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ABSTRACT
          This document contains three papers from a symposium on
individual learning issues that was conducted as part of a conference on
human resource development (HRD). "Communication in the Workplace: Using
Myers-Briggs To Build Communication Effectiveness" (Patrice M. Scanlon, Judy
K. Schmitz, Tracey Murray, Lisa M. Hooper) reports on a study of workplace
communication that suggested a relationship between length of employment and
employees' satisfaction with communication between supervisors and their
peers. "An Analysis Using Houle's Typology of Learning Orientation and
Selected Variables in Predicting Student Persistence in a Two-Year
Proprietary Technical College" (Francis C. Pengitore) discusses a
longitudinal study of 468 students that examined the following three
questions: (1) whether a profile exists for students who persist in college;
(2) whether Houle's Typology of Learning Orientation is useful in predicting
student persistence; and (3) whether a relationship exists between student
persistence and learning orientation, income level, race, gender, high school
graduation status, and college entrance examination scores. "Examining the
Differences in Preferred Learning Environments between Members of the 'X' and
the Baby Boomer Generations" (Blue Wooldridge, Stacey Bellamy) presents data
on the preferred learning environments of approximately 200 Baby Boomer and
Generation X graduate students in administration. The papers contain
reference sections. (MN)

# 2000 AHRD Conference

# Individual Learning Issues

Symposium 44

Raleigh-Durham, NC

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# Communication in the Workplace: Using Myers-Briggs to Build Communication Effectiveness

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*This paper presents a study examining communication type and communication satisfaction between an organizations supervisors and their subordinates, facilitated by the Myers-Briggs Type Indicator (MBTI) and MBTI workshops. Satisfaction was measured by the Communication Assessment Instrument (CAI). The unexpected findings may be explained by the design and methods used in the study. Results do suggest there may be a relationship between length of time employed and employees satisfaction with communication between supervisors and their peers.*

Key Words: Workplace Communication, MBTI, Management

Interactive communication is an essential ingredient for an effective, successful organization (Schein, 1997). The ability of companies to survive the technological, global and ethical turmoil today is linked to the effective communication of the employees and visionary leaders (Kroeger, 1992; Sashkin, 1995).

While there are not a lot of instruments to measure effective communication, one of the most often used is the Myers-Briggs Type Indicator (MBTI). "The Myers-Briggs Indicator personality inventory is one of the most popular self-report instruments in leadership and management development programs; in communications training; and in other organizational development training in the United States and around the world" (Fitzgerald & Kirby, 1997). MBTI has been used for more than forty years by organizations who want their employees to communicate better (Kroeger, 1992). Unfortunately, 99% of the people that attend an MBTI workshop seldom receive information on how to apply the information in the workplace. In other words, no transfer of learning occurs from the workshop to the workplace (Coe, 1992).

## Statement of the Problem and Theoretical Framework

The lack of workplace application has been experienced by one member of this research team (Ms. X). Her organization regularly administers the MBTI as part of its training program. Unfortunately, no explanation is provided to the employees as to how to use the information when they return to their work environment. As a result, the value and benefit of the material is lost; and, the company incurs a significant cost in training and employee time.

Approximately 10 years ago, Ms. X recognized the benefits of MBTI as a communication tool, especially in the workplace, as evidenced by the perception of employees who prefer to work alone rather than in a group; the data.gathering patterns of a detail-oriented person versus the sixth sense or probabilities patterns of an intuitive person; or, the decision-making process of an individual who stoically follows a set procedure rather than being concerned about the impact the decision will have on others. Ms. X wanted to move her work unit from MBTI theory to application in the work environment.

When people differ in communication style, knowledge of Type lessens friction and eases strain in any work setting. Isabel Briggs Myers posited that using Type in communication breaks down these barriers (Myers, 1980). For example, people with opposite type differences work side-by-side and often wonder why they have trouble communicating with each other. "Ts" use logic to arrive at definitive opinions without paying much attention to their or others' feelings. When a "T" type disagrees with an "F" type, the "T" type may be so forceful

and blunt that the "F" type feels attacked because an 'F' type prizes harmony and would rather agree than disagree with others. This makes agreement or cooperation almost impossible (Myers, 1980).

In another example, an "N" type speaking to an "S" type must state up front what he/she is talking about. The "N" type has a tendency to start in the middle of a conversation, to leave sentences unfinished, and to change the subject frequently. On the other hand, an "S" type deals with facts which can be boring and restricted for an "N" type (Myers, 1980).

Myers (1980) states, "Sensing [S] types want the solution to be workable; thinkers [T] want it systematic; feeling [F] types want it humanly agreeable, and intuitives [I] want a door left open for growth and improvement."

A relationship-centered workplace requires that all employees understand those around them so that they can connect quickly and intensely to solve problems (Kroeger, 1992). Using the MBTI concept, Ms. X has incorporated the MBTI into her repertoire of management tools and administers the instrument to all new employees entering her department. Ms. X builds workshops into her staff meetings that help address real and potential problem areas in the workplace (e.g., interpersonal skills, problem solving, diversity, and specific work-related issues). In addition, she applies the theory in the day-to-day activities of her employees - including the presentation of a work problem and possible solutions, review of recommendations from an external group for system or process changes, and brainstorming ideas with subordinates. Ms. X reported that no other type of communication workshop was provided in the workplace.

There are two reasons why this research study is of interest to the researchers. First, Ms. X's interest area is working with managers to help them become better facilitators of learning in the workplace. Ms. X wants to determine whether the MBTI is one of the tools managers should know and use in the work setting for effective communication flow given that communication with employees is one of the first steps in facilitating learning. Second, and for benefit to the behavioral sciences, this research study may determine whether or not managers should use MBTI as a tool to determine communication styles in the workplace and provide training in its uses in order to help their work units and, ultimately, their organization be effective and successful.

## Definition of Terms

Effective communication as defined in this study is indicated by a high total score on the CAI for the experimental and control groups. The high total score is an indicator of a high level of satisfaction with communication in the workplace. That is, if you are satisfied, communication is effective in the workplace.

## Purpose

The purpose of this study is to determine whether incorporating effective communication training based on the Myers-Briggs Type Indicator is an effective technique to enhance communication satisfaction between a manager and subordinates. Specifically, this research study will determine whether subordinates who participate in periodic MBTI exercises are more satisfied with the communication in their department than subordinates who do not receive similar MBTI information.

## Variables

The dependent variables are the scores from each of the subsections in the instrument (conveying information, channels of communication, written communication, oral communication, and quality of team communication) and the experimental and control groups' total score. The independent variable is MBTI usage. The categorical variables are length of time in department, level of education, ethnicity, gender, and MBTI profile.

## Research Questions and Hypotheses

The research question investigated in this study was: Does incorporating effective communication training based on the MBTI increase communication satisfaction between a senior manager and subordinates? The researchers

hypothesize that the awareness of one's communication style and use of effective communication techniques based upon the MBTI will have a positive affect on a senior manager-subordinate relationship.

## Methodology

### Design

The researchers used an experimental, static-group comparison design to examine the outcomes of incorporating effective communication training based on the MBTI. In the static-group comparison design, two already existing, or intact, groups are used, and comparisons are made between the groups receiving different treatments. Although this design provides better control over history, maturation, testing, and regression threats, it is more vulnerable to mortality, location and differential subject characteristics (Fraenkel & Wallen, 1996).

### Participants

Participants in the experimental group currently work at a Fortune 100 company in a direct revenue stream department. The control group participants in this study work for the same Fortune 100 company but in a different location. Participants in the experimental group are supervised by Ms. X. The employees were given the MBTI when they first went to work for her. Basic MBTI information was presented to the subordinates at the time the instrument was administered. Every employee, except one, has participated in at least one workshop with Ms. X using MBTI information. The purpose of the workshop was for the subordinates to learn how to increase effective communication with their colleagues and senior manager by utilizing MBTI's Type information. It was an attempt to help the experimental group's participants apply the learning in the workplace so they could move from theory to action.

During the workshops, pre-selected groups worked through a series of situations that highlighted different preferences used in communicating in the workplace. After each group completed the activity, a discussion was held to review the outcomes and discuss how they related to the interactions the subordinates encountered everyday. In addition, individual exchanges about using the MBTI preferences often occurred between the subordinate and senior manager, especially when a decision was required and the subordinate was presenting collected data. Of the 20 people who work in this department, 19 (13 females, 6 males) participated in this pilot study; one member was unavailable to participate.

Members of the control group are supervised by Mr. Y. None of the employees were given the MBTI when they first went to work for him, although three employees had taken the MBTI during their careers. None of the control group members have participated in a workshop with Mr. Y using MBTI information. Of the 62 people who work in this department, 14 (2 females, 12 males) participated in this pilot study.

Complete demographic information of the two groups is provided in Table 1 below and illustrates that the study's sample represents a heterogeneous group. While the sample was a purposive sample, their selection was based not only on their availability, but also on the appropriateness of collecting data on them given the goals of this research study (Fraenkel & Wallen, 1996).

### TABLE 1. PARTICIPANT DEMOGRAPHICS

| VARIABLES | CONTROL GROUP | EXPERIMENTAL GROUP |
|---|---|---|
| Gender | Males - 12 | Males - 5 |
| | Females - 2 | Females - 14 |
| Ethnicity | Caucasian - 11 | Caucasian -10 |
| | African-American - 1 | African-American - 9 |
| | Other - 1 | Other - 0 |
| Length of Time in Department | Less than two years - 11 | Less than two years - 7 |
| | Two years or more - 3 | Two years or more - 10 |
| | | No response - 2 |
| Level of Education | Less than four-year degree - 3 | Less than four-year degree - 5 |
| | Four-year degree or more - 11 | Four-year degree or more - 12 |
| | | No response - 2 |
| Number of MBTI Workshops attended | None - 11 | None - 1 |
| | One to Three - 3 | One to Three - 8 |
| | Four to Six - 0 | Four to Six - 3 |
| | More than Six - 0 | More than Six - 5 |

## Instrumentation

Two instruments were used in the study. The first instrument was the MBTI. The instrument's reliability and validity follow this section. The second instrument, the Communications Assessment Instrument (CAI), was adapted for this study (Scanlon, 1999). It was based on the Corporate Communication Assessment (CCA) which was developed by Dr. Thomas Watson in 1985 and based on the Corporate Communication Audit (Audit). The Audit, a measurement system and procedure for studying organizational communication, is a nationally standardized instrument. It was developed over a five-year period in the 1970s by the International Communication Association. A team of more than 100 communication professionals from business and academia developed the instrument (Watson, 1997, p. 4). The CCA has been used in approximately 50 organizations, including all types of industry (public vs. private) in both large and small companies (Watson, 1997, p.4).

The CAI, the instrument used in this pilot study, is a Likert-type scale survey (e.g. strongly agree to strongly disagree) composed of a subset of modified questions from the CCA. While the CCA measures the effectiveness of nine different dimensions of organizational communication, the CAI only focuses on five dimensions (i.e., subsections) of senior manager-subordinate communication. The instrument consists of 29 statements, separated into their respective subsection. Because the CCA was modified for the purpose of this study, its reliability and validity might have been distorted (Creswell, 1994). Therefore, we attempted to reestablish the reliability and validity for the CAI. Our efforts are described below.

### Reliability and Validity of the MBTI

The internal consistency reliabilities are estimated by coefficient alphas, which are interpreted similar to Pearson's r. The reliabilities are shown in the table below:

| Internal Consistency | | | | |
|---|---|---|---|---|
| Gender | EI | SN | TF | JP |
| All | .83 | .83 | .76 | .80 |

The test-retest consistency reliability estimates are shown in the table below:

| Test-Retest Continuous Scores | | | | |
|---|---|---|---|---|
| Gender | EI | SN | TF | JP |
| Male | .79 | .84 | .48 | .63 |
| Female | .86 | .87 | .87 | .80 |

Construct validity is shown in Type tables themselves; and criterion validity is concurrent. Finally, Ms. X is qualified to administer the MBTI, having received full certification as an instructor and interpreter of the MBTI in 1991.

### Reliability and Validity of the CAI

The CCA's reliability and validity data were first reported in *Auditing Organizational Communication Systems: The ICA.* "The primary criteria in developing the CCA were face validity and factor analysis.... The published data demonstrated the Audit's broad application to a variety of organizational cultures" (Watson, 1997, p. 4).

The CAI was used to assess participants' satisfaction with communication between themselves and their respective supervisors. The original CAI was field-tested on 12 doctoral students and reviewed by three research experts, all Ph.D.s and faculty members at a large research university. Cronbach alphas were run on all five subsections of the CAI and on the total instrument. The scores were .85 for conveying information; .85 for channels of communication; .87 for written communication; .88 for oral communication; .75 for quality of team communication; and, .94 for total instrument. These numbers suggest a strong, reliable instrument for this pilot study. Unfortunately, due to time constraints on the study, we were not able to test for validity (i.e., content, construct, predictive). However, comments from the three research experts regarding clarity, appropriateness, and relevance of the survey items coupled with the demonstrated reliability and validity of the CCA (Watkins, 1997), suggest face validity for the CAI.

## Data Collection Procedures

Two of the four researchers administered the CAI to the experimental group at its work site and to the control group at its work site. All participants in the experimental group completed the CAI at the same time. However, control group participants completed the CAI during the lunch hour at a time convenient to them. In addition, the control group member's senior manager made several appeals during the lunch hour for his staff to participate in the study.

In order to ensure accurate responses on the surveys, ones that truly reflected how each participant felt about each question, the participants completed the surveys anonymously. Each survey was coded and demographic information was only used for data analyses. It should also be noted that Ms. X was not involved in administering, scoring or analyzing the surveys. These procedures, in addition to the prepared script mentioned above, are measures to control for potential bias in implementing the instrument and analyzing the data.

Although the researchers attempted to control for possible attitudinal threat (participant attitude), a weakness of the study is the fact that a relationship exists between the experimental group and Ms. X. Thus, the possibility exists that the participants' scores may not have accurately reflected their satisfaction with senior manager-subordinate communication and may have produced unintended effects.

## Data Analysis

Each participants' instrument was scored using a one to five scale, with one indicating very dissatisfied (never) and five indicating very satisfied (always). An average score on each subsection and an average total score was then generated for each participant. Independent sample t-tests were run to look for significant differences between the means of the experimental and control groups. Pearson r correlations were run on variables the researchers hypothesized would have a significant relationship with total communication score. One-way analyses of variance (ANOVAs) were used to look for significant differences for the following variables MBTI profile type, ethnicity, and education level.

Differences between mean scores of genders were examined by running independent sample t-tests. An analysis of covariance (ANCOVA) using length of time as the covariate was also run to see if the number of MBTI workshops attended or MBTI profile type had an effect on total communication score.

## Results and Findings

Independent sample t-tests were run on total communication score and scores of all subsections of the CAI. The purpose of the t-tests was to determine whether there were significant differences between the means of experimental and control groups in any of the subsections and/or total communication score. The group of t-tests showed there were no significant differences between the control and experimental groups' means on total communication score (mean of control group is 4.22; mean of experimental group is 4.15); and, the only subsection which had a significant difference in means between the two group's means was oral communication (mean of control group is 4.42; mean of experimental group is 4.02), $t(31)= 2.406$, $p=.022$ or less than .05. The results of these t-tests did not support our hypothesis.

Therefore, Pearson correlations were run to determine whether any significant relationships existed between any of the variables and total communication score. There were no significant correlations between the number of MBTI workshops a person had attended and his/her total communication score. The next group of correlations was run between length of time in the department and total communication score. No significant correlation existed for the experimental group; however, for the control group, there is a significant negative correlation, $r = -.558$, $p. <.05$, indicating that the longer a person stays in his/her department, his/her total communication score decreases. Further, when we looked at r , we saw that 31% of variation in the mean scores on total communication could be attributable to length of time in department.

To determine whether there were any significant differences between the MBTI profile types in all of the subsections and the total communication score, one-way ANOVAS were run for both the control and experimental groups. The test results for the control group showed no significant F values; thus, indicating no significant differences between the MBTI profile types and the participants' communication scores. However, the test results for the experimental group showed one significant F value in the quality of team communication subsection ($F(8,9)$ = 3.741, $p. <.05$) indicating there was a significant difference between MBTI profile types. Post-hoc tests could not be performed because some cells included fewer than two people. Because the number of people in some of the

MBTI profile types was so small, we did not think it was worthwhile to perform independent sample t-tests between the different types to try to determine the exact location of the differences.

One-way ANOVAs were also run for both the control and experimental groups to determine whether there were any significant differences between mean subsection scores and the means of total communication score based on ethnicity or education level. There were no significant results as shown in Table 2 below:

Table 2.
One-way ANOVAs

| Grand Total | | | MBTI Profile | | | | | Ethnic Group | | | | | Level of Education | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sum of Square | df | Mean Square | F | Sig. | Sum of Square | df | Mean Square | F | Sig | Sum of Square | df | Mean Square | F | Sig |
| Communication Score | Control Group | Between Groups | .573 | 3 | .191 | .781 | .531 | .703 | 2 | .352 | 1.669 | .233 | .543 | 3 | .181 | .731 | .557 |
| | Control Group | Within Groups | 2.447 | 10 | .245 | | | 2.317 | 11 | .211 | | | 2.477 | 10 | .248 | | |
| Total | | | 3.020 | 13 | | | | 3.020 | 13 | | | | 3.020 | 13 | | | |
| | Experimental Group | Between Groups | 1.508 | 8 | .189 | .706 | .683 | .114 | 1 | .114 | .452 | .511 | .470 | 3 | .157 | .593 | .630 |
| | Experimental Group | Within Groups | 2.404 | 9 | .267 | | | 3.784 | 15 | .252 | | | 3.428 | 13 | .264 | | |
| Total | | | 3.912 | 17 | | | | 3.898 | 16 | | | | 3.898 | 16 | | | |

Independent sample t-tests were then run for both the control and experimental groups to determine whether there were significant differences between genders in the means of any subsection scores or the means of total communication score. In the control group, there were no significant differences in mean scores between genders. In the experimental group, there was only one significant result. The significant difference in means appeared in the quality of team communication subsection where the mean of the males (mean is 4.61) was significantly greater than the mean of the females (mean is 4.19) with $t(16) = -2.144$, p.< .048.

Because length of time in the department was found to have a significant relationship with total communication score in the control group, and the two groups were not matched on this variable, an ANCOVA was run using length of time as the covariate. With length of time removed as the covariate, we wanted to determine whether the number of workshops attended or the person's MBTI type would have a significant effect on our dependent variable, the total communication score. The results, shown in Table 2 below, indicated that length of time in the department did have a significant effect, $F(1) = 5.379$, p.< .05. However, even when using length of time as a covariate, neither the number of workshops a person attended nor his/her MBTI profile type have a significant effect on the participants' total communication scores.

Table 3

Tests of Between-Subjects Effects Dependent Variable: grand total communication score

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 5.286 | 20 | .264 | 1.453 | .303 |
| Corrected Model | 5.286 | 20 | .264 | 1.453 | .303 |
| Intercept | 36.617 | 1 | 36.617 | 201.250 | .000 |
| Intercept | 36.617 | 1 | 36.617 | 201.250 | .000 |
| TIME | .979 | 1 | .979 | 5.379 | .049 |
| TIME | .979 | 1 | .979 | 5.379 | .049 |
| MBTIP | 1.606 | 8 | .201 | 1.104 | .446 |
| MBTIP | 1.606 | 8 | .201 | 1.104 | .446 |
| WORKSHP | 2.704 | 7 | .386 | 2.123 | .157 |
| WORKSHP | 2.704 | 7 | .386 | 2.123 | .157 |
| MBTIP * WORKSHP | .417 | 3 | .139 | .765 | .545 |
| MBTIP * WORKSHP | .417 | 3 | .139 | .765 | .545 |
| Error | 1.456 | 8 | .182 | | |
| Error | 1.456 | 8 | .182 | | |
| Total | 511.971 | 29 | | | |
| Total | 511.971 | 29 | | | |
| Corrected Total | 6.742 | 28 | | | |
| Corrected Total | 6.742 | 28 | | | |

a. R Squared = .784 (Adjusted R Squared = .244)

**Discussion**

This study was prompted by the question: Does incorporating effective communication training based on the MBTI increase communication satisfaction between a senior manager and subordinates? The importance of the question stemmed from the potential benefits of the MBTI as a communication tool in the workplace. As Myers (1980) posited, using Type may facilitate effective communication. While it is unrealistic to change existing practice or implement new practice methods based solely on the findings in this study because of its exploratory nature and design; several observations, suggestions and areas for consideration can be made for future research.

Our initial results indicated that our hypothesis was not supported. It appears there is no difference between a group of employees who have not used their MBTI profile type knowledge nor those who have. There were no significant differences on all but one subsection (oral communication). In this instance the mean score of the control group was actually significantly higher than that of the experimental group.

These unexpected findings influenced the research team's decision to run correlations between some of the variables on which the control and experimental group were not homogenous and between the total communication scores. The findings indicate there is no relationship between the number of MBTI workshops a person attends and his/her satisfaction with communication. This result should be interpreted with caution because several members of the experimental group reported they had not attended MBTI workshops. According to Ms. X's statements before and after the instrument was administered, she does at least three trainings per year with the employees in her department. Therefore, one confound of the experiment is the use of the word "workshop," which may not have been clearly understood by the participants in the experimental group. Thus, the word should be clearly defined in future research studies.

In instances where a participant did not indicate the number of MBTI workshops he/she attended or indicated zero, the data was adjusted to indicate three for every year he/she had been in the department. If a participant did not indicate how many years he/she had worked in the department, we were unable to indicate the number of MBTI workshops attended. These issues lead us to believe the finding of no relationship between number of MBTI workshops attended and level of satisfaction with communication should be looked at further in

future studies. These studies should clearly define the word "workshop" on the survey when collecting demographic information.

The finding in the control group was that the longer a person stays in his/her department, his/her total communication score decreases. Since 78.6% of the participants in the control group had been in the department one year to less than two years, we felt that perhaps this would account for their communication scores in all the subsections and total communication score being higher than we expected. We believe that when new employees join an organization, they generally receive a vast amount of direction and feedback. Consequently, they are usually satisfied with senior manager-subordinate communication during this initial period.

In the experimental group, the length of time in the department is more dispersed, with the average being just over three years. It is likely that these individuals' scores are, therefore, more representative of actual satisfaction with communication.

As length of time in the department was found to have a significant relationship with total communication score in the control group and the fact that the two groups were not homogenous, we ran an ANCOVA using length of time as the covariate. Our results indicated that length of time in the department does have a significant effect on one's level of satisfaction with communication. However, our hypothesis that with length of time removed, the number of workshops one attended or one's MBTI profile type would have also had an effect was not supported.

Based upon the results of the ANOVA's, there appears to be no difference in level of satisfaction with senior manager-subordinate communication based on either one's ethnicity or education level. As far as differences between MBTI profile types and a participant's level of satisfaction with communication, the results of all the tests run only indicate there are differences in the subsection of quality of team communication. While these results indicate that one's MBTI profile type may have an effect on the area of quality of team communication, we do not want to advocate the idea that certain types of people should only work with certain types of people (e.g., ISTJ vs. ENFP). When future research is done in this area using a larger sample size (which would allow for post-hoc comparisons to be done if a significant difference is found between two or more profile types), we caution this interpretation of the results.

Our results also indicate there may be some difference in gender and level of satisfaction with senior manager-subordinate communication. However, we only found significant differences in one subsection for the experimental group. As there was no significant difference between males and females in either group on the overall level of satisfaction with communication and because our sample size was relatively small (n = 19 for experimental group, n = 14 for control group), we are hesitant to make generalizations based upon these preliminary findings.


Limitations

Our findings should be viewed with caution due to the dissimilarity in the control and experimental group (i.e., lack of homogeneity) and the small sample size. Future studies should attempt to better match comparison groups, thereby possibly producing more generalizable results. Additionally, statistical analysis is more difficult (e.g., post hoc comparisons) with a small sample size and also affects the generalizability of the findings.

Second, use of a purposive sample made controlling for a location threat difficult. For example, the groups received the questionnaires at different locations and at different times. The experimental group participants received the questionnaire as a unit at the same designated time and in the same designated room. On the other hand, the control group participants received the questionnaire at different times over the course of their lunch hour. Consequently, the researchers were unable to rule out the potential for unintended effects of location when the CAI was administered.

Third, although we believe the responses on the CAI questionnaire were accurate, the fact that the experimental group was directly associated with one of the researchers may have also produce an unintended effect and, thus, had an effect on the outcome of the study.

Finally, a potential bias may exist within the control group for employees who have been with the company for less than two years. Specifically, demographic data show retention rates are very low in the control group (i.e., approximately 90% turnover within a two-year period) and very high in the experimental group (i.e., 5% turnover within a two-year period). Further, only 14 out of 62 control group subjects participated in the study versus 19 out of 20 in the experimental group. We believe that the lack of full participation within the control

group can also introduce bias if those subjects who did not participate in the study were to respond differently from those subjects from whom data were obtained.

## Conclusions and Recommendations

The unexpected findings of this study may be partially accounted for by the small sample size and the lack of homogeneity between the control group and experimental group. However, we think additional research needs to be conducted which further investigates our original hypothesis while eliminating the threats to validity in this study. To better control or minimize the possible effect of these threats, future researchers should obtain more information on subjects that may potentially participate in the study (i.e. language used in the workplace should be similar to that used on the questionnaire - exercise versus workshop); attempt to have a matched control and experimental group; increase the sample size to facilitate data analysis; and standardize the conditions of the study so that location and administration of instruments are consistent for both groups.

## Implications for HRD

Even though the findings in the study did not come out the way we hypothesized, the researchers believe there may be positive implications for organizations when managers use the MBTI as a communication tool. This practice is a new application of HRD theory in the management arena and additional research should be conducted on this topic.

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# An Analysis Using Houle's Typology of Learner Orientation and Selected Variables in Predicting Student Persistence in a Two-year Proprietary Technical College

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*The longitudinal study was conducted to determine (1) if a profile exists for students who persist in college; (2) the utility of this profile in predicting student persistence; and, (3) if a relationship exists between student persistence and the selected variables of learner orientation, income level, race, gender, high school graduation status, and college entrance exam scores. The Learner Profile Questionnaire and educational records of 468 participating students were used in this multivariate, correlational research study.*

Keywords: Persistence, Houle, proprietary.

Post-secondary proprietary education has grown over the last five years into a multi-billion dollar a year business with approximately 1.5 million students enrolled (The Institute for Higher Education Policy, 1996). The rapidly expanding technology-based segment of the economy has placed a demand on the workforce for skilled and technologically competent workers that cannot be met by traditional public and private colleges and universities. For-profit corporations, or proprietary schools, have exploited this shortcoming and have begun to expand their course offerings and modes of delivery. Vital to the proprietary schools' continued success is their (1) understanding of the personnel and skill requirements of business and industry and (2) the factors that contribute to students successfully completing their programs. In fact, proprietary schools are unique among post-secondary institutions in their dual need to meet the demands of the workplace, while insuring learner success and satisfaction.

In 1961 Cyril O. Houle posited that the reason adults are motivated to participate in learning is a reflection of their learner orientation: activity-oriented, goal-oriented, or learning-oriented. Almost four decades ago, Houle observed that because the United States was an industrial society with strongly materialistic values, many drew the conclusion that people enroll in vocational/technical courses solely for the purpose of making money. Those schools hoping to expand their influence built up more vocational programs primarily by emphasizing the goal-oriented perspective of learning. Proprietary schools today appear to agree with this financially based, goal-oriented motivation as evidenced by the strong emphasis placed on job placement in their advertising. Houle's work suggests, however, that a significant number of adults may be motivated by factors other than simply the goal-oriented objectives of jobs or money when they enroll in proprietary institutions. To increase enrollments and improve persistence, a more complete understanding of student motivation and other related factors that might affect a student's decision to remain in school is necessary. While much work has been done over the years on student persistence, the recent rapid growth of the post-secondary proprietary sector provides a means to investigate the characteristics of the students who select and persist in this educational environment. Toward this end, this study seeks to determine: (1) if a particular profile exists for students who successfully persist in their program of study; (2) the utility of this profile in predicting a student's persistence at a two-year technical proprietary school; and, (3) if a relationship exists between a student's persistence and the selected variables of learner orientation, income level, race, gender, high school graduation status, and college entrance exam scores.

## Significance of the Study

This study is important in several ways. First, it continues to clarify the potential for Houle's learner orientation typology, developed almost forty years ago, as a tool for better understanding the learning needs of adults. Highly productive in stimulating research, Houle's typology offers a useful framework for analyzing adult motives for continuing their education (Cross, 1981).

Second, the resulting profile will assist employers in industry attract and retain highly skilled technology workers, a challenge made all the more difficult given the strong demand for these professionals and their relative few numbers. A study conducted by Virginia Tech estimates that 346,000 computer-programmer and systems

analysts jobs are vacant in companies employing more than 100 workers. This nationwide study communicates
serious implications for corporations in need of these employees, as well as the colleges and universities who educate information technology professionals (Selingo, 1998). Another study conducted by the Information Technology Association of America produced a similar finding. In a survey of 2,000 large and mid-sized companies, 190,000 vacant information-technology positions were identified. One cause of the problem, according to nearly two-thirds of the companies surveyed, is the declining number of college graduates with the necessary technical skills. From 1986 to 1994, the number of bachelor's degrees in computer science awarded annually dropped by 43% to 24,000 (Blumenstyk, 1997).

Third, these findings will inform educators and trainers in industry, helping them understand what motivates adults, once enrolled, to persist in their educational endeavors. Corporate training officers and proprietary school owners and administrators share similar experiences as they design their programs. As organizations establish "corporate universities" and develop course offerings and learning experiences, they are required to operate on, at minimum, a revenue neutral basis. As with the for-profit schools, the corporate training department must meet organizational and student needs and demands. This means they are confronting the same pressures to attract students and provide a comprehensive, yet cost-effective, experience as are proprietary schools. In fact, proprietary schools have become the models for corporate training programs and, more recently, for on-line courses offered by colleges and universities (Carnevale, 1999).

Despite the numerous studies aimed at solving the problem of student attrition in colleges and universities, overall rates of non-completion have remained relatively constant over the last fifty years. That is to say, 40-50% of all students who begin a college program will fail to complete it (Summerskill, 1962; Astin, 1972; Bean, 1980; Tinto, 1985; U.S. Department of Education, 1996). Tinto (1998) later admitted that college retention programs had limited influence, partly because the educational community is not sufficiently modifying academic or organizational processes in response to study findings to improve student retention. However, educators are increasingly being held to task by state legislatures seeking greater return on their higher education budget investment. Among other evaluative criteria, legislators and their constituents consider graduation rates a reasonable measure of a college's effectiveness when performance-based appropriations are meted out each fiscal year (Carnevale, A., Johnson, N., & Edwards, A., 1998). This profit incentive has long been appreciated by the proprietary sector who are prohibited by law from receiving federal or state assistance directly. The for-profit institutions must operate solely on the basis of tuition revenue, fees, and sale of books, all of which are directly related to census and student retention. Though this study examines persistence in a proprietary setting, its implications are indeed far-reaching as public colleges and universities are being expected to improve their outcomes in areas such as completion and job placement rates, once considered primarily the domain of proprietary education.

Tinto (1975) recognized that future research was needed to look at the dropout process and advocated longitudinal studies rather than those employing cross-sectional data. He recommended that persistence studies be based on following entering cohorts in various types of institutions of higher education. Such studies, he suggested, will lead to meaningful comparative analyses of institutional impacts upon dropout behaviors. This study intends to add to the extant limited body of knowledge of student persistence in proprietary schools by examining student motivation for learning at the time of enrollment using Houle's typology of learner orientation and joining it with the economic, demographic, and background characteristics identified through a study of Tinto's model of persistence and subsequent studies of enrolled college students.


**Review of the Literature**

A review of the literature begins with an examination of Houle's (1961) work as defined in his book, *The Inquiring Mind: A Study of the Adult Who Continues to Learn*. In this qualitative study of 22 individuals conducted through in-depth interviews, Houle hoped to identify behavioral patterns that would help to explain what was meant by continuing education. He interviewed twelve men and ten women who lived within a 75-mile radius of Chicago. The interviews were structured around 19 major questions and several sub-questions that were added as necessary to develop the responses. Of the 22, 21 were white and one was black. Levels of education ranged from those with less than an eighth grade education to those who had reported pursuing advanced studies. Similarities were noted among the subjects relative to goals, level of enjoyment during the learning process, and the general worth of their

continuing education. However similar in these aspects, differences were noted regarding the purposes and values of their learning endeavors. Houle theorized that three subgroups were present within the group of 22.

The first group he categorized as *goal-oriented* learners. These highly practical individuals are directed toward accomplishment of well-defined objectives. For this group, the purpose always comes first. The means is then chosen based on its suitability toward achieving the selected goal. The stimuli for commencing a learning episode is most often external (job promotion, career change) and the duration of their continuing education effort is determined by the time it takes to reach the stated objective. Once the immediate objective is reached, the goal-oriented learner stops, having satisfied his need for learning. This is in contrast to the second group identified by Houle, that of the *activity-oriented* learner (Houle, 1961).

Activity-oriented individuals find meaning in the activity of the learning itself independent of the subject being studied. Among the many reasons cited by them for taking part in learning activities are loneliness, escape from personal problems, desire for credentials (diplomas, degrees, certificates) without ever putting them toward a practical use, the perceived need to carry on a family tradition of scholarship, and an apparent desire to remain engaged in educational pursuits beyond the point where the efforts retain any significance or meaning. For this group, social contact was the draw and continuing education a legitimate means to that end (Houle, 1961).

The third group Houle identified were those he considered *learning-oriented*. At the center of their educational efforts is the desire to know. To satisfy this quest for knowledge it is not necessary that they participate in formal education as may be required of the certificate-driven goal-oriented group. Their behavior is instead characterized by a preoccupation with learning and a continuity of learning activity that serves as the foundation of their participation in continuing education regardless of the subject being studied at any given time. During their interviews, several of this group readily admitted that they do it for fun (Houle, 1961).

Houle concludes that although the orientations of the individuals described in his study may differ, they share the common characteristic of being continuing learners. The differences that do exist among them are related to the preferred approach they take in their learning endeavors and no one orientation is better than the other. The usefulness of the study, according to Houle, is in understanding and guiding education (Houle, 1961).

Houle's insightful work prompted considerable research concerned with motivational orientation of adults. Morstain & Smart (1974) and Boshier and Collins (1983) reached the conclusion that Houle's three-factor typology, while a very useful starting point, can no longer be considered adequate. The researchers reported the existence of additional factors affecting motivation of adult learners.

Cyril Houle and those who have conducted similar studies of adult motivation for learning were primarily concerned with why adults choose to participate in education. Another substantial body of literature exists to attempt to answer the question why adults persist in their educational pursuits once they have begun them. It is proper to begin such a review with a discussion of Vincent Tinto's (1975) Model of Student Departure which has become one of the most widely accepted and used designs to analyze student attrition.

Tinto's model, which has as its foundation the concepts of social and academic integration, identifies five sets of variables and their effect on student persistence. These variables include: individual characteristics (family background, ability levels, sex, age, and past experiences); initial commitments (to the goal of completion relative to career plans and commitment to the institution itself as a means to that end); academic integration and developed goal attainment (grade point average, grades, and faculty interactions related to student performance); social integration and developed institutional commitment (interpersonal relationships and intellectual development); and institutional characteristics (extracurricular activities, faculty interactions) (Tinto, 1975).

According to Tinto, a student's success in college is dependent upon the ability to become integrated into the college environment. His model considers persistence primarily as a function of the quality of a student's interaction with the academic and social systems of the college. The individual characteristics and background traits that Tinto identified as having an effect on student persistence influence how a student will interact with the institution's social and academic systems and will also affect the level of integration attained. In other words, the greater the student's level of social and academic integration, the greater the probability that he or she will remain in college (Tinto, 1975). Although the primary cause of departure may often be identified, its effect on the individual's decision to leave rarely exists in isolation of the others (Tinto, 1987).

Several validation studies have been done of Tinto's model (Terenzini & Pascarella, 1977; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1991). The majority of the studies focused on students in four-year, residential institutions. However, Pascarella, Duby, and Iverson (1983) applied Tinto's model to non-residential students in commuter institutions. In this study, the researchers found that non-residential student pre-enrollment variables not only influence integration with the academic and social systems of the institution, but directly affect

persistence. This finding contrasts with Tinto's model which holds pre-enrollment variables (family background, ability levels, sex, age, and past experiences) as being determinants of a student's interaction with the institutional systems, but only indirectly affecting persistence.

The variables of income level, race, gender, high school graduation status, and college entrance exam scores used in this study were chosen based on this review of the literature. Within this body of knowledge, there is general agreement that income level as a factor of socio-economic status affects student persistence. In fact, there is considerable evidence to support the position that income level and socio-economic status are the second best predictors of student persistence after high school performance is considered (Summerskill, 1962; Lewis, 1995, Horn & Premo, 1995). The use of race and gender as predictor variables in determining college persistence has been included in a number of studies with mixed findings. When race is considered, findings point to higher completion rates for Asians and whites and correspondingly lower rates for Hispanics and African-Americans (Tinto, 1987; St. John, Starkey, Paulsen, & Mdaduagha, 1995; U.S. Department of Education, 1996). When gender is considered, findings show that men persist at a higher rate than women; however, the more recent studies report a narrowing of this gap (Spady, 1970; Astin, 1972; Pascarella & Terenzini, 1983; U.S. Department of Education, 1995). Performance in high school, as measured by grade point average, class standing, or achievement on standardized entrance exams, has been shown to be the single best predictor of future college performance. The current furor of the legitimacy of standardized tests notwithstanding, achievement tests by their design and purpose have been found to be valid predictors of students' college performance (Tinto, 1975; Pascarella and Terrenzini, 1991; Hanson & Swann, 1993; American College Testing, 1998).

## Methodology

A non-experimental, multivariate correlational, descriptive research design is used in this longitudinal study. This design is consistent with the research problem and the purpose of the study. Since the intent of this study is to determine the characteristics that may be used to predict a student's persistence, the correlational method has been chosen. The intent of the research design is to conduct a longitudinal study of entering cohorts at one type of institution, as recommended by Tinto. The findings of this study may then be compared to those studies of other type institutions when conducting an analysis of institutional impacts upon dropout behaviors (Tinto, 1975).

### Research Questions

1. Do students who successfully persist in their program of study fit a particular profile?
2. Can this profile be used to predict a student's likelihood of successfully persisting in a specified program at a two-year technical proprietary school?
3. Is there a relationship between a student's persistence and the selected independent variables of learner orientation, income level, race, gender, high school graduation status, and college entrance exam scores?

### Hypotheses

Ho: There are no predictors of student persistence.
Ha: Students who are goal-oriented complete at a higher rate than do those who are not goal-oriented.
Hb: Learner orientation, income level, race, gender, high school graduation status, and college entrance exam scores may be used to predict student persistence.

### Population

The sample population consists of 468 first-quarter students enrolled in the Electronics Engineering Technology (EET) and Computer-Aided Drafting (CAD) Technology Associate Degree programs from September 1998 to September 1999 at a two-year proprietary college in southeastern Virginia. The five first-quarter classes studied started in September and December 1998, and March, June, and September 1999. Three hundred and four students enrolled for EET (65%) and 164 students enrolled for CAD (35%). The EET course of study is 36 months and the CAD program is 18 months long. All students are enrolled full-time and attend class five days a week for four hours each day in any one of three sessions: 8:00 A.M. to 12:00 P.M., 1:00 P.M. to 5:00 P.M., or 6:00 P.M. to 10:00 P.M. The classes are organized as cohorts and students may expect to stay with the same class until they

graduate unless they elect to transfer to another session or drop out and re-enter at a later date. Approximately 40% of the students attend during the day and 60% attend at night. There are no residence facilities on campus and, therefore, all students are considered commuters. All students possessed either a high school diploma or General Equivalency Diploma (GED), as required for admission. They also passed the reading and numerical skills sections of the Career Program Assessment (CPAt) produced by American College Testing (ACT). Typically, fewer than 5% of all graduates go to further study at a four-year college immediately after graduation.

## Instrumentation

The Learner Profile Questionnaire (LPQ) developed by Confessore and Confessore (1994) and the supporting Barron's Reference Protocol of Houle's Typology designed by Dianne Barron (1999) were used to determine learner orientation. The LPQ is a 31-question survey instrument that asks the respondent to report his or her interest and level of participation in adult learning activities over the past year. The first nine questions of the questionnaire ask the respondent to provide information about a learning project conducted during the last year. The next section, questions 10-18, are aimed at understanding the respondent's motivation for undertaking the project and require a self-assessment of personal skills relative to successful project accomplishment. The last section of the questionnaire asks the respondent to supply the following demographic information: age, gender, and highest education level achieved.

Learner orientation of the respondents was assigned using Barron's Reference Protocol for Houle's Typology. The protocol which is based on descriptions of learner orientations found in Houle's book, *The Inquiring Mind*, was validated through inter-rater reliability in the Confessore and Barron (1997) study. Fewer than 1.53% of the category assignments coded by the evaluators on their first pass at the data needed to be reconciled (Barron, 1999). The protocol uses questions 1 through 13B of the survey to measure the levels of the respondents' self-perceptions of desire, initiative, resourcefulness, and persistence to determine learner orientation. Items 14A through 18B of the LPQ which measure the respondents' self-perceptions of ability in reading, writing, quantitative, reasoning, and physical coordination skills were not used in the application of Barron's protocol. Using the protocol, the raw data is reviewed independently by two evaluators who each assign a learner orientation category to each respondent. The questionnaires are exchanged and the same procedure followed. Any resulting differences in coding are resolved by the evaluators again reviewing the reference protocol and the survey responses.

The instrument selected by the college as the entrance exam is the Career Programs Assessment (CPAt) developed by American College Testing (ACT). The test which consists of two parts, the Reading Skills Test and the Numerical Skills Test, currently exists in two Forms, B and C. The CPAt is designed to measure basic skills in math and reading of students intending to enroll in either EET or CAD. Students who fail either portion of the test are allowed to retake it. The reading and numerical skills scores are used as independent variables in this study.

In either form, the Reading Skills Test consists of 30 questions and is designed to evaluate an applicant's ability to read a short paragraph and answer multiple-choice questions containing four alternative answers. The questions are intended to evaluate literal comprehension (50% of the test), inferential comprehension (33%), generalization (17%). The reading portion must be completed within 25 minutes. The mean scores for the reading tests were 54.53 with a standard deviation of 7.67 for Form B and 54.50 with a standard deviation of 7.74 on Form C. The reliability coefficient for the reading tests were .77 for Form B and .80 for Form C.

In both forms, the Numerical Skills Test is designed to evaluate an applicant's readiness in basic arithmetic operations (50% of the test), arithmetic problem solving (30%), and multiple arithmetic operations and logical progressions (20%). The twenty-minute test consists of 25 multiple-choice questions with five alternative answers. Calculators are not permitted. The mean scores for the numerical skills tests were 56.14 with a standard deviation of 8.31 for Form B and 56.16 with a standard deviation of 8.31 on Form C. The reliability coefficient for the numerical skills tests were .80 for Form B and .78 for Form C. The reliability for each test was established using the Kuder-Richardson Formula 20.

The validity of the test is judged using the *accuracy rate*. The accuracy rate is the estimated percentage of correct admissions decisions. The score that maximizes the accuracy rate is referred to as the cut off score because it is expected to predict the highest percentage of correct admissions decisions. The accuracy rate is the maximum at the cutoff score that corresponds to a 50% chance of success in the program. The median accuracy rate means

that a correct admissions decision can be expected for that same percentage of students applying for admission to a particular school or program. The median accuracy rate for students applying for the EET (electronics) program is 71% on the Reading Skills Test and 74% on the Numerical Skills Test. The median accuracy rate for students applying for the CAD (designer) program is 70% on the Reading Skills Test and 65% on the Numerical Skills Test (ACT, 1997, pp. IV21-IV39).

Data on the independent variables, race, gender, high school graduation status, and college entrance exam scores were obtained from the college education files. The final independent variable, income level, was obtained from the college finance files. The dependent variable in the study, student persistence, was determined from the education files.

## Research Procedures

An education file and a finance file are maintained on every student who starts class. It is from these two sources that five of the six independent variables are obtained. Income level is taken from the finance file and is based on the adjusted gross income reported on the applicant's federal tax return for the tax year immediately preceding the year of enrollment. For independent students, the income level is based on the individual's tax return or a joint return, depending on the applicant's filing status. For dependent enrollees, the income level is based on the parent's tax return from the previous year. The nine income levels were grouped as follows:

| | | |
|---|---|---|
| 1 = 0-6,000 | 2 = 6,001-12,000 | 3 = 12,001-12,001 |
| 4 = 20,001-25,000 | 5 = 25,001-30,000 | 6 = 30,001-36,000 |
| 7 = 36,001-40,000 | 8 = 40,001-50,000 | 9 = 50,001 + |

The independent variables, race and gender, are reported by the applicant on the CPAt answer sheet. This information is transcribed onto the Admissions Action form that is maintained in the student's education file. Also reported on this form is the independent variable, high school graduation status. As a requirement for admission, students must show proof of high school graduation, i.e. a high school diploma or transcript. For those students who did not graduate form high school, a General Equivalency Diploma (GED) or California High School Proficiency Examination (CHSPE) are also acceptable. Entrance exam scores are also recorded on the Admissions Action form as a numerical value.

The Learning Profile Questionnaire (LPQ) was given to all first quarter students in each program during the first three weeks of class. Students were read a script stating the purpose of this research, how the survey would be used in the research, and assuring complete confidentiality in the analysis and reporting of the data. They were allowed whatever time they needed to complete the instrument which typically takes 20 minutes to finish.

## Data Analysis

This study is a work in progress. All five sets of the LPQ have been administered and the first set for the September 1998 class has been scored. The other independent variable data: income level, race, gender, high school graduation status, and college entrance exam scores have been identified; however, none of this data has been formally assembled. Automated collection procedures using the college computerized grade and attendance system will facilitate gathering all but the income level data. Income level information will take somewhat longer because the raw data must be retrieved manually from the finance file and then sorted by the nine categorical income levels.

Once the data has been assembled, all variable data will be entered onto a Microsoft Excel spreadsheet. This data will then be exported into the SPSS (version 7.5) statistical program for analysis. This data will be analyzed using descriptive statistics to summarize the characteristics of the sample. Descriptive statistics include the frequency of scores, mean, median, mode, and the standard deviation for each independent variable of learner orientation, income level, race, gender, high school graduation status, and college entrance exam scores. These statistics communicate characteristics of the data as a whole and estimate the characteristics of the population. T-tests will be used to test the null hypothesis by determining how great the difference between two means must be

in order for it to be judged significant. Chi-square statistics will be calculated to determine if persisters significantly differ from non-persisters with regard to the independent nominal variables in the study, learner orientation, income level, race, gender, and high school graduation status. This procedure involves a goodness-of-fit test wherein the sample frequencies that fall within certain categories are contrasted with those that might be expected based on normal distribution. ANOVAs will be used to determine whether there is a relationship between each dependent variable (persister/non-persister) and each of the independent variables. Multiple-classification analysis of variance may also be used to determine the relationship between one independent variable and two or more independent variables. This technique also makes it possible to test for relationships between the dependent variables and various interactions of the factors in the design.

The basic research question for this study was to determine how effective the selected variables, learner orientation, income level, race, gender, high school graduation status, and college entrance exam scores are in predicting student persistence. A discriminant analysis using the step-wise method will be used to answer this question. In this study, the independent variables are used to predict to a specific group (persisters/non-persisters). It is also necessary to identify the variables that are most significant in creating this prediction. Discriminant analysis is the statistical technique most commonly used to examine these types of problems (Popham & Sirotnik, 1992).

### Limitation of the Study

This study has a number of obvious limitations. First, the data obtained using the Learning Profile Questionnaire is self-reported, as is the race on the CPAt answer sheet. However, the validity and reliability factors for the LPQ have been established using self-reported data, and race may be verified by comparison of complementary data in the student's education and finance files. Second, as Pascarella and Terenzini (1983) found in their persistence study of 763 residential university freshman, this study was not able to distinguish between students who withdrew and transferred to other institutions and those who withdrew from formal higher education altogether. Clearly, these types of withdrawal are conceptually different and the explanations given in this study for departure may not apply equally to members of both of these groups. Third, a relatively small number of women attend the proprietary college surveyed. Fifteen percent of the college enrollment is female compared to 59.2% at all two-year proprietary postsecondary schools granting associate degrees and 61.0% at all public and private two-year institutions granting associate degrees (Department of Education, 1998). Finally, the single-institution and single-year sample may be considered limitations, however, the intent of the research design was to conduct a longitudinal study of entering cohorts at one type of institution, such as recommended by Tinto. The findings of this study may then be compared to those studies of other type institutions when conducting an analysis of institutional impacts upon dropout behaviors (Tinto, 1975, pp.119-120).

### Delimitation of the Study

The study was delimited to students who were in their first quarter of associate degree programs in electronics engineering technology and computer-aided drafting technology at the proprietary college. However, the sample population of 468 first-quarter students equaled 100% of the students enrolled from September 1998 to September 1999 and consisted of students from a variety of ethnic economic backgrounds and academic ability. The diversity of this population mitigates the delimitation.

### Conclusion

Data analysis is not yet completed, however, a preliminary analysis suggests that there is a relationship between student persistence and the selected variables of income level, race, gender, high school graduation status, and college entrance exam scores. The question still to be addressed is how this relationship may be affected when a student's learner orientation is considered.

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# Examining The Differences in Preferred Learning Environments Between Members of The "X" and the Baby Boomer Generations

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*Research on Generation X'ers suggests that this group typically learns very differently from those that came before them. Data on the preferred learning environments of approximately 200 "Baby Boomer," and " GenX" graduate students in administration were gathered using the Productivity Environmental Preference Survey. The results of this research and their implications for the design of HRD programs are presented.*

Keywords: Diversity, Generation X, Learning

It has long been recognized that "life attitudes are not randomly distributed through the population" ( Mirvis & Kanter, 1991, p. 47). Some groups of individuals, because of over-lapping life experiences, will react similarly to organizations' policies and procedures. When these "overlapping" life experiences are a result of the timing of their births, this phenomena is referred to as "Peer Personality, a set of collective behavioral traits and attitudes that later expresses itself through a generations's life cycle trajectory (Strauss and Howe, 1991, p. 32). Others refer to these similarities as "age cohorts" -a group of people who share a given historical or socially structured life experiences, the effect of which are relatively stable over the course of their life and serve to distinguish one generation from another (Rosow, 1978 as cited in Jurkiewicz and Brown, 1998. The groupof individuals that have come to be known as Generation X has been much the center of attention in recent literature concerning management and employees. As usual, stereotypes have evolved and negative opinions have been formed and reinforced. "Generation X", "The Post Baby Boom Generation", "The 13th Generation"; "Slackers"; "Baby Busters"'; "Grunge Kids"' "TwentySomethings"; "After Boomers;" "The Clueless Generation." Just as there is no common term to describe this segment of the work force, neither is there a consensus as to the birth dates of this generation nor the approximate number of this group. McIntosh (1994) identifies those born between 1961 and 1981 as the 13th generation (because they were determined to the 13th generations of Americans). He suggests that this generation represents 79.3 million Americans. Others ( Losyk, 1997) suggest that Generation X refers to those born between the years 1965 and 1976, and represent 44 million X'ers, as compared with the 77 million "bloomers" born between 1946 & 1964. Still others (Herman, 1998) use the term to refer to those born between 1965 and 1985, while Halford (1998) refer to those born after 1980 as Generation Y, "new baby boom," "echo boom," and "Millennial,"; and limit Generation X'ers to those born between 1965 and 1980. In 1995, about 31 percent of those aged 18-29 consider themselves members of a particular generation (Zill and Robinson), (establishing a relevant birth-time frame of between 1966 and 1977). Accepting the birth dates of the "Baby Boomers as between 1946 and 1965, and referring to those born after 1980 as the Generation Y'ers (Halford, 1998), would set the birth dates of the Generations X'ers at those born between 1966 and 1980. Extrapolating from the civilian labor force as found in the Statistical Abstract of the United States (as provided by Halachmi, 1988, p. 8), we calculated that the Generation X employees make up approximately about 39 million members or 29.8% of the civilian labor force as compared with 11% (plus or minus 2%) of those between 55 and 64 (Halachmi, 1998, p. 7).

## Over-lapping Life Experiences

As Zill and Robinson (1995) warn us, sweeping generalizations about any group are bound to be incorrect. The individuals that make up Generation X are by no means homogenous, but they do share one large thing

incommon. The one distinction about the members of this group is that they appear to be extremely different from earlier generations (Heselbarth, 1999; Dunn-cane, Gonzales, and Stewart, 1999; Corley, 1999; and McGarvey, 1999). For example, as to over-lapping life experiences relevant to their education and training, many X'ers grow up with technology right at their fingertips. In their homes they usually had unlimited access to video games and some even had computers that they could freely use. Even further, some X'ers were fortunate enough to have computers in their classrooms and at arcades on weekends. Not only is technology akey factor in their environment, X'ers were probably more familiar with their television set than they were their schoolbooks. As students they studied their TV set as twice as many hours as they were in school (Macalister, 1994). Today's young adults are less confident that their predecessors about the stability of jobs, earnings, and relationships (Zill and Robinson, 1995). The Baby Busters are a much more cynical and realistic bunch. Many of them believe that the age of lifetime employment is long gone. They view their jobs as short-term--they'll stay three to five years than move on to something else (Eng, 1996). X'ers see every job opportunity as temporary or as a stepping stone to something else or something better (York, 1996). We believe that each of these experiences have relevance of the training\education of this generation.

## Implications for Education/Training

Members of Generation X give education high marks. "People in Generation X view training as a way to improve their chances of getting promoted," (as reported in Lynch, 1998, p.1). Generations Xers, tend to make job decisions based on whether training is available. "The (organizations) that provide continuous education are in a better position to retain productive employees, (Caudron, 1997).

Research on Generation X'ers suggests that this group typically learns very differently from those that came before them (Dunn-Cane, et al, 1999; Raines, as quoted in Caudron, 1997; Wagschal, K., 1997; Wagschal, P. H., 1995). Standouts of this generation are powered by computer literacy and a desire to control their own destinies (York, 1996), they are amazingly technoliterate. From the Internet to CD-ROMs, familiarity with new technology is just a mouse-click away ((Caudron, 1997). Twentysomethings have tremendous capacity to process lots of information. Strauss calls this skill "parallel thinking," the ability to concentrate on multiple tasks at the same time (Filipczak). Because Generation X'ers are the first generation to grow up fully integrated with information technology, "they are comfortable with sound bites, close-up cameras, and quick changing, sharp images. ...They like to read copy that uses short, snappy phrases, charts, diagrams, and cartoons. They want their information concrete, concise, and to the point," (Losyk, 1997, p. 41). Tulgan (as quoted in Caudron, 1997), says, "I'm not saying you must change the learning objectives; you must change the process," He recommends focusing on what Xers are going to be able to do, no what they need to know. In the academic classroom, Xers "lamented the quantity of reading, class presentations, research reports, and exams that were required," (Wagschal, 1997, p. 23). To get their attention, Caudron (1997), suggests make training experiential. "As much as possible, use all six senses, role play, and simulation learning..," (p. 23). She goes onto say, "To give Xers a sense of control over their learning, it's wise to provide as many options as possible where and when they can participate. That means a choice of locations and times," (p. 24). Contrary to the conventional wisdom of adult learning , that adult learn best when their wealth of personal experience can be tied to the subject matter, some instructors sense that Xers don't feel that their personal experience was valuable. "They had constantly been reminded that they scored low throughout their educational experiences, and the expectations of their instructors were low," (Wagschal, 1997, p 23). To summarize some of the instructional attributes of Generation Xers, Caudron concludes:

Training for these individuals should focus on outcomes and put learners in control to get buy-in from employees. It should also be flexible to help them fit training into their busy schedules.
Moreover, training should offer eye-catching,highly scannable training materials, because
Gen Xers are attracted to entertaining and visually pleasing experiences. Lastly,
(organizations) should provide continuous education because young people strive for growth.(p. 20).

On reflecting on aspirations for teaching Generation Xers, Wagschal (1997, p. 25) expresses the hope to be ,"..able to develop new approaches to teaching that will improve their opportunities for learning while respecting--and even capitalizing on--their differences." She reminds us all that respecting the uniqueness of different generations is only a small part of responding to the individual needs of all students.

## Learning Styles

Malcolm Knowles (1973), points out that understanding how a person learns is a major requisite for a successful educational program. It has been suggested that educators must have more knowledge and understanding of the learning process, particularly how individuals learn ( Sims, R.R. & Sims, S. J., 1995). The question of how a person learns is the focus of the concept of learning style (Pigg, Busch and Lacy, 1980). Learning styles can be defined as characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment ( Keefe, 1979). Studies have shown that identifying a participant's learning style and  providing appropriate instruction in response to that style can contribute to more effective learning (Claxton & Murrell, 1987).

As Doyle and Rutherford (1984) point out:

> The wide popularity of proposals and programs for matching learning styles would seem
> to have two sources. First, the logic underlying the approach is compelling. Learners
> differ in a wide variety of ways and these differences are likely to influence how they
> respond to and benefit from a given instructional method or program....Second, the
> approach seems to offer an intelligent and practical framework for the organizational
> problems of dealing with diversity among students. (p.20)

However, "Except for some relatively isolated situations and work of particular individuals, ..., it is fair to say that learning style has  not significantly affected educational practices in higher education..." (Claxton and Murrell, 1987, p. 1).

A major obstacle to improving instructional effectiveness through an understanding of learning styles is the lack of consensus as to definitions of important concepts in this field. In this presentation, the audience will be exposed to a variety of learning styles that have been identified as having specific relevance to the improvement of the learning process.

### Learning Style Dimensions Important for Improving the Learning Process

Keefe (1979) has identified several dimensions of learning styles that appear to have the most relevance to the improvement of the learning process. They are: Field independence vs. dependence; Perceptual modality preferences; Conceptual Tempo; Leveling vs sharpening ; Conceptual level; Locus of Control; Achievement motivation; Social motivation; and Masculine-feminine behavior. (For a more detailed description of each of these learning styles and a description of the instruments used to measure these student attributes see Keefe [1979], or Wooldridge, [1994]).

## Research Design

For this presentation learning style data were gather from approximately  two hundred (200) students enrolled during the Fall semesters of 1998 and 1999 in the selected graduate courses in educational and public administration at Virginia Commonwealth University. One hundred and five (105) or fifty-two and  eigth tenths of a percent were born between one or after 1946 and before on during 1965 and are classified as 'Baby Boomers.' Ninety-four (94) or forty-seven and two tenths of a percent, were born during  or after 1966 and before or during 1980 and are classified as "Generation Xers." One hundred and six of the subjects were enrolled in  graduate courses in Educational Administration and ninety three were  enrolled in graduate courses in Public Administration..

The instrument used in gathering data was the Productivity Environmental Preference Survey (PEPS) developed by Price, Dunn and Dunn.  This instrument claims to be the first comprehensive approach to the diagnosis of an adult's individual productivity and learning style. Further, the instrument aids in prescribing the type of environment, working conditions, activities and motivating factors that would maximize individual output. PEPS does not claim to measure underlying psychological motivation, value systems, or the quality of attitudes. Rather it is said, "...[T]o yield information concerned with the patterns through which the highest levels of productivity tend to occur.  It therefore reveals how an employee prefers to produce or learn best, not why" (Price,

1996)

The PEPS analyzes an individual adult's personal preferences for each of twenty-one different elements. These include, in addition to the four elements of *Perceptual modality preferences* described above, (1). Noise Level-Quiet or Sound, (2). Light-Low or Bright, (3). Temperature- Cool or Warm, (4). Design-Informal or Formal, (5). Unmotivated/Motivated, (6). Non-Persistent/Persistent. (7). Irresponsible/Responsible, (8). Structure-Needs or Do Not Need, (9). Learning Alone/Peer-oriented Learner, (10). Authority Figures Present, (11). Learning in Several Ways, (12). Requires Intake, (13). Functions Best in Evening/Morning, (14). Functions Best in Late Morning, (15). Functions Best in Afternoon, (16). Mobility. Ninety percent of the reliabilities are equal to or greater than .60 (Price, 1996 p. 14). This instrument has been used in conducting research on the preferred learning styles of law students and appropriate learning strategies (Boble and Dunn, 1998); investigate gender, racial and age differences in preferences for productive work environments (Wooldridge, Maddox and Zheng, 1995), the preferred perceptual learning style modality of court reporters (Collidge-Parker, 1989), an analysis of learning and productitiy styles across occupational groups in a corporate setting (Galvin, 1992), and the effect of knowledge of learning styles on anxiety and clinical performance of nurse anethesiology students (Garcia-Otero, 1992), to name just a few of the research endeavors using this instrument. A more detailed of each of the different elements is presented below:

*Noise Level*: Some people need quiet when they are learning, while others notice neither noise nor movement once they begin to concentrate; they can "block out" sound. Some people need sound; they invariably turn on a radio, stereo, or television when they study as a screen against random noise distractions.

*Light-Low or Bright*: Some people work best under very bright light, whereas others need dim or low light.

*Temperature-Cool or Warm*: Many participants "can't think" when they feel hot and others can't when they feel cold; some concentrate better in either a warm or cool environment.

*Design-Informal or Formal*: Many participants think best in a formal environment, seated on a chair like those found in conventional classrooms. However, some learn better in an informal environment, on a lounge chair, a bed, the floor, on pillows or on carpeting.

*Unmotivated/Motivated*: Motivation is the desire to achieve academically.

*Non-Persistent/Persistent*: This element involves a person's inclination either to complete tasks that are begun or to take intermittent breaks and return to assignments or learning activities later.

*Irresponsible/Responsible*: This element involves participants' desire to do what they think they ought to so. In learning situations, responsibility often is related to conformity or following through on what an instructor asks participants to do.

*Structure-Needs or Do Not Need*: This element involves a participant's need for specific directions or explanations prior to undertaking or completing an assignment.

*Learning Alone/Peer-Oriented Learner:* Some individuals prefer to study by themselves, while other prefer to learn with a friend or colleague. In the latter situation, discussion and interaction facilitate learning. Sometimes participants prefer to study alone, but in close proximity to someone.

*Authority Figures Present*: Some people feel better or more comfortable when someone with authority or recognized special knowledge is present.

*Learning in Several Ways*: This element has alternate meanings. It suggests that the person may learning easily alone and also with other people present (peers, or with an authority figure, or in any combination) or that the person needs variety as opposed to routine.

*Requires Intake*: This area describes participants who often eat, drink, chew, or bite objects while concentrating, as opposed to those who prefer no intake until after they finished studying.

*Functions Best in Evening/Morning*: These are two of the four "time of day preferences." Evening and morning are on a continuum; if a score falls below 40, the participant tends to be an evening person; if the score is above 60, the participant most prefers to learning in the morning.

*Functions Best in Late Morning*: The energy curve for these participants is highest in the late morning, and they prefer to learning during this time of day.

**Functions Best in Afternoon:** The energy curve for these participants is highest in the afternoon, and they prefer to learn during this time of day.

*Mobility:* How quietly can the person sit, and for how long? Some people need frequent breaks and must move about the instructional or work environment. Others can sit for hours while engaged in learning or working, particularly if they are interested in the task.

Individuals may be given the PEPS in writing, on tape, or orally. In this study a writt en "op-scan" version was used . The questions are to be answered on a Likert Scale: Strong agree is a 5 and strongly disagree is a 1. Since there are questions that, if pondered, could cause modifications, limitations, and exceptions in responses, respondents were encouraged to give immediate reactions to each question on a "feeling" basis. The entire questionnaire need not be completed in one sitting, but may be responded to at intervals that are convenient to the individual. The estimated time to complete the survey is 20 - 30 minutes.

The PEPS is returned to Price Systems, Inc. Lawrence, Kansas for scoring. A computerized, individual profile of each student's response to the PEPS is provided. Each profile contains (if completed on the answer sheet) the individual's name or identification number, sex, date answer sheet was scored, group identification, raw score, standard score, PEPS area heading, and a graph of the relative location of each person's standard score in each area. The standard score scale ranges from 20 to 80 with a mean of 50 and a standard deviation of 10. The standard score is calculated based on the scores of adults who have taken the PEPS. Individuals having a standard score of 60 or more strongly prefer that area as a factor when they study or work. Individuals having a standard score of 40 or less do not prefer that factor when they study or work (Price, Dunn and Dunn, 1982).

There are two printouts included in the PEPS Area Summary. The first summarizes the elements for all individuals in the group who have standard scores of 60 or more in each of the areas. The second summarizes the elements for all individuals in the group who have standard scores of 40 or less in each of the areas.

Price, Dunn and Dunn (1982) have suggested pedagogical strategies for individuals having standard scores either of 40 or below or of 60 or above for each of the twenty learning style elements. These instructional suggestions are provided below, with the scores for each learning style element earned by these participants from the two age groups.

## Sound

For standard score of 60 or more, provide soft music, earphones, conversation areas, or an open work environment.

For standard score of 40 or less, establish silent areas; provide individual alcoves with sound proofing; provide ear plugs to block sound, if necessary.

| Age Groups: | 40< | >60 | |
|---|---|---|---|
| Gen. X   (n = 94) | | 2.1% | 5.3% |
| Baby Boomers  (n = 105) | 0% | 4.8% | |

## Ligh

For standard score of 60 or more place trainee near window, under bright illumination ; add table or desk lamps.

For standard score of 40 or less, create work spaces under indirect or subdued light, away from windows; use dividers or plants to block or diffuse light.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen. X | 11.7% | 19.1% |
| Baby Boomers | 20.0% | 20.0% |

## Formal Design

For standard score of 60 or more, create "formal" climate-rows of desks, straight chairs, walls having straight lines and simple designs, and direct lighting.

For standard score of 40 or less, provide "informal" climate--soft chairs and couches, pillows, some color, lounge furniture, plants, etc.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen X | 10.6 | 10.6 |
| Baby Boomers | 7.6% | 15.2% |

## Structure

For a standard score of 60 or more, be precise about every aspect of the assignment; permit no options; use clearly stated objectives in a very simple form; list and itemize as many things as possible, leave nothing for interpretation; clearly indicate time requirements and the resources that may be used; required tasks should be indicated; as successful completion is evidence, gradually lengthen the assignment and provide some choices from

among approved alternative procedures; gradually increases the number of options; establish specific working and reporting patterns and criteria as each task is completed.

For standard score of 40 or less, establish clearly stated objectives, but permit choices of resources, procedures, time lines, reporting, checking, etc.; permit choices of environmental, sociological and physical elements; provide creative options and opportunities to grow and to stretch talents and abilities; review work at regular intervals but permit latitude for completion if progress is evident.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen X | 4.3 | 35.1 |
| Baby Boomers | 5.7% | 18.1% |

(For each of the next four areas -auditory, visual, tactile and kinesthetic- for standard score of 40 or less, use resources prescribed under the perceptual preferences that are strong. If none are 60 or more, use several multisensory resources such as computers, videotapes, sound filmstrips, television and tactual/kinesthetic materials.).

## Auditory Preferences

For standard score of 60 or more, use tapes, videotapes, records, radio, television and precise oral directions when giving assignments, setting tasks, reviewing progress, using resources or for any aspect of the task requiring understanding, performance, progress and/or evaluation.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen X | 6.4% | 35.1% |
| Baby Boomers | 8.6% | 20.5% |

## Visual Preferences

For standard scores of 60 or more, use pictures, filmstrips, computers, films, graphs, sing le concept loops, transparencies, diagrams, drawings, books, and magazines; provide resources that require reading and seeing; use programmed learning (if in need of structure) and written assignments and evaluations.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen X | 10.6% | 9.6% |
| Baby Boomers | 18.1% | 5.7% |

## Tactile Preferences

For standard score of 60 or more, use manipulative and three dimensional materials; resources should be touchable and moveable as well as readable; allow these individuals to plan, demonstrate, report and evaluate with models and other real objects; encourage them to keep written records.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen X | 7.4% | 16.0% |
| Baby Boomers | 4.8% | 13.3% |

## Kinesthetic Preferences

For standard score of 60 or more, provide opportunities for real and active experiences for planning and carrying out objectives; site visits, seeing projects in action and becoming physically involved are appropriate activities for these individuals.

| Age Group: | 40< | >60 |
|---|---|---|
| Gen X | 4.3% | 8.5% |
| Baby Boomers | 4.8% | 5.7% |

The results of selected statistical analysis of these findings will be present at the Conference.
The "over-lapping" life experiences of the X Generation, does however, lead these researchers to suggest that further learning style research be conducted to determine if this generation requires different learning environments. It would be particularly interesting to see if Generation X differs from it predecessors on such learning style dimensions as Field Independence vs dependence, Conceptual Tempo, Locus of Control, and

Achievement Motivation (see Wooldridge, 1995 for a description of these learning styles).

But of course, each of these projects will be the subject of another, equally enriching, AHRD presentation. This addition research is essential, since to refer back to the insights of Wagschal 1997), "Respecting the unique experiences of different generations is only a small part of responding to the individual needs of all students," (p. 25).

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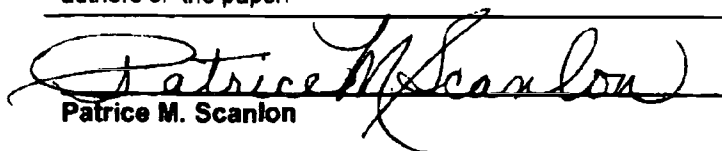### Please tell us where to communicate with you about this paper

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Blue Wooldridge
Stacey Bellamy

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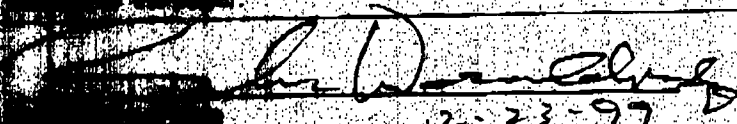We are creating a general index for the proceedings this year. Please list three key words that describe the content of your paper. Examples might include teams, evaluation, diversity, performance measurement. Choose words that will be of the greatest help to your colleagues when they search for research.

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