects of the visual world. These types of exercises include areas of the three-dimensional world and the areas including qualities of color, line, shape, texture, pattern, gloss and layering seen on physical surfaces.

To be cognizant with understanding, recognizing, analyzing and adjusting visual phenomenon towards more beautiful and sophisticated visual statements, design education should emphasize specialized training towards that goal.

The mastery of skills needed to understand and control visual aesthetics gives artists and designers critical and analytical tools necessary to confidently develop and organize new shapes, forms and spaces in innovative ways.

Many primary, secondary schools and universities with art and design majors have been reducing the amount of training for visual literacy in order to make room for more professional, technical and verbal learning; consequently reducing the level of visual understanding and control. The development of students visual skills doesn’t come out of thin air.

The fault for this erosion lays at the feet of higher education. Instead of leading the profession of industrial design universities have taken the easy way out by being reactive instead of aggressively defending and promoting while improving the core educational outcomes. They have slowly adjusted their curricula to the immediate needs of industry and the profession instead of advocating for the primary responsibility of Industrial design. With the slow decay and the use part-time “industrial design” professionals to teach, every generation moves the profession farther from its primary function.

More and more university art and design programs, especially those with graduate industrial design need more students to rationalize their programs. They’ve begun to accept more students, many with little or no art or design backgrounds and in many cases no artistic education or innate visual talent. Many of these students carry out their industrial design education through anthropological studies, marketing research, strategies and design theory and process where it’s expected that someone else actually designs the physical and visual manifestation of the product. They graduate with advanced degrees with little or no drawing, stylistic and aesthetic understanding or developmental skills required to create meaningful and beautiful visual statements or experiences.

Many of the graduates with higher level industrial design degrees move on to teach in programs where their lack fundamental visual understanding perpetuates even more graduates with fewer visual skills. In addition industry is requiring professional training in presentation and technical knowledge related to a particular industry. Without a solid visual education these employees do not have the knowledge that allows them to understand and execute subtle visual changes that make unique and beautiful products.

In addition we’re seeing more and more undergraduate industrial design programs where the teaching of the foundational skills of understanding, recognizing, analyzing and adjusting the physical and surface qualities are becoming almost non-existent in their programs. Presentation and digital skills
and a number of social and political issues are addressed instead. Numerous university programs have cut their foundation color theory and three-dimensional design requirements from two to one semester and in some cases eliminated one or both all together. And, some of these courses, that do exist, emphasize graphics, computer learning and conceptual art over direct and efficient learning of basic visual skills.

Primary and secondary art education has always been uneven and recently has been the first to be cut because of overall reduced funding. In addition there has been a shift in educational philosophy toward concentrations on social, political and environmental issues. These areas are important, but should not take the place of building basic visual literacy in our youth.

Industrial Design Graduate Visual Literacy

From what we can tell there are few if any graduate industrial design programs that focus on the development of visual understanding, recognition and control over both the visual areas of physical surface and qualities on surfaces. If we want to restore the profession to its primary responsibility then programs should exist that only accept students who demonstrate a talent for and a belief in the importance of the visual qualities of a design.

This concentration of study would include multiple courses that focus on three-dimensional and two-dimensional aesthetics. Drawing would be the main medium for recording observations, analyzing and planning for aesthetic adjustments throughout the program. Subsequent “design” classes would revolve around the choice of styling and development of the aesthetics of functional objects. The thesis, as everything leading up to it, would require an in-depth development of a product with specific styling and aesthetic analytical processes.

The following are examples of a three-dimensional and a two-dimensional aesthetic literacy course and a design course that focuses on the conception and development of styling and aesthetics of the design of a product. Three-dimensional areas include line, surface, and positive and negative volumes (forms and spaces). The two-dimensional course abstractly addresses color, both visual and physical line, shape, texture and pattern, gloss, layering and light (external qualities). The product design course develops the conceptualization of a new product, focusing on its styling and aesthetics.
Focusing On The Abstract

Emmanuel Kant wrote that in order to truly judge the aesthetic merits of anything perceived, one had to be a “disinterested” observer. He meant that one has to disassociate oneself from the personal, cultural and functional aspects of the perceived stimuli. With that in mind the ways for understanding, recognizing, analyzing and adjusting the three-dimensional and external qualities and the courses developed to teach them have been devised to keep a very complex area of design as simple as possible. This is achieved through analysis and decision-making that develops only abstract visual phenomena. This methodology removes the intellectual and the cultural from the learning process and focuses on the visual aesthetics of external qualities and the different and changing lines, surfaces and volumes that define objects and spaces.

The courses introduce students to concepts involved with three-dimensional changing surfaces that define form and space and contrasting color, gloss, texture, pattern and shape in isolation. Relationships among surfaces, changes in the individual surfaces and the amount of change among external qualities are analyzed, adjusted and compared in order to ascertain what is most visually effective, i.e., what is interesting and at the same time unified. Once the phenomena are understood separately they are combined in progressively more complex exercises. The exercises emphasize interesting and unified external qualities of three-dimensional surfaces and volumes. Harmonic relationships are stressed throughout the skills building process. This is a methodology that focuses on students’ visual sensitivity.

Two Year-Long Courses

The two-semester course “Color For The Three-Dimensional” was developed for graduate students at Pratt Institute. That course of study was integrated and ran concurrently with a revised year-long course in abstract three-dimensional design. Both courses of study begin building an understanding of isolated, simple abstract concepts and then progressively more complex combinations of those concepts. The courses then move to the analysis and development of progressively more complicated objects and places. A brief outline of the three-dimensional and color methodology courses are as follows:
Abstract Three-Dimensional Methodology

The observation of linear or surface change though three-dimensions gives the perception of visual movement through space. A point defines only one dimension, while a point moving within two dimensions defines a line and a line moving through a third dimension results in a surface, while a combination of surfaces defines a positive or negative volume. Three-dimensional lines move the eye through space without defining specific forms or spaces, while surfaces grouped in three-dimensions are perceived as specific objects or places.

The three-dimensional design courses address the recognition of the surfaces, three-dimensional lines that make up a situation and how those surfaces and lines join and relate to define forms or spaces. Students define the relationships among surfaces’ accents and axes across a space or solid form. They practice identifying distinct surfaces and neutral and accented areas of those surfaces and the adjustment to those areas to achieve harmonious relationships among a surface’s qualities. As students execute the problems, they analyze and understand the amount of change within a particular surface or form and the hierarchy or importance of the recognized surfaces on an object or within a space.

The group of exercises begins with simple forms, groups of forms, surfaces and lines and become sequentially more complex throughout the course. They all have multiple steps from the initial idea through to the developed model. New models are made for each step, where students compare and judge the effect of any adjustments they made. All the exercises cover a wide array of three-dimensional qualities, making them crucial to mastering the aesthetics of the three-dimensional. In order to convey the depth of the understanding and control that all the exercises entail most of the steps involved with the planar exercise are described below.

Planar Surfaces

With this exercise students working with planar surfaces define areas of little or no change and compare them to areas with accents or much change. The visual transition areas or divisions between distinct surfaces are defined and developed. Students learn to integrate techniques for managing dominance, proportion and character learned from the earlier problems into the development of these complex surface constructions.
The exercise begins with the students making interesting abstract (non-representational) three-dimensional sketches from flat, bendable chipboard (20 Point, .020 inches or .50 mm). The material is cut, creased, and curved and attached to itself resulting in an interesting visual statement. No glue of other fasteners are used. The ways the chipboard cuts through and is attached to itself is an important part of the exercise.

Non-representational (abstract) sketches in chipboard.

The sketches are looked at as a group. The most interesting and unified and the more simple or complex are identified. The types of connections, their clarity, how they relate to the overall style and the those that are more interesting are noted.

Identifying Surfaces and Transitions
Right after the planar forms are made charting tape or pencils or markers are used to identify each of the individual surfaces that make up one of the sculptures.

Marked Individual surfaces.

Understanding Surface
The next step is to understand all the aspects of planes and their relationships to one another. Exercises are done to show where one surface ends and another begins, soft, hard, fast and slow transitions between surfaces, the types of surfaces, flat, bent, tipped, twisted and combinations, and the surface qualities of axes, ends, edges and accents, simple and compound surfaces and size, proportion and character (shape, type and strength of accent) and the sympathetic relationships between bends and tips and accents, ends and edges.
The axis is the centerline of the longest dimension of a plane. The edges are at the boundary of the surface roughly parallel to the axis and the ends are at the boundary of a plane roughly perpendicular to the axis. The accent of a plane is the area perpendicular to the axis where the most bend, tip or twist occurs; usually across the short side of the plane.

Surfaces and transitions between surfaces can change in three ways. They can tip, bend, twist or a combination of two or three of them. Tip is a change of axis on a flat plane. Bend is a change of axis through different planes and twist has a constant axis through non-parallel planes. Of course there can be a combination of two or all three of the changes.
Where there is change within or between surfaces there is an amount of change. If there is a similar amount of change between two aspects of a single surface or between two separate surfaces then those changes are sympathetic or harmonious.

The culmination of this project is the aesthetic development one of the sketches done at the onset. The knowledge gained from the individual exercises are used to recognize the separate surfaces and their transitions and to analyze and adjust them toward a more pleasing aesthetic experience. This is accomplished by identifying the individual parts of the sketch and moving toward a more interesting and unified statement by analyzing and adjusting and comparing and judging. Forms and surfaces within simple defined spaces are adjusted in position, proportion, shape and size to achieve an interesting and unified grouping. The primary purpose of this part of the exercise is to achieve a dynamism and harmony within the defined space.
First a set of sketches are viewed together and analyzed in order to choose the best one for development. A unique visual idea, the most interesting sketch with a definite overall axis is chosen. The best choice for this exercise is a sketch with a definite dominant surface and overall fewer surfaces.

Recognizing and Defining the surfaces

The surfaces are analyzed and the major and minor axes of each surface are marked with thin tape or a dark pencil. The areas of transition from one surface to the next are identified and marked. Drawings are done for each class meeting in order to focus on the surfaces and make notes about needed changes to subsequent models.

Adjustments

A drawing is made of the sketch with notes suggesting changes to the sizes, character, proportions, positions, axes, edges and ends of the surfaces and the transitions between them. A new model is made reflecting the suggested changes.
Dominant Surfaces

Once a sketch has been analyzed and adjusted with a new model the two opposing surfaces that most clearly define the overall space and gesture of the design are isolated, analyzed and positioned in a three-dimensional model. The size, proportion, position, accents and axes of the two elements are adjusted and integrated into a new model.

Developed Design

At this point the major adjustments have been made. The previous model is analyzed and using tape on the three-dimensional model the edges and ends are carefully marked for final adjustments. Then a finished model is made from 3 or 4 ply Bristol board for presentation.
Next are the development of space boxes where forms and surfaces within simple defined spaces are adjusted in position, proportion, shape and size to achieve an interesting and unified grouping. The primary purpose of this exercise is to achieve a dynamism and harmony within the defined space.

Once students understand the basic factors of three-dimensional line, surface, form and space, they execute a series of projects that involve more complex lines, surfaces and solids. These projects help them conceptualize new visual ideas within a limited set of parameters. They then analyze, adjust and develop the aesthetics of the different characteristics.

Organic Exercises

The analysis and development of the dynamic and unified interaction of compound positive and negative surfaces is practiced through two long-term problems. One looks at groups of positive compound shapes on the surfaces of organic forms; the other addresses groups of negative spaces within the confines of a solid cube.
Combination

For a final three-dimensional design project students develop the aesthetics and make a model of groupings of combinations of lines, solids and planer surfaces, applying all the skills acquired from the previous three-dimensional problems. An added dimension is the design and placement of connectors at the juncture of the different elements. These are relatively small visual elements that complement while not competing with the major parts of the group.

Color for Three-Dimensional Designers

The color course focuses on external qualities on three-dimensional surfaces. It begins with a series of exercises, executed in two-dimensions that separately foster an understanding of simple relationships among external qualities. Through these initial exercises students analyze different amounts and degrees of changes in color, texture, gloss and pattern separately and then in combinations in order to make sound aesthetic and styling decisions about these complex abstract two-dimensional visual phenomenon.

10 block color study showing maximum perceived change by the effect of the color of each of the different larger squares on identical small center squares.
Next studies are done comparing similar amounts and types of changes among the different surface qualities. These are compared in order to understand the similarities of changes that occur with different qualities. This provides an awareness that allows the designer to see the abstract connections among changing colors, glosses, textures, patterns, lines or shapes.

Two texture and two pattern studies in black and white showing character, scale and density differences.

Contrasting a single pattern with differences in scale, complexity, direction and character

Similar amounts of change between changes of color and changes of density and character of a texture.
After they understand the phenomena of external qualities and the three-dimensional separately, students begin a series of projects where external quality and the three-dimensional are combined. The exercises build sensitivity to changing color, texture, gloss and pattern on three-dimensional surfaces and at the same time help students develop procedures for efficient idea origination and developmental decision-making.

Once those operations are understood and practiced, those procedures allow the designer to confidently make and then analyze and control the external qualities on any type of three-dimensional surface.

Changing external qualities on three-dimensional surfaces

Students’ understanding of changing external qualities on changing surfaces begins with the making of simple abstract three-dimensional bent planes and solids. These uncomplicated surfaces are covered with changing elements of colors, textures, glosses and patterns applied in ways that are sympathetic with or harmonious to the changes of the surfaces. The character of the overall group of surfaces and of each individual surface is identified and the visual hierarchy of the surfaces within a group is enumerated.

One of these problems involves an elongated rectilinear plane with a single accelerating curved bend that is perpendicular to the axis of the plane.

The initial study has only one element, with more complexity added to the textures or patterns in subsequent studies. The changes in the textures or patterns are adjusted in order to eliminate as much conflict as possible between the changing external quality and the changing single surface of the design. The student achieves this while attempting to maximize the overall visual impact of the combination of surface quality and three-dimensional change.

The harmony between the two is achieved by matching the amount, rate and character of the physical changes with the changes of color, texture or pattern.
Abstract to Functional Bridge

During the second half of the color program, the exercises are structured to form a bridge between the visual and aesthetics learned, initially and the design of functional objects and spaces. This methodology allow the students to understand and practice their skills toward the overall style and aesthetics of the design of functional products and places.

The exercise involves the design of new types of products and conceptual interiors or environmental spaces. Through drawings, descriptions and models, students develop the visual aesthetics, style and function of these concepts. All the exercises focus primarily on the qualities on the surfaces of the objects and places and the relationships of those qualities to the functions, spaces and forms of the designs.

New Functional Product Development

Designs for a functional product begins with abstract forms and, through a series of two- and three-dimensional steps, evolve into developed product ideas. The abstractions are given multiple new and unusual functional uses through a series of drawings. The idea with the most appealing function and style is then chosen for development.

Students then make models that reflect changes mandated by the function and analyze the three-dimensional and surface qualities before making a presentation model.

Abstract color sketches for new product concepts.

A two-dimensional external quality study
Design sensibility and control

This course of study for industrial designers was taught to graduate and under-graduate art and design students at Pratt Institute with excellent results. Students who successfully completed the two- and three-dimensional and transportation/product courses left with a solid understanding of this visual methodology and its application to the design of complex products. This understanding gave them the visual tools they needed to address the aesthetics of the complex products and interiors they will be designing throughout their careers.

The visual skills they possess allows them to analyze, judge, adjust and explain the complex issues involved with the aesthetics of different and changing external qualities and physical surfaces.

A significant number of these students are working as architects, fashion, footwear, product and automobile designers and are now using their two- and three-dimensional aesthetic skills in innovative and interesting ways.
Possibilities for the Renaissance of Industrial Design

If industrial design is going to recognize itself as the provider of the physical manifestation of the products they help develop they are going to have to understand and convey to the world the importance of styling and visual aesthetics to manufacturers and to the consumers who use the products.

In addition there has to be enough concentration devoted to the quality of content to give industrial design students the highest level of visual literacy they are capable of. The content of that education must be at a level of sophistication to allow students to grow those foundation skills to progressively higher levels of understanding and control as they move forward in their education and careers. And, if an educational program is really determined to foster sophisticated visual skills in their students, the upper level courses must refer to and sequentially build on what was learned in that foundation.

When developing specific art or design skills either in school or later, those who have a solid visual foundation will progress quickly and efficiently, while those who don’t will be left behind. A broad grounding in visual literacy assures that all students acquire this knowledge as they progress through their education and beyond. They have to understand and control the appearance of the visual world they help create. This will go a long way toward reestablishing the importance of the primary function of the profession of industrial design; making beautiful products that are a joy to use in our everyday lives.

Apple’s CEO, Steve Jobs, as a purveyor of beauty is sighted by Ross Douthat’s article in the New York Times summarizes the power and meaning of abstract design by stating ‘…If tomorrow’s innovators learn anything from Jobs, it should be that their vocation isn’t just about uniting commerce and technology. It’s about making the modern world more beautiful as well.’ (Douthat, 2011)
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