

DESIGNING LEARNING

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The rhythm of loss of integration with environment and recovery of union not only persists in man, but becomes conscious with him; its conditions are material out of which he forms purposes. Emotion is the conscious sign of a break, actual or impending. The discord is the occasion that induces reflection. Desire for restoration of the union converts mere emotion into interest in objects as conditions of realization of harmony. With the realization, material of reflection is incorporated into objects as their meaning. Since the artist cares in a peculiar way for the phase of experience in which union is achieved, he does not shun moments of resistance and tension. He rather cultivates them, not for their own sake but because of their potentialities, bringing to living consciousness an experience that is unified and total. In contrast with the person whose purpose is esthetic, the scientific man is interested in problems, in situations wherein tension between the matter of observation and of thought is marked. Of course he cares for their resolution. But he does not rest in it; he passes on to another problem using an attained solution only as a stepping stone on which to set on foot further inquires.

(Dewey 1934 p. 15-16)

In this passage from his last book, *Art as experience*, John Dewey uses his concept of the experiential learning process to describe differences between artistic and scientific learning styles. In this essay we will explore the differences between artistic and scientific education, comparing the learning styles of management students at the Weatherhead School of Management as reported by Boyatzis and Mainemelis (2000) and BFA graduates from the Cleveland Institute of Art. We will examine learning to design as a learning space with potential as an educational process that integrates artistic and scientific learning.

COMPARING EDUCATION IN MANAGEMENT AND THE ARTS

Our observations of the way the educational process is conducted in art schools and management schools reveal some striking differences that in many ways illustrate Dewey's description of the artistic and scientific learning process. A first awareness of these differences came as we were preparing a learning style workshop for art students. We asked what readings should we give and Paul Eickmann said, "You know, for art students learning is not text driven." This stood in dramatic contrast with management education which is almost entirely organized around texts that deliver an authoritative scientific discourse. The scientific basis of the management curriculum was established in 1959 by an influential Carnegie Foundation report that sought to improve the intellectual respectability of management education by grounding it in three scientific disciplines; economics, mathematics, and behavioral science.

The text driven approach of management education contrasts with the experiential learning process of demonstration—practice—production—critique that is used in most art classes. This process is repeated recursively in art education while management education is primarily discursive with each topic covered in a linear sequence with little recursive repetition. Management education focuses on telling while art education emphasizes showing. It tends to emphasize theory while art education emphasizes integration of theory and practice. Art education focuses on the learners' inside-out expression while management education spends more time on outside-in impression. Most of the time in management classes is spent conveying information with relatively little time spent on student performance, most of which occurs on tests and papers. In art classes the majority of the time is spent on student expression of ideas and skills. Art education tends to be individualized with small classes and individual attention while management education is organized into large classes with limited individualized attention. An assistant dean at the Columbus College of Art and Design who majored in music as an undergraduate and later got an MBA, contrasted the three hours a week he spent in individual tutorial with his mentor with the shock he experienced in entering a tiered MBA classroom of 200 students. Finally, art education tends to be represented by

faculty members with diverse learning styles whereas management education tends to favor specialized faculty members with a primarily abstract learning orientation. .

Table 1. Comparison of Arts Education and Management Education

ARTS EDUCATION	MANAGEMENT EDUCATION
AESTHETIC	SCIENTIFIC
DEMO-PRACTICE-PRODUCTION-CRITIQUE	TEXT DRIVEN
RECURSIVE	DISCURSIVE
THEORY AND PRACTICE	THEORY
SHOWING	TELLING
EXPRESSION	IMPRESSION
INDIVIDUALIZED	BATCHED
DIVERSE FACULTY	ABSTRACT FACULTY

LEARNING STYLES AND THE LEARNING SPACE

Experiential learning theory builds on Dewey’s concept of experiential learning integrating his model with other experiential learning theorists, Kurt Lewin, William James, Jean Piaget, and Paulo Freire. Experiential learning theory defines learning as "the process whereby knowledge is created through the transformation of experience.” (Kolb 1984, p. 41). The learning model portrays two dialectically related modes of grasping experience--Concrete Experience (feeling) and Abstract Conceptualization (thinking)--and two dialectically related modes of transforming experience--Reflective Observation (reflecting) and Active Experimentation (acting). Individual learning styles are determined by an individual's preferred way of resolving these two dialectics. Integrated learning is a process involving a creative tension among the four learning modes that is responsive to contextual demands. This is portrayed as an idealized learning cycle or spiral where the learner "touches all the bases"--feeling, reflecting, thinking, and acting--in a recursive process that is responsive to the learning situation and what is being learned.

The Learning Style Inventory is a simple self assessment tool designed to help learners describe their preferred style of learning by ranking their preferences for feeling,

thinking, acting and reflecting. The dialectic poles of grasping experience via feeling or thinking and transforming experience via acting or reflecting define a two dimensional learning space. Learners' scores on the LSI place them in one of nine distinct regions of the learning space, each of which is associated with a specific process of learning from experience. These regions are named for the points of the compass and are divided into specialized learning regions and integrative learning regions.

The learning process in specialized learning regions, NW, NE, SE, and SW, strongly emphasizes one pole of the feeling/thinking dialectic and one pole of the acting/reflecting dialectic. Individuals in the NW region learn primarily through acting and feeling. In the NE region learners emphasize reflecting and feeling. In the SE region learners emphasize reflecting and thinking. In the SW region individuals learn through thinking and acting.

In the integrative learning regions, N, E, S, W, and C the learning process integrates the poles of one or both of the two dialectics. The learning process in the N region integrates acting and reflecting in feeling. In the E region the learning process integrates feeling and thinking in reflecting. In the S region learners integrate acting and reflecting in thinking. In the W region the learning process integrates feeling and thinking in action. In the Central region learners have an integrative approach to learning that balances feeling, thinking, acting, and reflecting.

COMPARING LEARNING STYLES OF ART AND MANAGEMENT STUDENTS

Tables 2 and 3 show how the learning styles of art and management students are distributed in the learning space. Art students are concentrated in the feeling oriented northern regions of the learning space while management students are concentrated in the thinking southern regions. 37.8% of art students are in the north regions while 22.5% are in the south. 45.7% of management students are in the south regions with 21.2% in the north. There are more art students in the eastern regions than in the western regions (36.0% to 27.2%). There are more management students in the western regions than the eastern regions (36.3% to 30.4%). 63% of art students have integrating learning styles compared to 56% of management students. Among art students the SW region is the

least populated (1.8%) while the least populated region for management students is the NE (5.1%). 10.2% of management students are in the balancing central region while 14.4% of art students are there. Boyatzis and Mainemelis found correlations between abstract learning styles and grades and GMAT; indicating a bias toward abstraction in evaluation and selection practices. For BFA graduates there was no relationship between grades and learning style.

LEARNING STYLES OF BFA GRADUATES IN DESIGN

The field of design is of particular interest for the idea of managing as designing since it involves integrating artistic imagination and scientific analysis. A faculty member in the Design Department at Art Academy of Cincinnati described the nature of design as follows: "In design, the subject is given to us. Our work is to take what is given and transform it into an idea that communicates the desired message in the most successful way." Thus the design process requires integration of the designer's inside-out creative expression to given outside-in specifications and objectives. Such integration occurs in the dynamic process of integrating the feeling, thinking, acting and reflecting modes of learning. Table 4 shows the learning style distribution of design majors. The design department has five areas of concentration: illustration, medical illustration, interior design, industrial design and graphic design. The table indicates that, 20.3% of design students are in the balancing central region. Of the 16 BFA graduates in the central region 13 are majoring in design. 60.8% of design students have integrating learning styles.

If we take the stance of management education as design, we may be able to see that artist's dilemma in coming up with the most inventive, insightful and effective solution to the problems at hand, are no different than the challenges managers face in their daily tasks. A shift to a more integrated learning environment may in fact improve the managers' ability to be creative and effective in solving problems and situations in various arenas.

IMPLICATIONS FOR EDUCATION

The concepts of learning space and learning style have important implications for designing educational systems that promote learning. As we have seen, each of the nine regions of the experiential learning space is associated with specific learning processes. The learning processes in each region are in turn most effective for the achievement of certain learning outcomes. For example, the feeling oriented northern regions are most effective for learning interpersonal skills while the thinking oriented southern regions are most effective for learning analytic and quantitative skills. An individual's learning style represents their preference for a particular region of the learning space, their home base so to speak. To learn skills outside of their home region learners need to move to other regions. This framework is useful for curriculum development, student development and faculty development.

Curriculum development needs to address not only content objectives, but the learning processes that are most effective for learning the content. In management education for example, while the Carnegie report was successful in establishing a scientific basis for management education; beginning in the late 1980's MBA programs received intense criticism for being too focused on abstract learning. MBA graduates were viewed as: “(1) too analytical, not practical and action oriented; (2) lacking interpersonal and in particular communication skills; (3) parochial, not global in their thinking and values; (4) having exceedingly high expectations about their first job after graduation... (5) not oriented toward information resources and systems; and (6) not working well in groups.” (Boyatzis, Cowen and Kolb 1995, p 4) In response many management schools have introduced learning programs that emphasize the northern and western regions of the learning space such as executive mentoring, action learning and team learning.

Students can be empowered to take responsibility for their own learning by understanding how they learn best and the skills necessary to learn in regions that are uncomfortable for them. Faculty also have learning style preferences for particular regions of the learning

space and most often they tend to teach the way they learn. Understanding the learning regions most suited to learning their course content and the individual learning styles of their students can help them recognize the need to teach in different ways that flexibly respond to course objectives and student learning needs.

REFERENCES

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Table 2. Learning Styles of CIA BFA Graduates (N=111)

<p>NW Feeling—Acting 12.6%</p>	<p>N Feeling Acting—Reflecting 16.2%</p>	<p>NE Feeling—Reflecting 9.0%</p>
<p>W Acting Feeling—Thinking 11.7%</p>	<p>C Feeling Acting + Reflecting Thinking 14.4%</p>	<p>E Reflecting Feeling—Thinking 13.5%</p>
<p>SW Thinking—Acting 1.8%</p>	<p>S Thinking Acting—Reflecting 7.2%</p>	<p>SE Thinking—Reflecting 13.5%</p>

Table 3. Learning Styles of MBA students (N=1286)

<p>NW Feeling—Acting 10.1%</p>	<p>N Feeling Acting—Reflecting 6%</p>	<p>NE Feeling—Reflecting 5.1%</p>
<p>W Acting Feeling—Thinking 13.5%</p>	<p>C Feeling Acting + Reflecting Thinking 10.2%</p>	<p>E Reflecting Feeling—Thinking 9.3%</p>
<p>SW Thinking—Acting 12.7%</p>	<p>S Thinking Acting—Reflecting 17%</p>	<p>SE Thinking—Reflecting 16%</p>

Table 4. Learning Styles of CIA BFA design graduates (N=64)

<p style="text-align: center;">NW Feeling—Acting 14.0%</p>	<p style="text-align: center;">N Feeling Acting—Reflecting 12.5%</p>	<p style="text-align: center;">NE Feeling—Reflecting 10.9%</p>
<p style="text-align: center;">W Acting Feeling—Thinking 7.8%</p>	<p style="text-align: center;">C Feeling Acting + Reflecting Thinking 20.3%</p>	<p style="text-align: center;">E Reflecting Feeling—Thinking 15.6%</p>
<p style="text-align: center;">SW Thinking—Acting 3.1%</p>	<p style="text-align: center;">S Thinking Acting—Reflecting 4.6%</p>	<p style="text-align: center;">SE Thinking—Reflecting 10.9%</p>