WPS CLASS OF 1999 PILOT STUDY FOR WSC FOLLOW-UP

An Interactive Qualifying Project Report

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by

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Abstract

We conducted a pilot study using existing MBTI data, SAT scores, grades, and college placement data from the Worcester Public School's class of 1999. The findings revealed that intuitive and perceiving high school students had higher SAT averages than sensing and judging high school students. Among females, the feeling students had an advantage on the SAT. When the SAT was divided into the ranges sought by and typical of the more selective colleges, it was clear that the differences by these MBTI variables were large enough to be of practical significance in terms of college admission. These differences in cognitive distribution sometimes appear in odd ways. For example, two of the four high schools in Worcester have significantly higher percentages of intuitives than the other two schools. Further, the minority population had lower SAT scores which may partly be explained by the differences in sensing and intuition by ethnic distribution in Worcester.

Table of Contents

Introduction

The Worcester Public Schools (WPS) have had a relationship for several years with Worcester Polytechnic Institute (WPI) through Professor John Wilkes. He collected MBTI data from the classes of 1996-1999, and they have shared other data on their students with him for use in his own studies and for the use of the students that he advises. Previous studies using WPS information have been done focusing on the SAT-MBTI relationship by Ben Dean and using the placement survey by Matt Marino for example.

Worcester State College (WSC) seeks to educate the students from the Worcester Public Schools. They have had advertisements on billboards saying something to the effect of a person does not need to travel far to go far in life, which implies that local students do not need to go to a school farther away to get an education that will help them get further in life. Worcester State College heavily draws from the Worcester Public Schools in their admissions.

Unfortunately, Worcester State College loses many of its students. After the first year, 74% return. Professor John Wilkes of Worcester Polytechnic Institute informed us that only about 50% remain after two years. The Princeton Review reports that only 17% graduate in four years and 34% graduate in six years. We saw this as a problem for the local state college. We wanted to see if there was an explanation for such a high attrition rate.

We knew that Worcester Public Schools collects the following data on their students: MBTI type, SAT and PSAT scores, transcripts, and post high school placement. The placement information gives a good idea of which students would be proceeding to

WSC and other colleges. Using this information, it is possible to see how well students, who matriculated from the Worcester Public Schools to Worcester State, were prepared for college. It is also possible to see if people who attend Worcester State College are a certain type of learner as determined by the MBTI. With college transcript information, it would be possible to see if a certain learning type was performing poorly at Worcester State or if it was more likely that the students in general were just under prepared.

We chose the Worcester Public Schools classes of 1999, 2000, and 2001 as the most interesting classes to study because they are the most recent classes that have spent at least one year in college. This would make the subjects of our analysis sophomores, juniors and seniors at Worcester State College.

Due to many reasons, most of them having to do with timing and review processing of our proposal, this study was not carried out. We could not wait long enough to get approval even if the study were approved. Instead, a secondary analysis of existing WPS data was executed. The class of 1999 was the only year that we studied because it was the only year that we already had placement data for. We have PSAT scores, SAT scores, gender information, ethnic information, high school code, transcript data, and a placement survey for this class. This gave us enough information to do a pilot study on the initial college outcomes for the class 1999 instead of the question of attrition which was our original concern.

Using the data we had, we hoped to see if MBTI type was related to college selection. Our goal was to develop a procedure to compare cognitive type, grades, SAT scores, and college placement. To do this, we researched MBTI type and how it influences people in learning situations. We developed a basic method of evaluating core grades and SAT scores to be able to predict college ranges. Our results show some promising preliminary conclusions that will need further study. Differences in learning style measure by the MBTI do indeed affect SAT scores enough to affect the level of selectivity of the college one attends.

Literature Review

Background

The Myers-Briggs Type Indicator (MBTI) Test is a personality indicator, based on the work of Carl Jung, developed in the 1950s by Isabel Myers and Katherine C. Briggs. There are four dimensions to the MBTI. They have to do with the way people are energized, what they pay attention to, how they make decisions, and their preferred lifestyle. Within each dimension a person has a preference for one of two complimentary opposites. These four areas are combined to create 16 distinct personality types.

The way a person is energized is divided into extraversion (E) and introversion (I). An extraverted person has, as their orientation, a stress on external sources in the environment. Extraverts enjoy working in groups and thinking out loud. An introvert is oriented toward the internal world inside him/herself and focuses on his/her ideas, emotions and impressions. Introverts are reflective thinkers.

That which people pay attention to is separated into sensing (S) and intuition (N). Sensing people prefer what is "real", i.e. concrete and tangible; they prefer hands on learning and using concrete experience. They wish to have just the facts or at least the facts first in a learning situation. Those who are sensing are careful and thorough and process data step by step. Intuitive people, on the other hand, prefer going on patterns and hunches. They tend to see the big picture as opposed to the individual facts which makes it easier to skim through information. They are able to move quickly to understanding a concept by seeing associations, meanings and symbolism and reading between the lines.

Thinking (T) and feeling (F) are the two ways people prefer to make decisions. Those who fall under the category of thinking prefer to use logic and principles when making decisions. They are concerned with the fairness of the situation and try to make objective decisions. Those who are in the feeling category prefer to make decisions on a case by case basis and subjective considerations based on personal ideals enter into the process. Decision for an F is an effort to do what is best for all those concerned in a given situation. They do not treat everyone the same. They place human values and interpersonal harmony at the top of their decision making criteria.

The two types of preferred lifestyles are judging (J) and perceiving (P). If one is judging, then they prefer to live in a structured environment and live in an organized way. They choose to live in a pre-planned way with definite deadlines. They are decisive and take quick action. Those who prefer judging may use thinking or feeling to make decisions, but are decisive and try to "get things done". If one prefers perceiving, then they would rather have a spontaneous and flexible lifestyle. They start many tasks, but find it difficult to complete them all, so they do not bother. Closure is not critical to their self satisfaction, but learning is. They spend more time taking in information than making decisions and often wait until just before the deadline to commit to a plan. Those who prefer perceiving may prefer to use sensing or intuition in gathering information.

Sensing and intuition have more to do with how a person learns than any of the other type variables[1]. Intuitive students score higher on intelligence tests and the SAT. Myers theorized that paper and pencil tests are more difficult for sensing students because it takes them longer to translate the symbols (letters and words) into facts and conceptual ideas. They spend valuable time rereading questions which leaves them less

[1] Looking At Types and Learning Styles by Gordon Lawrence 1997 p. 16

time to answer the questions. They rely on their soundness of understanding rather than quickness. This leads them to answer fewer questions than their intuitive counter parts[2]. "Others have failed to find evidence to support this theory; for example, sensing students are not more likely to leave items incomplete at the end or show evidence of rushing, but Isabel's interpretation is still the standard MBTI lore in the literature."[3]

Whatever the casual mechanism, this difference in what people pay attention to leads the intuitive students to have an advantage over the sensing students on tests. Colleges use SAT scores as a factor in admissions, and thus a bias is present towards intuitive learning. This, however, does not make an intuitive person smarter, though they may perform better on timed paper and pencil tests. It is not fair to specify minimum SAT scores for admission without considering MBTI type, though it is done all the time on the grounds that standardized tests like the SAT are a "level playing field" for comparing students from different high schools.

Previous Work

In the 1950s and 60s, Isabel Myers was interested in how the various MBTI types are related to educational performance. Her theory was that the various types were different, but that one was not better than another. She studied students from Cal Tech and other highly selective colleges; she found that these schools had less than 50% sensing students when the overall population had closer to 66%. She found that intuitive students were more likely to take more challenging courses in high school and that

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[2] People Types and Tiger Stripes 3rd Edition by Gordon Lawrence 1993 p. 52
[3] Professor John Wilkes, WPI Conference on Quality Education: Evolution and Revolution, the Role of Psychological Type

sensing and intuitive students perform differently on the SAT. However, she was not aware of how this difference affected college admission.

In 1974, McCaulley and Natter extended the work previously done by Isabel Myers. They found that people who drop out of college were a lot more likely to be sensing students. They also found intuitive students were more likely to do well on standardized tests.

Many years later, students from WPI picked up where the previous researchers left off. Professor Wilkes has told us that these projects have focused on the relationship between MBTI type and standardized tests, but that no one has investigated how the differences relate to college admission.

Methodology

Initially, we sent a proposal for a study of Worcester State College students from the Worcester Public School system to the respective schools. Unfortunately, the study needed to be approved by WSC. This process would have taken at least six to eight weeks and there was no guarantee that it would be approved. The institutional researcher, Laurel Kilbeck, warned us that their records system was undergoing massive reform and renovations and that these reforms and renovations would be her priority. She expressed concern over the timely deliverance of the information that we needed, even if the proposal was approved. Six to eight weeks plus delivery time was too much of a delay and risk to make this study feasible for time we had allotted for our project.

We were forced to evaluate the viability of other study designs. The possibility of studying Fitchburg State College (FSC) using students who came from the Fitchburg Public Schools was explored, but we determined that the data set would contain too few possible cases for study because FSC serves a larger region than just the local city. Also, the institutional researcher, who we had the name of, was reassigned two years ago and was never replaced. These two circumstances would make getting data difficult and would not leave us with enough information to have an accurate study.

A larger number of WPS students attend Quinsigamond Community College (QCC) than Worcester State College, and students who finish two years at Quinsigamond Community College can go on to complete another two years for a Bachelor's degree from Worcester State. We attempted to communicate with Quinsigamond Community College, but we never received an answer. We later found out that they do not have an institutional researcher, and they have not had one for three years due to funding limitations.

Since we were unable to obtain information from area public colleges, the choice was made to use only the WPS data as the base for the learning style study. The reason this was a good choice was because we had a data base containing the post high school plans contained in a placement survey for the class of 1999. We also had other data bases containing information on the class of 1999. WPS was contacted to obtain the placement data for the classes of 1998 and 2000 to see if the placement of class of 1999 was representative of the general placement of Worcester Public School Students. A meeting was set to acquire this data, but unfortunately, Patty Mostue, who was to provide the records, was involved in an accident which prevented the meeting from occurring as scheduled. The name of Gerri Williamson, another person who is involved with the data sets we desired, was obtained. She was contacted, but she was unable to give those records without the approval of the administrator, Patty Mostue, who was out, due to the unfortunate accident. An attempt at another meeting was made once Ms. Mostue returned to work, but she regrettably was too busy to meet with us.

A previously obtained data set containing student ID numbers, MBTI type, PSAT scores, SAT scores, sex, ethnic code, level of preparation, and school code was linked to another previously obtained data set containing student ID numbers, school code, and placement after high school using SPSS. This gave us 492 cases which were correctly linked and had MBTI data and post high school plans. Upon examination, we discovered that we had information for 128 students going to state 4-year colleges and 112 students going to 2-year public colleges. We had been hoping for a study containing more than

240 cases, so we asked Ms. Mostue for more information. We requested the survey data for the class of 1999, including their names, hoping that we could use this information to link more of the data together. We also requested the placement survey for the classes of 1998 and 2000, so we could have many more cases to study. Unfortunately, by the time we received this information, it was too late for us to be able to process the information for use in our study.

We were then presented with multiple options such as writing a proposal for a future project for a WPI student or writing a proposal for a grant to hire a shared institutional researcher from WPS, WSC and Quinsigamond Community College to do a definitive study of the original topic. We chose to work around the lack of data and do a preliminary study using the SAT as a proxy variable suggestive of whether a student planned to go to a four year college. We then wanted to compare students with similar grades who did and did not take the SAT. This required us to take a data set of transcript information to calculate average core course grades. These were added to the linked data set. Once finished, we found that 426 students or 40.3% of the data set from the class of 1999 had both grades and MBTI data/SAT data.

We developed a rating system using reported college statistics. This gave us a way to rate students on which how selective a college they were likely to go to, based on core grades, and how selective a college they would be able to go to, based on both core course grades and SAT scores.

Figure 1

College Range	Selectivity	Example	Average Grades	Average SAT Score[4]
0	None	None	Below 60	None
1	Not Selective	Quinsigamond Community College	60-74	None
2	Less Selective	Worcester State College	74-85	870-1090
3	Selective	University of Massachusetts at Amherst	85-90	1010-1230
4	Highly Selective	Boston University	90-96	1283 [~1200-1400]
5	Mega Selective	Harvard	96-100	1400-1600

We used the placement data to see which range each student actually went to. Using the same numbers for selectivity ratings as in the table above, we assigned each college a number for how selective it was.[5] This way we could compare a possible range based on core grades, an expected range based on core grades and SAT scores, and an actual range based on the placement data. When we originally came up with the ratings, there were only two categories: one based on core grades and one based on core grades and SAT scores. The latter category we originally called actual range, but when we added the variable of the college each student actually went to, as reported by the WPS placement survey, we had to change actual college range to expected college range and made the new category actual range.

There were not enough cases in each ethnic group to do a study based on each different ethnic group. Instead, we chose to group Native Americans, Hispanics, and African Americans together as ethnic groups underrepresented in post-secondary education. Using this minority group, we were able to compare them with the class of 1999 as a whole.

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[4] Average SAT scores from http://www.collegeview.com
[5] Using selectivity from http://www.princetonreview.com

Analysis Plan

We used the crosstabs function in SPSS for all comparisons. For each comparison, we had SPSS calculate the Pearson Chi Square and a gamma coefficient. The former, goodness-of-fit significance test, is used to see how predictable the data is. If the significance value is less than 0.05, the two variables have a significant correlation to each other. The value is how many times out of 100 one would be wrong in claiming there was a difference in the relative frequency of cases found in the various categories. The correlation coefficient shows if a relationship exists between two variables. The value, when squared, tells how much better than guessing a person can do if using the first variable to make a prediction about the second. At 25% better the relationship is said to be strong, at 49% it is said to be robust, and at 80% it is a virtual identity.

We compared MBTI types to expected college range in each possible college range. For the thinking and feeling section, we added a layer for gender to see whether that had any relevance. This was done because gender plays a role in how people make decisions; females are much more likely to be feeling than males. Within each possible college range, we also narrowed it down even further to just the minority group and then compared MBTI types to expected college range. We also compared the White/Asian group and the underrepresented minority groups to the expected college range in the possible college range of less selective. This was only done in the possible college range of less selective because this was the only range which had a large enough minority population to do a reliable study. To see why there was a difference in SAT scores between the White/Asian group and the underrepresented minority group, we performed a cross tabulation to see whether the **S/N** distribution was different for each group.

We compared expected college range to actual college range to see how accurately we predicted the range in which a student would go to college. Because the largest percentages were concentrated in the ranges we expected, we continued on with our study. For each expected range, we compared MBTI type to actual range to see if a certain type was likely to be underachievers (go to a college less selective than their records indicated they could) or overachievers (go to a college more selective than their records indicated they would be able to get admitted to as a typical student.)

We also decided to use which school they went to as a variable. We chose to eliminate ALL school and the vocational school from this comparison because these are not traditional schools and because our records from these schools are incomplete. After doing this comparison, we charted the frequency of the 16 MBTI types at each of the four main high schools, North, South, Doherty, and Burncoat, to see if the types were evenly distributed among the schools.

We performed cross-tabulations to see if students at a certain high school were out performing the students at the other high schools. We compared high school to expected college range to see if the core grades and SAT scores were higher at a one school than another. Once we saw the results of that comparison, we decided to see if core grades or SAT scores were factors at each school. We crosstabulated high school and possible range to compare core grades. To compare SAT scores, we had to develop a new variable. The SAT range variable was created. The ranges for this variable were below 800, 800-1000, 1000-1200, 1200-1400, and 1400-1600. We also compared high school to actual college range to see if students from a certain school were being accepted into and attending more selective schools than the students from the other high schools.

Findings and Discussion

Possible Range (Core Grades Only)

Not Selective:

Almost all students who were in the not selective possible college range were in the not selective or no college expected range. These students had poor core grades, so therefore they would not be likely to be accepted to any school that did not have an open admission policy. They were also unlikely to take the SATs. We considered that if a student did not take the SAT, it was evidence that they had no plans to attend a four year college. However, some might go to a two year college and transfer later.

Less Selective[1]:

In the less selective possible range, **E/I** and **T/F** are not predictors for expected college range with respective chi-square significance values of 0.27 and 0.133. Even though **T/F** is not a predictor overall, it was found to be a predictor when a gender layer was controlled. It was found to be a predictor for females only with a chi-square significance value of 0.042 (chi-square significance value was 0.512 for males). Females who are **F** are more likely to be in the same possible and expected range, whereas, those who are **T** are more likely to be in a less selective expected range than their core grades would lead one to expect – i.e. they under perform on the SAT.

There is a linear relationship between **T/F** and expected range among the women. The gamma correlation coefficient (r) was 0.371, so one would do 14% better than

[1] Appendix B

guessing if using **T/F** to predict expected range. This is a slight but significant relationship because the significance value was 0.023.

On further study, to eliminate the possibility of a shadow variable (more **N** students in the **F** group and more **S** students in the **T** group), we found that it made no difference if one combined **S/N** with **T/F**. The chi-square significance value was slightly better for females at 0.036 and still not good enough for males at 0.183. Females that were **SF** and **NF** were still more likely to score higher on the SAT than those who were **ST** and **NT**. There was not a significant difference in the proportion of students who were **NF** versus those who were **NT**.

Males have less of a difference between **T/F** which is why it is not a predictor for them. There is also pressure on **F** males to master the **T** dimension, which would also create less of a distinction for them by making male **F** students appear more like **T** students. We found that **T/F** did not make a difference when it came to taking or not taking the SATs among the females. The difference in expected range must be due to difference in scores on the SAT and not a difference in whether or not the SAT was taken.

Whether a student is **S** or **N** does not play a role in the difference between **T/F**. The only theory that we could come with as to why this happens is because the females who are **T** could overanalyze the questions. When they are not sure of an answer, they may leave it blank instead of guessing. The **F** women might be more likely to trust their instincts when answering questions because they do not need the facts to back them up in a multiple choice format.

S/N is predictive of expected college range with a chi-square significance value of 0.001. There is a small linear relationship between **S/N** and expected college range. The coefficient was 0.364 (r^2 is 13%). This is noteworthy though because the significance value 0.002.

Students with the **S** preference are more likely than students with the **N** preference to be in the not selective expected range (44% and 30% respectively). Both types are equally likely to be in the less selective expected range. Students with the **N** preference are more likely to be in a higher expected range than their **S** counterparts (16% and 2% respectively) because the **N** students are more likely to do well on the SAT.

Since students who are **N** have been found to be more likely to do well on the SATs than students who are **S**, it follows that we would find the same results. Because the chi-square significance value is so low, **S/N** is clearly a predictor for expected college range in the less selective possible range. Students who are **N** are more likely to do better than their core grades would suggest. Students who are **S** in this possible range are somewhat likely to perform less well on the SATs than their core grades would suggest.

J/P is predictive of expected college range with a chi-square significance value of 0.04. There is a small but significant linear relationship between **J/P** and expected college range. The r value is 0.357, so one would do 13% better than guessing using **J/P** to predict expected college range. The significance value was 0.003.

Students with type **J** are more likely to be in the not selective expected college range than in the less selective expected college range. Students with type **P** are more likely to be in the same possible range as expected range, meaning they do as well on the SAT as one would expect from their core grades.

An explanation for this pattern has already been suggested by other researchers. There is a theory that those students who are **J** are more likely to pick the first reasonable answer they see, and they may even not look at the other answers because they prefer rapid closure. Those students who are **P** are more likely to read all the answers before making a choice. The SAT is known to contain more than one somewhat reasonable sounding answer for each question. "It is designed with "distractor" items to attract the attention of those unclear about what is being asked of them and for those students with less mastery of the content more answers are likely to appear reasonable. The test is harder for students who were in classes that covered less material in high school than for those who delay the onset of uncertainty due to having been exposed to more material in high school. In the end almost everyone hits material with which they are unfamiliar, but for some otherwise bright students who did not apply or challenge themselves, it happens very early in the exam."[2]

Minorities:

In the less selective college range, **E/I** is not a predictor of expected college range for the minority group. The chi-square significance value was 0.852.

S/N is a predictor of expected college range in the 1/10 chance of error level with a chi-square significance value of 0.083, but it is rather difficult to tell whether to accept a significance level under 1/20, because there are not many cases. Students with the **S** preference are more likely to be in an expected range lower than their possible range, and there are no **S** preference minority students in the expected ranges higher than less selective. Students with the **N** preference are equally likely to be in the not selective and

[2] Professor John Wilkes, WPI on the 4th Biennial CAPT Education Conference

less selective expected range, but 18% of them are to be found in the higher expected ranges. According to the gamma coefficient (r value is 0.424), the slight linear relationship between these two variables is not significant (significance was 0.113).

S/N is similarly predictive for minorities as it is in the general population. The results were as expected: **N** types are more likely to be in a higher expected range because they are more likely to do better on the SATs given similar core grades.

T/F is a predictor of expected college range with a chi-square significance value of 0.055. Those who are **T** are most likely to be the not selective expected college range, but there are 8% in expected college ranges higher than less selective. Students who are **F** are most likely to be in the less selective expected college range. Upon calculating the gamma coefficient (r was 0.456), we found that the linear relationship is not quite significant (value is 0.068) for the minority students.

Those students who are **T** are less predictable than their counterparts, but are on the whole not scoring as well on the SAT. Overall a higher percentage of **F** students were in the range they were expected to be in. This means that they display the same mastery of skills in school as they do on the SAT. Those students who are **T** may guess less and therefore score lower, or this could be a difference by gender in disguise, since the women are more likely to be feeling and to get good grades.

J/P is the best predictor for the minorities group for expected college range with a chi-square significance value 0.031. The linear relationship as calculated by the gamma coefficient (0.677) is quite strong. One would do 45% better than guessing by using these variables in prediction. This extends to the general population with a significance value of 0.002.

Students who are **J** are more likely to be in a lower expected range than possible range. In contrast, students who are **P** are more likely to be in the same possible and expected college range, and some are in the ranges above that. This is the same pattern that was observed in the general population.

Minorities are more likely to be in a lower expected range than the white/Asian population. The highest percentage of minority students is found in the not selective expected college range. The highest percentage of white/Asian students was in the less selective college range which is the same as their most common possible range. Also, far more white/Asian students were in the expected college ranges higher than less selective.

Figure 2

		Sensing-Intuition		Total
		S	N	
Minority	Count	180	62	242
	%	74.4%	25.6%	100%
White/Asian	Count	276	230	506
	%	54.5%	45.5%	100%
Total	Count	456	292	748
	%	61.0%	39.0%	100%

As seen in figure 2, minorities are more likely to be in a lower expected college range because they are less likely to do well on the SAT. Those students who are in the minority group are more likely to be **S** students (see figure 2). This puts them at a disadvantage when it comes to the SAT. There are more **N** white/Asian students, so it is more likely that they would do well on the SAT.

These findings will also exist in a larger population. The chi-square significance value was 0.002. The gamma correlation significance was smaller than 1/1000 with an 18% chance of doing better than guessing.

When the **S** minority group students were compared to the **S** majority group students, it was found that those students in the minority group were not performing as well as those in the majority group. There was a strong (r value is 0.549, so 30% better than guessing) and significant (significance value less than 1/1000) linear relationship between these two variables. This places minority students at a great disadvantage because not only are a larger percentage of them **S** than the majority group students, the minority **S** students also do not perform as well on the SAT as the majority **S** students. "This is probably due to the lower average level of difficulty of the high school classes that they take, which causes them to be exposed to less material and thus results in the earlier onset of uncertainty for them as they take the test."[3]

Selective[4]:

In the selective possible college range, **E/I**, and **J/P** are clearly not predictors of expected college range with respective chi-square significance values of 0.5 and 0.785. A study of minority students in this range was not possible because there were only eight cases. The **S/N** variable comes close to meeting the normal 1/20 chance of error significance criterion, at 0.076, but this variable may still be considered.

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[3] Professor John Wilkes, WPI, on MBTI-Based Recruitment of Women and Minorities in WPS Class of 2003 by Paul Irish and forthcoming Ethnic Differences in MCAS Performances by Dawn Derome and Victor Aguilar

[4] Appendix C

After removing those students who did not have SAT scores and presumably did not take the exam, it was found that **S/N** was actually a predictor for expected college range with a chi-square significance value of 0.034. Those students who were **N** were three times more likely to be in the highly selective college range than their **S** counterparts.

S/N is not a predictor for which students will or will not have recorded SAT scores. If a student did take the SAT, **S/N** is a predictor, and behaves in the same manner as above.

T/F is a predictor for expected college range with a chi-square significance value of 0.02. When the gamma coefficient significance was calculated, it was found that there is not a linear relationship between these two variables. In this study, those students who are **T** are more predictable with 80% in the same expected range as their possible range. Those students who are **F** are more likely than the **T** students to be in expected ranges both above and below their possible range.

Controlling for gender by adding a sex layer, **T/F** proves to be a predictor for females with a chi-square significance value of 0.021. Upon calculating the gamma correlation coefficient it was found that this is not a linear relationship. **T** females are highly likely to be in the same expected and possible ranges with 85%. **F** females are more likely than **T** females to be in an expected college range above their possible college range (31% vs. 4%).

There are so many more females than males in this range that the fact that **T/F** is a predictor for females is controlling the prediction over all. There are more than twice as many females in this range as there are males. Since this is the case, this is the same prediction as observed above. "This pattern is probably due to the tendency of females to take more challenging classes and thus hold off the zone of uncertainty. The more 'masculine' **T** women take less challenging courses, since they are emulating the male pattern of taking school less seriously than the more 'feminine' **T** women."[5]

Highly Selective[6]:

In the highly selective possible college range, **E/I** and **T/F** were not predictors of expected college range with chi-square significance values of 0.869 and 0.312 respectively. When **T/F** was further analyzed by gender, no conclusive results were found. It was not possible to analyze data on minorities because there were only three cases in this possible range.

S/N was found to be a predictor of expected college range with a chi-square significance value of 0.02. This is a significant finding (significance value is 0.013). The associated gamma analysis reveals that it is also a linear relationship (r is 0.597). The relationship is strong and one would do 35% better than guessing when using **S/N** to predict expected college range. **N** students are twice as likely as **S** students to be in an expected range consistent with their possible range. No students were in an expected range higher than their possible range.

In this possible range, it is more difficult for a student to score an SAT score higher that which would be in the highly selective range because this range is very close to the top (SAT scores 1200-1400), which is why there were no students in expected ranges above their possible ranges. This is consistent because **N** students have been

[5] Professor John Wilkes, WPI, in private communication
[6] Appendix D

shown to be more likely to score higher on the SAT and therefore be in a higher expected range than the **S** students.

In this possible range, the **J/P** variable proved to have the strongest relationship to the data. The chi-square significance value of 0.005 indicated that this finding was very likely to generalize. The calculated gamma correlation coefficient is large, 0.821, and the significance value is small which shows that this is a very strong linear relationship.

Those students who were **P** were most likely to be in the same possible and expected range. Whereas, those students who were **J** were unpredictable, meaning their SAT scores were not consistent throughout the group. This implies that some students with good core grades performed poorly on the SAT.

Mega Selective:

In the mega selective possible college range, there were not enough cases for a reliable analysis. This is a very difficult grade range to be in, and we did not expect to find many students in this range. Only those students with very high grades could be in this range which is why there are not many to start with.

Expected College Range vs. Actual College Range

Figure 3 **Expected College Range vs. Actual College Range**

Expected College Range		Actual Range: No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Total
No College	Count	**11.0**[7]	6.0					17
	%	**64.7%**	35.3%					100%
Not Selective (Community College)	Count	68.0	**148.0**	36.0	12.0	5.0	3.0	272
	%	25.0%	**54.4%**	13.2%	4.4%	1.8%	1.1%	100%
Less Selective (Worcester State)	Count	11.0	31.0	**63.0**	30.0	7.0		142
	%	7.7%	21.8%	**44.4%**	21.1%	4.9%		100%
Selective (U Mass. Amherst)	Count		7.0	17.0	**45.0**	12.0		81
	%		8.6%	21.0%	**55.6%**	14.8%		100%
Highly Selective (Boston University)	Count	2.0	2.0	3.0	**17.0**	**15.0**	6.0	45
	%	4.4%	4.4%	6.7%	**37.8%**	**33.3%**	13.3%	100%
Mega-Selective (Harvard)	Count					2.0	**4.0**	6
	%					33.3%	**66.7%**	100%
Total	Count	92.0	194.0	119.0	104.0	41.0	13.0	563
	%	16.3%	34.5%	21.1%	18.5%	7.3%	2.3%	100%

Symmetric Measures

		Value	Asymp. Std. Error	Approx. T	Approx. Sig.
Ordinal by Ordinal	Gamma	.664	.035	16.544	.000
N of Valid Cases		583			

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	513.741	30	.000
N of Valid Cases	583		

[7] Values in bold type are the largest values in each range.

As shown by figure 3, the largest values occur when the students planned to attend a school within the same range that their core grades and SAT scores suggested (actual and expected range are the same). In almost all cases these values are the majority for their row. The gamma coefficient shows that it is a linear relationship. This provides evidence that our placement for expected range was based on accurate information about college standards. There are many other factors students consider when choosing a college, so it is difficult to predict, even with grades and SAT scores, which type of college a student will actually choose and be accepted into. Taking into account that there are other reasons that go into college decision making, these charts are surprisingly predictive; hence we must be dealing with the correct predictive variables.

However, some inaccuracies exist for reasons completely outside of the control of this study. In the not selective range the students who have an actual range greater than not selective are a result of a lack of SAT data. This may be due to incomplete records, or it may be a result of students taking an alternative standardized test (ACT). In the highly selective expected range the existence of students with actual ranges lower than highly selective may be due to the difficulty level of highly selective schools influencing the decision making process. It may also be a result of the price increase between the two ranges. MBTI type was considered as a predictor of students choosing a range below their expected range, but no conclusive evidence could be found with the limited number of cases.

Expected College Range – Core Grades and SAT Scores

Not Selective[8]:

In the not selective expected college range, **E/I**, **T/F**, and **J/P** were not predictors of actual college range with chi-square significance values of 0.401, 0.107, and 0.159 respectively. **S/N** was a predictor with a chi-square significance value of 0.016. This was not found to be a linear relationship. The gamma correlation coefficient was too low.

The students who were in this range and went to a school in a range above not selective were most likely in this range because they did not have a recorded SAT score even though they may have had good grades. Those students, who were **N**, were more likely to attend highly or mega selective schools because they were more likely to do better on standardized tests (SAT or ACT). They would have had to have taken a standardized test in order to be accepted into colleges above the not selective range, so our SAT data set is probably incomplete or lacks a notation for those who took the ACT instead.

Less Selective[9]:

In the less selective expected college range, **E/I**, **T/F**, and **J/P** were not predictors of actual college range with chi-square significance values of 0.968, 0463, and 0.654 respectively. **S/N** was a predictor of actual college range with a chi-square significance value of 0.031. This was not found to be a linear relationship.

[8] Appendix E
[9] Appendix F

The **N** students were more likely to go to colleges in higher ranges because they look better based on their SAT scores. They are typically labeled in high school as "underachievers" by college admission departments. From a field of applicants, colleges are more likely to pick these students than students with low SAT scores and good grades because they seem to have more potential to do well even though their high school grades do not reflect consistent effort.

Selective[10]:

In the selective college range, **E/I**, **S/N**, **T/F**, and **J/P** were not predictors of actual college range with chi-square significance values of 0.270, 0.953, 0.413, and 0.363 respectively.

Highly Selective[11]:

In the highly selective college range, **E/I**, **S/N**, **T/F**, and **J/P** were not predictors of actual college range with chi-square significance values of 0.379, 0.372, 0.81, and 0.425 respectively.

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[10] Appendix G
[11] Appendix H

Ranges by High School[12]

Expected Range by School:

Burncoat and Doherty had the most students who had core grades and SAT score which placed them in the highly and mega selective expected college ranges. These two schools also had the fewest students in the no college and not selective expected college range, with Doherty having even fewer than Burncoat in these ranges.

Possible Range by School:

Doherty was the most likely to have students in the highly and mega selective possible college range. It was also the least likely of all the schools to have students in the no college and not selective possible college ranges. North and South were the most likely to have students in the no college and not selective possible college ranges. Neither of these schools has any students in the mega selective possible range and both schools have the fewest students in the highly selective possible range.

SAT Range by School:

Doherty and Burncoat were the schools most likely to have students with SAT scores over 1200. Doherty also had the highest percentage of students with SAT scores in the range of 1000-1200. North had the largest proportion of students with scores under 1000. 85% of their students scored under 1000. Only one student from North scored over 1200. No students from North or South scored over 1400 on the SAT.

---

[12] Appendix I

Actual Range by School:

North and South had the highest percentages of students who did not go to college. Also, North and South had the highest percentages of students who went to community college. This is consistent with the grade and SAT data. Also consistent with the grade and SAT data, Doherty had the highest percentage of students in the highly and mega selective college ranges. Burncoat had the largest percentage of students going into the military.

Students in all the schools were more likely than predicted by expected range to not go to college. This is because there are many factors besides grades and SAT scores that go into making the decision to go to college. These include, but are not limited to: finances, pregnancy, ambition, and job offers.

MBTI Type by High School[13]

Figure 4

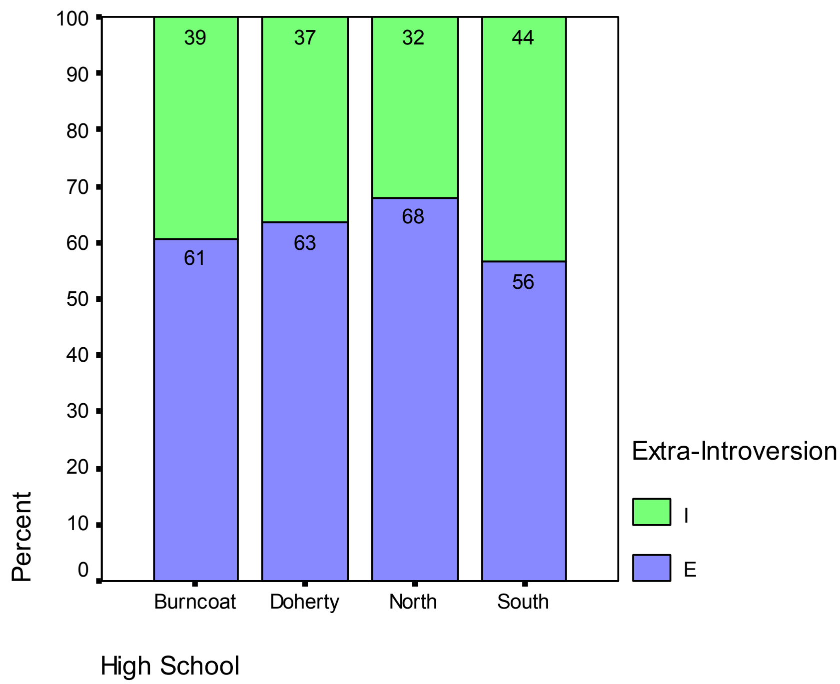
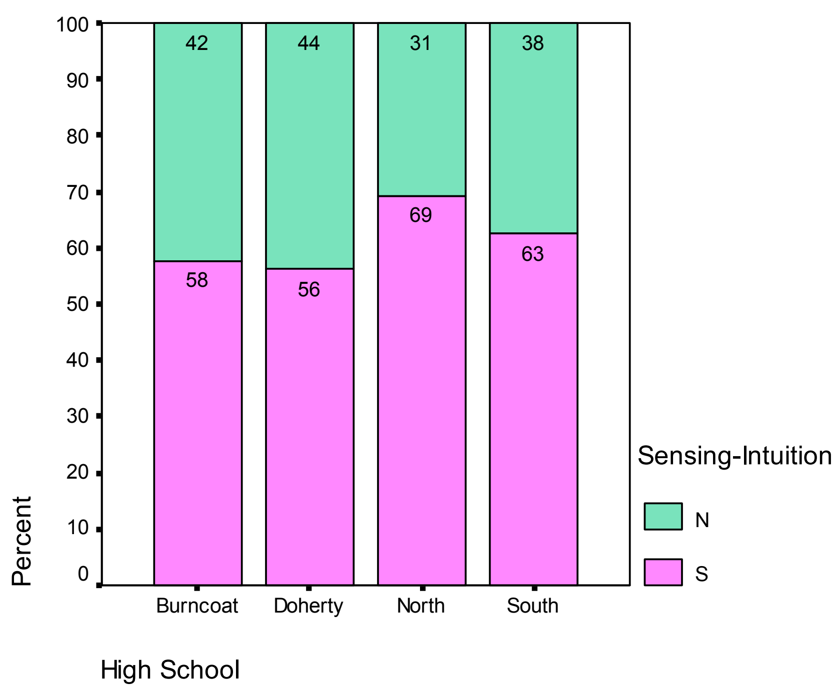


Figure 5



[13] See Appendix J

Figure 6

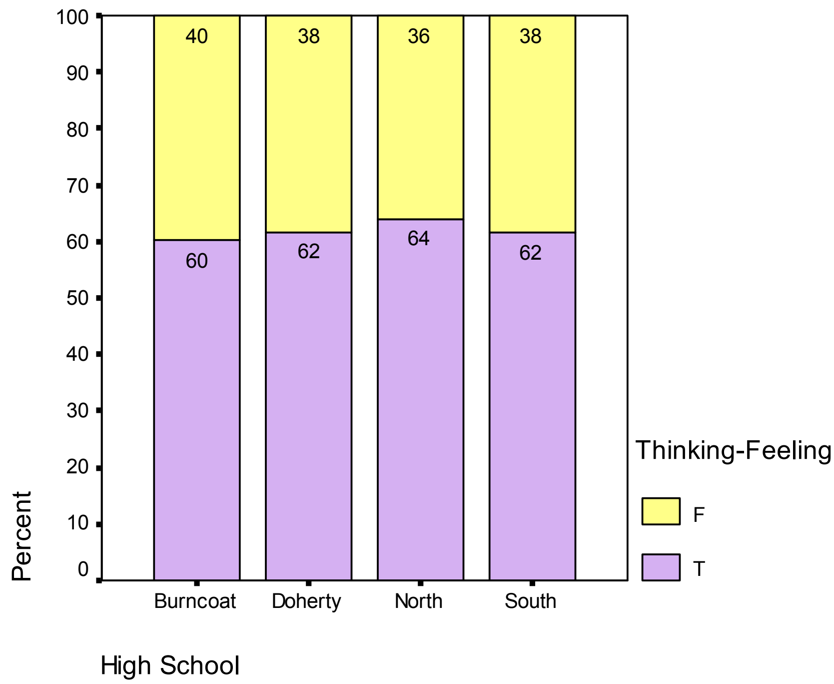
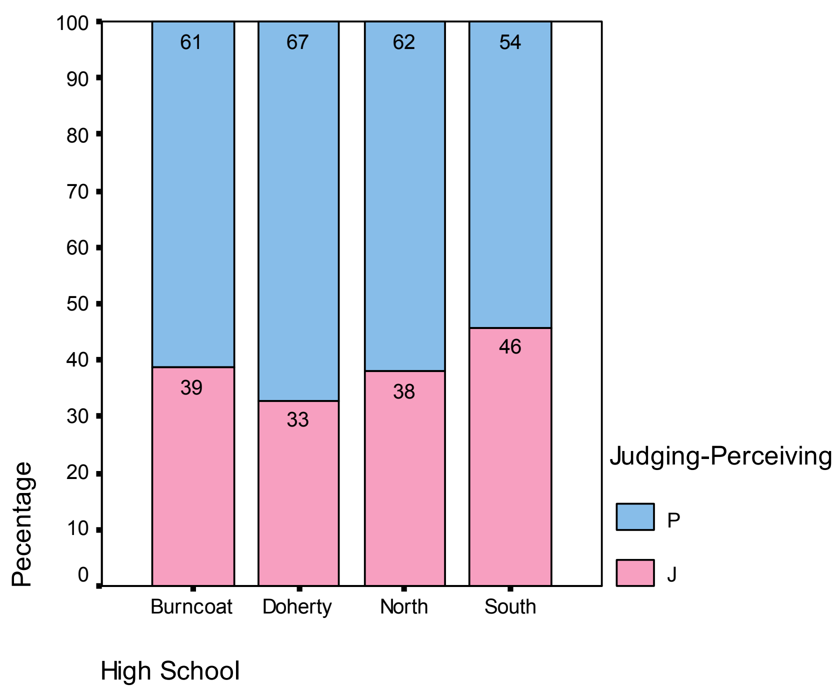


Figure 7



As shown by figures 4-7, the distribution of type variables among the schools is relatively constant with respect to the overall population. Also this is only one class year at these schools, and population distributions can change somewhat from year to year. Using the chi-square significance test, we found that **E/I** compared to school and **T/F** compared to school were not significant.

Sensing and Intuition:

Among the schools, it was found that Doherty had the highest percentage of **N** students with Burncoat close behind. This finding was significant at the 0.06 level. North had the lowest percentage of **N** students. This explains the difference in the college ranges among the schools. Because Doherty and Burncoat have the highest percentage of **N** students, they have a greater chance to do well on the SAT and therefore they were able to get their students into more selective colleges. The difference in the percentage of **N** students among the schools is not due to differences in ethnic diversity.

Discussion of Results

Due to the limited data base of this study, the results are not conclusive until replicated, though many findings are significant at the 0.05 level. More research into the results found in this data set should be carried out to determine whether this is a trend or a one time occurrence limited to the class of 1999. Although, if future researchers are to use information from Worcester Public Schools, they will either have to leave plenty of time to receive data or WPS will need to be able to provide information in a timelier manner. However, we do have data sets from the classes

MBTI variables:

There were no significant results found based on the **E/I** variable.

The results in the **S/N** variable support previous research and accepted theories indicating that students who are **N** are more likely to do better on the SAT. We find that they are also more likely to get into a college in a higher selectivity range than those students who are **S** within the same grade range of the same school system. This is a confirmation of what one would expect given the higher SAT scores.

The results in the **T/F** variable are new findings in MBTI literature and need to be researched to see if this occurs in a larger population than the class of 1999 from Worcester Public Schools. This variable was found to only matter for females. **F** females are more likely to do better on the SAT than **T** females. At this time, it is not clear why this happens, but the theory of “masculine” vs. “feminine” women might be worth examining. Overall the SAT literature suggests that women in general under perform on the SAT, especially the math section, relative to men. “In Worcester, we did not find the normal 30-40 point gap favoring men. The sexes were essentially tied, despite the more challenging program the women are taking and their higher average grades. By rights, they should have higher SAT scores."[14]

The results in the **J/P** variable support previous findings. Students who are **P** are more likely to do well on the SAT than those students who are **J**, this finding is clearest in the less selective possible college range.

Minority Group:

The results in the minority group (Blacks, Hispanics and Native Americans) showed that minority students were at a disadvantage when taking the SAT which also placed them at a disadvantage when applying for college. This is partly because a larger percentage of **S** students was found in the minority group than in the white/Asian group. Further, those students who were minority **S** students were less likely to do well than those students who were majority **S** students. We suspect, based on findings reported by others, that the tendency of minority students to take less challenging high school programs accounts for this difference.[15] However, we did not use that variable as a control, so we cannot be sure of it. Otherwise, the results were similar to the general population.

[14] Professor John Wilkes, WPI, on forthcoming Ethnic Differences in MCAS Performances by Dawn Derome and Victor Aguilar
[15] forthcoming Ethnic Differences in MCAS Performances by Dawn Derome and Victor Aguilar

High Schools:

Among the schools, students from Doherty and Burncoat were the most likely to do well on the SAT placing them in higher college ranges. This could be because they have more **N** students or a more challenging program which appeals to **N** students and their parents. Students from North were the least likely to be in a higher college range, and they have the lowest percentage of **N** students. This is probably all tied up in the social demographics and ethnic distribution of the students in the four high schools.

Conclusions

The original question of attrition at Worcester State College is still an interesting and feasible study. The researcher there, Laurel Kilbeck, thinks it is of interest if WSC can tie it into their evaluation research. The lead time to do this project is considerable. A proposal, using the WSC format for use of human subjects, needs to be submitted six to eight weeks in advance of the beginning of the study. For a WPI student, this would mean completing a PQP in D-term of the year before the project is about to start. This would allow them to submit the proposal over the summer and begin working on the study in A-term of the following school year. The records at Worcester State College are now in a condition where they can be accessed to do this study. A list of potential students could be brought to Laurel Kilbeck, and she can either confirm or deny the attendance of those students.

Our pilot study found that the variables **S/N** and **J/P** were related to SAT scores and therefore affected college ranges. We fully expect this to replicate, since it reflects previous findings. We also found that **T/F** was a significant factor among females. We are not as sure of this finding, but it looks promising. Based on examination of the high schools, students from Doherty and Burncoat are more successful (get accepted to more selective colleges) than students from North and South.

Proposals

A team of students (2-3) could take this study further by using additional years of data; it should be done with at least three class years. Previously obtained data includes SAT and MBTI data for the classes of 1997-1999, placement surveys from the classes of 1998-2000, and transcripts from classes of 1998-1999. The SAT data set arranged by Ben Dean is missing many scores. This data set also contains some extraneous information.

An additional study of the individual high schools of Worcester could be carried out by a team of two or three individuals. From preliminary results for the class of 1999, it was discovered that college placement was not equal among the schools. A more in depth study could determine if this was a one time occurrence or a trend among the schools. This study could also research the quality of education at each of the individual schools. If this study were done on more recent classes, the MCAS scores could be taken into consideration. Since the Commonwealth of Massachusetts considers the MCAS to be a measure of what should be learned at each school, this test could be used to compare how well each school is preparing their students. There is also data available on the relative difficulty of high school programs.

A study of students in local colleges using an extended group of students (2+ years) including the class of 1999 could be done. The placement data already shows which students went to each college. A list of these names could be given to the area colleges to obtain their transcripts and progress towards a degree. A rating system of how well students are doing in these colleges would need to be developed. The success of these students would then be compared to their MBTI data to if each college is serving certain MBTI types better than others.

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Index of Appendices

Appendix A – The 16 MBTI Types

ISTJ	ISFJ	INFJ	INTJ
ISTP	ISFP	INFP	INTP
ESTP	ESFP	ENFP	ESTP
ESTJ	ESFJ	ENFJ	ENTJ

Appendix B - Less Selective Possible College Range

B1 - Extraversion-Introversion * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Extraversion-Introversion	E	Count	53	72	11	2	138
		%	38.4%	52.2%	8.0%	1.4%	100.0%
	I	Count	31	46	2	3	82
		%	37.8%	56.1%	2.4%	3.7%	100.0%
Total		Count	84	118	13	5	220
		%	38.2%	53.6%	5.9%	2.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.921[a]	3	.270
Likelihood Ratio	4.254	3	.235
Linear-by-Linear Association	.003	1	.957
N of Valid Cases	220		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.86.

B2 - Sensing-Intuition * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Sensing-Intuition	S	Count	55	66	1	2	124
		%	44.4%	53.2%	.8%	1.6%	100.0%
	N	Count	29	52	12	3	96
		%	30.2%	54.2%	12.5%	3.1%	100.0%
Total		Count	84	118	13	5	220
		%	38.2%	53.6%	5.9%	2.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.910[a]	3	.001
Likelihood Ratio	17.445	3	.001
Linear-by-Linear Association	9.864	1	.002
N of Valid Cases	220		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.18.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.364	.112	3.066	.002
N of Valid Cases		220			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B3 - Thinking-Feeling * Expected College Range

			Expected College Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Thinking-Feeling	T	Count	53	63	8	5	129
		%	41.1%	48.8%	6.2%	3.9%	100.0%
	F	Count	31	55	5		91
		%	34.1%	60.4%	5.5%		100.0%
Total		Count	84	118	13	5	220
		%	38.2%	53.6%	5.9%	2.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.600[a]	3	.133
Likelihood Ratio	7.406	3	.060
Linear-by-Linear Association	.024	1	.876
N of Valid Cases	220		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.07.

B4 - Judging-Perceiving * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Judging-Perceiving	J	Count	41	37	3	1	82
		%	50.0%	45.1%	3.7%	1.2%	100.0%
	P	Count	43	81	10	4	138
		%	31.2%	58.7%	7.2%	2.9%	100.0%
Total		Count	84	118	13	5	220
		%	38.2%	53.6%	5.9%	2.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.307[a]	3	.040
Likelihood Ratio	8.349	3	.039
Linear-by-Linear Association	7.484	1	.006
N of Valid Cases	220		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.86.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.357	.115	2.927	.003
N of Valid Cases		220			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B5 - Thinking-Feeling with Gender

Thinking-Feeling * Expected College Range * SEX Crosstabulation

SEX				Expected College Range: Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
F	Thinking-Feeling	T	Count	31	23	2		56
			%	55.4%	41.1%	3.6%		100.0%
		F	Count	24	45	2		71
			%	33.8%	63.4%	2.8%		100.0%
	Total		Count	55	68	4		127
			%	43.3%	53.5%	3.1%		100.0%
M	Thinking-Feeling	T	Count	22	40	6	5	73
			%	30.1%	54.8%	8.2%	6.8%	100.0%
		F	Count	7	10	3		20
			%	35.0%	50.0%	15.0%		100.0%
	Total		Count	29	50	9	5	93
			%	31.2%	53.8%	9.7%	5.4%	100.0%

Chi-Square Tests

SEX		Value	df	Asymp. Sig. (2-sided)
F	Pearson Chi-Square	6.325[a]	2	.042
	Likelihood Ratio	6.365	2	.041
	Linear-by-Linear Association	4.430	1	.035
	N of Valid Cases	127		
M	Pearson Chi-Square	2.302[b]	3	.512
	Likelihood Ratio	3.275	3	.351
	Linear-by-Linear Association	.352	1	.553
	N of Valid Cases	93		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.76.

b. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.08.

Symmetric Measures

SEX			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
F	Ordinal by Ordinal	Gamma	.371	.152	2.281	.023
	N of Valid Cases		127			
M	Ordinal by Ordinal	Gamma	-.086	.216	-.395	.693
	N of Valid Cases		93			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Minorities

B6 - Extraversion-Introversion * Expected College Range

			Expected College Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Extraversion-Introversion	E	Count	16	12	1	1	30
		%	53.3%	40.0%	3.3%	3.3%	100.0%
	I	Count	11	9		1	21
		%	52.4%	42.9%		4.8%	100.0%
Total		Count	27	21	1	2	51
		%	52.9%	41.2%	2.0%	3.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.791[a]	3	.852
Likelihood Ratio	1.151	3	.765
Linear-by-Linear Association	.001	1	.982
N of Valid Cases	51		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .41.

B7 - Sensing-Intuition * Expected College Range

			Expected College Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Sensing-Intuition	S	Count	20	14			34
		%	58.8%	41.2%			100.0%
	N	Count	7	7	1	2	17
		%	41.2%	41.2%	5.9%	11.8%	100.0%
Total		Count	27	21	1	2	51
		%	52.9%	41.2%	2.0%	3.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.667[a]	3	.083
Likelihood Ratio	7.288	3	.063
Linear-by-Linear Association	4.734	1	.030
N of Valid Cases	51		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .33.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.424	.237	1.587	.113
N of Valid Cases		51			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B8 - Thinking-Feeling * Expected College Range

			Expected College Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Thinking-Feeling	T	Count	23	11	1	2	37
		%	62.2%	29.7%	2.7%	5.4%	100.0%
	F	Count	4	10			14
		%	28.6%	71.4%			100.0%
Total		Count	27	21	1	2	51
		%	52.9%	41.2%	2.0%	3.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.589[a]	3	.055
Likelihood Ratio	8.228	3	.042
Linear-by-Linear Association	.772	1	.380
N of Valid Cases	51		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .27.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.456	.215	1.826	.068
N of Valid Cases		51			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B9 - Judging-Perceiving * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Judging-Perceiving	J	Count	20	9			29
		%	69.0%	31.0%			100.0%
	P	Count	7	12	1	2	22
		%	31.8%	54.5%	4.5%	9.1%	100.0%
Total		Count	27	21	1	2	51
		%	52.9%	41.2%	2.0%	3.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.895[a]	3	.031
Likelihood Ratio	10.152	3	.017
Linear-by-Linear Association	8.459	1	.004
N of Valid Cases	51		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .43.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.677	.160	3.140	.002
N of Valid Cases		51			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B10 - Expected College Range by Ethnicity

Is the person in a minority group * Expected College Range Crosstabulation

			Expected College Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Is the person in a minority group	yes	Count	41	25	1	2	69
		%	59.4%	36.2%	1.4%	2.9%	100.0%
	no	Count	66	109	13	3	191
		%	34.6%	57.1%	6.8%	1.6%	100.0%
Total		Count	107	134	14	5	260
		%	41.2%	51.5%	5.4%	1.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.051[a]	3	.002
Likelihood Ratio	15.543	3	.001
Linear-by-Linear Association	8.713	1	.003
N of Valid Cases	260		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.33.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.430	.113	3.490	.000
N of Valid Cases		260			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B11 - SNTF * Expected College Range by Gender

SNTF * Expected College Range * SEX Crosstabulation

SEX				Expected College Range: Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
F	SNTF	ST	Count	21	13			34
			%	61.8%	38.2%			100.0%
		NT	Count	10	10	2		22
			%	45.5%	45.5%	9.1%		100.0%
		SF	Count	15	24			39
			%	38.5%	61.5%			100.0%
		NF	Count	9	21	2		32
			%	28.1%	65.6%	6.3%		100.0%
	Total		Count	55	68	4		127
			%	43.3%	53.5%	3.1%		100.0%
M	SNTF	ST	Count	17	25	1	2	45
			%	37.8%	55.6%	2.2%	4.4%	100.0%
		NT	Count	5	15	5	3	28
			%	17.9%	53.6%	17.9%	10.7%	100.0%
		SF	Count	2	4			6
			%	33.3%	66.7%			100.0%
		NF	Count	5	6	3		14
			%	35.7%	42.9%	21.4%		100.0%
	Total		Count	29	50	9	5	93
			%	31.2%	53.8%	9.7%	5.4%	100.0%

Chi-Square Tests

SEX		Value	df	Asymp. Sig. (2-sided)
F	Pearson Chi-Square	13.449[a]	6	.036
	Likelihood Ratio	14.725	6	.023
	Linear-by-Linear Association	7.771	1	.005
	N of Valid Cases	127		
M	Pearson Chi-Square	12.576[b]	9	.183
	Likelihood Ratio	14.434	9	.108
	Linear-by-Linear Association	.355	1	.551
	N of Valid Cases	93		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .69.

b. 11 cells (68.8%) have expected count less than 5. The minimum expected count is .32.

Symmetric Measures

SEX			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
F	Ordinal by Ordinal	Gamma	.355	.116	2.945	.003
	N of Valid Cases		127			
M	Ordinal by Ordinal	Gamma	.193	.143	1.346	.178
	N of Valid Cases		93			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

B12 - Within Sensing students

Is the person in a minority group * SAT range Crosstabulation

			SAT range				Total
			under 800	800-1000	1000-1200	1200-1400	
Is the person in a minority group	yes	Count	15	6	2		23
		%	65.2%	26.1%	8.7%		100.0%
	no	Count	19	39	8	2	68
		%	27.9%	57.4%	11.8%	2.9%	100.0%
Total		Count	34	45	10	2	91
		%	37.4%	49.5%	11.0%	2.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.613[a]	3	.014
Likelihood Ratio	10.880	3	.012
Linear-by-Linear Association	6.944	1	.008
N of Valid Cases	91		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .51.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.549	.115	4.212	.000
N of Valid Cases		197			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Appendix C - Selective Possible College Range

C1 - Extraversion-Introversion * Expected College Range

			Expected College Range			Total
			Not Selective (Community College)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Extraversion-Introversion	E	Count	8	34	8	50
		%	16.0%	68.0%	16.0%	100.0%
	I	Count	2	19	6	27
		%	7.4%	70.4%	22.2%	100.0%
Total		Count	10	53	14	77
		%	13.0%	68.8%	18.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.384[a]	2	.500
Likelihood Ratio	1.469	2	.480
Linear-by-Linear Association	1.364	1	.243
N of Valid Cases	77		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.51.

C2 - Sensing-Intuition * Expected College Range

			Expected College Range			Total
			Not Selective (Community College)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Sensing-Intuition	S	Count	4	32	4	40
		%	10.0%	80.0%	10.0%	100.0%
	N	Count	6	21	10	37
		%	16.2%	56.8%	27.0%	100.0%
Total		Count	10	53	14	77
		%	13.0%	68.8%	18.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.145[a]	2	.076
Likelihood Ratio	5.242	2	.073
Linear-by-Linear Association	.058	1	.810
N of Valid Cases	77		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.81.

C3 - Thinking-Feeling * Expected College Range

			Expected College Range			Total
			Not Selective (Community College)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Thinking-Feeling	T	Count	5	39	5	49
		%	10.2%	79.6%	10.2%	100.0%
	F	Count	5	14	9	28
		%	17.9%	50.0%	32.1%	100.0%
Total		Count	10	53	14	77
		%	13.0%	68.8%	18.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.787[a]	2	.020
Likelihood Ratio	7.633	2	.022
Linear-by-Linear Association	.111	1	.739
N of Valid Cases	77		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.64.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.233	.227	1.007	.314
N of Valid Cases		77			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

C4 - Judging-Perceiving * Expected College Range

			Expected College Range			
			Not Selective (Community College)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Judging-Perceiving	J	Count	5	31	7	43
		%	11.6%	72.1%	16.3%	100.0%
	P	Count	5	22	7	34
		%	14.7%	64.7%	20.6%	100.0%
Total		Count	10	53	14	77
		%	13.0%	68.8%	18.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.483[a]	2	.785
Likelihood Ratio	.481	2	.786
Linear-by-Linear Association	.009	1	.924
N of Valid Cases	77		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.42.

C5 - Thinking Feeling with Gender

Thinking-Feeling * Expected College Range * SEX Crosstabulation

				Expected College Range			
SEX				Not Selective (Community College)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
F	Thinking-Feeling	T	Count	3	23	1	27
			%	11.1%	85.2%	3.7%	100.0%
		F	Count	4	14	8	26
			%	15.4%	53.8%	30.8%	100.0%
	Total		Count	7	37	9	53
			%	13.2%	69.8%	17.0%	100.0%
M	Thinking-Feeling	T	Count	2	16	4	22
			%	9.1%	72.7%	18.2%	100.0%
		F	Count	1		1	2
			%	50.0%		50.0%	100.0%
	Total		Count	3	16	5	24
			%	12.5%	66.7%	20.8%	100.0%

Chi-Square Tests

SEX		Value	df	Asymp. Sig. (2-sided)
F	Pearson Chi-Square	7.760[a]	2	.021
	Likelihood Ratio	8.533	2	.014
	Linear-by-Linear Association	.647	1	.421
	N of Valid Cases	53		
M	Pearson Chi-Square	4.800[b]	2	.091
	Likelihood Ratio	4.945	2	.084
	Linear-by-Linear Association	.622	1	.430
	N of Valid Cases	24		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 3.43.

b. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .25.

Symmetric Measures

SEX			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
F	Ordinal by Ordinal	Gamma	.389	.243	1.525	.127
	N of Valid Cases		53			
M	Ordinal by Ordinal	Gamma	-.053	.708	-.074	.941
	N of Valid Cases		24			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Students Without SATs Removed

C6 - Sensing-Intuition * Expected College Range

			Expected College Range		
			Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Sensing-Intuition	S	Count	32	4	36
		%	88.9%	11.1%	100.0%
	N	Count	21	10	31
		%	67.7%	32.3%	100.0%
Total		Count	53	14	67
		%	79.1%	20.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.506[b]	1	.034		
Continuity Correction[a]	3.318	1	.069		
Likelihood Ratio	4.583	1	.032		
Fisher's Exact Test				.041	.034
Linear-by-Linear Association	4.439	1	.035		
N of Valid Cases	67				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.48.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.584	.216	2.135	.033
N of Valid Cases		67			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Appendix D - Highly Selective Possible College Range

D1 - Extraversion-Introversion * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Extraversion-Introversion	E	Count	2	2	4	14	22
		%	9.1%	9.1%	18.2%	63.6%	100.0%
	I	Count	1	1	5	12	19
		%	5.3%	5.3%	26.3%	63.2%	100.0%
Total		Count	3	3	9	26	41
		%	7.3%	7.3%	22.0%	63.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.716[a]	3	.869
Likelihood Ratio	.725	3	.867
Linear-by-Linear Association	.145	1	.703
N of Valid Cases	41		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.39.

D2 - Sensing-Intuition * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Sensing-Intuition	S	Count	1	3	7	8	19
		%	5.3%	15.8%	36.8%	42.1%	100.0%
	N	Count	2		2	18	22
		%	9.1%		9.1%	81.8%	100.0%
Total		Count	3	3	9	26	41
		%	7.3%	7.3%	22.0%	63.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.790[a]	3	.020
Likelihood Ratio	11.168	3	.011
Linear-by-Linear Association	2.750	1	.097
N of Valid Cases	41		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.39.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.597	.206	2.486	.013
N of Valid Cases		41			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

D3 - Thinking-Feeling * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Thinking-Feeling	T	Count	1	2	6	9	18
		%	5.6%	11.1%	33.3%	50.0%	100.0%
	F	Count	2	1	3	17	23
		%	8.7%	4.3%	13.0%	73.9%	100.0%
Total		Count	3	3	9	26	41
		%	7.3%	7.3%	22.0%	63.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.572[a]	3	.312
Likelihood Ratio	3.590	3	.309
Linear-by-Linear Association	.708	1	.400
N of Valid Cases	41		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is 1.32.

D4 - Judging-Perceiving * Expected College Range

			Expected College Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Judging-Perceiving	J	Count	3	3	5	6	17
		%	17.6%	17.6%	29.4%	35.3%	100.0%
	P	Count			4	20	24
		%			16.7%	83.3%	100.0%
Total		Count	3	3	9	26	41
		%	7.3%	7.3%	22.0%	63.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.828[a]	3	.005
Likelihood Ratio	15.181	3	.002
Linear-by-Linear Association	11.955	1	.001
N of Valid Cases	41		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is 1.24.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.821	.116	3.859	.000
N of Valid Cases		41			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

D5 - Thinking-Feeling with Gender

Thinking-Feeling * Expected College Range * SEX Crosstabulation

SEX				Expected College Range: Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
F	Thinking-Feeling	T	Count	1	2	4	3	10
			%	10.0%	20.0%	40.0%	30.0%	100.0%
		F	Count	1	1	3	16	21
			%	4.8%	4.8%	14.3%	76.2%	100.0%
	Total		Count	2	3	7	19	31
			%	6.5%	9.7%	22.6%	61.3%	100.0%
M	Thinking-Feeling	T	Count			2	6	8
			%			25.0%	75.0%	100.0%
		F	Count	1			1	2
			%	50.0%			50.0%	100.0%
	Total		Count	1		2	7	10
			%	10.0%		20.0%	70.0%	100.0%

Chi-Square Tests

SEX		Value	df	Asymp. Sig. (2-sided)
F	Pearson Chi-Square	6.255[a]	3	.100
	Likelihood Ratio	6.259	3	.100
	Linear-by-Linear Association	4.144	1	.042
	N of Valid Cases	31		
M	Pearson Chi-Square	4.643[b]	2	.098
	Likelihood Ratio	4.266	2	.118
	Linear-by-Linear Association	2.647	1	.104
	N of Valid Cases	10		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .65.

b. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .20.

Appendix E - Not Selecitive Expected College Range

E1 - Extraversion-Introversion * Actual Range

			Actual Range							
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Millitary	Total
Extraversion Introversion	E	Count	22	84	24	9	3	2	7	151
		%	14.6%	55.6%	15.9%	6.0%	2.0%	1.3%	4.6%	100%
	I	Count	18	36	9	2	2		5	72
		%	25.0%	50.0%	12.5%	2.8%	2.8%		6.9%	100%
Total		Count	40	120	33	11	5	2	12	223
		%	17.9%	53.8%	14.8%	4.9%	2.2%	.9%	5.4%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.197[a]	6	.401
Likelihood Ratio	6.747	6	.345
Linear-by-Linear Association	.321	1	.571
N of Valid Cases	223		

a. 6 cells (42.9%) have expected count less than 5. The minimum expected count is .65.

E2 - Sensing-Intuition * Actual Range

			Actual Range							
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Millitary	Total
Sensing-Intuition	S	Count	23	84	18	7	2		3	137
		%	16.8%	61.3%	13.1%	5.1%	1.5%		2.2%	100%
	N	Count	17	36	15	4	3	2	9	86
		%	19.8%	41.9%	17.4%	4.7%	3.5%	2.3%	10.5%	100%
Total		Count	40	120	33	11	5	2	12	223
		%	17.9%	53.8%	14.8%	4.9%	2.2%	.9%	5.4%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.540[a]	6	.016
Likelihood Ratio	16.099	6	.013
Linear-by-Linear Association	8.502	1	.004
N of Valid Cases	223		

a. 6 cells (42.9%) have expected count less than 5. The minimum expected count is .77.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.195	.110	1.738	.082
N of Valid Cases		223			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

E3 - Thinking-Feeling * Actual Range

			Actual Range							
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Millitary	Total
Thinking-Feeling	T	Count	28	80	15	8	4		8	143
		%	19.6%	55.9%	10.5%	5.6%	2.8%		5.6%	100%
	F	Count	12	40	18	3	1	2	4	80
		%	15.0%	50.0%	22.5%	3.8%	1.3%	2.5%	5.0%	100%
Total		Count	40	120	33	11	5	2	12	223
		%	17.9%	53.8%	14.8%	4.9%	2.2%	.9%	5.4%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.448[a]	6	.107
Likelihood Ratio	10.822	6	.094
Linear-by-Linear Association	.590	1	.442
N of Valid Cases	223		

a. 6 cells (42.9%) have expected count less than 5. The minimum expected count is .72.

E4 - Judging-Perceiving * Actual Range

			Actual Range							Total
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Millitary	
Judging-Perceiving	J	Count	13	42	14	8	3		4	84
		%	15.5%	50.0%	16.7%	9.5%	3.6%		4.8%	100%
	P	Count	27	78	19	3	2	2	8	139
		%	19.4%	56.1%	13.7%	2.2%	1.4%	1.4%	5.8%	100%
Total		Count	40	120	33	11	5	2	12	223
		%	17.9%	53.8%	14.8%	4.9%	2.2%	.9%	5.4%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.262[a]	6	.159
Likelihood Ratio	9.719	6	.137
Linear-by-Linear Association	.776	1	.378
N of Valid Cases	223		

a. 6 cells (42.9%) have expected count less than 5. The minimum expected count is .75.

Appendix F - Less Selective Expected College Range

F1 - Extraversion-Introversion * Actual Range

			Actual Range					
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Extraversion-Introversion	E	Count	6	17	32	17	5	77
		%	7.8%	22.1%	41.6%	22.1%	6.5%	100%
	I	Count	4	12	20	9	2	47
		%	8.5%	25.5%	42.6%	19.1%	4.3%	100%
Total		Count	10	29	52	26	7	124
		%	8.1%	23.4%	41.9%	21.0%	5.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.553[a]	4	.968
Likelihood Ratio	.563	4	.967
Linear-by-Linear Association	.444	1	.505
N of Valid Cases	124		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.65.

F2 - Sensing-Intuition * Actual Range

			Actual Range					
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Sensing-Intuition	S	Count	2	19	34	11	3	69
		%	2.9%	27.5%	49.3%	15.9%	4.3%	100%
	N	Count	8	10	18	15	4	55
		%	14.5%	18.2%	32.7%	27.3%	7.3%	100%
Total		Count	10	29	52	26	7	124
		%	8.1%	23.4%	41.9%	21.0%	5.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.629[a]	4	.031
Likelihood Ratio	10.876	4	.028
Linear-by-Linear Association	.032	1	.857
N of Valid Cases	124		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 3.10.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.091	.138	.656	.512
N of Valid Cases		126			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

F3 - Thinking-Feeling * Actual Range

			Actual Range					
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Thinking-Feeling	T	Count	7	18	26	12	5	68
		%	10.3%	26.5%	38.2%	17.6%	7.4%	100%
	F	Count	3	11	26	14	2	56
		%	5.4%	19.6%	46.4%	25.0%	3.6%	100%
Total		Count	10	29	52	26	7	124
		%	8.1%	23.4%	41.9%	21.0%	5.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.602[a]	4	.463
Likelihood Ratio	3.671	4	.452
Linear-by-Linear Association	.840	1	.359
N of Valid Cases	124		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 3.16.

F4 - Judging-Perceiving * Actual Range

			Actual Range					
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Judging-Perceiving	J	Count	2	11	16	6	3	38
		%	5.3%	28.9%	42.1%	15.8%	7.9%	100%
	P	Count	8	18	36	20	4	86
		%	9.3%	20.9%	41.9%	23.3%	4.7%	100%
Total		Count	10	29	52	26	7	124
		%	8.1%	23.4%	41.9%	21.0%	5.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.450[a]	4	.654
Likelihood Ratio	2.477	4	.649
Linear-by-Linear Association	.002	1	.962
N of Valid Cases	124		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.15.

Appendix G - Selective Expected College Range

G1 - Extraversion-Introversion * Actual Range

			Actual Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Extraversion-Introversion	E	Count	5	7	29	7	48
		%	10.4%	14.6%	60.4%	14.6%	100.0%
	I	Count	1	8	12	5	26
		%	3.8%	30.8%	46.2%	19.2%	100.0%
Total		Count	6	15	41	12	74
		%	8.1%	20.3%	55.4%	16.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.922[a]	3	.270
Likelihood Ratio	3.938	3	.268
Linear-by-Linear Association	.007	1	.935
N of Valid Cases	74		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 2.11.

G2 - Sensing-Intuition * Actual Range

			Actual Range				
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Total
Sensing-Intuition	S	Count	3	9	22	6	40
		%	7.5%	22.5%	55.0%	15.0%	100.0%
	N	Count	3	6	19	6	34
		%	8.8%	17.6%	55.9%	17.6%	100.0%
Total		Count	6	15	41	12	74
		%	8.1%	20.3%	55.4%	16.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.335[a]	3	.953
Likelihood Ratio	.337	3	.953
Linear-by-Linear Association	.066	1	.797
N of Valid Cases	74		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.76.

G3 - Thinking-Feeling * Actual Range

			Actual Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Thinking-Feeling	T	Count	4	13	28	7	52
		%	7.7%	25.0%	53.8%	13.5%	100.0%
	F	Count	2	2	13	5	22
		%	9.1%	9.1%	59.1%	22.7%	100.0%
Total		Count	6	15	41	12	74
		%	8.1%	20.3%	55.4%	16.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.863[a]	3	.413
Likelihood Ratio	3.127	3	.373
Linear-by-Linear Association	1.178	1	.278
N of Valid Cases	74		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.78.

G4 - Judging-Perceiving * Actual Range

			Actual Range				Total
			Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	
Judging-Perceiving	J	Count	3	5	24	5	37
		%	8.1%	13.5%	64.9%	13.5%	100.0%
	P	Count	3	10	17	7	37
		%	8.1%	27.0%	45.9%	18.9%	100.0%
Total		Count	6	15	41	12	74
		%	8.1%	20.3%	55.4%	16.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.195[a]	3	.363
Likelihood Ratio	3.235	3	.357
Linear-by-Linear Association	.185	1	.667
N of Valid Cases	74		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

Appendix H - Highly Selective Expected College Range

H1 - Extraversion-Introversion * Actual Range

			Actual Range						
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Total
Extraversion-Introversion	E	Count		1	2	9	10	2	24
		%		4.2%	8.3%	37.5%	41.7%	8.3%	100%
	I	Count	2	1	1	8	4	4	20
		%	10.0%	5.0%	5.0%	40.0%	20.0%	20.0%	100%
Total		Count	2	2	3	17	14	6	44
		%	4.5%	4.5%	6.8%	38.6%	31.8%	13.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.311[a]	5	.379
Likelihood Ratio	6.143	5	.293
Linear-by-Linear Association	.528	1	.467
N of Valid Cases	44		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .91.

H2 - Sensing-Intuition * Actual Range

			Actual Range						
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Total
Sensing-Intuition	S	Count				7	6	1	14
		%				50.0%	42.9%	7.1%	100.0%
	N	Count	2	2	3	10	8	5	30
		%	6.7%	6.7%	10.0%	33.3%	26.7%	16.7%	100.0%
Total		Count	2	2	3	17	14	6	44
		%	4.5%	4.5%	6.8%	38.6%	31.8%	13.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.374[a]	5	.372
Likelihood Ratio	7.480	5	.187
Linear-by-Linear Association	1.065	1	.302
N of Valid Cases	44		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .64.

H3 - Thinking-Feeling * Actual Range

			Actual Range						Total
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	
Thinking-Feeling	T	Count	1	1	2	8	4	2	18
		%	5.6%	5.6%	11.1%	44.4%	22.2%	11.1%	100%
	F	Count	1	1	1	9	10	4	26
		%	3.8%	3.8%	3.8%	34.6%	38.5%	15.4%	100%
Total		Count	2	2	3	17	14	6	44
		%	4.5%	4.5%	6.8%	38.6%	31.8%	13.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.250[a]	5	.814
Likelihood Ratio	2.272	5	.810
Linear-by-Linear Association	1.194	1	.275
N of Valid Cases	44		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .82.

H4 - Judging-Perceiving * Actual Range

			Actual Range						Total
			No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	
Judging-Perceiving	J	Count		1	1	6	6		14
		%		7.1%	7.1%	42.9%	42.9%		100%
	P	Count	2	1	2	11	8	6	30
		%	6.7%	3.3%	6.7%	36.7%	26.7%	20.0%	100%
Total		Count	2	2	3	17	14	6	44
		%	4.5%	4.5%	6.8%	38.6%	31.8%	13.6%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.922[a]	5	.425
Likelihood Ratio	7.256	5	.202
Linear-by-Linear Association	.092	1	.762
N of Valid Cases	44		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .64.

Appendix I - High School Comparisons

I1 - Expected College Range by School

SCHCODE * Expected College Range Crosstabulation

		Expected College Range: No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Total
Burncoat	Count	6	66	25	12	13	2	124
	%	4.8%	53.2%	20.2%	9.7%	10.5%	1.6%	100.0%
Doherty	Count	5	87	55	39	22	4	212
	%	2.4%	41.0%	25.9%	18.4%	10.4%	1.9%	100.0%
North	Count	7	65	26	11	2		111
	%	6.3%	58.6%	23.4%	9.9%	1.8%		100.0%
South	Count	12	100	42	21	9		184
	%	6.5%	54.3%	22.8%	11.4%	4.9%		100.0%
Total	Count	30	318	148	83	46	6	631
	%	4.8%	50.4%	23.5%	13.2%	7.3%	1.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.171[a]	15	.003
Likelihood Ratio	38.408	15	.001
Linear-by-Linear Association	10.663	1	.001
N of Valid Cases	631		

a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is 1.06.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.136	.048	-2.806	.005
N of Valid Cases		631			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

I2 - Possible College Range by School

SCHCODE * Possible College Range (not considering SAT data) Crosstabulation

		Possible College Range (not considering SAT data)						Total
		No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	
Burncoat	Count	6	54	42	13	7	2	124
	%	4.8%	43.5%	33.9%	10.5%	5.6%	1.6%	100%
Doherty	Count	5	46	97	33	27	4	212
	%	2.4%	21.7%	45.8%	15.6%	12.7%	1.9%	100%
North	Count	7	39	47	13	5		111
	%	6.3%	35.1%	42.3%	11.7%	4.5%		100%
South	Count	12	65	74	24	9		184
	%	6.5%	35.3%	40.2%	13.0%	4.9%		100%
Total	Count	30	204	260	83	48	6	631
	%	4.8%	32.3%	41.2%	13.2%	7.6%	1.0%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.379[a]	15	.001
Likelihood Ratio	40.924	15	.000
Linear-by-Linear Association	3.594	1	.058
N of Valid Cases	631		

a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is 1.06.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.063	.047	-1.317	.188
N of Valid Cases		631			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

I3 - SAT Range by School

SCHCODE * SAT range Crosstabulation

		SAT range					
		under 800	800-1000	1000-1200	1200-1400	1400-1600	Total
Burncoat	Count	21	33	23	9	2	88
	%	23.9%	37.5%	26.1%	10.2%	2.3%	100%
Doherty	Count	33	49	50	17	2	151
	%	21.9%	32.5%	33.1%	11.3%	1.3%	100%
North	Count	25	32	10	1		68
	%	36.8%	47.1%	14.7%	1.5%		100%
South	Count	31	35	31	4		101
	%	30.7%	34.7%	30.7%	4.0%		100%
Total	Count	110	149	114	31	4	408
	%	27.0%	36.5%	27.9%	7.6%	1.0%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.597[a]	12	.012
Likelihood Ratio	28.973	12	.004
Linear-by-Linear Association	7.692	1	.006
N of Valid Cases	408		

a. 4 cells (20.0%) have expected count less than 5. The minimum expected count is .67.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.148	.057	-2.556	.011
N of Valid Cases		408			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

I4 - Actual College Range by School

SCHCODE * Actual Range Crosstabulation

		Actual Range							
		No College	Not Selective (Community College)	Less Selective (Worcester State)	Selective (U Mass. Amherst)	Highly Selective (Boston University)	Mega-Selective (Harvard)	Millitary	Total
Burncoat	Count	14	39	27	16	8	3	11	118
	%	11.9%	33.1%	22.9%	13.6%	6.8%	2.5%	9.3%	100%
Doherty	Count	31	48	41	48	23	7	3	201
	%	15.4%	23.9%	20.4%	23.9%	11.4%	3.5%	1.5%	100%
North	Count	17	38	23	16	2	1	1	98
	%	17.3%	38.8%	23.5%	16.3%	2.0%	1.0%	1.0%	100%
South	Count	30	69	28	24	8	2	5	166
	%	18.1%	41.6%	16.9%	14.5%	4.8%	1.2%	3.0%	100%
Total	Count	92	194	119	104	41	13	20	583
	%	15.8%	33.3%	20.4%	17.8%	7.0%	2.2%	3.4%	100%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	48.832[a]	18	.000
Likelihood Ratio	47.133	18	.000
Linear-by-Linear Association	14.587	1	.000
N of Valid Cases	583		

a. 6 cells (21.4%) have expected count less than 5. The minimum expected count is 2.19.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.160	.044	-3.601	.000
N of Valid Cases		583			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Appendix J - Type by School

J1 - School * Extraversion-Introversion

		Extraversion-Introversion		
		E	I	Total
Burncoat	Count	99	64	163
	%	60.7%	39.3%	100.0%
Doherty	Count	139	80	219
	%	63.5%	36.5%	100.0%
North	Count	102	48	150
	%	68.0%	32.0%	100.0%
South	Count	122	94	216
	%	56.5%	43.5%	100.0%
Total	Count	462	286	748
	%	61.8%	38.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.365[a]	3	.147
Likelihood Ratio	5.388	3	.146
Linear-by-Linear Association	.624	1	.429
N of Valid Cases	748		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 57.35.

J2 - School * Sensing-Intuition

		Sensing-Intuition		
		S	N	Total
Burncoat	Count	94	69	163
	%	57.7%	42.3%	100.0%
Doherty	Count	123	96	219
	%	56.2%	43.8%	100.0%
North	Count	104	46	150
	%	69.3%	30.7%	100.0%
South	Count	135	81	216
	%	62.5%	37.5%	100.0%
Total	Count	456	292	748
	%	61.0%	39.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.493[a]	3	.058
Likelihood Ratio	7.602	3	.055
Linear-by-Linear Association	2.688	1	.101
N of Valid Cases	748		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 58.56.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.092	.056	-1.636	.102
N of Valid Cases		748			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

J3 - School * Thinking-Feeling

		Thinking-Feeling		Total
		T	F	
Burncoat	Count	98	65	163
	%	60.1%	39.9%	100.0%
Doherty	Count	135	84	219
	%	61.6%	38.4%	100.0%
North	Count	96	54	150
	%	64.0%	36.0%	100.0%
South	Count	133	83	216
	%	61.6%	38.4%	100.0%
Total	Count	462	286	748
	%	61.8%	38.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.508[a]	3	.917
Likelihood Ratio	.510	3	.917
Linear-by-Linear Association	.122	1	.727
N of Valid Cases	748		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 57.35.

J4 - School * Judging-Perceiving

		Judging-Perceiving		
		J	P	Total
Burncoat	Count	63	100	163
	%	38.7%	61.3%	100.0%
Doherty	Count	72	147	219
	%	32.9%	67.1%	100.0%
North	Count	57	93	150
	%	38.0%	62.0%	100.0%
South	Count	99	117	216
	%	45.8%	54.2%	100.0%
Total	Count	291	457	748
	%	38.9%	61.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.767[a]	3	.051
Likelihood Ratio	7.763	3	.051
Linear-by-Linear Association	3.748	1	.053
N of Valid Cases	748		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 58.36.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.107	.056	-1.896	.058
N of Valid Cases		748			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Appendix K – Letter to Worcester Public Schools

WPI Initiative on Standardized Tests and Learning Styles

September 18, 2002

To: Patricia Mostue:

My name is Sara Jeffers. My partner, Brian Mentz and I are from WPI. With Professor John Wilkes, we are working on a project for the completion of our degrees. We would like to collect information on those students who have graduated from the Worcester Public School System and have gone on to continue their education at Worcester State College. We are interested in MBTI data, MCAS scores, grades, and PSAT scores from the classes of '99, '00, and '01. Our goal is to show that the SAT is not necessarily the best predictor of future academic success and that high school grades and learning style, as shown by the MBTI, can be more indicative. A project proposal is attached. We recognize that this is sensitive and confidential information, and we will make it a priority to keep these records secure. We are asking for your collaboration along with Worcester State College in gathering all the corresponding records. To address privacy concerns, a numbering system could be developed before we have access to the records. This would provide confidentiality for the students whose records are involved. Your cooperation in this matter would be greatly appreciated. Specifically we will need your help in obtaining information on the post high school intentions of the students in the classes of 2000 and 2001. Our transcript data for the year 2000 appears to be problematic. Your assistance with fixing this data set as well as providing means of ID, so we can link the transcript data with MBTI data, would be indispensable. Thank you for your attention.

Sincerely,

Sara Jeffers

Appendix L – Letter to Worcester State College

WPI Initiative on Standardized Tests and Learning Styles

September 19, 2002

To: Laurel Kilbeck:

My name is Brian Mentz. My partner, Sara Jeffers, and I are from WPI. With Professor John Wilkes as our advisor, we are working on a project for the completion of our degrees. We would like to collect information on those students who have graduated from the Worcester Public School System and have gone on to continue their education at Worcester State College. We are interested in progress toward graduation from the classes of '03, '04, and '05. Our goal is to show that the SAT is not necessarily the best predictor of future academic success and that high school grades and learning style, as shown by the MBTI, can be more indicative. A project proposal is attached. We recognize that this is sensitive and confidential information, and we will make it a priority to keep these records secure. We are asking for your collaboration along with Worcester Public Schools in gathering all the corresponding records. To address privacy concerns, a numbering system could be developed before we have access to the records. This would provide confidentiality for the students whose records are involved. Your cooperation in this matter would be greatly appreciated. We would like to work with you to expand and review the list of students from Worcester Public Schools that planned to attend Worcester State College. On completion of that, we would like their grades and attrition data and their relative performance compared to the rest of the group of students at Worcester State College. Thank you for your attention.

Sincerely,

Brian Mentz

Appendix M – Letter Fitchburg State College

WPI Initiative on Standardized
Tests and Learning Styles

October 8, 2002

Terry Carroll
Director of Institutional Research
Fitchburg State College
160 Pearl St.
Fitchburg, MA 01420

To Terry Carroll:

My name is Sara Jeffers. My partner, Brian Mentz, and I are from WPI. With Professor John Wilkes as our advisor, we are working on a project for the completion of our degrees. We would like to collect information on those students who have graduated from the Fitchburg Public School System and have gone on to continue their education at Fitchburg State College. Our goal is to show that the SAT is not necessarily the best predictor of future academic success and that high school grades and learning style, as shown by the MBTI, can be more indicative.

We have already approached Worcester State College with the same idea, but they seem to be having problems with their records. Laurel Kilbeck mentioned you to us as an alternate possibility/addition to our study. We realize that there will probably be an application for approval that we will need to fill out. About how long does the approval process take?

If you could please contact us with any information you could provide us that would be very helpful. Before October 22, please email to Professor Wilkes at jmwilkes@wpi.edu. After October 22, send email to either Sara at sjeffers@wpi.edu or Brian at bmentz@wpi.edu. If you have any forms to send us please send them to:

Sara Jeffers
WPI
Box 1786
100 Institute Rd.
Worcester, MA 01609

Your assistance would be greatly appreciated. Thank you for your attention.

Sincerely,

Sara Jeffers

Appendix N – Project Proposal

WPI Initiative on Standardized Tests and Learning Styles

Proposal for Worcester State College Follow Up

Sara Jeffers, Brian Mentz
Advisor: John Wilkes

We, Sara Jeffers and Brian Mentz, have observed from preliminary data that more students from Worcester Public Schools intended to go to Worcester State College than any other particular institution. This gives us a group of students that have similar high school educational opportunities and who have similar college education opportunities. Our goal is to show that the SAT is not necessarily the best predictor of future academic success and high school grades and learning style, as shown by the MBTI, can be more indicative.

We intend to take high school transcripts, a data set of post high school intentions, MBTI data, MCAS scores, and PSAT/SAT scores to see which is the best method of predicting a student's success at Worcester State College. Previous studies done at WPI have shown that learning style is better than standardized testing at foretelling success in college. We would like to do an additional study using students with similar academic backgrounds and with all high school data examined.

We have a data set for the Worcester Public Schools graduating class of 1999. Included in the set is what students planned to do immediately following high school graduation. There are no names only ID numbers attached to the set. From this information we expect there are approximately 70 students who expressed their intention to go to Worcester State College.

We would like to study those students who are currently at Worcester State College and have completed at least one year of study. This narrows our focus group down to the Worcester Public Schools classes of 1999, 2000, and 2001. Taking the expected students per class, we have an approximate sample size of 180-200 students.

In order to study these students, we would like the following information from Worcester Public Schools: high school transcripts, PSAT scores, MCAS results, MBTI data, and information on post high school intentions from the classes of '99, '00, '01. From this information we can then take a list to Worcester State College to see how many students actually went there. Also, if possible, we would like to see if any students from Worcester Public Schools who did not initially express an intention to attend Worcester State College actually chose to go there regardless of previous plans. We would like college transcripts and SAT scores from Worcester State College. From the college transcripts, we hope to be able to determine each student's progress towards graduation. Once we have all this information, we will compile it into data bases which will help us to determine which method of assessment is the best method of predicting a student's future academic success.

Appendix O – Second Project Proposal

WPI Initiative on Standardized Tests and Learning Styles

Proposal for Worcester State College Follow Up

Sara Jeffers, Brian Mentz
Advisor: John Wilkes

We, Sara Jeffers and Brian Mentz, intend to study high school data of at least three classes from the Worcester Public Schools to compare students intending to go to four year state colleges vs. two year community schools. Our primary focus will be on those students who went to Worcester State College and Quinsigamond Community College. We plan to focus on these schools because it will give us a sample of local students going to local colleges. Our goal is to be able to predict or at least classify the students who will go to Worcester State College and Quinsigamond Community College.

This will set up a database and procedure for future projects that will discover how these students preformed once in college. Future studies will have a large group of students to compare which have similar high school educational opportunities and similar college opportunities.

We plan to use at least three classes to obtain enough cases for accurate comparison. We would like to use the classes of 1999, 2000, and 2001, but we would also consider using the classes of 1998 and 1997. We already have information on placement for college on the class of 1999.

Taken into account in this study will be MBTI data, grades, SAT scores and possibly race. MBTI results will be tabulated and then the learning styles for each group (one group for Worcester State College and one for Quinsigamond Community College) will be compared to each other and to the class as a whole. Average SAT scores will be compared. Also average grades and average course level will be combined into a grade performance rating and then compared. Once all these factors have been taken into consideration we hope to be able to determine if there are certain students who are more likely to go to Worcester State College or Quinsigamond Community College.