Personality Types of Students on a Two-Year Technical College Campus

Allen Zimmerman, Candice Johnson, and Nancy Brooker

Introduction

In an earlier *NACTA Journal* article, Johnson, Zimmerman, Mokma, and Brooker (March 1993) wrote about the many ways that the Myers-Briggs Type Indicator (MBTI) is used on the campus of The Ohio State University, Agricultural Technical Institute (OSU/ATI), a two-year technical college of about 600 students. In this article, the authors will 1) summarize the MBTI results for incoming students who participated in the 1991 and 1992 Freshman Orientation Program and for the second year Engineering Technologies Division (ETD) students enrolled in four sections (1990-1993) of a required problem solving course, 2) compare the OSU/ATI student results with those for students at other colleges, 3) compare ETD student results with the OSU/ATI student results, 4) compare the OSU/ATI student results with MBTI results for OSU/ATI faculty, 5) compare the OSU/ATI faculty results with those for faculty at other colleges, and 6) discuss implications of the results in terms of the teaching/learning process.

Brief Overview of the MBTI

The MBTI is an instrument based on the work of Swiss psychiatrist Carl Jung and was developed over a 20-year period by Isabel Myers and Katherine Briggs (Myers & McCaulley, 1985). Personality types are characterized by four pairs of letters, with a total of 16 possible combinations (types). The four pairs are designated by the following letter combinations: E or I (Extraversion versus Introversion), an indication of the manner in which a person is energized; S or N (Sensing versus Intuitive), an indication of the way a person prefers to receive information; T or F (Thinking versus Feeling), an indication of the manner in which a person prefers to make decisions; and J or P (Judging versus Perceiving), an indication of how individuals prefer to live their lives. Readers interested in a more detailed explanation of the MBTI are referred to Johnson et al. (1993), Lawrence (1982), Myers & McCaulley (1985), and Provost & Anchors (1987).

Zimmerman is an associate professor in the Engineering Technologies Disivion, Johnson is a lecturer in the General Studies Division, and Brooker is a counselor in Academic Affairs at The Ohio State University, Wooster Campus, Agricultural Technoical Institute, 1328 Dover Road, Wooster, OH 44691.

Review of Literature for Comparative Data

Given the problems of reaching and testing representative samples with any written questionnaire, true type distribution for any population may never be known (Myers & McCaulley, 1985). In addition to this inevitable bias, another challenge faces those trying to determine type distribution. The MBTI is descriptive rather than prescriptive in nature, thus the results of the MBTI need to be verified individually. Because an individual's determination of the type which best fits is not always the same as the reported type, data available for compilation of frequency tables may not always be *totally* accurate. It is important that this be kept in mind when using MBTI in comparative studies.

MBTI data for various populations is available from the Center for Applications of Psychological Type (CAPT). This organization has a very detailed data bank (Macdaid, McCaulley, & Kainz, 1986), which the authors have chosen to use for general comparisons of faculty and students.

There have been several previous articles in the *NACTA Journal* regarding MBTI results for student populations at agricultural colleges. Barrett, Sorensen, and Hartung (1987) analyzed MBTI results based on a multi-year study for individual type distributions of students enrolled in the College of Agriculture at the University of Nebraska, Lincoln (UNL). These same authors (1985) also presented MBTI individual type distribution results for College of Agriculture faculty and for students enrolled in four large courses in the College. McCann, Heird, and Roberts (1989, 1991) analyzed MBTI preference score results for students in animal evaluation courses at Texas Tech University over a three-year period and for students competing on national animal judging teams from four universities, but did not provide data on the individual type distributions. The authors have chosen to use the published data from the UNL College of Agriculture for comparison to another agricultural population.

Procedures for Administering and Scoring

In 1991, a procedure to administer the MBTI to all incoming students attending the OSU/ATI Freshman Orientation Program was initiated. The main impetus for this action was the decision to incorporate the topic of personality types into the "Personal and Career Orientation" course which is required for most newly enrolled students. Because the MBTI is a formal part of the orientation activities, over 90% of in-

coming OSU/ATI students now take the MBTI. Typically, only those students who do not participate in the Freshman Orientation Program, such as certain transfer and nontraditional students, do not take the MBTI.

In order to comply with ethical usage of the instrument, students are strongly encouraged rather than required to take the MBTI. Of the those few students who choose not to participate initially, most choose to do so later when introduced to the concept of personality types during a session of the Orientation class. During this interpretation session, students are provided an overview of type theory and their MBTI results as well as information to help them apply this knowledge to their educational endeavors. Instructors then relate other topics of the course to what is learned in this interpretation session, thus helping students learn to celebrate the differences and uniqueness of individuals.

OSU/ATI personnel now have a data base of MBTI results for 517 first-year students from the 1991 and 1992 entering classes. Results presented in this article are based on these two years of data. Additionally, the process has begun for educating faculty and staff in the area of type theory. To date, 33 faculty and 38 staff have completed the MBTI and participated in various workshops and professional development activities concerning type theory. In this article, the authors have focused only on faculty types because of the unavailability of comparative data for staff types.

In 1990 Zimmerman (one of the authors) developed a capstone problem solving course which is taught every spring quarter and is a required course for all students with majors in the Engineering Technologies Division (Zimmerman, 1991). The MBTI is incorporated as an important part of the course. During the first three years the course was offered, students completed the MBTI during class time early in the quarter. Results of the MBTI were scored by residence hall or student services personnel trained in its use. Now that the MBTI has been incorporated as part of the Freshman Orientation Program, most students enrolled in the course are already aware of their MBTI type and its implications. Therefore, beginning with the 1993 class only those students who did not take the MBTI during the Freshman Orientation Program have been administered the test during class time. Results presented in this article are based on data for four years (1990 - 1993).

Methods

MBTI data was analyzed using the Selection Ratio Type Table (SRTT), a PC software program available from CAPT (Granade, Hatfield, Smith, & Beasley, 1987). SRTT determines the probability of differences in the distribution of 16 types and 28 type groupings for a given population compared to a base population. This program uses Chi square (or Fisher's exact probability if cell frequencies are 5 or less) to determine if differences between variables in the two type tables are significance at the .05, .01, or .001 levels of confidence.

The variable used to indicate differences is the selection ratio (index). If the index is more than 1.00, there is a greater observed frequency in that cell of the table than expected when compared to the base population. Likewise, if the index is less than 1.00, there is a less observed frequency than expected.

Results and Discussion

An overview of the MBTI results used in the remainder of this article are found in Table 1.

Table 1 MBTI Results for OSU/ATI and UNL College of Agriculture Students and Faculty

	OSU/ATI Student Population		OSU/ATI Engr Tech Student Population		OSU/ATI Faculty Population		UNL Agr * College Student Population		UNL Agr ** College Faculty Population	
MBTI TYPE	N = 517		N = 95		N = 33		N = 2888		N = 71	
ISTJ	85	16%	19	20%	7	21%	496	17%	16	23%
ISFJ	36	7%	4	4%	3	9%	211	7%	6	8%
INFJ	6	1%	0	0%	2	6%	35	1%	7	10%
INTJ	14	3%	2	2%	4	12%	50	2%	10	14%
ISTP	44	9%	16	17%	1	3%	290	10%	1	1%
ISFP	23	4%	2	2%	0	0%	160	6%	1	1%
INFP	19	4%	2	2%	2	6%	130	5%	2	3%
INTP	13	2%	3	3%	2	6%	105	4%	2	3%
ESTP	56	11%	15	16%	1	3%	274	9%	1	1%
ESFP	24	5%	1	1%	0	0%	158	5%	1	1%
ENFP	26	5%	3	3%	2	6%	153	5%	2	3%
ENTP	36	7%	4	4%	2	6%	105	4%	2	3%
ESTJ	71	14%	17	18%	2	6%	410	14%	8	11%
ESFJ	35	7%	3	3%	1	3%	177	6%	0	0%
ENFJ	12	2%	1	1%	1	3%	63	2%	8	11%
ENTJ	17	3%	3	3%	3	9%	71	2%	4	6%
Female	118	23%	1	1%	9	27%				
Male	399	77%	94	99%	24	73%				

*source: Barrett, Sorensen, & Hartung (1987, p. 15)

**source: Barrett, Sorensen, & Hartung (1985, p. 51)

Many differences exist when OSU/ATI students are compared to traditional age college students in the CAPT data bank as shown in Table 2. The high index for Sensing (significant at the .001 level) is not surprising given the fact that OSU/ATI is a technical college. This applied, practical approach to education is very attractive to most Sensates.

People who prefer the Sensing perception prefer to use the five senses to become aware of things, people, occurrences, and ideas, skills very useful in a technical education. Conversely, those who prefer the Intuitive perception prefer to become aware of things, people, occurrences, and ideas indirectly by way of the unconscious, relying heavily on what they often term as "a sixth sense or hunch," characteristics which are often not appreciated in the technical world.

Equally as predictable is the high index for Thinking (significant at the .001 level) for two reasons. First, the CAPT population used in this comparison included 53% female and 47% male students, whereas the gender ratio for OSU/ATI students is 23% female and 77% male. Because the T/F function has a gender bias, with more males than females typically preferring Thinking, the expected frequencies of T over F at OSU/ATI would be that of more Ts than Fs. Secondly, because OSU/ATI focuses on hard sciences and technology rather than the liberal arts, more Ts than Fs would be expected to choose this college.

People who prefer the Thinking judgment prefer to organize and structure information in a logical and often impersonal manner when drawing conclusions or making decisions; those with a preference for Feeling, on the other hand, prefer to organize and structure information in a value-oriented, personal manner when faced with decisions. Thinking students tend to rely heavily on the principles of cause and effect, linking ideas together by making logical connections which can be a real advantage to those studying the hard sciences and technology.

As indicated in Table 2, the high indexes for S and T also result in significantly higher indexes for the four MBTI types which include the ST combination, the ST type grouping itself, and several of the other type groupings which include either S or T. Sensing-Thinking people tend to perceive the world in terms of the tangible rather than the abstract; they are often detail-oriented and seldom make generalizations. People with the combination of the S and T preferences have a tendency to be practical and matter-of-fact, focusing on facts that can be collected and verified directly by seeing, hearing, touching, counting, weighing, and measuring. The ST's typical approach to a problem is to regard facts with impersonal analysis, using a step-by-step logical process of reasoning from cause to effect, from premise

Table 2 Comparison of OSU/ATI Students (N=517) to CAPT Traditional Age College Student Base (N=27,156)*

TYPE	INDEX	TYPE GROUPING	INDEX	TYPE GROUPING	INDEX
ISTJ	1.74 ***	E	ns	NF	0.54 ***
ISFJ	ns	I	ns	NT	ns
INFJ	0.36 **	S	1.21 ***	SJ	1.12 *
INTJ	ns	N	0.69 ***	SP	1.38 ***
ISTP	1.90 ***	T	1.40 ***	NP	0.76 **
ISFP	ns	F	0.65 ***	NJ	.59 ***
INFP	ns	J	ns	TJ	1.28 ***
INTP	ns	P	ns	TP	1.57 ***
ESTP	2.34 ***	IJ	ns	FP	0.68 ***
ESFP	ns	IP	ns	FJ	0.63 ***
ENFP	0.55 **	EP	ns	IN	0.60 ***
ENTP	1.39 *	EJ	0.86 *	EN	0.75 **
ESTJ	1.30 *	ST	1.70 ***	IS	1.32 ***
ESFJ	0.64 **	SF	0.74 ***	ES	ns
ENFJ	0.48 **				
ENTJ	ns				

* implies significance at the .05 level
** implies significance at the .01 level
*** implies significance at the .001 level
ns = not significant at >.05 level
Index = the ratio of the cell value to the base value
# source: Macdaid, McCaulley, & Kainz (1986, pp. 54 & 61)

Table 3 Comparison of Engineering Tech Students (N=95) to OSU/ATI Student Population (N=517)

TYPE	INDEX	TYPE GROUPING	INDEX	TYPE GROUPING	INDEX
ISTJ	ns	E	ns	NF	ns
ISFJ	ns	I	ns	NT	ns
INFJ	ns	S	ns	SJ	ns
INTJ	ns	N	ns	SP	ns
ISTP	1.98 *	T	1.28 ***	NP	ns
ISFP	ns	F	0.48 ***	NJ	ns
INFP	ns	J	ns	TJ	ns
INTP	ns	P	ns	TP	1.39 *
ESTP	ns	IJ	ns	FP	0.47 *
ESFP	ns	IP	ns	FJ	0.49 *
ENFP	ns	EP	ns	IN	ns
ENTP	ns	EJ	ns	EN	ns
ESTJ	ns	ST	1.42 ***	IS	ns
ESFJ	ns	SF	0.46 **	S	ns
ENFJ	ns				
ENTJ	ns				

* implies significance at the .05 level
** implies significance at the .01 level
*** implies significance at the .001 level
ns = not significant at >.05 level
Index = the ratio of the cell value to the base value

Table 4 Comparison of OSU/ATI Students (N=517) to UNL College of Agriculture Student Base (N=2888)

TYPE	INDEX	TYPE GROUPING	INDEX	TYPE GROUPING	INDEX
ISTJ	ns	E	1.10 *	NF	ns
ISFJ	ns	I	0.91 *	NT	1.35 **
INFJ	ns	S	ns	SJ	ns
INTJ	ns	N	ns	SP	ns
ISTP	ns	T	ns	NP	ns
ISFP	ns	F	ns	NJ	ns
INFP	ns	J	ns	TJ	ns
INTP	ns	P	ns	TP	ns
ESTP	ns	IJ	ns	FP	ns
ESFP	ns	IP	0.81 *	FJ	ns
ENFP	ns	EP	ns	IN	ns
ENTP	1.92 ***	EJ	ns	EN	1.30 *
ESTJ	ns	ST	ns	IS	ns
ESFJ	ns	SF	ns	ES	ns
ENFJ	ns				
ENTJ	ns				

* implies significance at the .05 level
** implies significance at the .01 level
*** implies significance at the .001 level
ns = not significant at >.05 level
Index = the ratio of the cell value to the base value

to conclusion. These people usually have a high energy level for doing things which are pragmatic, logical, and useful.

OSU/ATI students are clearly different from typical college student populations in their preference for Sensing and Thinking. These preferences serve OSU/ATI students well, allowing them to capitalize on their natural strengths towards the practical and applied type of learning that is emphasized in the technical college environment. However, it is important that these students be made aware of the developmental nature of type and begin to recognize the value of developing their Feeling judgment and their Intuitive perception.

As noted in the previous section, there is a significantly higher frequency of Sensing and Thinking types in the OSU/ATI student body than in typical college populations. Results shown in Table 3 indicate that students enrolled in the Engineering Technologies Division have an even greater likelihood of preferring T and ST than their peers in other majors at OSU/ATI. The high index for Thinking (significant at the .001 level) observed in the Engineering Technologies Division students is predictable because Thinking students naturally prefer to be involved in activities that draw on their inherent tendency to objectively analyze situations and to think critically. Likewise, the high index for the ST type grouping (significant at the .001 level) is expected because type theory predicts that STs' best opportunities for success and satisfaction lie in fields that demand impersonal analysis of concrete facts, and the handling of machines and materials (Myers & McCaulley, 1985).

Given these results, the discussion in the previous section regarding implications for student populations with high frequencies of T and ST is even more applicable and important to Engineering Technologies Division students.

As shown in Table 4, UNL College of Agriculture and OSU/ATI student populations are quite similar. This might be expected because both colleges draw from a student population interested in agriculture. The high index for E (significant at the .05 level) does indicate that OSU/ATI students are more likely to prefer Extraversion than UNL College of Agriculture students. The higher index for the NT type grouping (significant at the .01 level) is also notable. Individuals preferring NT tend to be logical and ingenious, exhibiting gifts for solving problems within their field of special interest (Myers & McCaulley, 1985). Overall, however, it is apparent that few major differences exist between the populations of students on the two campuses.

OSU/ATI Faculty Compared to the CAPT University Teachers Base and the UNL College of Agriculture Faculty

The statistical analysis comparing the MBTI results for OSU/ATI faculty with the CAPT University Teachers Base population (Macdaid, McCaulley, & Kainz, 1986) and faculty at the UNL College of Agriculture indicates that there are no significant differences for any of the individual types or type groupings. Therefore, it appears that in terms of MBTI types, OSU/ATI faculty are representative of faculty at other college campuses across the country.

The key characteristic observed from the results shown in Table 5 is the high index for S (significant at the .001 level). OSU/ATI students prefer Sensing over Intuitive perceptions to a much greater degree than do their faculty. This is predictable because studies compiled by Myers and McCaulley (1985) have shown the American educational system to be oriented to Intuitives. Intuitives enjoy studying the theory and abstract concepts often found in higher education, whereas Sensates prefer studying that which is practical and applicable to their daily lives. Hence, Sensing students tend to drop out of high school and college more frequently than do Intuitive students. Therefore, the percentage of Intuitives increases as educational levels increase (Myers & McCaulley, 1985; Myers & Myers, 1980).

Given the challenge of teaching a large population of Sensing students, OSU/ATI Intuitive faculty need to present facts in a detailed and orderly fashion, to describe events sequentially, and to incorporate specifics when presenting important concepts and relationships. Additionally, Intuitive faculty should work consistently on relating events and concepts to current practical applications rather than focusing primarily on the future. Hopefully, as OSU/ATI faculty learn more about their own and their students' preferred methods

Table 5 Comparison of OSU/ATI Students (N=517) to OSU/ATI Faculty (N=33)

TYPE	INDEX	TYPE GROUPING	INDEX	TYPE GROUPING	INDEX
ISTJ	ns	E	ns	NF	ns
ISFJ	ns	I	ns	NT	0.46 **
INFJ	ns	S	1.59 ***	SJ	ns
INTJ	.022 *	N	0.51 ***	SP	4.69 **
ISTP	ns	T	ns	NP	ns
ISFP	ns	F	ns	NJ	0.31 ***
INFP	ns	J	ns	TJ	ns
INTP	ns	P	ns	TP	ns
ESTP	ns	IJ	0.56 **	FP	ns
ESFP	ns	IP	ns	FJ	ns
ENFP	ns	EP	ns	IN	0.33 ***
ENTP	ns	EJ	ns	EN	ns
ESTJ	ns	ST	ns	IS	ns
ESFJ	ns	SF	ns	ES	2.97 **
ENFJ	ns				
ENTJ	ns				

* implies significance at the .05 level
** implies significance at the .01 level
*** implies significance at the .001 level
ns = not significant at >.05 level
Index = the ratio of the cell value to the base value

of perceiving information, they can use this awareness and understanding to improve the teaching/learning process.

Likewise, Sensing students are challenged to take advantage of their contacts with Intuitive instructors. They need to learn to be patient with the manner in which Intuitives present information, having confidence that the pieces will fall together and that the theory and concepts will be applicable in their field of study. The model provided by their Intuitive professors encourages Sensing students to become more open to exploring alternative possibilities and new ideas. Exposure to learning styles different from their own also helps students develop and use their lesser preferred functions and processes.

Conclusion

The MBTI has been used for several years on the OSU/ATI campus as an important device to help students and faculty understand and appreciate personality differences and diversity in the learning process. However, prior to this study a detailed analysis of the MBTI data for students and faculty had not been completed.

When compared to general college student populations, OSU/ATI students were found to have many significant differences. In particular, a much higher percentage of OSU/ATI students prefer Sensing and Thinking than do typical college students. The Engineering Technologies Division students were found to prefer Thinking to a much greater degree than their peers in other majors on the OSU/ATI campus. However, OSU/ATI students were found to be very similar to those enrolled in the College of Agriculture, UNL.

No significant differences were found when OSU/ATI faculty were compared to a national data base of college teachers or to faculty at the College of Agriculture, UNL. However, compared to the OSU/ATI faculty, students' preference for Sensing was very significant.

These results have several important implications in the teaching/learning process. By understanding and applying the principles of type theory based on these findings, faculty can modify their teaching techniques to better meet the needs of students. Likewise, students can grow from their exposure to different learning styles as they develop and use their lesser preferred characteristics and functions.

In addition to the teaching/learning process, the results presented in this article may have important implications in such areas as retention and recruitment. With this in mind, the authors plan to continue to collect MBTI data for OSU/ATI students, faculty, and staff and use this information for further studies and analysis.

References

Barrett, L., Sorensen, R., & Hartung, T. (1985, March). Personality types factors of faculty and students: Implications for agriculture college teaching. *NACTA Journal*, 29, 50-54.

Barrett, L., Sorensen, R., & Hartung, T. (1987, December). Personality types of agricultural college students: Implications for teaching, retention and recruitment. *NACTA Journal, 31*, 14-19.

Granade, J. G., Hatfield, H. L., Smith, S. S., & Beasley, J. E. (1987). *Selection ratio type table PC program.* Gainesville, FL: Center for Applications of Psychological Type.

Johnson, C., Zimmerman, A., Mokma, A., & Brooker, N. (1993, March). Applying student and faculty personality typing on a two-year college campus. *NACTA Journal, 37*, 19-21.

Lawrence, G. (1982). *People types & tiger stripes: A practical guide to learning styles* (2nd ed.). Gainesville, FL: Center for Applications of Psychological Type.

Macdaid, G. P., McCaulley, M. H., & Kainz, R. I. (1986). *Myers-Briggs type indicator atlas of type tables.* Gainesville, FL: Center for Applications of Psychological Type.

McCann, J. S., Heird, J. C., & Roberts, D. Y. (1989, December). Effective teaching methods for personality types of competitive judging team students and classmates in livestock and horse evaluation classes. *NACTA Journal, 33*, 5-8.

McCann, J. S., Heird, J. C., & Roberts, D. Y. (1991, March). Personality typing of students competing on nationally competitive livestock and horse judging teams. *NACTA Journal, 35*, 30-32.

Myers, I. B., & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator.* Palo Alto, CA: Consulting Psychologists Press.

Myers, I. B., & Myers, P. B. (1980). *Gifts differing.* Palo Alto, CA: Consulting Psychologists Press.

Provost, J. A., & Anchors, S. (Eds.). (1987). *Applications of the Myers-Briggs Type Indicator in higher education.* Palo Alto, CA: Consulting Psychologists Press.

Zimmerman, A. (1991, March). A capstone problem solving/systems course at a two-year technical college. *NACTA Journal, 35*, 26-29.