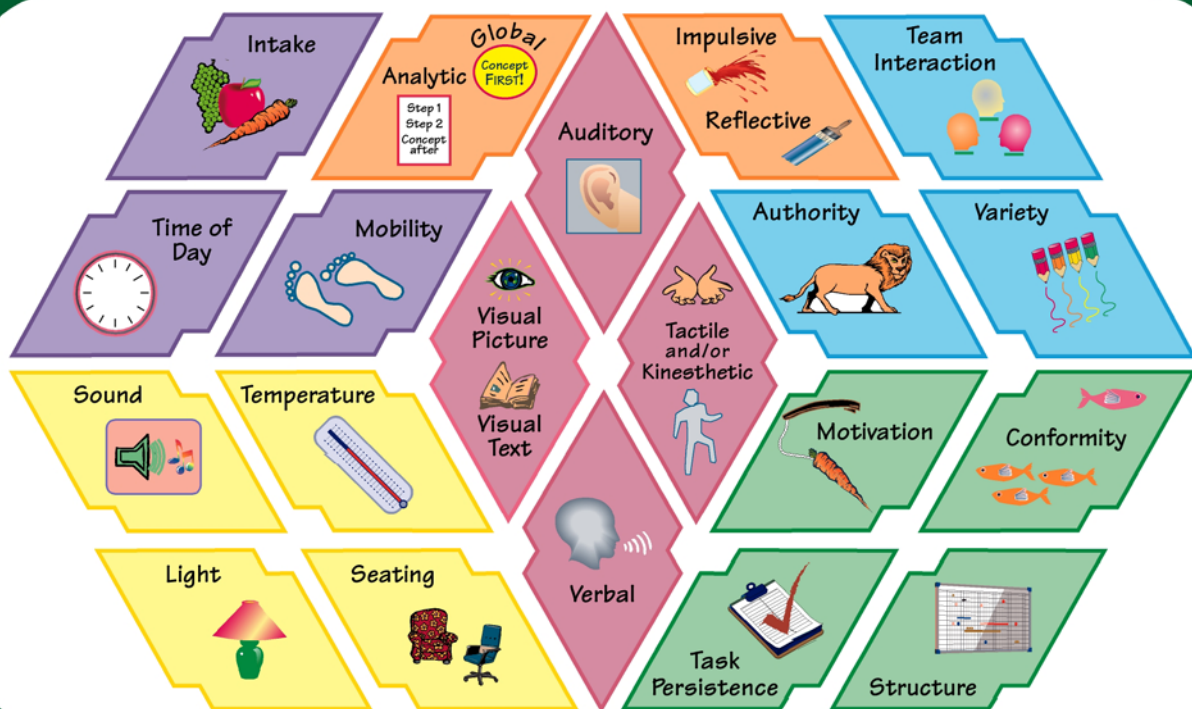


# BUILDING EXCELLENCE (BE)<sup>®</sup> SURVEY

## BE 2000 RESEARCH MANUAL

### The Building Excellence<sup>®</sup> Survey

©1996–2004 S. Rundle and R. Dunn • Designed by S. Rundle



- ◆ Perceptual Elements
- ◆ Environmental Elements
- ◆ Emotional Elements
- ◆ Psychological Elements
- ◆ Physiological Elements
- ◆ Sociological Elements

## INTRODUCTION TO BE 2000

In 1994, Susan Rundle and Rita Dunn began collaborating on the development of a new learning-style identification instrument for post-secondary adults in business and higher education. This instrument *Building Excellence Survey* (BE, 1996-2007) has continued to mature during the past decade from its original paper/pencil format into a multi-language, international web-based online assessment.

After rigorous testing procedures, the first version of BE (1996) (available in English and Finnish in paper/pencil format), was released in New York City at the Leadership Institute in 1997. The first online version became available in 1999. BE 2000 has been replaced by BE 2007.

### Overview

BE allows individuals to acquire a comprehensive picture of their unique learning and productivity strengths and preferences. Persons are easily able to compare and contrast their differences and sameness from a learning- and productivity-style perspective based on the report provided. BE 2000 is a web-based online assessment that identifies a combination of twenty-six elements that may affect, positively or negatively, how well each individual achieves and performs in educational and work-based learning environments. The twenty-six elements are crucial as these variables can promote or obstruct learning, productivity, and individuals' ability to concentrate on new and difficult information. Respondents normally complete the self-administering BE online survey in 20 to 25 minutes. Scoring is automatic and, upon completion, a comprehensive Learning and Productivity Style (LPS) report is generated. The LPS report, which is 18 to 20 pages in length, is available for printing immediately, and includes a one-page graphic overview, narrative descriptions of preferences, and recommended strategies from which to choose.

## Part 1—Perceptual Elements

### *Auditory, Visual Picture, Visual Text, Tactile and/or Kinesthetic and Verbal Kinesthetic*

The perceptual elements focus on one's predisposition for learning and retaining new knowledge skillfully. The five preferences include: *Auditory*—learning by listening; *Visual Picture*—learning by seeing images in the mind's eye or illustrations and pictures; *Visual Word*—learning by reading; *\*Tactile and/or Kinesthetic*—learning through a hands-on approach and by doing; and *\*Verbal Kinesthetic*—learning by verbalizing and making personal connections. Whenever possible, one should use his/her strongest perceptual preference first. This will help insure that individuals retain more information for later recall. Because teachers/trainers will not always take into consideration the various perceptual elements, we advocate that each person become responsible for applying the strength/preference that will help him/her retain the most information.

\*In BE2007, Verbal Kinesthetic was renamed Auditory Verbal and Tactile and/or Kinesthetic (BE2000) have been separated into two elements in the most recent version of BE. Tactual — learning through a hands-on approach. Kinesthetic — learning by being actively engaged and doing.

## Part 2—Psychological Elements

### *Analytic, Global, Integrated, Reflective, and Impulsive*

The psychological elements include preferences for processing new information—analytic and global elements—and preferences for making decisions and solving problems—reflective and impulsive elements. It is important to bear in mind that the brain possesses and uses both analytic and global qualities. Analytic thinkers prefer information to be presented in an orderly, logical, and sequential fashion. They also prefer a detailed, systematic process that builds to an understanding. Conversely, global thinkers process information in a more random and abstract fashion and prefer less detail rather than more. Global thinkers need to understand the concept first and prefer an introduction that includes humor, anecdotes, and illustrations.

### **Part 3—Environmental Elements**

#### ***Sound, Light, Temperature, and Seating***

The environmental elements are stress-related factors that affect one's ability to concentrate and focus on tasks. Stress is a major variable that contributes to or detracts from learning efficiently and working productivity. People's needs differ considerably when it comes to the environmental elements. Moreover, people often are unaware of the degree to which stress-related factors can inhibit or stimulate their ability to remain alert and productive for extended periods.

### **Part 4—Physiological Elements**

#### ***Time of Day, Intake, and Mobility***

The physiological elements affect one's ability to remain energized and stay alert in learning and working environments. Much research has been focused on individuals' preferred time of day. While humans work at various times, evidence supports the fact that it is important to be aware of preferred time of day as it relates to individual energy levels, quality of learning, decision-making, problem-solving, and productivity.

### **PART 5—EMOTIONAL ELEMENTS**

#### ***Motivation, Task Persistence, Conformity, and Structure***

The emotional elements influence how and how quickly one completes challenging and complex tasks. At least three of these elements are developmental, determined by one's stage in life, social environment, and experiences. Persistence appears to be closely linked with global versus analytic predispositions and may be biological in origin. Human emotions, a major part of an individual's learning system, are linked directly to life experience. Consequently, if positive, we do what we do based on what has been successful for us in the past.

### **Part 6—Sociological Elements**

#### ***Alone/ Pairs, Small Group, Team, Authority, and Variety***

The sociological elements are preferred ways of learning and interacting effectively with others. Be aware of the differences among how people accomplish tasks productively, the necessity for teamwork, and the dynamics of human interaction. We know from experience that people work most effectively

when they work with people they like, with people who share similar interests, and with people who have similar approaches and do things in the same way. Valuing the blending of diverse styles that complement one another and recognizing that each person brings unique talents and areas of expertise to the team is one prescription for high performance. Another is individual social preference.

*\*Alone/Pairs (BE2000) has been separated into two elements in the latest version of BE and Team is referred to as Large Group — Alone, Pair, Small Group, Large Group, Authority, and Variety.*

## **PSYCHOMETRIC PROPERTIES**

### **Item Generation**

The development of BE was based on the conceptual framework and guidelines for the development of new scales in accordance with established psychometric principles outlined by Hinkin (1996). The Standards for educational and psychological testing (1999) were followed. The items used for the BE (construct domains) were first created from the banks of items in the original Dunn & Dunn Learning-Style Model. Domain sampling theory states that it is not possible to measure the complete domain of interest, but that it is important that the sample of items drawn from potential items adequately represent the construct under examination (Ghiselli, Campbell & Zedeck, 1981). Those statements that best represented the learning styles being measured in workplace and higher education settings were selected and grouped into the proposed elements (constructs) for an adult population. Several statements were constructed as reverse-scored items in an effort to help reduce response set bias (Price & Mueller, 1986). Authors carefully worded statements to ensure appropriate interpretation by respondents. Authors paid careful attention to factor loadings and commonalities at the factor analytical stage of element development, which is recommended when using reverse-scored items (Schriesheim, Eisenbach & Hill, 1989).

### **Number of Items**

How many items should be included in each element was a key decision point in the development of BE. While there are no specific rules for making this decision, it is recommended that a measure should be

kept short as a means of minimizing response bias caused by boredom or fatigue (Schmitt & Stults, 1985; Schriesheim & Eisenbach, 1990). The literature suggests that retention of a minimum of three items to a maximum of six items ultimately will assure adequate internal consistency reliabilities (Cook et al, 1981; Hinkin 1985; Hinkin & Schriesheim, 1989; Schriesheim & Hinkin, 1990).

A larger number of items were used initially to assure that each element was adequately sampled, as inadequate sampling is a primary source of measurement error (Churchill, 1979). Items numbered from five to nine for each element. Item reduction was later performed using Cronbach's alphas in conjunction with exploratory factor analytic techniques. Initially, BE had a minimum of five items per element.

### **Item Scaling**

The 5-point Likert-type scale was selected for the item-response format because it is utilized most frequently in survey questionnaire research (Cook et al., 1981, Kerlinger, 1986). Anchors for the 5-point scale also were provided and ranged from strongly disagree (1) to strongly agree (5), with a neutral midpoint (3). Additionally, the Likert-type scale was selected as it was deemed important to generate sufficient variance among respondents for subsequent statistical analyses (Stone, 1978). Finally, coefficient alpha reliability with Likert-type scales has been shown to provide sufficient variance up to the use of five points, but then levels off (Lissotz & Green, 1975).

### **Factor Analysis**

Principle Component Factor Analysis that employed Kaiser normalization and Varimax rotation, in combination with reliability analysis, was used during the development of BE to verify the construct validity of the six parts and their respective scales.

A scientific approach was followed beginning with the adaptation of the Dunn and Dunn model and ending with the final statistical studies of the validity and reliability of BE. A total population of (N = 7304) was used for the latest statistical studies.

BE reliability was determined by genders, age groups, education levels, countries, and position and type of work settings. Due to the possible differences in culture and language usage between the USA (n =

5,337) and International (n = 1,967) samples, the data were divided for statistical purposes. A random sample (n = 1195) was extracted from the total population (N = 7304) to determine the BE Survey reliability displayed in Table 1.

BE was constructed using a pool of 20-30 items for each of six dimensions. These items were derived from the original Dunn and Dunn Learning-Styles Model. Items were rewritten to measure responses within the context of business and higher education settings. Because BE is a Likert-type, multi-item, survey-type instrument, evidence of reliability was provided by estimating its internal consistency using Cronbach's Coefficient Alpha procedure in SPSS. Standardized Alphas were used because the scales are comparable. Variance and covariance were taken into account in these computations. Alphas were deflated for the six parts/dimensions because each measures from 4 to 5 sub-scales. Alphas for each part and its sub-scales are 0.7 and above. Items were deleted that did not have high correlation with the total variables in each scale to improve the internal consistency of those scales.

Exploratory factor analysis, using the principal component extraction method, also was used in item reduction to identify a small number of factors (scales) that explain most of the variance observed in the much larger number of scale variables. In addition, the Varimax rotation method with Kaiser normalization was used in order to minimize the number of variables that had high loadings on each factor. Items with factor loadings of less than (< 0.4) were discarded from the final item pool. Items that did not load on the factors designed to measure the intended attribute were edited and revised. Revised items were tested again to determine the final composition of items in each scale of BE.

### **Perceptual Elements**

The Perceptual elements factored into five components as predicted from the Dunn and Dunn Model. In the final test, factor loadings were consistently high to very good during testing ranging from 0.876 to 0.490. The correlation coefficients for the elements were as follows: Auditory items from 0.876 to 0.787; Tactile and/or Kinesthetic from 0.834 to 0.748; Visual Picture from 0.882 to 0.744; Verbal (Internal) Kinesthetic from 0.732 to 0.490; and Visual Text from 0.811 to 0.373.

## Psychological Elements

The Psychological elements factored into five components. Factor loadings were high to good throughout testing ranging from 0.858 to 0.373. Impulsive and reflective elements loaded cleanly. Analytical and Global elements did not load as expected. One global and one analytic item loaded very strongly on a fifth factor. One global factor had two items loading with one analytical item. The correlation coefficients for the elements were as follows: Impulsive items from 0.853 to 0.659; Reflective from 0.814 to 0.750; and Analytic/Global from 0.846 to 0.811.

## Environmental Elements

The Environmental elements factored into four components as predicted. Factor loadings were high to good ranging from 0.918 to 0.663. The correlation coefficients for the elements were as follows: Setting items from 0.918 to 0.846; Light from 0.866 to 0.837; Temperature from 0.890 to 0.663; and Sound from 0.877 to 0.725. The Environmental elements were reduced to four items each from five items after analysis of loadings and reliability analysis.

## Physiological Elements

The Physiological elements factored into six components. Factor loadings were very high to good ranging from 0.938 to 0.695. The correlation coefficients were as follows: Intake items from 0.938 to 0.882; Early morning from 0.889 to 0.836; Late afternoon from 0.849 to 0.820; Evening from 0.871 to 0.753; Mobility from 0.869 to 0.695; and Late afternoon from 0.799 to 0.764. The Physiological elements were reduced to four items each from five items after reliability analysis in conjunction with factor loadings.

## Emotional Elements

The Emotional elements factored into four components. Factor loadings were high ranging from 0.889 to 0.706. The correlation coefficients were as follows: Conforming items from 0.889 to 0.792; Task persistence from 0.861 to 0.800; Structure from 0.858 to 0.720; and Motivation from 0.852 to 0.706. The Environmental elements were reduced to four items each from five items after analysis of loadings and reliability analysis.

## Sociological Elements

The Sociological elements factored into five components. Factor loadings were high ranging from 0.878 to 0.612. The correlation coefficients for the elements were as follows: Small group items from 0.858 to 0.764; Pairs from 0.865 to 0.730; Variety from 0.878 to 0.715; Team from 0.791 to 0.675; and Authority from 0.763 to 0.612. The Environmental elements were reduced to four items each from five items after analysis of loadings and reliability analysis.

**TABLE 1 — BE 2000 RELIABILITY**

<b>Building Excellence Survey ELEMENTS</b>	<b>BE 2000 n = 1195</b>
Auditory	0.91
Visual Picture	0.92
Visual Text	0.68
Tactile and/or Kinesthetic	0.87
Verbal Kinesthetic	0.72
Analytic/Global	0.73
Reflective/Impulsive	0.84
Sound	0.83
Light	0.89
Temperature	0.85
Setting	0.91
Intake	0.94
Early Morning	0.91
Late Morning/Early Afternoon	0.80
Late Afternoon	0.91
Evening	0.90
Mobility	0.83
Motivation	0.81
Task-persistence	0.87
Conforming	0.86
Structure	0.85
Alone/Pairs	0.86
Small Group	0.91
Team	0.85
Authority	0.75
Variety	0.87

## STUDIES UTILIZING BE

### A Statistical Comparison of Two Adult Learning-style Diagnostic Instruments

#### Abstract

This study compared the responses of 330 subjects on two adult learning-styles diagnostic instruments, *The Productivity Environmental Preference Survey* (PEPS, Dunn, Dunn & Price, 1979) and *Building Excellence* (BE, Rundle & Dunn, 1997). Both instruments were based on the Dunn and Dunn Learning-Styles Model. The sample included participants from industry, education, and students in higher education.

Results indicated that convergent validity between the two instruments was limited to environmental elements of light (.401), temperature (1.445 – scales are reversed on the two instruments, so a negative correlation was expected) and design (.453). Responses to many of the questions from both instruments dealing with the temporal elements of morning and evening revealed correlations in excess of .400. Interestingly, when educators were isolated as a group, robust correlations were exhibited for several of the perceptual elements: auditory (.722), tactual (.555), and kinesthetic at (.617).

Multiple Regression Analysis demonstrated that the elements of light, sound, design, intake, and persistence were better predictors of global/ analytic process style on BE than on PEPS. Principle Component Factor Analysis that employed Kaiser normalization and Varimax rotation was used in conjunction with Scree Testing in order to reveal that although BE contained 50 percent more questions than PEPS, it displayed a simpler factor structure when analyzed at the strand level.

While both instruments evidenced good internal reliability, the BE Survey was superior. Of the survey takers who indicated a preference, the majority preferred BE, and the majority also found the focus or context offered on BE helped to facilitate the assessment process.

Lewthwaite, B. (1999). *The Productivity Environmental Preference Survey and Building Excellence: A statistical comparison of two adult learning-style diagnostic instruments* (Doctoral dissertation, St. John's University, 1999). *Dissertation Abstracts International*, 60(12), 4396A.

### Applications to Business and Industry

Interstate National Dealer Services (inds.com) has contracted with Improving Communications (improvingcommunications.com) for an ongoing series of trainings for its staff and leaders. Part of this process requires that everyone in this company experiences a program concerned with *Management & Leadership*, including the requisite administration of *Building Excellence* (BE). Leaders then are provided extensive training on how to use BE to help employees work toward maximum achievement based on their own learning- and productivity-style preferences. CEO, Shaun Fetherston reported, "I didn't think I was going to be able to say this, but, it's working!" Featherstone's reaction was similar to those of BE with its Improving Communications Management & Leadership Development class. Interstate is following the same course of action with their leaders and managers to build an even better team than they had previously.

Dr. Richard Atkins, CEO, Improving Communications

### ***Building Excellence* Predictive Validity for Community-College Developmental Students' Reading and Writing Test Score Increases.**

#### Abstract

This research was first to utilize *Building Excellence's* (BE) (Rundle & Dunn, 2000) learning-styles strategies on developmental reading and writing students at the community-college level. The 103 participants were enrollees in multiple sections of one remedial English course at a New York City public two-year college. Students were subdivided into

experimental- and control groups with the intervention sample ( $n=53$ ) completing the BE online. Their BE Learning and Productivity Style (LPS) profile printouts were analyzed by the researcher, a Certified Dunn and Dunn Learning-Style Trainer. The treatments consisted of workshops in which participants were taught learning-style strategies and study-skills techniques. Researcher-created materials provided strategies to utilize when traditional-teaching methods did not accommodate students' learning-styles.

The research design compared the groups' pre- and posttest scores on the *City University of New York (CUNY) American College Test (ACT) Reading Compass Test* and *CUNY/ACT Writing Sample* (CUNY Office of Assessment, 2006). Participants' attitudes were assessed with the *State-Trait Anxiety Inventory for Adults (STAI)* (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) administered as a pretest during the midterm-examination period and with posttest responses collected shortly before final examinations. Experimental-group participants' reactions to doing homework through learning-style strategies were tallied with the *Semantic Differential Scale (SDS)* (Pizzo, 1981, 1982).

BE data results indicated that over 80% of the experimental sample ( $n=53$ ) had learning styles at variance with traditional teaching through lectures and readings from texts. The largest proportion were tactile-kinesthetic ( $n=22$ ) learners who preferred *hands-on* learning and active body movement, and auditory-verbal ( $n=21$ ) students who synthesized ideas best through peer-group interactions.

Reading- and writing-achievement results indicated significant within-subjects effects ( $p \leq .001$ ) for both groups. Reading-achievement scores within the groups revealed a very large effect size (Partial Eta Squared value of .553). Pretest attitudinal differences were statistically significant ( $p < .01$ ) between the groups. By posttest, the control group's STAI scores increased, whereas the experimental sample's Trait-Anxiety levels were lower than at pretest, an unanticipated finding. Results of this research have important implications for community-college students' academic success and persistence. Findings confirmed the efficacy of learning-style strategies for improving achievement and attitudes.

---

Maltzman, R. (2008). Effects of traditional-versus learning-style instructional strategies on community college students' achievement in and attitudes toward developmental reading and writing. Doctoral dissertation, St. John's University.

**Who Goes to College?  
Analysis of the Learning-Style  
Preferences of Entry-Level, Upper-  
Division Undergraduate/Graduate Stu-  
dents in Allied Health Identified with  
Analytic and Global Format Learning-  
Style Assessments**

**Abstract**

This research identified and compared the learning styles of 154 ethnically diverse, upper division undergraduate and graduate students in Allied Health utilizing the *Building Excellence (BE)* (Rundle & Dunn, 2000) and the *Productivity Environmental Preference Survey (PEPS)* (Dunn, Dunn, & Price, 1996). Relationships among age, class standing, ethnicity, gender, and learning style also were examined.

Correlation analyses indicated relationships between students' learning-style elements ( $p < .001$ ), with large effect sizes for Sound, Light, Temperature, Seating Design, Intake, Time-of-day and Mobility, Auditory, Tactile, and Kinesthetic preferences. Gender related learning-style characteristics revealed female preferences for learning by listening and male preferences for cooler temperatures, frequent movement, and learning in a pair or team during instruction. Analyses of variance and follow-up post hoc tests revealed significant age-related learning-style differences for Structure, Intake, Mobility, Early Morning and Afternoon, and Auditory preferences.

---

Morton-Rias, D., Dunn, R., Terregrossa, R., Honigsfeld, A., Geisert, G., Mangione, R., & Ortiz, S. (in press). Allied Health Students' Learning styles identified with two different instruments. *Journal of College Student Retention: Research, Theory and Practice*

## **Series of College Freshmen Students’ Learning Styles Coping with Diverse Learning Styles in the ESL Writing Class**

### **Abstract**

The authors discuss various learning-style models and introduce the elements of the Rundle and Dunn (1996-2007) *Building Excellence* (BE), which examines adult learning-style preferences arranged in six major stimuli—(Emotional, Environmental, Perceptual, Physiological, Psychological, and Sociological). The BE elements are analyzed and implications of these learning preferences are postulated for teaching writing to the adult English as a Second Language/English as a Foreign Language (ESL/EFL) population.

Each year, as ESL/EFL teachers welcome the latest cohort of international students, chances are that they have ceased to be overwhelmed by the sheer ethnic and linguistic diversity. For example, in just one ordinary section of an ESL reading and writing course at one large, higher education institution in New York, there were students from Armenia, Colombia, Ecuador, Haiti, India, Israel, Pakistan, Poland, former Soviet Georgia, Spain, Taiwan, and Vietnam—which was not considered unusual. ESL/EFL learners in the United States represent a diverse group of students who vary greatly, not only in age, academic ability, and ethnic and linguistic background, but also in educational level, career goals, and socioeconomic status. All these variables would be formidable enough in just coping with mainstream native-speaking American students; however, in addition to these variables, ESL instructors also must contend with individual learning styles. An examination of these learning styles and their implications for the ESL writer comprise the focus of this paper.

---

Honigsfeld, A., Rundle, S., & Pierson, H. (2005). Learning styles in the adult ESL writing class. *Perspectives*, 3(2), 13-32.

## **Are There Commonalities Among the Learning Styles of Freshmen Internationally?**

### **Abstract**

Eleven researchers from nine institutions of higher education collected data concerning the learning styles of 3,681 freshmen by age and gender. They analyzed and compared students’ group profiles in view of widespread professorial teaching. Statistical analyses included a multivariate analysis of variance with 23 dependent variables (learning-style elements) and three between-subject factors (age, gender, and institution) and a discriminate analysis. The alpha level was established at the ( $p < .05$ ) level. There were significant main effects for age and institution, with small to medium effect sizes. There was a statistically significant and medium effect size for the interaction of country by gender. Data revealed differences between how traditional vs. nontraditional age students and males vs. females at diverse institutions concentrate best. Those differences suggest discrepancies between how administrators schedule classes and how freshmen in diverse nations tend to learn. Practical suggestions for addressing freshmen’s characteristics are included.

---

Honigsfeld, A. Dunn, R., & Rundle, S. (2006). International comparison of freshmen learning styles: Statistically speaking about research vs. practice. *Journal of Global Education*, 7(4), 72-90.

## **Applying Learning-Styles Theory in the Workplace: How to Maximize Learning- Styles Strengths to Improve Work Per- formance in Law Practice St. John’s University**

### **Introduction**

As a lawyer, you are part of a complex web of relationships when servicing clients and you can maximize your potential by thinking in terms of interacting with others as part of the same team. Furthermore, as an employee, you can pay attention to your learning-style strengths so that you can work productively and efficiently. Alternatively, as a manager, you can communicate in ways that assist employees in terms of their diversity of learning styles.

Neither all employees nor all managers think or produce similarly. Business consultants and researchers

inside and outside of the United States are applying learning-styles theory to the business setting and finding that employees and managers appreciate understanding how their workplace functions in this new light. An American company, Performance Concepts International (“PCI”), consults with businesses by assessing individual learning styles and then linking the knowledge gained to individual and team performance. The workshops conducted by PCI consultants actively engage participants by using interactive techniques designed to capitalize on individuals’ learning strengths and productivity preferences.

---

Boyle, R. (2005).

### **Analysis of the Learning Styles of Community College First-Year, Traditional Versus Nontraditional Business Students by Achievement, Age, Gender, and Geographic Origin**

#### **Abstract**

These researchers analyzed the relationships among the learning-styles, achievement, age, gender, and geographic origin for first-year business students at a New York City Community College. The participants were selected based on their enrollment in courses offered by the college’s Accounting and Managerial Studies Department. Each completed the Building Excellence (BE) (Rundle & Dunn 2000) survey online to determine their individual learning-style preferences.

Statistical analyses revealed that four learning-style elements on BE—temperature, sound, intake, and late afternoon—significantly discriminated among low, medium, and high academic achievement levels. Six learning-style elements on BE—sound, intake, early morning, late afternoon, and conformity significantly discriminated by age among participating business students. Four learning-style elements on BE—evening preference, less conforming, visual text, and warm temperature significantly discriminated among participating males and females. Seven learning-style elements on BE—verbal kinesthetic, tactile and/or kinesthetic, analytic/global, sound, structure, alone or pairs, small group, and team—significantly discriminated among the geographic origin groups

investigated in this study—Other, Asian, Afro-American, European, and Hispanic. Three learning-style elements—more visual text, verbal kinesthetic, and conformity—significantly discriminated among students with a General Equivalency Diploma (GED). When a factor analysis of BE (Rundle, & Dunn, 2000) was performed, two of the six stimuli—sociological and environmental—significantly discriminated among participants. Significant relationships were found between sociological and sensory factors and between environmental and sensory factors.

---

Giordano, J. & Rochford, R. (2005). Understanding business majors’ learning styles. *The Community College Enterprise*, 11(2), 21-39.

### **Online Versus In-Class Instruction as Related to Graduate Students’ Achievement, Attitudes, and Learning-Style Preferences**

#### **Abstract**

Three major purposes of this study were to examine the differences among graduate students’ academic achievement and attitudes in online versus in-class courses, and the relationships among their learning-style preferences and subsequent achievement therein. The sample included 107 graduate students enrolled in either an online or an in-class course in Educational Administration. Each completed a demographic questionnaire, an attitude assessment, and a learning-style assessment. Participant information and scores on these instruments and their final course grades were collected for data analysis.

The variables *learning style* and *attitude* were operationalized by using two instruments: the *Building Excellence Survey* (Rundle & Dunn, 2000) and the *Computer Attitude Test* (Smalley et al., 2001). The *Computer Attitude Test* was created by Smalley, Graff, and Saunders (2001) as a revision of the *Computer Attitude Scale for Secondary Students (CASS)* developed by Jones and Clarke (1994). The variable academic achievement in in-class and online courses was operationalized by utilizing students’ final course grades, which ranged from *A* to *F*.

An Analysis of Variance (ANOVA) revealed that the two groups of students, online and in-class, did not

differ significantly on final course grades, a measure of achievement. An ANOVA also indicated that the two groups did differ significantly in their attitudes toward computer-based learning,  $F(1,93)=4.122$ ,  $p=.045$ , with the online group clearly possessing more positive attitudes toward online instruction. Multiple regression analyses were conducted to identify relationships among learning-style preferences and achievement. These analyses indicated that the learning-style preferences of in-class students did not significantly contribute to their final course grades. However, three learning-style preferences of the online students did contribute significantly to their final course grades. These included preferences for internal kinesthetic stimulation ( $t=2.161$ ,  $p=.056$ ), early morning learning ( $t=-2.73$ ,  $p=.055$ ), and varied sociological modes of learning ( $t=2.321$ ,  $p=.043$ ).

This study was especially important for the target population, graduate students, because of the increasing number of online courses being offered at that level.

---

Cicco, G. (2007). Comparison of Online Versus In-Class Instruction as Related to Graduate Students' Achievement, Attitudes, and Learning-Style Preferences. Doctoral dissertation, St. John's University.

### **Identifying the Learning Styles of Freshmen at a Bermuda Community College**

#### **Abstract**

This research was designed to identify the learning styles of freshmen at a Bermuda community college by achievement, age, gender, and major discipline. As the first learning-styles research with this population, it has implications for both teaching and learning.

The *Building Excellence* (BE) (Dunn & Rundle, 1996-2005) learning-styles survey was administered online to 190 freshmen who immediately received individual learning-style profiles and extensive study guides and action planners from Performance Concepts International. A summary of the learning-style preferences of the entire group was generated. Additionally, data were examined and analyzed using the

*Statistical Package for the Social Sciences* (SPSS) for both descriptive and inferential statistics. Analyses of variance (ANOVA) were computed for each of the variables with the level of significance set at a  $<0.05$ . *Tukey's Honestly Significant Difference* (HSD) Post Hoc Test was conducted for the variable of major discipline.

As a group, these freshmen were both analytic and analytically-integrated processors, single-task persistent, and with a preference for bright light while studying. Nonetheless, they also preferred informal seating and snacks and were fairly evenly matched in preferences for background sound and quiet. They shared the perceptual preferences of visual text, visual picture, tactual kinesthetic and verbal kinesthetic.

To varying degrees, significant differences were revealed among the learning styles of these students for all four variables. High achievers were significantly less authority oriented than low achievers. Non-traditional students were significantly more auditory, internal kinesthetic, and tactual kinesthetic than traditional students and also demonstrated a greater preference for studying in quiet, early morning, and alone or in pairs. Traditional students preferred informal seating and snacking, and were less conforming than non-traditional students. Females demonstrated a significantly greater tendency to be internally kinesthetic, more reflective, and required less mobility than their male counterparts who required more snacks and were more non-conforming. Only two learning styles were significantly related to major discipline—late afternoon energy and conformity. Students in the division of Applied Science and Technology were more likely to prefer studying in late afternoon and to be less conforming than students in the Liberal Arts Division.

---

Ahad, A. (2006). Identification of the learning styles of freshmen community college students in Bermuda by achievement, age, gender, and major discipline. Doctoral dissertation, St. John's University).

## **Identifying the Learning Styles of Freshmen at a Large, Private Metropolitan University**

### **Abstract**

Adult undergraduate students' learning styles were identified employing *Building Excellence* (BE) (Rundle & Dunn, 2000) based on the Dunn and Dunn Model. The *Statistical Package for Social Sciences* (SPSS) (Version 11.5) (2002) was utilized to generate descriptive statistics and to conduct parametric and non-parametric tests. The 1,533 participants were drawn from the incoming Fall 2004 full-time freshmen at a large, private metropolitan university. A group profile revealed that 94 percent were between 17 and 18 years of age.

At the end of the academic year 2004-2005, participants' mean GPA was 2.94 with a SD of .74. More than one third (36.5 percent) had not yet declared a major. Represented ethnicities included 35 percent White, 21 percent Asian, 20 percent Black, 14 percent Hispanic, and 10 percent Other.

Briefly, the findings were as follows.

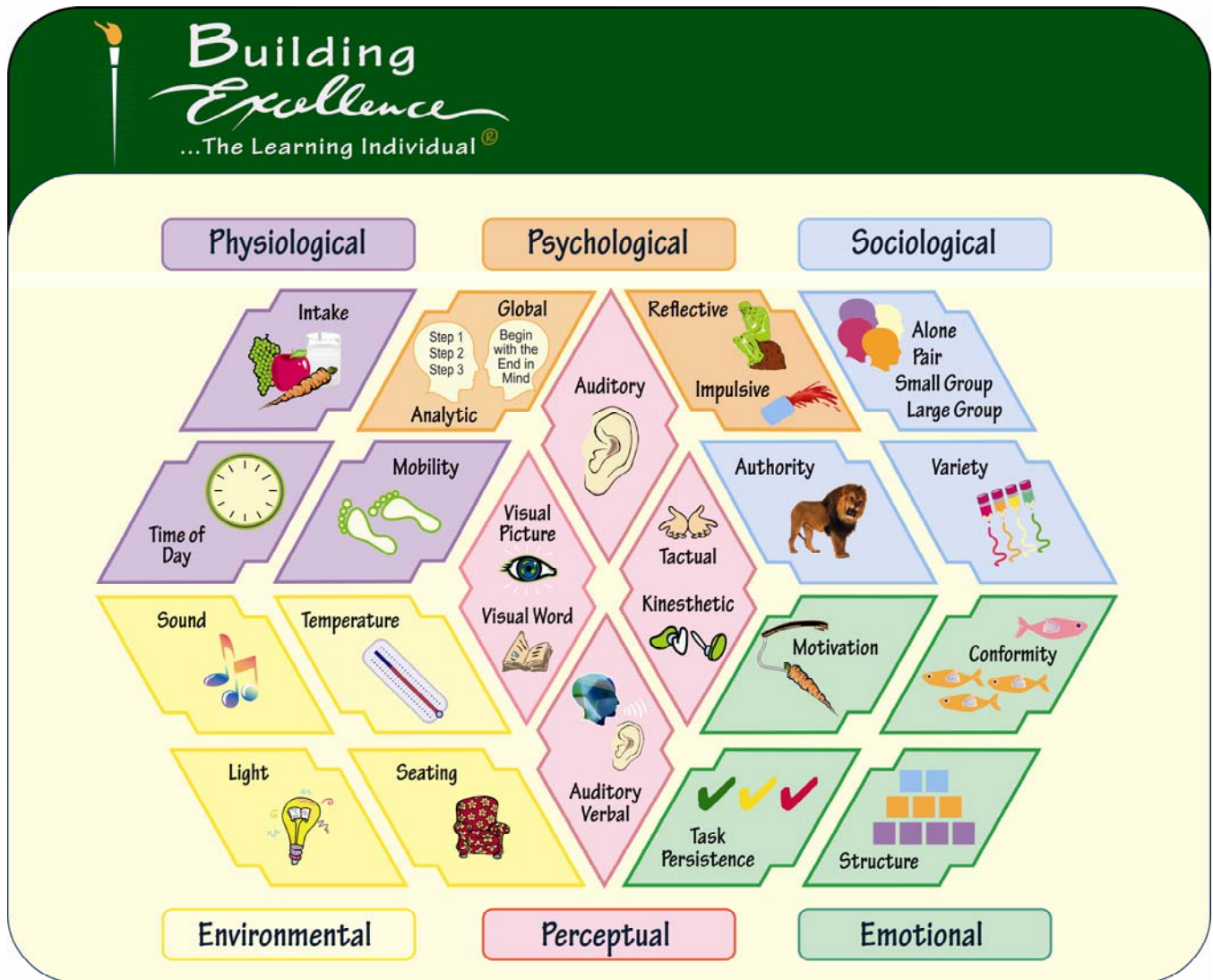
- Late afternoon high energy levels and seating design correlated significantly with age.
- Higher performing students were significantly visual text-oriented, verbal kinesthetic, analytic, and reflective in learning style. In addition, they preferred bright light, quiet, and structure while concentrating. They also preferred to work alone or in pairs more than their lower-performing counterparts.
- Among ethnic groups, significant differences were revealed for visual text, verbal kinesthetic, tactile-kinesthetic, analytic, reflective processing, temperature, light, sound, intake, late afternoon, motivation, structure, alone, in pairs, or as part of a team—but not learning directly with the professor, and wanting instructional variety.
- Females differed significantly from males in that they were more visual-text oriented, analytic, reflective, preferred informal seating, and needed bright light and structure.

- In contrast, males preferred cooler temperatures, less variety and more patterns, and studying in the evening. They also were less conforming than females and preferred working in small groups or on a team.
- Significant learning-style differences by major disciplines were evidenced for the variables of being reflective, specific temperature and sound preferences, early morning classes, wanting instructional variety, and working as part of a team.
- Socioeconomic status was determined by financial aid awards; specifically, Pell and TAP Grants based on financial need. No significant correlations were documented for the variable Pell. Significant correlation coefficients were produced for the variable TAP and auditory, visual picture, visual text, analytic processing, motivation, and structure.

---

Cutolo, Angela M. (2006). *The Relationship(s) Among Learning-Style Preferences, Age, College Grade-point-Averages, Ethnic Backgrounds, Gender, Major Disciplines, and Socioeconomic Status of Undergraduate Students in a Large Metropolitan University.*

# BE 2008



Building Excellence (BE) Copyright ©1996–2008 Rundle & Dunn • Graphic Design ©1996–2008 Rundle