



A FOUR YEAR STUDY

Personality Types of Agricultural College Students Implications for Teaching, Retention and Recruitment

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Introduction

Within the last five years much evidence has been gathered that college students have differing ways of learning. If these differing ways of learning (styles) can be understood by Ag College faculty members, teaching effectiveness could be improved, and as a result, students should learn more. Barrett, Sorensen and Hartung (1985) found that Agricultural College student achievement was related to personality type. In this report the authors will show how personality type of Agriculture College students differs by major and how those results may have implications for recruitment, retention, and teaching strategies.

Methods

In 1983, the Instructional Improvement Committee of the College of Agriculture, University of Nebraska, Lincoln, decided to study the characteristics of both faculty and students in order to develop better teaching strategies.

The decision was made to administer the Myers-Briggs Type Indicator (MBTI) to as many students and faculty as possible. To date, personality type data have been collected for 2888 students and 126 faculty. Instructors in required, large classes administer the questionnaire. Sufficient valuable information was obtained the first year so that collection of additional data was warranted. The MBTI was given to freshmen level classes in the years following.

Results of the MBTI were returned to the students with a 1 to 2 hour interpretation session. A numerical distribution was provided each instructor to aid in lesson planning strategies. Students and faculty are encouraged to share their own personality types. Student data are not shared with any persons other than the instructor.

The Myers-Briggs Type Indicator is used to determine the psychological types of Carl G. Jung. Each personality type is composed of four components out of a possible eight paired personality factors. Various combinations of these eight factors make up a possible sixteen personality types. To aid in interpreting results of this study, a brief definition of the eight personality factors is provided. A single letter is used to designate each factor and an individual is required to make a preference for:

1. **Extraversion (E) or Introversion (I).** This factor expresses a person's preferred attitude toward the world as well as a fundamental source of energy. Extraverts (E) are stimulated by people and things; whereas, introverts (I) are stimulated by inner thoughts and reflections.
2. **Sensing (S) or Intuition (N).** This factor indicated the perception mode, how individuals take in information. Sensing types learn best through the use of highly developed sight, sound, touch, smell and taste. Intuitives use their sensory perception less and rely on imagination and hunches to guide information gathering.
3. **Thinking (T) or Feeling (F).** Decision making, according to Jung, occurs with either thinking or feeling. Thinkers prefer to use logic and analysis to decide and feeling types prefer to use subjective values in arriving at decisions.
4. **Judging (J) or Perception (P).** This is the lifestyle dimension as described by Isabel Myers (1980). Judging types prefer an orderly lifestyle and get great satisfaction out of finishing things. Perceptive types are adaptable and are better able to succeed in unstructured situations.

Keirsey and Bates (1978) have divided the sixteen types into four temperament groups on the basis on expressed behavior. These groups are identified by two of the type components they have in common. They are intuitive feeling (NF), intuitive thinking (NT), sensing judging (SJ) and sensing perceiving (SP). Descriptive information for each group can be found in Keirsey and Bates (1978).

MBTI data was analyzed using the selection ratio type table (SRTT). This program uses Chi square and when necessary Fischers Exact Probability statistic to support claimed differences.

The Selection Ratio Type Table (SRTT) is a computer program which is used to determine the probability of differences in type distribution in two populations. The variable used to indicate differences is the selection ratio (I). The selection ratio is the ratio of numbers of persons in a sample type group divided by the number of persons in a base group. A ratio of 1.0 means the distributions are the same. Values less than 1.0 indicates that there are less persons proportionately

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in the sample than in the base population. Values greater than 1.0 indicate that there are more persons proportionately in the sample. The base populations used in this study were the Agricultural College base data and the base data from the Center for the Application of Psychological Type.

Findings

Data in Table 1 and Figure 1 and 2 depicts the distribution of personality types of 2888 students of all ag majors at the University of Nebraska. This data is more recent than that reported by Barrett, Sorensen and Hartung (1985), although the results depict a similar trend. When comparing University of Nebraska Ag students with 18,692 college students from the Center for Application of Psychological Type (CAPT) data base at Gainesville, Florida, many differences were found by individual personality types as well as components of type (see figures 3, 4 and 5). Four sensing thinking types were more abundant in the College of Agriculture: ISTJ, 17%; ISTP, 10%; ESTP, 9%; and ESTJ, 14%. Three of four sensing feeling types were less abundant: ISJF, 7%; ESFP, 5%; and ESFJ, 6%. All four of the intuitive feeling types were less than the comparative college student base: INFJ, 1%; INFP, 5%; ENFP, 5% and ENFJ, 2% ($P < .001$).

By component of type, ag college students were different from the CAPT base population on all eight dimensions. A typical UNL Ag student is more introverted, less extraverted; more sensing, less intuitive; more thinking, less feeling and more perceiving, less judging.

The distribution according to the four temperament groups are also reported in Table 1. They are useful in describing learning styles and other behaviors.

Table 1. Composite Sample of 2888 UNL Ag College Students Compared to CAPT Student Base

Type	N	%	Index ²	Type Component	N	%	Index
ISTJ	496	17	2.0***	E	1411	49	.9***
ISFJ	211	7	.7***	I	1477	51	1.2***
ISTP	290	10	2.6***	S	2176	75	1.3***
ISFP	160	6	NS	N	712	25	.6***
ESTP	274	9	2.6***	T	1801	62	1.6***
ESFP	158	5	.8*	F	1087	38	.6***
ESTJ	410	14	1.5***	J	1513	52	.9***
ESFJ	177	6	.5***	P	1375	48	1.1***
INFJ	35	1	.3***	<u>Temperament</u>			
INTJ	50	2	.6***	NF	381	13	.5***
INFP	130	5	.8*	NT	331	12	.8***
INTP	105	4	NS	SJ	1294	45	1.1***
ENFP	153	5	.5***	SP	882	31	1.5***
ENTP	105	4	NS				
ENFJ	63	2	.4***				
ENTJ	71	2	.6***				

1. CAPT Student Base = 18,692

2. Index: ratio of 1.0 is equal to base

* .05, ** .01, *** .001

Ag students were less intuitive feeling (NF), and less intuitive thinking (NT), but more sensing judging (SJ) and more sensing perceiving (SP) than the aggregate of students in the CAPT data bank.

Ag College Majors Compared to All UNL Ag Students

Table 2 illustrates how Ag College students by major compare with a "typical" ag college student at UNL. Individual personality types were not reported because of the volume of data, but persons interested can obtain that information from the authors.

Ag Engineering students were similar to all other ag students, except that they were 66% introverted (I).

Mechanized Agriculture majors had two

Table 2. Comparison of Ag College Students by Major with UNL Ag Student Base*

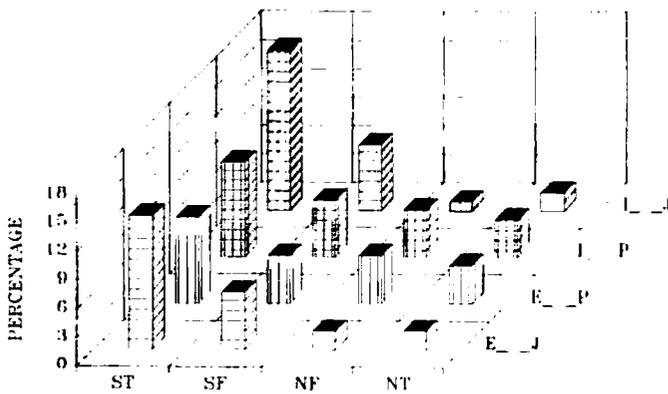
Type Component	Ag Eng	Mech Ag	Ag Bus	Ag Econ	Gen Ag	Ag Ed	Ag Honor	Nat. R.	Hort	Agro.	Ani Sci	Pre Vet
	N=77	N=100	N=73	N=374	N=175	N=156	N=70	N=196	N=39	N=156	N=369	N=108
	% I**	% I	% I	% I	% I	% I	% I	% I	% I	% I	% I	% I
E	34 0.7	44 NS	47 NS	52 NS	39 0.8	60 1.2	47 NS	45 NS	44 NS	42 NS	52 NS	44 NS
I	66 1.3	56 NS	53 NS	48 NS	61 1.2	40 0.8	53 NS	55 NS	56 NS	58 NS	48 NS	56 NS
S	68 NS***	85 1.2	73 NS	82 1.1	77 NS	79 NS	56 0.7	70 NS	67 NS	84 1.1	80 1.1	67 0.9
N	32 NS	15 0.6	27 NS	18 0.8	23 NS	21 NS	44 1.8	30 NS	33 NS	16 0.7	20 0.8	33 1.4
T	64 NS	70 NS	60 NS	67 1.1	55 0.9	65 NS	63 NS	55 0.9	62 NS	62 NS	63 NS	57 NS
F	36 NS	30 NS	40 NS	33 NS	45 1.2	35 NS	37 NS	45 1.2	38 NS	38 NS	37 NS	43 NS
J	57 NS	43 NS	51 NS	52 NS	53 NS	55 NS	63 NS	42 0.8	39 NS	53 NS	53 NS	50 NS
P	43 NS	57 NS	49 NS	48 NS	47 NS	45 NS	37 NS	58 1.2	41 NS	47 NS	47 NS	50 NS
<u>Temperament</u>												
NF	15 NS	7 NS	16 NS	8 0.6	17 NS	11 NS	21 1.6	18 1.4	21 NS	7 0.5	13 NS	16 NS
NT	17 NS	8 NS	11 NS	11 NS	6 0.6	10 NS	23 2.0	12 NS	13 NS	9 NS	7 0.6	18 1.5
SJ	45 NS	38 NS	38 NS	46 NS	50 NS	49 NS	46 NS	39 NS	31 NS	47 NS	44 NS	40 NS
SP	23 NS	47 1.5	34 NS	36 1.2	27 NS	30 NS	10 0.3	31 NS	36 NS	36 NS	35 1.0	27 NS

* UNL Ag College Student Base = 2888 Students

** I = Index, the number 1.0 is equal to the base.

*** NS = not significant at .05 level or less

Figure 1. UNL Ag College Students by Personality Type



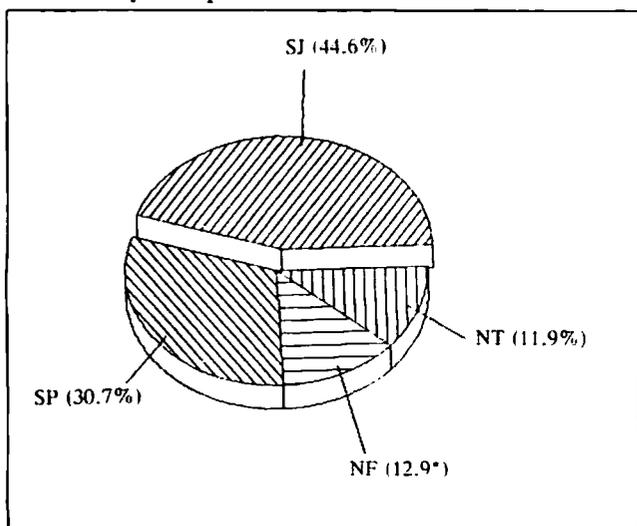
significant differences. 85% of Mech Ag students were sensing (S) and 47% for the Ag College base. SP students are known for their mechanical skills and desire to learn in an action oriented setting.

Agricultural Economics students were different in several psychological type components. They are strong sensing (S) 82% and thinking (T) 67%. There were significantly less intuitive (N) 18%. The sensing perceiving (SP) temperament had a greater amount 36% and less intuitive feeling (NF) with only 8%, when compared to typical UNL Ag students. Sensing thinking students are known for their practical ability to solve problems. The practical mathematical orientation of Ag Econ. lends itself well to this kind of student.

General Agriculture — Students of this major had three significant differences. Like Ag Engineering, they were more introverted 61 % and less extraverted 39%. These students tended to be more feeling (F) and less thinking (T) than most other majors. The last noteworthy difference was the absence of the temperament intuitive thinking (NT), only 6%. The higher number of sensing feeling types may be due to a preference of these students to choose subjects that are less analytical and possibly more people oriented.

Agricultural Education students differed from typical Ag students in only one factor, that was extraversion and introversion. They were 60 % E and

Figure 2. UNL Ag College Students by Temperament. N = 2,888



40% I. This was the only major to have more extraverts than introverts. The ability of extraverts to feel more comfortable before the public may be the reason they choose Ag Education.

Agricultural Honors majors were atypical in several components of type. They were significantly more intuitive (N), less sensing (S), and more intuitive feeling (NF) and intuitive thinking (NT). This major had more intuitive students than all other majors. These students are selected for their high academic potential. The NF students have been consistently found to have high academic performance as reported by Barrett, Sorensen, Hartung (1985) and Barrett and Connot (1986).

Natural Resources This major like General Ag had significantly more feeling types and less thinking. This was the only major to have more perceptive (P) and less judging (J) types. Like Ag Honors, there were more intuitive feeling (NF) temperaments. NF's are known to be idealistic and have strong preferences for conservation issues.

Horticulture majors were not different from the typical UNL Ag College student.

Agronomy majors were similar to other Ag students except that they were 84% sensing and 16% intuitive. This was the only major to have significantly less NF students. This may be due to the perceived notion that agronomy requires less people skills than NF's wish to offer. The high number of sensing students may be due to their preference to work with crops and soils in a practical way.

Animal Science students were significantly different from typical Ag students in only two areas. They were 80% sensing and 20% intuitive. Intuitive thinking (NT) types were less represented at only 7%. They perceived more practical nature of animal science may explain this high number of sensing types.

Pre-Veterinarian — these students were somewhat similar to other majors except that they were significantly more intuitive and less sensing. This was the only major other than Ag Honors to have significantly more intuitive thinking (NT) types. This major may have more NT students due to the high physical science requirements in which NT's generally have higher achievement.

Ag College Majors Compared to University Wide Students

In this section, data is presented in Table 3 and figures 3, 4, and 5 by comparing Ag College students by major with 18,692 students who identified themselves as university students from throughout the U.S. This comparative data was obtained from the Center for the Application of Psychological Type (CAPT) in Gainesville, Florida. This comparison was made as an attempt to characterize agriculture students at UNL with what may be a more "typical" university student. As in Part I, this section will be presented in the same order by major. Overall, considerably more differences were found. Please note that to conserve space, the only data narrative presented in this section is that data that was not similarly reported from Table 2. All significantly different data for this section can be seen in Table 3.

Table 3 Comparison of Ag College Students by Major with CAPT College Student Base*

Type Component	Ag Eng N=47		Mech Ag N=100		Ag Bus N=73		Ag Econ N=374		Gen Ag N=175		Ag Ed N=156		Ag Honor N=70		Nat. R. N=198		Hort N=39		Agro. N=156		Ani Sci N=369		Pre Vet N=108	
	%	I**	%	I	%	I	%	I	%	I	%	I	%	I	%	I	%	I	%	I	%	I	%	I
E	34	0.6	44	0.8	47	NS	52	NS	39	0.7	60	NS	47	NS	45	0.8	44	NS	42	0.7	52	NS	44	0.8
I	66	1.5	56	1.3	53	NS	48	NS	61	1.4	40	NS	37	NS	55	1.2	56	NS	58	1.3	48	NS	56	1.3
S	68	NS***	85	1.4	73	1.2	82	1.4	77	1.3	79	1.3	56	NS	70	1.2	67	NS	84	1.4	80	1.3	67	NS
N	32	NS	15	0.4	27	0.7	18	0.5	23	0.6	21	0.5	44	NS	30	0.8	33	NS	16	0.4	20	0.5	33	NS
T	64	1.6	70	1.8	60	1.5	67	1.7	55	1.4	65	1.6	63	1.6	55	1.4	62	1.5	62	1.6	63	1.6	57	1.4
F	36	0.6	30	0.5	40	0.7	33	0.5	45	0.7	35	0.6	37	0.6	45	0.8	38	0.6	38	0.6	37	0.6	43	0.7
J	57	NS	43	0.8	51	NS	52	NS	53	NS	55	NS	63	NS	42	0.8	39	0.7	53	NS	53	NS	50	NS
P	43	NS	57	1.3	49	NS	48	NS	47	NS	45	NS	37	NS	58	1.3	61	1.4	47	NS	47	NS	50	NS
Temperament																								
NF	15	NS	7	0.3	16	NS	8	0.3	17	0.7	11	0.4	21	NS	18	0.7	21	NS	7	0.3	13	0.5	16	0.6
NT	17	NS	8	NS	11	NS	11	0.7	6	0.4	10	NS	23	1.6	12	NS	13	NS	9	0.6	7	0.5	18	NS
SJ	45	NS	38	NS	38	NS	46	1.1	50	1.2	49	1.2	46	NS	39	NS	31	NS	47	NS	44	NS	40	NS
SP	23	NS	47	2.3	34	1.7	36	1.8	27	1.3	30	1.5	10	0.5	31	1.6	36	1.8	36	1.8	35	1.8	27	NS

*Center For Application of Psychological Type (CAPT) Student Base = 18,692 students, all majors.

**I = Index, the number 1.0 is equal to the base.

***NS = not significant at .05 level or less.

Agricultural Engineering students when compared to "typical" university students had a significantly greater proportion of the logical thinking (T) types (64%) and less feeling (F) types 36%. Type theory would suggest that the thinkers would be attracted to subjects wherein logical, mathematical concepts would be found.

This finding was also substantiated by Myers and McCaully (1985) in a national study of engineers.

Mechanized Agriculture major differed on almost all factors of personality type when compared to typical university students. They, like Ag Engineers, were more thinking, 70%, and less feeling, 30%. A significantly high percentage of these students were the spontaneous perceivings (P) 50%. The intuitive feeling (NF) temperament, 7%, chooses not to major in mechanized agriculture. Mech Ag students like Ag Engineering students choose this major for the same reason — their opportunity to deal with machines rather than people, as the NF would have chosen.

Agriculture Business When students of this major were compared to typical Agriculture College students, no differences were found; however, in this comparison they were different. They were more sensing (S) 73% and less feeling (F) 40%. This major had significantly more of the sensing perceiving (SP) temperament 34%.

The reader may now begin to see a pattern of students in Agriculture College majors; they are all more sensing (S) and thinking (T) than the comparative university wide student, except for a few exceptions. Because of this obvious pattern, only unusual differences will be discussed by major from this juncture.

Agriculture Economics students were significantly different by temperament groups. Both intuitive temperaments NF and NT were less represented while both sensing temperaments SJ and SP were greater, 82%. The SJ group has the greatest interest in money management and the NF group has least interest.

General Agriculture majors were similar to Ag Econ majors in that there were significantly less NF and NT temperaments and more SJ and SP (77%).

Agriculture Education students were similar to Ag Econ and General Ag majors. There less NF and more SJ and SP temperaments than typical university students. The high percentage of thinkers (65%) in Ag Ed is noteworthy because more teachers tend to be more feeling types in elementary and secondary education.

Agriculture Honors as a major is similar to a profile of the typical university student, in that few differences were found. The differences that were significant are a greater proportion of thinkers (T) and less feeling (F) types were present. The NT temperament was also more highly represented with less SP than would be typically found.

Figure 3. CAPT College Students by Personality Type N = 18,692.

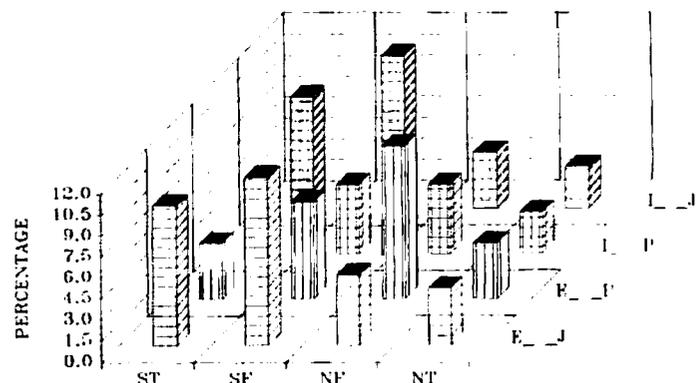
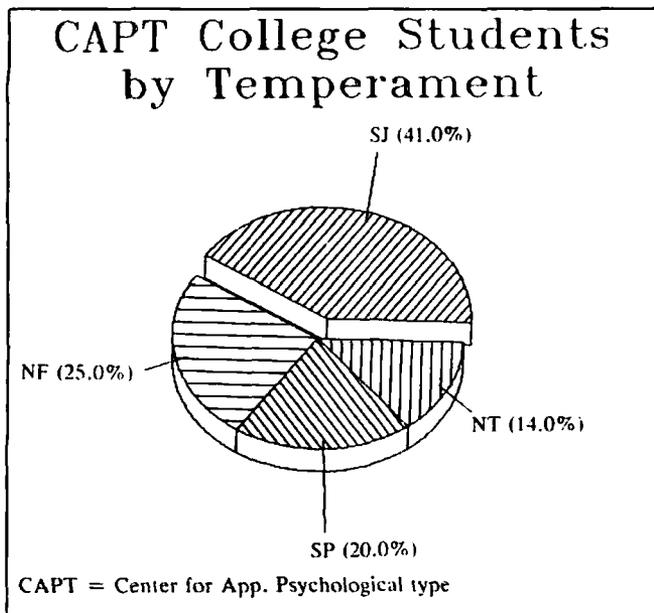


Figure 4. CAPT College Students by Temperament.
N = 18,692



Natural Resources — When this major was compared to typical Ag College students they had significantly more NF's, but when compared to the all university base there were significantly less NF's. This means that although a high proportion of Agricultural College students who show NF preference choose this major, they are not likely to choose the College of Agriculture.

Horticulture like the Ag Honors major was similar to the all university sample, but for a few exceptions. Like natural resources they were more adaptable, spontaneous perceivers (P) (61%) and less judging (J) 39%.

Agronomy and Animal Science both of these majors had significantly less NF and NT and more SP temperaments.

Pre-Veterinarian students were more like Ag Honors majors in that both majors were like all university base — more intuitives.

Conclusions

As one examines the data, it becomes clear that students majoring in agriculture, at least in Nebraska, are not typical college students. The typical college student, represented in the Center for the Application of Psychological Type (CAPT) data bank is more extraverted, intuitive, feeling, judging (ENFJ) than ag students. Ag students tended to be more introverted, sensing, thinking and perceptive (ISTP) than the cross-section of students in the CAPT data bank. However, the more "typical" ag student has a 50-50 chance of being extraverted or introverted, but greater chance of being sensing, thinking and a 50-50 chance of being judging or perceiving. The ST types represent 50% of this sample. These findings are substantiated in other studies by Barrett and Horner (1986) and Horner and Barrett (1986). They studied rural farm couples and Ag leaders of all ages.

It can be concluded, based on this sample of 2888 ag college students at UNL, that college teachers have a different student audience than that found in non-ag college classes. Only two majors out of twelve ap-

proached a personality type profile of more typical college students. The majors were ag honors and pre-vet. All the majors except Ag engineering, Ag honors and pre-vet had a significantly higher percentage of sensing perceiving temperament types (SP) than the CAPT data base.

Implications

For teaching

If ag students across the nation are similar to this sample, unusual challenges will face the Ag professor. Students in this sample, by a margin of 75-25, are practically oriented. They prefer learning situations that provide information that can be applied to present use. They are skillful at putting knowledge to practical use. These students have less patience for information that may be used in some future, but not clear time or place. They have less skill and interest in studying abstract concepts.

Teachers in all majors except Ag honors will face classes that have a range of 60-85 percent sensing types. Teachers in Ag economics and mechanized Ag majors have an unusually high proportion of the practical realistic SP's.

Space does not permit a lengthy discussion of strategies for teaching less intuitive classes, but a few examples may help. When teaching, use many concrete examples, allow more time for practice (learning by doing), and increase visual aid use and real world experiences such as field trips. With this as a background, sensing types can begin to understand how to apply abstract concepts. Decrease one-way lectures and testing procedures that require paper and pencil responses to abstract concepts. For more information read *Please Understand Me* by Kiersey and Bates (1978) or *People Types and Tiger Stripes — Practical Guide to Learning Styles* by Lawrence (1982).

For Student Retention

The first step in keeping good students in agriculture is an understanding that they do not learn, on an average, the same way that many other college students may learn and that they are quite different from their college teachers' styles. For more information on the differences or matches and mismatches of ag college students with their professors, see Barrett, Sorensen, Hartung, *NACTA Journal*, Spring, 1985.

For more college professors, learning to teach the SP temperament student will go a long way to keep good students. Capable students many times do not go

Figure 5. UNL Ag College vs CAPT Students by Temperament.

