

School of Nursing

School of Nursing Scholarly Works

University of Connecticut

Year 2006

Comparing Psychological Type and
Explanatory Between Nursing Students
and Clinical Faculty: A Pilot Study

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Abstract

Negotiation of complex collaboration and effective teamwork among health care providers is essential to patient safety and to quality of care. This study examined characteristics of nursing students and faculty influencing communication between them. Psychological type (Myers-Briggs Type Inventory (MBTI) (Myers, McCaulley, Quenk, & Hammer, 1998) and explanatory style (Attributional Style Questionnaire) (ASQ) (Peterson et al., 1982) were compared for participating first year baccalaureate nursing students (N=286), and clinical nursing faculty (N=59) from both two- and four-year nursing programs. Modal student psychological type was ESFJ; modal faculty psychological type was ISTJ. The two groups demonstrated significant differences in processing information, and making decisions and judgments. Students were slightly more optimistic than faculty. Psychological type and level of optimism did not appear to correlate. Data from this pilot study provide an initial framework on which to base further research that could enhance the quality of teamwork among healthcare providers.

18 A Pilot Study Comparing Psychological Types and Explanatory Styles of Nursing Students and
19 Clinical Faculty

20

21 Collaboration and effective teamwork among health care providers is essential, not only to
22 patient safety, but also, ultimately, to quality of care. The ever-increasing complexity of health
23 care, itself; the expanding diversity of the healthcare workforce; and the growing effort to
24 increase involvement of patients' family members in providing care makes effective and efficient
25 collaboration and communication increasingly complicated. Communication among health care
26 providers, especially nurses as front-line providers, directly influences the successes of care—
27 outcomes, patient safety, and satisfaction for all involved.

28

29 Collaboration and effective teamwork are, themselves, complex processes that involve not only
30 the artful application of scientific principles and knowledge, but also the enactment of successful
31 and complete communication. As Dorothy Nevill noted, "The real art of communication is to
32 say the right thing at the right place but to leave unsaid the wrong thing at the tempting moment
33 (http://www.quoteworld.org/authors/dorothy_nevill Accessed 5/6/06). The subtleties of
34 communication serve as a conduit, carrying the patient care process to its end, and contributing
35 directly to its final outcomes.

36

37 The purpose of the study described in this report was to examine characteristics of nursing
38 students and faculty, as those characteristics might influence communication between them. As
39 students learn to communicate for nursing, they will take those skills into the practice arena.

40 Collaboration and communication among students and faculty will color the experience for all
41 involved, and ultimately will affect the patient care process.

42

43 Background

44 To better understand characteristics of nursing students enrolled in a large research-extensive
45 University in the Northeastern United States, investigators initiated a program of research in Fall
46 2004. The first two waves of students (N=286) entered the undergraduate program in either Fall
47 2004 or Fall 2005. The investigators were interested in four particular characteristics of those
48 students—psychological type (Costello, 1993; Martin, 1997); explanatory style (Seligman, 1990;
49 Tennen & Herzberger, 1987); level and experience of depression (Radloff, 1977, 1991)
50 associated with coming to college; and experiences of fatigue (Pugh, 1993) associated with
51 students' newly-developing roles in college. Through their longitudinal program of research, the
52 investigators conducted numerous analyses of study variables as they interacted with the
53 students' perceptions of the college experience and their academic success. As patterns in
54 students' psychological type and explanatory style became apparent through research, the
55 investigators began to question how these same characteristics manifested in clinical faculty, and
56 how patterns manifested by both might compare and contrast. Thus the study described in this
57 report was conducted.

58

59 Psychological Type

60 Psychological type characterizes individuals' ways of interacting with the environment, focusing
61 on the ways individuals choose to make contact with others and to organize their thinking about
62 themselves and their environments (Pearman & Albritton, 1997). Type theory (de Laszlo, 1990;

63 Myers & Myers 1995; Myers et al., 1998) proposes a scheme of four ‘preference pairs’ that can
64 be combined in varying ways to yield 16 different ‘psychological types.’ These types are
65 outlined in Table 1.

66 INSERT TABLE 1 ABOUT HERE

67 One’s four-point ‘psychological type’ represents specific preferences for each of the four
68 preference pairs. Characteristics of these pairs are summarized below.

69

70 The first MBTI profile preference pair contrasts Introverts and Extraverts (I/E) in terms of source
71 of energy. Introverts tend to be quiet and shy, thinking through what they will say before they
72 say it (Caplinger, 2005), as they find their source of energy internally. Introverts sometimes fail
73 to see the ‘big picture’ characterizing situations as they tend to concentrate on the data in front of
74 them. Alternatively, Extraverts find energy in the environment, particularly through their
75 interactions with others. They tend to be expressive and outgoing, often speaking before they
76 think about the words they are saying.

77

78 The next preference pair addresses how Sensors and iNtuitives (S/N) take in information.
79 Sensing types prefer to process information in the form of known facts and familiar terms. As
80 Myers and Myers (1995) stated, “...sensing types...depend on their five senses for perception”
81 (p. 57) and “face life observantly, craving enjoyment” (p. 63). They tend to be concrete and
82 interested in ‘what is’ (Caplinger, 2005). Alternatively, iNtuitives (N) “listen for the intuitions
83 that come up from their unconscious with enticing visions of possibilities (Myers & Myers,
84 1995, p. 57). Intuitives tend to be more abstract than sensing types, interested in ‘what can be’

85 and using their imaginations to bring proposed scenarios and perceived concerns to conclusion
86 (Caplinger, 2005).

87

88 The thinking/feeling (T/F) preference pair concerns the way one makes decisions or judgments.

89 ‘Thinkers’ “value logic above sentiment” and “are stronger in executive ability than in the social

90 arts” (Myers & Myers, 1995, p. 68), while ‘Feelers’ “value sentiment above logic” and “are

91 usually personal, being more interested in people than in things” (Myers & Myers, p. 68). This

92 preference tends to determine whether one makes decisions on a more personal, emotional basis

93 (F) or on logical and objective considerations (T).

94

95 Finally, the judging/perceiving (J/P) preference pair addresses the way individuals tend to

96 organize their lives. ‘Judging types’ (J) tend to organize their lives in structured ways. Those

97 demonstrating the J preference tend to tell others what ought to be done; when the J preference is

98 coupled with the E (extraversion) preference, this tendency can be manifested in ways that

99 appear thoughtless. ‘Perceptive types’ (P), alternatively, “are more curious than decisive”

100 tending to “keep decisions open as long as possible before doing anything irrevocable, because

101 they do not know nearly enough about it yet” (Myers & Myers, 1997, p. 75). They may appear

102 indecisive and uncertain.

103

104 Personal views of optimal ways to manage clinical situations will vary depending on

105 psychological type. Clearly, differences in style between and among psychological types could

106 raise interesting issues for students and faculty.

107

108 According to type theory (de Laszlo, 1990; Myers & Myers, 1995; Myers et al., 1998), stress,
109 such as that experienced in learning to navigate complex clinical settings, can lead to behaviors
110 that are out of character for a given personality type. Since these stress-related behaviors are out
111 of character for an individual, they are, themselves, distressing, perpetuating the stress that is
112 already inherent in a given situation; in the case of this study, in the complex clinical setting with
113 which students are learning to travel. Our goal was to examine how the psychological types of
114 students and faculty might be viewed to contribute to communication, or miscommunication, in
115 the clinical teaching/learning situation.

116

117 Explanatory Style

118 Seligman (1990) created a succinct metaphor for explanatory, or attributional, style theory
119 (Buchanan & Seligman, 1995; Seligman; Shatte & Reivich, 2002), noting that, “Each of us
120 carries a word in his heart, a ‘no’ or a ‘yes’” (p. 16). According to Seligman’s theory of
121 Learned Optimism, successful nurses, like all successful individuals, will approach their complex
122 roles in a positive way, with a qualified, grounded ‘yes’—one that incorporates recognition of
123 the challenges inherent in myriad nursing situations (Dzurec, et al., 2006). A qualified ‘yes,’ is,
124 effectively, a grounded sense of optimism (Seligman, 1990; Shatte & Reivich, 2002); it stands in
125 stark contrast to a view that is more pessimistic—a qualified or global ‘no’ that suggests ‘I
126 can’t.’

127

128 Optimism is not idealism, as, unlike idealists, optimists are willing to acknowledge fault—not to
129 be cast as blame—whether it occurs personally, in others, or in the environment. Further,
130 optimists take appropriate responsibility for correcting problems that arise as a result of

131 perceived faults. An optimist, however, does not dwell on fault, allowing it to command his or
132 her attention over time.

133

134 Optimism determines to a large extent how energized one can become when encountering
135 predictable setbacks—such as those experienced in the daily life of nurses—or how ‘helpless’
136 (Seligman, 1990) when facing crucial defeats (Shatte & Reivich, 2002)—such as unsuccessful
137 job negotiation or conflict in the work setting. Optimism is vital to success in the personal and
138 work setting (Seligman, 1990) and to positive mental health (Fazio & Palm, 1998; Nolen-
139 Hoeksema & Girgus, 1995; Mikulincer, 1988; Robins & Hayes, 1995; Ziegler & Hawley, 2001).
140 Low levels of optimism are linked to depression (Seligman, 1990; Dzurec, Allchin, & Engler, in
141 press). For the study described here, we planned to examine levels of optimism among nursing
142 students and clinical faculty, to see, first, the level of optimism expressed by each group, and
143 second, whether expressed optimism was associated with psychological type. An association
144 between optimism and psychological type, as posed in the study questions, or a trend toward
145 pessimism among students or faculty, might affect communication in the clinical setting.

146

147 Measures

148 For the study reported here, investigators examined psychological type (Myers-Briggs Type
149 Inventory (MBTI) (Myers, McCaulley, Quenk, & Hammer, 1998) and explanatory style
150 (Attributional Style Questionnaire) (ASQ) (Peterson et al., 1982) of participating first-year,
151 baccalaureate nursing students and clinical nursing faculty from two- and four-year programs.
152 We used the MBTI and the ASQ to measure psychological type and explanatory style,
153 respectively, for participating nursing students and clinical faculty.

154

155 *MBTI* (Myers et al., 1998). The MBTI is based on Jung's theory of psychological types (de
156 Laszlo, 1990; Myers et al., 1998). It is a 94-item instrument with four separate indices:
157 extraversion/introversion (E/I); sensing/intuiting (S/N); thinking judgment/feeling judgment
158 (T/F); and judgment/perception (J/P). For each index, a forced choice between two alternatives
159 leads to identified preference, as described previously.

160

161 The scoring procedure for the MBTI is structured so that a weight of 2 is assigned to item
162 choices that statistically best predict total 'type' with a prediction ratio of 72% or more; a weight
163 of 1 is assigned to choice with a prediction ratio of 63-71% ; overpopular responses are assigned
164 a weight of 0. Weighted scores are summed, producing 'preference scores' that determine a type
165 profile across the four indices, as illustrated in Table 1. Authors of the MBTI manual (Myers et
166 al., 1998) noted that internal consistency reliabilities for continuous scores for 9,216 participants
167 of both genders in their studies were 0.83 for the EI index; 0.83 for the SN index; 0.76 for the TF
168 index; and 0.8 for the JP index. For this study, we focused on the SN and TF indices, as these
169 indices represent 'core functioning,' involving, in particular, styles of processing information,
170 and making decisions and judgments.

171

172 *ASQ* (Peterson et al., 1982). The ASQ is a self-report measure that evaluates choice of optimistic
173 or pessimistic explanations for events as 'explanatory style.' The ASQ describes 12 hypothetical
174 events, half that are 'positive,' and half 'negative.' Respondents are asked to state why each
175 event occurred. For example, respondents may say something like: "I just had my hair cut and
176 looked nice," or "I'm no good when it comes to handing things in on time." Respondents then

177 provide ratings for each statement on three seven-point scales: 1) internality (who is responsible
178 for the outcome of the hypothetical event, self or others?); 2) stability (what is the likelihood of
179 event happening again?); and 3) globality (what is the influence of the situation on other areas of
180 life?).

181

182 Internal consistencies for each of the three scales (internality, stability, and globality) were found
183 by the instrument authors (Peterson et al., 1982) in their study of 100 college students to be
184 $\alpha=0.44$ to 0.69 . Further, instrument authors showed that correlations between spontaneous
185 causal explanations and relevant ASQ scales ranged from 0.19 ($p<.1$) to 0.41 ($p<.001$) with
186 internality and composite scores showing the strongest association.

187

188 For the study reported here, as for our related studies, internal consistency reliability was
189 determined for composite negative and composite positive dimensions of the ASQ instrument,
190 each originally composed of 12 items, separately. By deleting items with item to total
191 correlations of <0.20 , the composite negative dimension of an overall positiveness score
192 (Buchanan & Seligman, 1995) resulted in an 11-item scale, with an internal consistency of 0.80 .
193 Similarly, we constructed a composite positive dimension of the overall positiveness score
194 (Buchanan & Seligman); the composite positive dimension was a 10-item scale, with an internal
195 consistency of 0.79 . The composite, overall positiveness score used in this analysis consisted of
196 the mean score for the composite positive scale minus the mean score for the composite negative
197 (CPCN) scale, which could range from -7 (most negative) to $+7$ (most positive).

198

199 Methods

200 Design

201 As a component of a larger, longitudinal study, the exploratory, descriptive study described here
202 was guided by following questions: 1) Do composite psychological types of typical nursing
203 students and clinical faculty differ?; 2) If so, what is the difference?; 3) How does level of
204 optimism compare between nursing students and clinical faculty, as distinct groups?; and 4) Are
205 there patterns of association between psychological type and level of optimism for either nursing
206 students or clinical faculty? The study was initiated following approval by the University
207 Institutional Review Board. Student and faculty responses to items on the MBTI (Myers et al.,
208 1998) and the ASQ (Peterson et al., 1982) served as data used to answer the study questions.

209

210 Sample

211 The sample consisted of MBTI and ASQ responses provided by 286 first-year students (92.4%
212 female) in a traditional baccalaureate nursing program, and 59 faculty members (96.2% female),
213 from both two- and four-year nursing programs. For students, the mean age was 18.3 years ($SD =$
214 2.17) and for faculty, it was 49 years ($SD = 7.40$). In our state, clinical faculty, who are in short
215 supply, often serve simultaneously in both baccalaureate (4 year) and associate degree (2 year)
216 nursing programs.

217

218 The largest percentage of students demonstrated tendencies for extraversion (E), detail-
219 orientation (S), sentimentality (F), and organization (J) (ESFJ—20.4%) . Those with ESFJ
220 characteristics are friendly and organized. They avoid conflict and tend to sweep problems
221 under the rug. They have a great desire to please others, and complete tasks in a timely manner.
222 They do not always see the big picture (Hirsh & Kummerow, 1990)

223

224 For participating faculty the predominant psychological type was introversion (I), detail-
225 orientation (S), thinking (T), and organization (J) (ISTJ-17.2%). Those with ISTJ characteristics,
226 such as modal faculty in this study, respect traditional, hierarchical approaches to leadership, are
227 task-oriented and structured, and expect others to conform to standard operating procedure,
228 rather than encouraging innovation. They need to develop patience for those who do not follow
229 established procedures (Hirsh and Kummerow, 1990).

230

231 Findings

232 Assessing Quantitative Differences in Psychological Types of Students and Faculty

233 We conducted a two-way contingency table analysis to evaluate whether nursing faculty and
234 traditional nursing students varied significantly in MBTI 'core functions,' that is, in styles of
235 processing information, and making decisions and judgments. The preferences making up these
236 core functions are Intuitive/Feeling (NF), Intuitive/Thinking (NT), Sensing/Feeling (SF), and
237 Sensing/Thinking (ST). The two variables compared by contingency table analysis, therefore,
238 were group (2 levels: faculty or student) and MBTI core functions (4 levels: NF, NT, SF, ST). A
239 Pearson chi-square demonstrated that group and core function type were significantly related
240 ($\chi^2=3, N = 313) = 38.08, p < .001$). Thus, the two groups (faculty and students) demonstrated that
241 they differed significantly in approaches to processing information, and making decisions and
242 judgments.

243

244 Figure 1 presents data about the proportion of students and faculty who fell into each Core
245 Functions type.

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INSERT FIGURE 1 ABOUT HERE

As Figure 1 shows, student demonstration of a preference for ‘NF’ core functioning was about 1.9 times (.36/.19) more likely than that of a faculty member; student demonstration of a preference for ‘SF’ core functioning was about 1.8 times (.47/.26) more likely. The probability of a faculty member preferring the ‘NT’ style of core functioning was about 4.2 (.17/.04) times more likely than for a student; faculty preference for the ‘ST’ style was about 2.9 (.38/.13) times more likely than it was for students. The probability that a faculty member would prefer ‘SF’ was about 1.8 times (.47/.26) the preference likelihood for a student; and the probability of a student preferring ‘ST’ was about 2.9 times (.38/.13) more likely than it was for faculty.

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In follow-up, we conducted six, follow-up pairwise comparisons of the possible core function pairs to evaluate the differences among their proportions for the faculty and undergraduate groups. Table 2 shows the results of these analyses. We used Holm’s sequential Bonferroni method to control for Type I error at the 0.05 level across all six comparisons. Except for the comparison between NT and SF (analysis #6), all pairwise comparisons were significant. In other words, while students and faculty were equally likely to demonstrate NT or SF types, the two groups demonstrated significant differences in their styles of processing information and making decisions and judgments.

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INSERT TABLE 2 ABOUT HERE

Psychological Type and Explanatory Style

Next, we conducted a 4 x 2 ANOVA to evaluate the relationship of Core Function type (4 levels, NF, NT, SF, ST), group (2 levels, student and faculty), and explanatory style (composite

268 positiveness score, [CPCN]) (Buchanan & Seligman, 1995). Table 3 presents the means and
269 standard deviations for explanatory style, by student and faculty groups, and for the total sample.

270 INSERT TABLE 3 ABOUT HERE

271 The ANOVA indicated no significant interaction between psychological type and explanatory
272 style [$F(3, 293) = 0.603, p = 0.614, \text{partial eta-squared} = 0.006$]. Thus, data from this study
273 suggest that psychological type and explanatory style were not related between or among the
274 students and faculty participating in this study. The ANOVA did demonstrate a significant main
275 effect for group [$F(1, 293) = 10.88, p = 0.001, \text{partial eta-squared} = 0.036$], suggesting that
276 students had a more optimistic outlook than did faculty. As group consisted of only two levels,
277 no further analyses were necessary.

278

279 Summary and Implications

280 Differences in psychological type among members of any team can introduce barriers to
281 successful communication and teamwork. In complex healthcare settings where communication
282 is essential, those barriers could lead to perceptions on the parts of participants that others are
283 uncaring, too critical, emotional, and/or or inappropriately subjective in relationships with
284 patients, staff, peers, and or subordinates or superiors. Findings from this pilot study suggested
285 some differences between nursing students and clinical faculty that might introduce barriers to
286 their communication and affect the quality of teaching and learning experiences for both students
287 and faculty.

288

289 The participating first year nursing student and clinical faculty groups in our study differed in
290 global psychological type, that is, in tendency toward extraversion or introversion, and in the

291 ways they processed information, and made decisions and judgments. The modal student
292 psychological type was ESFJ. This means students tended to be extraverted, detail-oriented,
293 people-focused, and organized in their management of the environment. Alternatively, the
294 modal clinical faculty psychological type was ISTJ. Clinical faculty tended to be introverted,
295 detail-oriented, logic-focused, and organized in their management of the environment.

296

297 According to type theory (de Laszlo, 1990; Myers & Myers, 1995; Myers et al., 1998), stress,
298 such as that experienced in learning to deal with complex clinical settings, can lead to behaviors
299 that are out of character for a given personality type. For those demonstrating ESFJ tendencies,
300 the modal type for student participants in the study, stress can lead to difficulty thinking clearly,
301 excessive emotionality, oversensitivity, and overpersonalization (Martin, 1997). And for those
302 with ISTJ tendencies, the modal type for faculty participants in the study, stress might lead to
303 rigidity and excessive critical evaluation (Martin, 1997). The data from our study suggest that
304 further study regarding psychological type of nursing students and clinical faculty might be
305 undertaken, to determine optimal ways to structure teaching situations so that both students and
306 faculty have positive experiences in the clinical area.

307

308 For the two groups participating in our study, psychological type was unrelated to level of
309 optimism, measured in terms of explanatory style (Buchanan & Seligman, 1995; Seligman,
310 1990). Participating students were relatively more optimistic than were clinical faculty, overall.
311 Interestingly, data from previous data analyses conducted by the investigators (Dzurec et al.,
312 2006) suggested that undergraduate nursing students were relatively more optimistic than
313 students enrolled in a post-baccalaureate certificate program in nursing. Further research might

314 be conducted to ascertain the specific effects of optimism on clinical success for students, and on
315 faculty members' evaluation of students. These data would support better understanding of
316 interaction of these variables in clinical settings, and might also provide a basis for
317 understanding factors involved in burnout among nurses as they practice.

318

319 Almost (2006) noted that nurses tend to avoid addressing issues that appear conflictual. Data
320 from our study suggest strong potential for varying levels of conflict in nursing student/faculty
321 situations, by virtue of differences in psychological type and its potential implications for
322 disparate assumptions on the parts of faculty and students. Further study of the psychological
323 type and level of optimism among nursing students and faculty might contribute significantly to
324 building strong nursing and ultimately interdisciplinary teams and to the quality of patient care.

325

326 In a time of increasing nursing shortage and expanding health care complexity, addressing
327 factors that influence successful communication becomes particularly significant. Data from this
328 pilot study provide an initial framework on which to base further research that might enhance the
329 quality of teamwork among healthcare providers—students and seasoned practitioners—
330 affecting teaching and learning in nursing, the maintenance of patient safety and, ultimately, the
331 quality of patient care. Communication among health care providers, especially nurses as front-
332 line providers, directly influences the successes of care—outcomes, patient safety, and
333 satisfaction for all involved. Evaluation of factors influencing communication is especially
334 important as health care becomes increasingly complex.

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- 358 Fazio, N. M., & Palm, L. J. (1998). Attributional style, depression, and grade point averages of
359 college students. *Psychological Reports*, 83, 159-162.
- 360 Fladeland, D. Y. (1995). *Nursing program success, personality and learning style*. Unpublished
361 doctoral dissertation, University of Minnesota, St. Paul, MN.
- 362 Hirsh, S.K., & Kummerow, J. M. (1990). *Introduction to type in organizations: Individual*
363 *interpretive guide* (2d ed.). Palo Alto: Consulting Psychologists Press.
- 364 Howe, L. (2002). Teaching effectiveness for student success. Kansas: Educational Resources,
365 Inc. (<http://www.eriworld.com>).
- 366 Martin, C. (1997). Fundamentals report for the Myers-Briggs Type Indicator. Center for
367 Applications of Psychological Type. Gainesville, FL.
- 368 Mikulincer, M. (1988). Reactance and helplessness following exposure to unsolvable problems:
369 The effect of attributional style. *Journal of Personality and Social Psychology*, 54, 679-
370 686.
- 371 Myers, I. B., McCaulley, M. H., Quenk, N. L., & Hammer, A. L. (1998). *MBTI Manual: A guide*
372 *to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, CA:
373 Consulting Psychologists Press, Inc.
- 374 Myers, I. B. & Myers, P. B. (1995). *Gifts differing: Understanding personality type*. Palo Alto:
375 Davis-Black.
- 376 Nolen-Hoeksema, S., & Girgus, J. S. (1995). Explanatory style and achievement, depression,
377 and gender differences in early adolescence. In G. M. Buchanan, & M. E. P. Seligman,
378 (Eds). *Explanatory style* (pp. 57-70). Hillside, NJ: Lawrence Erlbaum.
- 379 Pearman, R. R., & Albritton, S. C. (1997). *I'm not crazy: I'm just not you*. Palo Alto, CA:

- 380 Davies-Black.
- 381 Pugh, L. C. (1993). Childbirth and measurement of fatigue. *Journal of Nursing*
- 382 *Measurement, 1*, 57-66.
- 383 Quote World. http://www.quoteworld.org/authors/dorothy_nevill. Accessed 5/6/06).
- 384 Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in
- 385 the general population. *Applied psychological measurement, 1*, 385-401.
- 386 Radloff, L. S. (1991). The use of the Center for Epidemiologic Studies Depression Scale in
- 387 adolescents and young adults. *Journal of Youth and Adolescence, 20*, 149-166.
- 388 Robins, C. J., & Hayes, A. M. (1995). The role of causal attributions in the prediction of
- 389 depression. In G. M. Buchanan, & M. E. P. Seligman, (Eds). *Explanatory style* (pp. 71-
- 390 98). Hillside, NJ: Lawrence Erlbaum.
- 391 Seligman, M. E. P. (1990). *Learned optimism: How to change your mind and your life*.
- 392 NY: Pocket Books.
- 393 Tennen, H. & Herzberger, S. (1987). Depression, self-esteem, and the absence of self-
- 394 protective attributional biases. *Journal of Personal and Social Psychology, 51*(1)
- 395 72-80.
- 396 Ziegler, D. J., & Hawley, J. L. (2001). Relation of irrational thinking and the pessimistic
- 397 explanatory style. *Psychological Reports, 88*, 483-488.

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399

403

Table 1.

The 16 MBTI Personality Types

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

Table 2.

Results for the Pairwise Comparisons Using Holm's Sequential Bonferroni Method

Pair	Comparison	Phi	P	Required p for significance	Significance	Cramer's V
1	NF vs NT	-0.47	0.000	0.008	*	0.47
2	NF vs ST	-0.30	0.000	0.010	*	0.30
3	SF vs ST	-0.31	0.000	0.012	*	0.31
4	NF vs SF	-0.21	0.001	0.017	*	0.20
5	NT vs ST	-0.19	0.078	0.025	*	0.19
6	NT vs SF	-0.11	0.152	0.050	NS	0.11

* p -value (required p -value for significance)

1 Table 3.

2 *Means, Standard Deviations, and Sample Sizes for Core Function Pairs by Group*

3 Dependent Variable: CPCN (composite positiveness score)

Group	MBTI Core Function Pairs	<i>M</i>	<i>SD</i>	<i>n</i>
Students	NF	1.84	1.05	84
	SF	1.86	1.01	116
	ST	1.93	1.09	33
	NT	2.24	0.88	10
	Total	1.88	1.03	243
Faculty	NF	1.00	0.76	11
	SF	1.10	.72	15
	ST	1.57	1.22	22
	NT	1.88	1.44	10
	Total	1.40	1.10	58
Total	NF	1.74	1.05	95
	SF	1.78	1.01	131
	ST	1.79	1.14	55
	NT	2.06	1.18	20
	Total	1.79	1.06	301

4

5

Figure 1.

Core Functioning Types by Group

