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**A Study of Graphic Design Teaching Pedagogy, Industrialization,
And Applied Research with Global Context and Its Comparative
Analysis with Pakistan**



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Abstract

This research explores the evolving relationship between graphic design education, reflective practice, and liberal arts learning within the context of contemporary higher education. Drawing on historical, theoretical, and pedagogical frameworks, the study investigates how design education has transformed from a vocational craft to an intellectual and research-based discipline. Scholars such as Swanson (1994), Meggs and Purvis (2016), and Cross (2007) provide a foundation for understanding the intellectualization of design, while contemporary theorists like Davis (2017) and Heller (2015) emphasize the pedagogical challenges of integrating creative practice with academic rigor.

Through the lens of reflective and experiential learning theories (Schön 1987; Moon 2013; Kember 2008), this paper examines how design students and educators construct knowledge through studio practice, critical inquiry, and collaboration. It also addresses the growing need for interdisciplinary approaches that merge aesthetics, technology, and cultural understanding. In the South Asian context, particularly Pakistan, emerging scholarship (Auji 2013; Khan 2014; Hussain et al. 2022) highlights the negotiation between global design paradigms and local visual cultures.

Ultimately, this research argues that graphic design education must be positioned as both a creative and intellectual endeavor, one that fosters reflective practitioners capable of critical thought, cultural awareness, and adaptive design thinking in an ever-changing global environment. By bridging theory and practice, the study underscores the significance of reflective pedagogy as a catalyst for cultivating innovation and responsible design citizenship in the 21st century.

Key Words: Graphic Design Education, Design Pedagogy, Liberal Arts, Visual Culture, Design Thinking, Design Curriculum, Art and Design Research, Visual Communication, Design History, Creative Practice, Pakistani Art Education

Introduction

The developments achieved by the graphic design industry in Pakistan and the professional/academician contributions that made it today an important industry during the period from 1950s' to date will be discussed and analyzed in the research. Also, the importance of the graphic design teaching pedagogy and challenges that are faced by this industry are needed to be analyzed deeply therefore making a proper analysis in chronological order will allow to consider this problem in great detail, as no detailed research study is found on the graphic industry development. Whereas in Europe and America, detailed studies were conducted that reflects the Designer role and contribution towards design industry. Recently (Feb 2016) in UK a critical and analytical research work by two leading academicians Dr. Russell Bestley and Ian Noble was published Visual Research: An Introduction To Research Methods in Graphic Design describes the role of academic research and its role in Industrial innovation in United Kingdom. In 2012 an Indian detailed study by Neil Leonard and Gavin Ambrose, published as Design Research: Investigation for Successful Creative Solutions, discusses not only design teaching taxonomy but also analyze the success

of current creative industry.

To review the available literature that is relevant to the research problem. This research problem is distinctive due to its chronological nature; as this kind of research work has not been conducted in Pakistan, in context of the role of graphic design education and its impact in Pakistani industry during 1950s' to till date. Whereas, Gunnar Swanson an academican and director Multimedia Arts program at California Lutheran University conducted a study, in which he analyzed the graphic design education as the liberal art in terms of university academics.¹ Also Meggs and Alston conducted their studies and compiled them in form of a book presenting a comprehensive history of the development of graphic design, its education, discussing the history of Mesopotamian city having the deeper roots of arts & design and then gradually it discusses development of this field that how it progressed.² In Pakistan, so far no detailed study is found that would be providing the link between the academics and development of the graphic design such as Jeremy Aynsley has provided the discussion in his book related to the graphic design practice in Germany during the era of 1890-1945.³

In this proposed study the perception related to graphic design education among Pakistani academics would be considered that has not been discussed before in Pakistan as we study A. Cliff and Rob conducted studies on the topic related to perception of academics about the knowledge in design schools.⁴

Whereas in Europe and America detail studies conducted that reflects the academicians/designer role and contribution towards design industry. In 2016, at United Kingdom a critical and analytical research work by two leading academicians Dr. Russell Bestley and Ian Noble was published Visual Research: An Introduction to Research Methods in Graphics describes the role of academic research and its link in Industrial innovation in United Kingdom. In 2012 an Indian detailed study by Neil Leonard and Gavin Ambrose published Design Research: Investigation for Successful Creative Solutions, discussed not only design teaching taxonomy but also analyze the success of current creative industry.

There is scarcely an academic exploration when it comes to graphic design education and graphic design industry in Pakistan. The only notable work is a collection of thirty-three essays, Mazaar Bazaar, which discusses the principal idea that Pakistani design and visual culture coexist as contradictions.⁵ The essays briefly argue graphic design with relation to material and visual culture. The introduction by Fred, amongst Pakistani designers to define their own cultural identity which is distinct from the rest.⁶ The visuals presented by the authors in these essays and the ideas discussed provide a nuanced picture of visual culture that in the contemporary representation experiences distortions on many levels.⁷ The figural representations in contemporary

¹ Swanson, Gunnar "Graphic Design Education as a Liberal Art: Design and Knowledge in the University and the Real World." *Design Issues* 10, no. 1 (1994) 54.

² Meggs, Philip B., and Alston W. Purvis, *Meggs' History of Graphic Design*. Jhon Wiley & Sons, 2016.

³ Aynsley, Jeremy. *Graphic Design in Germany: 1890-1945*. Vol. 28. University of California Press, 2000.

⁴ Cliff, Alan F., and Rob Woodward. "How do Academics Come to Know? The Structure and Contestation of Discipline-Specific Knowledge in a Design School," *Higher Education* - 48 (2004) 269-290.

⁵ Auji, Hala. "Mazaar, Bazaar: Design and Visual Culture in Pakistan." (2013): 433-435.

⁶ Davis, Fred. *Fashion, Culture, and Identity*. University of Chicago Press, 1994.

⁷ Hussain, Syed Tauseef, Saira Hanif Soroya, and Kanwal Ameen. "Image Needs of Pakistani Visual Artists in an Academic Setting Abstract." *Global Knowledge, Memory and Communication* (2022).

visual culture are traced back to Islamic sources, and significance of Islamic motifs are discussed with reference to culture and folklore. The book also provides a detailed view of film, posters, and hoardings in contexts of culture, marketing, and industry. One can safely state that it is an interdisciplinary study on design and visual culture in Pakistan. It reflects social, commercial, and geo-political changes influencing South-Asian region. However, it does not address graphic design education in relation to industry.

According to Muhammad Sher Ali Khan, three main stages are used to explore how art education has changed in Pakistan over the past 50 years: Arts as traditional crafts with skill in calligraphy and painting. While some of these abilities were present in academies, they were later imparted through the apprenticeship system. The first paradigm shifts in the arts occurred in the academies, which concentrated on drawing skills at the secondary school level and fine arts and design at the college and university levels later, indigenous arts and crafts were disregarded in favor of teaching art using western modules. Within the context of discipline-based art education, there is a place for both professional training in traditional crafts and arts as industry. This contemporary yet important phase of art education was observed only when ideas of art and design reappeared with new twist and titles. One might be able to better grasp how art education is developing by analyzing the curriculum of the educational institutes and its effects on the industry. According to Khan, "In summary, art education has always been in the service of national identity, cultural values, and prosperity of the country".⁸

According to Iram Zia Raja, one can understand the journey of art education while going through the early years of Pakistan with all its ground realities, fears, aspirations, targets, ideals, clarifying so many pre-conceive notions. According to Raja, "Gustav Papanek in his book, Pakistan's Development: Social Goals and Private Incentives, Pakistan envisaged by many as 'an economic monstrosity.'" In his words "The country was among the poorest in the world and had no industries to speak of, almost no industrial raw material or any other significant industrial or commercial groups. In the plethora of other problems, the Pakistan planning board identifies the trained manpower shortages as major barriers in fulfilling the needs of the education institutes especially the art institutes."⁹

In the West, graphic design is comparatively more explored with an analogy between academic and commercial experiences related to graphic design. A seminal work that helped in the current study was Philip B. Megg's History of Graphic Design.¹⁰ Meggs provides a detailed historical account on the development of graphic design industry through a chronological account of important technological innovations that defined new avenues of creativity. The book starts with exposition on the invention of writing, and then takes the reader on a journey from the origins of printing and typography to the postmodern design industry. This book informs how approaches towards graphic design changed with technological innovations, and how it altered the role of a graphic designer. The section on the evolution of contemporary graphic design is most important for the current study as it informs about the latest developments in

⁸ Khan, Muhammad Sher Ali. "The Changing Perspective of Art Education in Pakistan." *Online Submission* (2014).

⁹ Raja, Iram Zia. "Shakir Ali, An Enigma within a Layered Reality." (2018).

¹⁰ Meggs, Philip B., and Alston W. Purvis. *Meggs' History of Graphic Design*. John Wiley & Sons, 2016.

interactive design. There are important insights on the development of design in Asia. This study contains a horde of visual illustrations that assist in grasping the evolution of graphic design as a craft and as an art form in the context of expanding industry.

Another important source on the history of graphic design particularly during the last century is *Graphic Design: A New History*. The book provides a chronological overview of the relationship between graphic design and industry. The design history is elaborated in the context of social changes and commercial enterprise. The chapters are divided according to specific periods and in each chapter, there is a considerable discussion on stylistic aspects. The early twentieth century modernist perspectives on design are quite informative as they are viewed as per changing political patronage circumstances. The book also exclusively focuses on Bauhaus and the rise of international style in the West. The last part of the book discusses various software applications and the challenges being faced by graphic designers in the contemporary world.¹¹

Graphic Design History discusses the identity of the discipline as art, craft, science and communication.¹² The research includes various essays that contribute to an understanding of how graphic design influenced culture. The transition to modern graphic design has also been explored.

Since the current study is particularly focused on graphic design education, there are a few notable works that provided valuable information on the subject. For instance, *Teaching Design* explores the pedagogical approaches and practices in design education.¹³ The author focuses on two approaches that can be described as ‘teaching about design’ and ‘teaching through design, which are being used in Pakistan by leading art institutions. The graphic design education curricula discussed in this book are viewed in terms of their objectives and learning outcomes. Moreover, assessment in graphic design education has also been discussed at length particularly in terms of performance-based activities. The author also corroborates the current complexities in the industry and the approaches in design education to provide an interesting framework for analyzing a particular approach towards design education.

Similarly, *The Education of a Graphic Designer* provides a collection of interviews and essays along with examples for curricula.¹⁴ The book invites to explore debates such as theory verses practice, art verses industry, and classical verses postmodern. The collection of essays includes topics such as marketing, changing conventions, impact assessment, and social changes. One can easily see the transition of graphic design towards an information-intensive data visualization frontier. The personal accounts of notable designers add important insights into both graphic design education and related industry. The syllabi of undergraduate and graduate programs are quite helpful with reference to the current study as a comparison could be made between emerging models of design education in the west with the our local approaches.

Marty Maxwell Lane and Rebecca Tegtmeier in *Collaboration in Design Education* has thoroughly explored the collaborative approaches in design education, this is also

¹¹ Eskilson, Stephen J. *Graphic Design: A New History*. Yale University Press, 2019.

¹² Golec, Micahel. *Graphic Design History*, 2004: 91-94.

¹³ Davis, Meredith. *Teaching design: A Guide to Curriculum and Pedagogy for College Design Faculty and Teachers who use Design in their Classrooms*. Simon and Schuster, 2017.

¹⁴ Heller, Steven. *The Education of a Graphic Designer*. Simon and Schuster, 2015.

an emerging paradigm in graphic design education¹⁵ This book can be described as a guide for both teachers and students who look forward to collaborative approaches for their design practices. The various examples of collaborative practices discussed in the Book provide a step-by-step procedure starting from initial planning to the final outcome. The problems that are faced during cross cultural exchange in collaborative practices are also highlighted.

Undergraduate Research in Art: A Guide for Students, is an important source that informs about current research in the field of art and design.¹⁶

This research is focused on graphic design and provide important insight into sample project ideas and the whole design process. The research interests in contemporary design education, the methodologies, and procedures are important for the current study as research is now one of the primary concerns of design education in Pakistan.

Dialectic: A Scholarly Journal of Thought Leadership, Education and Practice in the Discipline of Visual Communication Design is one of the most relevant sources in the context of this current study.¹⁷ All three areas, namely, design education, design research, and professional practice have been focused. The collection of research papers helps in understanding how design research informs professional practices alongside knowledge coming from arts and humanities. The collaborative impact of various disciplines giving rise to innovation and discovery is explored by the authors.

A more generalized insight into graphic design industry comes with The Business of Design: Balancing Creativity and Profitability.¹⁸ The author has an interesting approach in which creativity and commercialism in design are seen as inclusive categories. The author shows how a business model can be designed in this context.

Through personal experience, the author provides a guideline to establish a successful graphic design business. All relevant aspects such as design practice, financial management, and marketing are thoroughly discussed. The book is an important resource for entrepreneurship in graphic design.

The Designer and Design Knowledge

Graphic design education came into being in the early twentieth century in the wake of revolutionary art, literary, cultural, and political movements. The initial objective of graphic design was to develop a professional practice with ideals of changing the world for the better.¹⁹ The contemporary mode of graphic design education follows a traditional pattern in which a student is instructed by an experienced designer, initially through imitation and afterwards innovation is encouraged.

The first systematic approach towards teaching graphic design began with Bauhaus, a design school which started in the first quarter of twentieth century in Germany. It was rebranded as the New Bauhaus in Chicago around 1937 and continues to date under the banner of Illinois Institute of Technology in USA. The Bauhaus approach has been considered revolutionary since it saw design in terms of its capability to solve problems, both social and material. Walter Gropius, an architect, and head of

¹⁵ Lane, Marty Maxwell, and Rebecca Tegtmeier. *Collaboration in Design Education: Case studies & Teaching Methodologies*. Bloomsbury Publishing, 2020.

¹⁶ Judge, Vaughan, Jenny Olin Shanahan, and Gregory Young. *Undergraduate Research in Art: A Guide for Students*. Routledge, 2018.

¹⁷ MICHAEL, R. GIBSON. *DIALECTIC: A Scholarly Journal of Thought Leadership, Education and Practice in the... Discipline of Visual Communication Design*, University of Michigan Press, 2019.

¹⁸ Granet, Keith. *The Business of Design: Balancing Creativity and Profitability*. Chronicle Books, 2012.

¹⁹ Heller, Steven. *The Education of a Graphic Designer*. Simon and Schuster, 2015.

the Bauhaus, said that his intent of the Bauhaus School was to create “a new guild of craftsmen without the class distinctions that raise an arrogant barrier between craftsmen and artists.”²⁰ The school was meant to build the future, “combine architecture, sculpture, and painting in a single form, and one day rise towards the heavens from the hands of a million workers as a crystalline symbol of the new incoming faith.”²¹

Bauhaus also focused on the study of art and history of design. The idea was that by studying the work of old masters, the student will develop a greater consciousness concerning rhythm, texture, order, and structure. The pedagogical model of Bauhaus provided an all-encompassing design education in which they learnt fundamentals of design, historical significance, relevance of design, personal expression, creativity, and career motivated practice.

George Gough Booth of Michigan, USA established an art academy called Cranbrook. In this academy students would pursue independent study under the guidance of teachers experienced in specific fields of art and design. This conception of Cranbrook academy was inspired by the American Academy in Rome founded by McKim In 1894.²² “He also envisioned Cranbrook as a workshop that would produce objects to embellish and improve the American environment and as a community where art and design would be integrated with daily life.”²³ The basic objective of this educational academy was to teach and influence designers to banish tasteless and mass-produced goods from American homes.²⁴ The Cranbrook also had an apprenticeship model like Bauhaus with a greater focus on philosophies and ideas about design. The Cranbrook Academy of Art, much like the Bauhaus, provided its students with a holistic design education.

A third important approach was practiced at the Basel Academy of Art and Design which was established in the 1960s at the Campus Dreispitz in Basel. The Basel education focused on making a positive influence on culture. It is a premise of the Basel School that a significant influence for professional renewal has come and must continue to come from a return to the most basic studies-always informed, or courses upgraded, by changes in technology and social context, in this aspect the Basel School has been at the forefront. In addition to aesthetic social conscience, the intent of the Basel School was to positively educate society through visual design.²⁵

In its simplest form, the design process involves a methodology in which a sequence of steps and procedures is followed to achieve a desired outcome.²⁶ However, it is difficult to describe design process as a fixed set of activities. It also depends upon the context in which a design problem is perceived and then a creative solution is

²⁰ Raizman, David. *History of Modern Design: Graphics and Products since the Industrial Revolution*. Laurence King Publishing, 2003.

²¹ Ramroth Jr, William G. "Pragmatism and Modern Architecture." (*No Title*) (2006).

²² Costanzo, Denise Rae. *The Lessons of Rome: Architects at the American Academy, 1947–1966*. The Pennsylvania State University, 2009.

²³ Otto, Gretchen Marie. *The Cranbrook Mystique: A Historical Study of the Educational Philosophy of George Gough Booth Founder of Cranbrook Educational Community*. The Pennsylvania State University, 1994.

²⁴ Paolozzi, Kevin Michael. *What Goes Around, Doesn't Come Back Round: A Look Into the Disruptive Influence of Basel School of Design and Cranbrook Academy of Art*. Library and Archives Canada= Bibliothèque et Archives Canada, Ottawa, 2012.

²⁵ Hofmann, Armin, and Goldie Paley Gallery. "The Basel School of Design and its Philosophy: The Armin Hofmann Years, 1946-1986: An Exhibition of Posters." (*No Title*).

²⁶ Best, K. "Design Management. Managing Strategy, Process and Implementation." *Lausanne: Ava Academia*. (2006).

worked out. Despite the extensive research undertaken since 1950s, there is no single model which is agreed to provide a satisfactory description of the design process.”²⁷

However, there are similarities within the diversity of approaches to design process.

A broad classification of the steps and stages involved in design process has been put forth by the Design Council of United Kingdom. The first stage is discovery in which a student identifies a design problem while exploring a horde of ideas including consumer need, market trends, and design solutions. The second stage involves defining, wherein the ideas of previous stage are transformed into a brief and the information is synthesized in the context of execution of the design project. The third stage is development, which involves a creative input from the student to work out a design solution, it involves, visual management, methods for development and prototypes. The final stage is delivery in which a final testing of the design solution is performed, which is produced as an outcome with multiple evaluations. Although these stages are identifiable and remain to various degrees/part of a design process. Therefore, they do not follow a linear sequence, moreover, there are multiple events of overlapping that cannot be ignored.²⁸

The above framework becomes more contextualized if viewed in the light of the contemporary definition of a designer. Ken Friedman has described a designer as an individual with multiple skills and capable of working at many levels. According to Friedman a designer is first an analyst, who is required to identify problems with previous design solutions and prevailing trends in the market. He then becomes a problem solver by providing creative solutions. He also acts as a team leader, wherein he administers various tasks given to team members, and then he also functions as a critic who examines his own design solutions to other competing solutions in the market.²⁹

Bryan Lawson defines designer as a planner who explains the design solutions in a manner that others are guided to develop a design solution. The expertise that are essential for a designer as a planner are drawing and skills in modelling other kinds of media to express design solutions.³⁰

The other skills of a designer that are considered essential in contemporary design education are determined by the nature of design problems. Designers often encounter problems which are ill-defined or ill-structured, which implies that a designer must have the capability to articulate a problem in a tangible way so that it can be accessed. This involves application of a rational process and judgment.³¹ Nigel Cross is of the view that since a designer confronts uncertainty and limited information in the case of an ill-defined problem, it inevitably involves application of imagination and constructive thought. He states that “the creative designer interprets the design brief not as a specification for a solution, but as a kind of partial map of unknown territory and the designer sets off to explore, to discover something new, rather than return with yet another example of the already familiar.”³²

Approaches that describe the role of a designer and the nature of design problems also maintain that it is not always the case that designers deal with unknown territory. For

²⁷ Clarkson, John, and Claudia Eckert, ed. "Design Process Improvement: A Review of Current Practice." (2010).

²⁸ Best, Kathryn. "Design Management." (2015): 1-216.

²⁹ Friedman, Ken. "Creating Design Knowledge: From Research Into Practice." In *IDATER 2000 Conference*, pp. 5-32. Loughborough: Loughborough University, 2000.

³⁰ Lawson, Bryan. *How Designers Think: The Design Process Demystified*. Routledge, 2006.

³¹ Moon, Jennifer A. *A Handbook of Reflective and Experiential Learning: Theory and Practice*. Routledge, 2013.

³² Cross, Nigel. *Designerly Ways of Knowing*. Springer London, 2007.

instance, Kees Dorst and IMMJ Reymen, describes three kinds of factors that a designer confronts in a design process, first is the determined factors, which include requirements that cannot be undermined or neglected. These factors often require standardized design solutions. The second is the under-determined factors, which the designer confronts during the design process as new considerations. This class of factors may involve creative imagination. The third kind is undetermined factors, which invite freedom of designer to deploy out of the box thinking.³³

In order to effectively understand design problems and devise appropriate design solutions, a designer depends upon his or her design knowledge. Design knowledge therefore becomes another important area of concern in design education. Literature reveals that design knowledge develops through tacit learning. Most of the designers gain knowledge through practice. It is believed that designers know more than what they can verbally communicate, and this unexpressed knowledge becomes evident through practice. Lawson maintains that the application of design knowledge by design practitioners does not imply that they fully understand what is to be applied.³⁴

This means that design knowledge does not exist as an objective category of knowledge, instead a major part of it lies dormant in the subjective world of designers and only finds expression through creative engagement in design problems. This is the reason that design education is "forced to rely on an apprenticeship system of learning."³⁵

The nature of design knowledge is such that it cannot be externalized into fixed categories. With each designer and problem, the discovery of knowledge assumes unique dimension. This is the reason why design education includes and almost relies on project-based, problem-based, and studio-based learning environments. A brief overview of these approaches is crucial for understanding graphic design education in Pakistan.

Pedagogical Approaches towards Graphic Design Education

Since its inception, graphic design education and contemporary pedagogical approaches are largely considered in relation with the design industry. Students are being taught in an environment that corresponds to that of design industry. The traditional pedagogical approaches are taken as a blend of project-based learning followed by a critique by professional designers, teachers, and senior students.³⁶ In these approaches, students are initially informed about the basics of design, elements, and principles of design either through lectures or through small-scale projects.

It is believed that through a practice-oriented learning and dealing with increasingly complex design problems, students' skills of providing design solutions will develop. However, within the practice-oriented teaching of graphic design, there are varied approaches, which will help in graphic design education. One of the principle pedagogical approaches involves project-based teaching and learning. It is the most

³³ K Dorst, Kees, and I. M. M. J. Reymen. "Levels of Expertise in Design Education." In *DS 33: Proceedings of E&PDE 2004, the 7th International Conference on Engineering and Product Design Education*, Delft, Netherlands, 02.-03.09. 2004.

³⁴ Lawson, Bryan. *How Designers Think: The Design Process Demystified*. Routledge, 2006.

³⁵ Cross, Nigel. "Designerly Ways of Knowing." *Design Studies* 3, no. 4 (1982): 221-227.

³⁶ Davies, Allan, and Anna Reid. "Uncovering Problematics in Design Education-Learning and the Design Entity." In *Proceedings of International Conference Re-Inventing Design Education in the University*, pp. 178-184. CLTAD, University of the Arts, London, 2000.

common practice that graphic design education deploys.³⁷ It is thought to be a “comprehensive approach to classroom teaching and learning that is designed to engage students in investigation of authentic problems.”³⁸ In this approach, a design problem is identified, and students are given a design brief, with specific instructions on what a solution should entail. The solutions devised by a student, or a group of students is then reviewed, and changes are suggested by teachers, which results into modifications. Through repeating the process, students come up with a final design solution.

In another approach, which can be broadly labelled as studio-based learning. In this model, an expert designer or teacher teaches in a studio setting. In this approach, there is a greater one to one interaction between the teacher and student and learning develops alongside the master-apprentice bond. In this model, students are introduced to a design problem but unlike project-based learning, they also attend periodic lectures by the teacher and then their works are evaluated by a design jury. Both the above-mentioned models involve re-examination of design problems and solutions that are worked multiple times. These models are the most common in universities around the world.

It is argued that in both project-based and studio-based learning models, students focus on the design solution and lesser attention is given to the process through which the design solution is achieved.³⁹ This implies that students may learn to devise a unique solution to a unique problem but remains oblivious of the design process. In these models, the knowledge of the students of what they have learnt remains limited.⁴⁰ The concern is well-grounded since it is the knowledge of the design process. It helps students to not only have an efficient and organized work ethic, but it also ensures the transfer of design knowledge learnt from dealing with one design problem to other design problems. In other words, the general principles in devising design solutions are of paramount importance, for gaining and transferring design knowledge from one project to another.

Another critique for the above-mentioned models is by Donald Schon, who mentions stance and behavior as a central issue. Donald Schon refers to a situation where the teacher may withhold certain knowledge to avoid misuse, misunderstanding and misappropriation.⁴¹ Behavior refers to the mode of interaction between the student and teacher that may result from restricting the transfer of certain knowledge. Stance and behavior are critical since there is no parameter that could inform the extent of knowledge restriction. It may result in hampering the development of student.

Another model for design education by scholars, which is less common, is problem-based learning. This model is quite like the above models, but also differs in a fundamental respect. In this model, the design problems are taken from real-life

³⁷ Ehmann, Debra. "Future Graduate: The Role of Assessment within Design Education." (2004).

³⁸ Blumenfeld, Phyllis C., Elliot Soloway, Ronald W. Marx, Joseph S. Krajcik, Mark Guzdial, and Annemarie Palincsar. "Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning." *Educational Psychologist* 26, no. 3-4 (1991): 369-398.

³⁹ Lawson, Bryan. *How Designers Think: The Design Process Demystified*. Routledge, 2006.

⁴⁰ Dorst, Kees, and I. M. M. J. Reymen. "Levels of Expertise in Design Education." In *DS 33: Proceedings of E&PDE 2004, the 7th International Conference on Engineering and Product Design Education, Delft, Netherlands, 02.-03.09. 2004*. 2004.

⁴¹ Schon, Donald A. *Educating the Reflective Practitioner. Toward a New Design for Teaching and Learning in the Professions. The Jossey-Bass Higher Education Series*. Jossey-Bass Publishers, 350 Sansome Street, San Francisco, CA 94104, 1987.

scenarios.⁴² Due to this difference, the nature of problem becomes more focused as its various aspects can be thoroughly considered. The students focus on what they do not know instead of what they know.⁴³ Consequently, the emphasis on design solution shifts from a creative application of student's mind to a problem-solving dimension. A comprehensive understanding of design problem in a real-life situation also promotes a greater focus on the design process, since various facets of design problem become the means to consider the design strategies in different ways. This model involves five fundamental steps:

The formulation of the problem at a more comprehensive level by considering the expanse of the problem in real life scenario

The development of solution, which relies more on personal disposition and learning approach

The proposed solution and its examination.

Contextualization of proposed solution in the light of similar design problems

A critique of the design process and learning curve of the student

The above steps ensure two important competencies on the part of a student. One is a greater understanding of the design process as similar design problems and their solutions function as an existing measure to assess design strategies.⁴⁴ Second, it engages students in thinking about the fundamentals of personal design thinking.⁴⁵

The main criticism on project-based and studio-based learning comes from the fact that these models do not develop the ability of the student to use knowledge gained from one project for the other projects. The ability to transfer knowledge is mostly associated with problem-based learning model since unlike the other two models, problem-based learning focuses on real life scenarios, promotes comprehensive understanding of problem, and brings the knowledge of design process to surface. The ability to transfer learning and knowledge from one project to another is the key area where the difference lies.

The transfer of learning has been one of the main subjects of inquiry in educational psychology. The simplest definition of transfer comes from Bransford and Schwartz, who define it as "the ability to directly apply previous learning to a new setting or problem."⁴⁶ The definition rests on the idea that a generalized development of the mind is always more fruitful than development in specific skills. Transfer is also seen as a direct outcome of understanding and comprehension as opposed to memorization of certain knowledge or certain steps and procedures. It has also been seen as an outcome of original thinking, which means the use of intelligence in real time.⁴⁷

The ability to transfer has not been a thoroughly explored area in the research on graphic design education. In the broader field of education there are various

⁴² White, Mary Joe, Elizabeth Amos, and Kamiar Kouzekanani. "Problem-Based Learning: An Outcomes Study." *Nurse Educator* 24, no. 2 (1999): 33-36.

⁴³ Duch, Barbara. "Problems: A Key Factor in PBL." *About Teaching* 50 (1996): 7-8.

⁴⁴ Kvan, Thomas. "The Problem in Studio Teaching-Revisiting the Pedagogy of Studio Teaching." In *1st ACAE Conference on Architectural Education*. Milton, T. Centre for Advanced Studies in Architecture, National University of Singapore, pp. 95-105. 2001.

⁴⁵ Koschmann, Timothy D., A. C. Myers, Paul J. Feltovich, and Howard S. Barrows. "Using Technology to Assist in Realizing Effective Learning and: A Principled Approach to the use of Computers in Collaborative Learning." *The Journal of the Learning Sciences* 3, no. 3 (1994): 227-264.

⁴⁶ Bransford, John D., and Daniel L. Schwartz. "Chapter 3: Rethinking Transfer: A Simple Proposal with Multiple Implications." *Review of Research in Education* 24, no. 1 (1999): 61-100.

⁴⁷ Anderson, John R., Lynne M. Reder, and Herbert A. Simon. "Situated Learning and Education." *Educational Researcher* 25, no. 4 (1996): 5-11.

perspectives that view transfer as a significant competency, and there are suggestions to improve the ability. For instance, it is suggested that the use of multiple perspectives in addressing an issue may influence the learning curve of a student; therefore, a greater focus on general principles and underlying mechanics of a problem is achieved.⁴⁸ In fact, multiple perspectives on an issue or an explanation of a problem in multiple contexts make the gained knowledge more flexible. Hence, encourages a student to devise multiple solutions through the application of abstract generalizations. The role of abstraction in the transfer of knowledge involves both de contextualization and re-representation of the decontextualized information in a new, more general form, subsuming other cases. Abstractions, therefore, have the form of a rule, principle, label, schematic pattern, prototype or category. This makes clear how abstraction leads to transfer: It yields a re-representation that subsumes a greater range of cases.⁴⁹

The ability to transfer learning and knowledge from one situation to another is further classified as low-road and high-road transfer.⁵⁰ The low-road transfer refers to situations where the new situation is in some respects like the previously dealt situation. For instance, the knowledge gained in designing a folding chair may contribute to designing a folding table in a more predictable way.⁵¹

The high-road transfer occurs when there is a greater difference between the previously dealt and the new situation. For example, designing an advertisement campaign is quite different from game designing. In such cases, transfer would rest upon the ability of a student to generalize from previous learning and rethink the new situation in the light of generalizations. It is obvious that it would involve much more originality and understanding. It can be argued that students with better transfer ability will be more capable and innovative in dealing with new design problems. They will be better prepared for the twists and turns of the design industry in future. In this context, it can be inferred that the assessment procedures in educational models where the ability to transfer learning and knowledge is to be evaluated. The students will be explored in terms of their ability to learn new knowledge and relate their design strategies to previously applied knowledge. Moreover, they would be required to spell out abstractions and generalizations that influence design knowledge, design perspective, design strategies, and practices. A metacognitive approach that may contribute to the development of the ability to transfer is called "Reflection."⁵² "Reflection is a process where students can reflect upon their learning. It is an important step in any design thinking process."⁵³ Students can think of reflection to improve their creativity and innovation skills. Lastly, it is the ability to communicate the problem and sell their solution is an important skill in any profession. A teacher that focuses on metacognition, may also contribute to students'

⁴⁸ Gick, Mary L., and Keith J. Holyoak. "Schema Induction and Analogical Transfer." *Cognitive Psychology* 15, no. 1 (1983): 1-38.

⁴⁹ Salomon, Gavriel, and David N. Perkins. "Rocky Roads to Transfer: Rethinking Mechanism of a Neglected Phenomenon." *Educational Psychologist* 24, no. 2 (1989): 113-142.

⁵⁰ Perkins, David N., and Gavriel Salomon. "Transfer of Learning." *International encyclopaedia of Education* 2 (1992): 6452-6457.

⁵¹ Maier, Jonathan RA, and Georges M. Fadel. "Affordance Based Design: A Relational Theory for Design." *Research in Engineering Design* 20 (2009): 13-27.

⁵² Rhem, James. *Using Reflection and Metacognition to Improve Student Learning: Across the Disciplines, Across the Academy*. Stylus Publishing, LLC, 2013.

⁵³ Ellmers, Grant. "Reflection and Graphic Design Pedagogy: Developing a Reflective Framework to Enhance Learning in a Graphic Design Tertiary Environment." (2006).

interest in self-critique, reflection and problem solving.⁵⁴ There exists a consensus that Reflection contributes to learning from experience. However, its definition remains elusive in literature. David notes that “despite the wide interest in Reflection and the volumes written about it, is that the concept is ill defined. Formal definitions are not easy to find many write about Reflection with apparent assumption that everyone knows what it is.”⁵⁵ The idea of Reflection as a promising learning aid finds its initial formation in John Dewey’s work. He defines Reflection as “assessing the grounds (justification) of one’s beliefs.” According to John Dewey’s work, Reflection involves scientific bent of mind and is learnt through practical work.⁵⁶ A later formulation, inspired by Dewey’s definition came with Jack Mezirow in 1991 who described it as “the process of rationally examining the assumptions by which we have been justifying our convictions”.⁵⁷ Mezirow looked at Reflection as a higher order mental process that creates a meaning from the data of experience and investigates the foundations of beliefs including those that lead to direct problem-solving. There is a consensus in literature that Reflection is a significant and integral part of design process.

In the context of design education, Reflection involves preparation, image formation, and inference.⁵⁸ It is also argued that Reflection becomes an act of explicit engagement with ideas that remain implicit in design activity. An individual while reflecting brings forth to his consciousness previously conducted design activities. Hence, Reflection transfers knowledge from unconscious to the conscious mind. The role of Reflection in experiential learning can be understood from the following four step cycle proposed by David Kolb in 1984. The first stage in this cycle is a real life or a concrete experience. The second phase is observation or Reflection on experience, third phase is abstraction and generalization in which known theories are linked to general rules and the last and final phase is the experimentation in which new knowledge is configured to be used in future instances.⁵⁹ It is understandable that the comprehensiveness of the second and third step would determine the application in the fourth step. Moreover, the variety of experience in the first step would also be beneficial by providing more data to reflect upon. This means that a varied experience and a structured or systematic Reflection may yield more results. The structuring of reflective process has been one of the main interests of design education in the last few decades. Donald Schon’s work is pioneering in this regard⁶⁰. He is considered as founder of reflective practice in the context of design education. Schon believed that Reflection is integrally connected to action and for him design is a practical activity; therefore, Reflection plays a role at multiple

⁵⁴ Mayer, Richard E. "Cognitive, Metacognitive, and Motivational Aspects of Problem Solving." *Instructional Science* 26 (1998): 49-63.

⁵⁵ Kember, David, ed. *Reflective Teaching and Learning in the Health Professions: Action Research in Professional Education*. John Wiley & Sons, 2008.

⁵⁶ Jarvis, Peter, and Colin Griffin, eds. *Adult and Continuing Education: Adult Education-Viewed from the Disciplines*. Taylor & Francis, 2003.

⁵⁷ Hughes, Mel. "Handbook for Practice Learning in Social Work and Social Care: Knowledge and Theory, 3rd edn, Joyce Lishman (ed.)." (2018): 542-544.

⁵⁸ Reymen, I. M. M. J., D. K. Hammer, P. A. Kroes, Joan Ernst van Aken, C. H. Dorst, M. F. T. Bax, and T. Basten. "A Domain-Independent Descriptive Design Model and its Application to Structured Reflection on Design Processes." *Research in Engineering Design* 16 (2006): 147-173.

⁵⁹ Abdulwahed, Mahmoud, and Zoltan K. Nagy. "Applying Kolb's Experiential Learning Cycle for Laboratory Education." *Journal of Engineering Education* 98, no. 3 (2009): 283-294.

⁶⁰ Kinsella, Elizabeth Anne. "Constructivist Underpinnings in Donald Schön's theory of Reflective Practice: Echoes of Nelson Goodman." *Reflective Practice* 7, no. 3 (2006): 277-286.

levels.⁶¹ Therefore, he proposes three kinds of Reflection specific to design activity. The first is Reflection-in-action, which occurs the moment a designer experiences a new situation or faces a new problem in designing a solution. This kind of Reflection is on spot and has a direct and immediate significance for action. The second kind, entitled as Reflection-on-action differs on the basis that it reviews an action after its completion. It can take the form of pause and reflect, for instance, when a designer pauses an activity to monitor it in retrospect. The benefit of this kind of Reflection is that a designer after examining previous action may change strategy or further doing. It can ring to light aspects which were not considered in the Reflection-in-action phase. This is likely since during the Reflection-in-action phase the immediacy of action may inhibit a comprehensive examination. The third kind of Reflection which appeared later in Schon's work is Reflection-on-practice.⁶² This kind of reflection focuses on the general learning that occurred in personal design practices over a stretch of time. This differs from reflection-on-action in the sense that it examines the whole experience generated by various design problems and solutions that the designer dealt with in the past. Examination of the whole experience then influences the whole approach towards design solutions.

The model proposed by Schon met with criticism due to the loaded meaning of Reflection. A probably clearer explanation of Reflection in the design context was suggested by Reymen Isabelle. He stated that the three kinds of reflection proposed by Schon focus on three different levels of designing. Reflection-in-action, for instance, is an activity that occurs in the mind in terms of micro-level design dynamics, while Reflection-on-action deals with macro-level design dynamics. The third, Reflection-on-practice is more concerned with the whole design project dynamic.⁶³

The researchers on education advocate that a structured Reflection can provide more benefits to learners. Structured Reflection has been defined as "the combination of Reflection in a systematic way and Reflection regularly during a design process."⁶⁴ In design education, structured reflection is a recently tapped area of inquiry. An extensive study by Reymen revealed that structured reflection increased awareness of students about design situations and design problems. It encouraged examining the design process, helped them in being more organized and focused while working, and made improvements more possible. Reymen concluded that structured reflection helped designers to explain the design process in a more tangible means, they were able to make it domain independent. Their ability to generalize was deemed helpful in conducting multidisciplinary design projects and communicating with team members and stakeholders.⁶⁵

The research on design education also supports another form of reflection, which is

⁶¹ Schon, Donald A. *Educating the Reflective Practitioner. Toward a New Design for Teaching and Learning in the Professions. The Jossey-Bass Higher Education Series.* Jossey-Bass Publishers, 350 Sansome Street, San Francisco, CA 94104, 1987.

⁶² Schön, Donald, and John Bennett. "Reflective Conversation with Materials." *In Bringing Design to Software*, pp. 171-189. 1996.

⁶³ Reymen, I. M. M. J., D. K. Hammer, P. A. Kroes, Joan Ernst van Aken, C. H. Dorst, M. F. T. Bax, and T. Basten. "A Domain-Independent Descriptive Design Model and its Application to Structured Reflection on Design Processes." *Research in Engineering Design* 16 (2006): 147-173.

⁶⁴ Reymen et al.

⁶⁵ Reymen, Isabelle Marcelle Marie Jeanne. "Improving Design Processes through Structured Reflection: A Domain-Independent Approach." (2001).

termed as Critical Reflection by Jack Mezirow. It differs from reflection in terms of focus. Critical Reflection focuses not on action but on the belief system that lies at the foundation of design perspectives and approaches. Mezirow identifies the occurrence of critical reflection only if there is evidence of change in perspective or belief.⁶⁶ Critical reflection has also been explained as a conscious intent to transformative learning.

Western literature on design education highlights the salient features of studio-based learning, project-based learning, and problem-based learning. Problem-based learning model is given more importance; since, it fosters the ability to transfer learning and knowledge in the students, It is critical because the industry where they work after completing their degrees involves novel diverse scenarios. In order to increase the ability to transfer, reflective practice has been seen as a promising feature of design education. It is observed that reflection plays a key role in understanding design process, the underlying rules, beliefs, perspectives, and projections so that a student becomes better prepared for developing new design solutions with a flexibility of approach. Structured reflective practice is considered as a step forward in design education; although, empirical investigations confirming its result as a viable strategy are not sufficient.

Integration of Graphic Design Education and Industry

Design educators have contributed to developing various pedagogical approaches which deal with the challenges that the unique nature of design education poses. Their viewpoints particularly with reference to developing integration between design education and design industry provide insights. These can be helpful for both developing a design curriculum and for considering the possibilities of how design education can have a dialectical and productive relationship with the design industry. Laurene Vaughan, a renowned design educator is of the view that design education needs more focus on the future, since it develops a skill set of students that empowers them for future tasks.⁶⁷ This approach necessarily involves consideration of design education from the perspective of its usefulness in design industry. The industrial demands set the standards of what kind of design education should be imparted. Vaughan also identifies three important areas that can impact the future practice of design students in the industry. These include emerging technologies, speed of change, and a blurred distinction between global and local contexts. The first area is crucial because it invites more and more innovative approaches to development of design curriculum. The design curriculum must incorporate an awareness and technical knowledge of new technologies, since the industry always opts for efficient means of production. A graphic design student trained in a previous mode of technology can become redundant in the industry if a later technology has found place. The second area also important is the speed of change, since it does not allow the curriculum to be static. The educators must seek solution for the speed of change in the curriculum for business models, business relations, production enterprise and technological breakthroughs. In the former case awareness might suffice but, in the latter, productivity gains central importance. Graphic design education belongs to the latter category. The third area that Vaughan highlights is the distinction between

⁶⁶ Mezirow, Jack. "Adult Education and Empowerment for Individual and Community Development." *Radical Learning for Liberation* 2 (2007): 10-17.

⁶⁷ Vaughan, Laurene, ed. *Practice-Based Design Research*. Bloomsbury Publishing, 2017.

global and local contexts which is increasingly becoming blurred. This means that graphic design education in the Third World countries cannot sustain without a consideration of the development in First World countries. This is because technology is not region specific or culture specific, it has its own course of action and utility, and its application is universal.

Carlos Teixeira points out a discrepancy in graphic design education and submits that the level of attention given to undergraduate programs of graphic design is lesser than what is given to postgraduate programs.⁶⁸ Teixeira thinks this is a limiting factor since it reduces the chances of fresh graduates to be recruited in the industry. The graduates get the chance to be proficient designers, but they are not placed at entrepreneurial positions. He believes that the demand of the industry is such that it does not only require competencies but also a capability to transfer designs successfully in new situations. A similar concern was shown by Frank Baseman, who emphasized the need to train design students in research, writing, strategic thinking, and liberal arts at the undergraduate level. Baseman's viewpoint focuses on developing communication skills and research capabilities.⁶⁹

Gunnar Swanson is of the view that undergraduate programs should also focus on developing capabilities that are conducive for market placement. As per Swanson preparation for employment should be a part of the curriculum. Swanson asserted that designers should look at design as an "integrative field that bridges many subjects that deal with communication, expression, interaction and cognition."⁷⁰

A very useful categorization of design products has been made by design methodologist Christopher Jones. He describes two kinds of design products: on the lower level are components and products and on the higher level are design-based solutions to complex problems.⁷¹ The latter requires systematic thinking in addition to design competencies. Meredith Davis pointed out that systematic thinking is not encouraged in most of the design curricula.⁷² The design teachers usually give assignments to students which demand designing a hypothetical product. The assignment includes a project brief which is also written by a faculty member and is usually not a real-life description coming from a client of graphic design industry. Moreover, the evaluation of the product is also done by faculty members and students are given the criteria beforehand. This method of teaching which is not based on real life situations compromises factual thinking by students. Instead, students should be given real-life problems and should be asked to give their design solutions that could be tested in real-life settings. Davis believes that this will instill the required competence for the industry where complex problem solving is what really matters. Davis suggests that such curricula can be practiced if design education schools are integrated with professional companies that work for the graphic design industry.

The concerns raised by Davis have been positively addressed by Lawrence Zeegan, who is the Dean of Design in University of Arts London. Zeegan is of the view that the working together of the graphic design student and industry professional will ensure more productivity. Zeegan is critical of the traditional approach where a

⁶⁸ Teixeira, Carlos. "The Entrepreneurial Design Curriculum: Design-Based Learning for Knowledge-Based Economies." *Design Studies* 31, no. 4 (2010): 411-418.

⁶⁹ Baseman, Frank. "Liberal Arts is Old News." *The Education of a Graphic Designer* (2005): 19-21.

⁷⁰ Swanson, Gunnar. "Graphic Design Education as a Liberal Art: Design and Knowledge in the University and the Real World." *Design Issues* 10, no. 1 (1994): 53-63.

⁷¹ Jones, John Chris. *Design Methods*. John Wiley & Sons, 1992.

⁷² Meredith, D. "Raising the Bar for Higher Education." (2005).

graphic design student is required to do an internship at a firm. Zeegan instead suggests that the process should be reversed. The industry professionals should join graphic design degree program to train the students for the industry.

Engaging the industry professionals in design education is an approach on spot if we are looking at greater integration of graphic design education and industry. A market professional is aware of the trends and technologies, the contexts and tools, and the problems and solutions that lie at the heart of graphic design industry. He can inform and guide students about both problems and solutions and therefore help the design educators in developing curricula that is more in accordance with the industry requirements.

The growing demand of graphic design degree program in institutions to synchronize with graphic design industry is analyzed by Thomas Lockwood. Lockwood mentions that design knowledge was not considered relevant in business decision-making and the reason was that designers were never trained in business studies. Therefore, the collaboration between designer and industry professionals was difficult to attain an equal footing.⁷³ Similarly, in 2007 another article 'Design Management Comes of Age' by Thomas Walton, which outlines success stories of collaborations between design education and business industry.⁷⁴ The integration of designers into business world indeed requires a training for designers, wherein, they understand the power of business and commerce.

Design educationists suggest integrating graphic design education and business management studies to give rise to new kinds of specializations. Such joint ventures will result into designers who will also be entrepreneurs and business leaders. It has been suggested that such specializations should equally focus on design and management competencies including marketing and finance. Moreover, there should be a significant portion of the curriculum devoted to humanities and environmental studies.⁷⁵

Design educators also explored the aspect of a designer becoming an author. This idea began to surface in the 1980s at the Cranbrook School of Design in USA, where design educator Katherine McCoy conducted a design experiment with a group of students in which post-structuralism theory was used in a design application.⁷⁶ The essential purpose of using the theory was to transform graphic design from a commercial entity into a cultural language. At the beginning of twenty first century, the approach that designer can be an author re-emerged with the growing demand of graphic design authorship by publishers. These approaches redefined the role of graphic designer from a mechanical to creative mode.

Graphic Design belongs to the visual culture of society, Kerry Freedman defines it as "all that is humanly formed and sensed through vision or visualization and shapes the way we live our lives."⁷⁷ Visual culture in the contemporary world is continuously

⁷³ Lockwood, Thomas. "Design in Business Education—A Square Peg in a Round World?" *Design Management Journal (Former Series)* 13, no. 3 (2002): 19-24.

⁷⁴ Walton, Thomas. "Design management comes of age." *Design Management Review* 18, no. 3 (2007): 6-9.

⁷⁵ Fink, L. Dee. *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*. John Wiley & Sons, 2013.

⁷⁶ Allhutter, Doris. "Mind Scripting: A Method for Deconstructive Design." *Science, Technology, & Human Values* 37, no. 6 (2012): 684-707.

⁷⁷ Freedman, Kerry. *Teaching Visual Culture: Curriculum, Aesthetics and the Social Life of Art*. Teachers College Press, 2003.

shaping our opinions since it involves communication. Looking at a poster, a website or a hording means that an individual will process the visual information while combining a variety of perspectives and approaches inherent in the object. Since the amount of information and the related perspectives cannot be processed at once, therefore some of these seep into the sub consciousness of the viewer. The visual information has also increased due to a variety of platforms that are available to disseminate images. These platforms come with their own unique cultures, structures, and hierarchies. Computers, smart phones, social media, and other electronic and print platforms have increased the number of competencies expected from a graphic designer. The learning curve has become more demanding.

Considering the growing amount of visual culture, the graphic design education has also undergone a change but at a slower pace. Freedman also states that because of growth in visual culture, "the visual arts have become fundamental to the cultural transformation of political discourse, social interaction, and cultural identity that characterizes the postmodern condition."⁷⁸

The enrichment of visual culture and unavoidable development of graphic design can be seen as a dialectical process in which each phenomenon contributes to the other at multiple levels. Karl Marx, in the middle of nineteenth century stated that "it is not the consciousness of men that determines their existence, but, on the contrary, their social existence that determines their consciousness."⁷⁹ Marx meant that the social forces shape our thoughts and dimensions. In case of the relationship between graphic design and visual culture, the same holds true. Graphic design has an absorbing and reflecting nature that changes with modifications in lifestyle, cultural preferences, aesthetics, economics, and technology. Functional design reflects the changing standards of our culture."⁸⁰ Walter Benjamin and John Berger understood this development using a dialectical method; now, a personal computer and the internet are supporting those claims made over forty years ago. These innovations enabled graphic design's plurality and shaped the social movements that caused graphic design to repeatedly subvert and redefine itself.

Indeed, graphic design brings forth a satisfying answer to the handling of visual culture. When visual culture is addressed in the field of art education, it is often framed in left-wing political rhetoric: David Darts' article, "Visual Culture Jam: Art, Pedagogy and Creative Resistance, is a fitting example"⁸¹ With the introduction of graphic design in the art classroom, students are not only creating meaningful compositions, but they are also learning how the visual culture that surrounds them is constructed. Due to recent developments like the internet, the growing reliance on computers and smart phones along with a visually dominant culture, graphic design is inevitable in every field.

⁷⁸ Freedman, I.

⁷⁹ Adams, Ian. *The Logic of Political Belief: A Philosophical Analysis of Ideology*. Rowman & Littlefield, 1989.

⁸⁰ Vande Zande, Robin. "Teaching Design Education for Cultural, Pedagogical and Economic Aims." *Studies in Art Education* 51, no. 3 (2010): 248-261.

⁸¹ Darts, David. "Visual Culture Jam: Art, Pedagogy, and Creative Resistance." *Studies in Art Education* 45, no. 4 (2004): 313-327.

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References

- Adams, Ian. *The Logic of Political Belief: A Philosophical Analysis of Ideology*. Rowman & Littlefield, 1989.
- Allhutter, Doris. "Mind Scripting: A Method for Deconstructive Design." *Science, Technology, & Human Values* 37, no. 6 (2012): 684–707.
- Anderson, John R., Lynne M. Reder, and Herbert A. Simon. "Situated Learning and Education." *Educational Researcher* 25, no. 4 (1996): 5–11.
- Aynsley, Jeremy. *Graphic Design in Germany: 1890–1945*. Vol. 28. University of California Press, 2000.
- Auji, Hala. "Mazaar, Bazaar: Design and Visual Culture in Pakistan." (2013): 433–435.
- Baseman, Frank. "Liberal Arts is Old News." In *The Education of a Graphic Designer*, edited by Steven Heller, 19–21. New York: Allworth Press, 2005.
- Best, Kathryn. *Design Management*. Lausanne: AVA Academia, 2006.
- Best, Kathryn. *Design Management: Managing Strategy, Process and Implementation*. London: Bloomsbury Publishing, 2015.
- Blumenfeld, Phyllis C., Elliot Soloway, Ronald W. Marx, Joseph S. Krajcik, Mark Guzdial, and Annemarie Palincsar. "Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning." *Educational Psychologist* 26, no. 3–4 (1991): 369–398.
- Bransford, John D., and Daniel L. Schwartz. "Rethinking Transfer: A Simple Proposal with Multiple Implications." *Review of Research in Education* 24, no. 1 (1999): 61–100.
- Clarkson, John, and Claudia Eckert, eds. *Design Process Improvement: A Review of Current Practice*. London: Springer, 2010.
- Cliff, Alan F., and Rob Woodward. "How Do Academics Come to Know? The Structure and Contestation of Discipline-Specific Knowledge in a Design School." *Higher Education* 48 (2004): 269–290.
- Costanzo, Denise Rae. *The Lessons of Rome: Architects at the American Academy, 1947–1966*. University Park: Pennsylvania State University, 2009.
- Cross, Nigel. "Designerly Ways of Knowing." *Design Studies* 3, no. 4 (1982): 221–227.
- Cross, Nigel. *Designerly Ways of Knowing*. London: Springer, 2007.
- Darts, David. "Visual Culture Jam: Art, Pedagogy, and Creative Resistance." *Studies in Art Education* 45, no. 4 (2004): 313–327.
- Davies, Allan, and Anna Reid. "Uncovering Problematics in Design Education—Learning and the Design Entity." In *Proceedings of International Conference Re-Inventing Design Education in the University*, 178–184. London: CLTAD, University of the Arts, 2000.
- Davis, Fred. *Fashion, Culture, and Identity*. Chicago: University of Chicago Press, 1994.
- Davis, Meredith. *Teaching Design: A Guide to Curriculum and Pedagogy for College Design Faculty and Teachers Who Use Design in Their Classrooms*. New York: Simon and Schuster, 2017.
- Dorst, Kees, and I. M. M. J. Reymen. "Levels of Expertise in Design Education." In *DS 33: Proceedings of E&PDE 2004, the 7th International Conference on Engineering and Product Design Education*, Delft, Netherlands, September 2–3, 2004.

Liberal Journal of Language & Literature Review

Print ISSN: 3006-5887

Online ISSN: 3006-5895

- Duch, Barbara. "Problems: A Key Factor in PBL." *About Teaching* 50 (1996): 7–8.
- Ehmann, Debra. "Future Graduate: The Role of Assessment within Design Education." (2004).
- Ellmers, Grant. "Reflection and Graphic Design Pedagogy: Developing a Reflective Framework to Enhance Learning in a Graphic Design Tertiary Environment." (2006).
- Eskilson, Stephen J. *Graphic Design: A New History*. New Haven: Yale University Press, 2019.
- Fink, L. Dee. *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*. Hoboken: John Wiley & Sons, 2013.
- Freedman, Kerry. *Teaching Visual Culture: Curriculum, Aesthetics and the Social Life of Art*. New York: Teachers College Press, 2003.
- Friedman, Ken. "Creating Design Knowledge: From Research into Practice." In *IDATER 2000 Conference*, 5–32. Loughborough: Loughborough University, 2000.
- Gibson, R. Michael. "Dialectic: A Scholarly Journal of Thought Leadership, Education and Practice in the Discipline of Visual Communication Design." University of Michigan Press, 2019.
- Gick, Mary L., and Keith J. Holyoak. "Schema Induction and Analogical Transfer." *Cognitive Psychology* 15, no. 1 (1983): 1–38.
- Golec, Michael. *Graphic Design History*. New York: Allworth Press, 2004.
- Granet, Keith. *The Business of Design: Balancing Creativity and Profitability*. San Francisco: Chronicle Books, 2012.
- Heller, Steven, ed. *The Education of a Graphic Designer*. New York: Allworth Press, 2015.
- Hofmann, Armin, and Goldie Paley Gallery. *The Basel School of Design and Its Philosophy: The Armin Hofmann Years, 1946–1986: An Exhibition of Posters*. Philadelphia: Goldie Paley Gallery, 1986.
- Hughes, Mel. "Handbook for Practice Learning in Social Work and Social Care: Knowledge and Theory, 3rd edn, Joyce Lishman (ed.)." (2018): 542–544.
- Hussain, Syed Tauseef, Saira Hanif Soroya, and Kanwal Ameen. "Image Needs of Pakistani Visual Artists in an Academic Setting." *Global Knowledge, Memory and Communication* (2022).
- Jarvis, Peter, and Colin Griffin, eds. *Adult and Continuing Education: Adult Education—Viewed from the Disciplines*. London: Taylor & Francis, 2003.
- Jones, John Chris. *Design Methods*. New York: John Wiley & Sons, 1992.
- Judge, Vaughan, Jenny Olin Shanahan, and Gregory Young. *Undergraduate Research in Art: A Guide for Students*. New York: Routledge, 2018.
- K Dorst, Kees, and I. M. M. J. Reymen. "Levels of Expertise in Design Education." In *Proceedings of E&PDE 2004*. Delft, 2004.
- Kember, David, ed. *Reflective Teaching and Learning in the Health Professions: Action Research in Professional Education*. Hoboken: John Wiley & Sons, 2008.
- Khan, Muhammad Sher Ali. "The Changing Perspective of Art Education in Pakistan." Online Submission (2014).
- Kinsella, Elizabeth Anne. "Constructivist Underpinnings in Donald Schön's Theory of Reflective Practice: Echoes of Nelson Goodman." *Reflective Practice* 7, no. 3 (2006): 277–286.

Liberal Journal of Language & Literature Review

Print ISSN: 3006-5887

Online ISSN: 3006-5895

- Koschmann, Timothy D., A. C. Myers, Paul J. Feltovich, and Howard S. Barrows. "Using Technology to Assist in Realizing Effective Learning: A Principled Approach to the Use of Computers in Collaborative Learning." *The Journal of the Learning Sciences* 3, no. 3 (1994): 227–264.
- Kvan, Thomas. "The Problem in Studio Teaching—Revisiting the Pedagogy of Studio Teaching." In *1st ACAE Conference on Architectural Education*, 95–105. Singapore: National University of Singapore, 2001.
- Lane, Marty Maxwell, and Rebecca Tegtmeier. *Collaboration in Design Education: Case Studies & Teaching Methodologies*. London: Bloomsbury Publishing, 2020.
- Lawson, Bryan. *How Designers Think: The Design Process Demystified*. London: Routledge, 2006.
- Lockwood, Thomas. "Design in Business Education—A Square Peg in a Round World?" *Design Management Journal* 13, no. 3 (2002): 19–24.
- Maier, Jonathan R. A., and Georges M. Fadel. "Affordance-Based Design: A Relational Theory for Design." *Research in Engineering Design* 20 (2009): 13–27.
- Mayer, Richard E. "Cognitive, Metacognitive, and Motivational Aspects of Problem Solving." *Instructional Science* 26 (1998): 49–63.
- Meggs, Philip B., and Alston W. Purvis. *Meggs' History of Graphic Design*. 6th ed. Hoboken: John Wiley & Sons, 2016.
- Mezirow, Jack. "Adult Education and Empowerment for Individual and Community Development." *Radical Learning for Liberation* 2 (2007): 10–17.
- Meredith, D. "Raising the Bar for Higher Education." (2005).
- Michael, R. Gibson. *Dialectic: A Scholarly Journal of Thought Leadership, Education and Practice in Visual Communication Design*. University of Michigan Press, 2019.
- Moon, Jennifer A. *A Handbook of Reflective and Experiential Learning: Theory and Practice*. London: Routledge, 2013.
- Otto, Gretchen Marie. *The Cranbrook Mystique: A Historical Study of the Educational Philosophy of George Gough Booth*. Pennsylvania State University, 1994.
- Paolozzi, Kevin Michael. *What Goes Around, Doesn't Come Back Round: A Look into the Disruptive Influence of Basel School of Design and Cranbrook Academy of Art*. Ottawa: Library and Archives Canada, 2012.
- Perkins, David N., and Gavriel Salomon. "Transfer of Learning." *International Encyclopedia of Education* 2 (1992): 6452–6457.
- Raja, Iram Zia. "Shakir Ali, an Enigma within a Layered Reality." (2018).
- Raizman, David. *History of Modern Design: Graphics and Products since the Industrial Revolution*. London: Laurence King Publishing, 2003.
- Ramroth, William G., Jr. "Pragmatism and Modern Architecture." (2006).
- Reymen, I. M. M. J., D. K. Hammer, P. A. Kroes, Joan Ernst van Aken, C. H. Dorst, M. F. T. Bax, and T. Basten. "A Domain-Independent Descriptive Design Model and Its Application to Structured Reflection on Design Processes." *Research in Engineering Design* 16 (2006): 147–173.
- Rhem, James. *Using Reflection and Metacognition to Improve Student Learning: Across the Disciplines, Across the Academy*. Sterling, VA: Stylus Publishing, 2013.

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- Salomon, Gavriel, and David N. Perkins. "Rocky Roads to Transfer: Rethinking Mechanisms of a Neglected Phenomenon." *Educational Psychologist* 24, no. 2 (1989): 113–142.
- Schon, Donald A. *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*. San Francisco: Jossey-Bass, 1987.
- Schön, Donald A., and John Bennett. "Reflective Conversation with Materials." In *Bringing Design to Software*, 171–189. 1996.
- Swanson, Gunnar. "Graphic Design Education as a Liberal Art: Design and Knowledge in the University and the Real World." *Design Issues* 10, no. 1 (1994): 53–63.
- Teixeira, Carlos. "The Entrepreneurial Design Curriculum: Design-Based Learning for Knowledge-Based Economies." *Design Studies* 31, no. 4 (2010): 411–418.
- Vande Zande, Robin. "Teaching Design Education for Cultural, Pedagogical and Economic Aims." *Studies in Art Education* 51, no. 3 (2010): 248–261.
- Vaughan, Laurene, ed. *Practice-Based Design Research*. London: Bloomsbury Publishing, 2017.
- Walton, Thomas. "Design Management Comes of Age." *Design Management Review* 18, no. 3 (2007): 6–9.
- White, Mary Joe, Elizabeth Amos, and Kamiar Kouzekanani. "Problem-Based Learning: An Outcomes Study." *Nurse Educator* 24, no. 2 (1999): 33–36.