ISSN: 2148-9955

International Journal of Research in Education and Science (IJRES)

www.ijres.net

Relationship between Personality Type and Preferred Teaching Methods for Undergraduate College Students

Laurie Murphy[1], Nina B. Eduljee[2], Karen Croteau[2], & Suzanne Parkman[2]
[1]Corresponding Author, Saint Joseph's College of Maine
[2]Saint Joseph's College of Maine

To cite this article:

Murphy, L., Eduljee, N.B., Croteau, K., & Parkman, S. (2020). Relationship between personality type and preferred teaching methods for undergraduate college students. *International Journal of Research in Education and Science (IJRES), 6*(1), 100-109.

IJRES International Journal of Research in Education and Science
Volume 6, Issue 1, Winter 2020 ISSN: 2148-9955

Relationship between Personality Type and Preferred Teaching Methods for Undergraduate College Students

Laurie Murphy, Nina B. Eduljee, Karen Croteau, Suzanne Parkman

Article Info

Article History

Received:
12 June 2019

Accepted:
10 September 2019

Keywords

Personality type
Teaching methods
Undergraduate college students
MBTI

Abstract

This empirical study examined the relationship between Myers-Briggs Type Indicator (MBTI) personality types and preferred teaching methods for 507 Saint Joseph's College of Maine undergraduate students. The students completed two instruments: the Myers-Briggs Type Indicator®, Form M (Myers, McCaulley, Quenk, & Hammer, 1998), and a 27-item scale that measured preferred teaching methods in the classroom. Descriptive and inferential statistics indicated that the five most prominent personality types were ISFJ, ESFJ, ESFP, ENFP, and ISTJ. Sensing-Feeling (S-F) preference was the most common followed by Sensing-Judging (S-J) preference in the top five personality types. Across all MBTI dichotomies, the students indicated a preference for teaching methods that involved lecturer-student interaction, using some visual tools such as PowerPoint, and demonstrations and practice. The least preferred teaching methods involved unscheduled quizzes, lecture where the professor talks with no visuals, and library research using experiential activities. Significant differences were obtained between the MBTI dichotomies and preferred teaching methods. The results demonstrate the importance of faculty tailoring and adjusting their instruction to accommodate the needs of their students to increase student achievement, motivation, and engagement in their classroom.

Introduction

The goal of challenging students in a classroom environment requires the professor's skillful utilization of carefully planned tactics and strategies to generate the desired learning outcomes over the duration of the course (Malek, Hall, & Hodges, 2014). The professor uses expert knowledge of their discipline, experience, and judgment to shape their pedagogical focus on selection of classroom teaching methods (Murphy, Eduljee, Croteau & Parkman, 2017; Oleson & Hora, 2013). This framework for selecting teaching techniques or methods reflects the professor's and possibly the student's preferences; however, often these choices may simply be efficient and exclude the outcome of teaching effectiveness (Becker & Watts, 2001). These teaching methods typically include a variety of traditional and non-traditional or emerging techniques like traditional or interactive lecture, experiments, games, simulations, case studies, cooperative learning, and community-based learning (Faust & Paulson, 1998; Emerson & Taylor, 2007; Tanner, 2013).

There is no shortage of research on the college professor's utilization of particular teaching methods yet the findings on what methods achieve the best results in the classroom are varied (Marmah, 2014; Novelli, & Fernandes, 2007). Researchers have explored variables like age, personality, class size or mix, classroom environment, race, student or professor gender, and discipline with mixed results (Pawlowska, Westerman, Bergman, & Huelsman, 2014; Ziegert, 2000). Faust and Paulson (1998) indicate that professors will choose to employ a variety of teaching methods in order to generate student engagement and that the two are intimately connected. Once professors understand the impact particular teaching methods may have on student engagement, learning and overall performance, they may be more likely to consider and incorporate these particular teaching methods in order to generate the desired effect (Brinthaupt, Clayton, Draude, & Calahan, 2014).

Some studies have found that there is a connection between students' personality type and their approach to learning or absorbing information (Duff, Boyle, Dunleavy, & Ferguson, 2003; Emerson & Taylor, 2007; Herbster, Price, & Johnson, 1996). For example, in the classroom extraverts may prefer interactive activities like discussion and working with others, while introverts may prefer lecture formats and reflection (Lawrence,

2009). These personality differences may contribute to how students learn in the classroom (Chamorro-Premuzic, Furnham, and Lewis, 2007; Leverne, Sorenson, & Hartung, 1985; Ziegert, 2000).

MBTI Personality Type

In the early 40's, Isabel Briggs Myers and Katherine Briggs partnered to develop the Myers-Briggs Type Instrument (MBTI) based on Carl Jung's (1924/2016) work published in his book *Psychological Types* (Myers, McCaulley, Quenk & Hammer, 1998). In its original form, Jung's psychological type theory comprised three dichotomies also known as functions: extraversion/introversion, thinking/feeling, and sensing/intuition. Myers and Briggs added a fourth function, judging and perceiving; this dichotomy deals with a person's attitude or way that s/he approaches the outside world (Myers, 2015). Each of the preference pairs has a particular function or meaning. A brief description of their application in an academic setting is presented in Table 1.

Table 1. MBTI Dichotomies in the Classroom

Personality type	Basic Preference	Personality type
Extraversion (E) Energized by dialogue, discussion, and interaction with others and likes opportunities to think out loud	**Opposite ways to direct and receive energy**	**Introversion (I)** Prefers lectures and are energized by reflection and time alone and likes to process information at own pace quietly
Sensing (S) Uses senses to take in information and enjoys observing and absorbing info; prefers instruction that is not quick paced	**Opposite ways to take in information**	**Intuition (N)** Relies on insight more than observation and likes to read between the lines; tends to process information through patterns
Thinking (T) Prefers topics that are logical with cause/effect and prefer interesting problems to solve; uses logic when making decisions	**Opposite ways to decide and come to conclusions**	**Feeling (F)** Prefers topics they care about and prefers learning from personal relationships; judges situations based on feelings
Judging (J) Prefers planned, structured, and scheduled work and likes milestones and completion targets; prefers to avoid stress and tends to be decisive	**Opposite ways to approach the outside world**	**Perceiving (P)** Prefers free flowing exploration with no structure as well as interesting assignments of their own choosing; prefers to multitask and works best under pressure

(Lawrence, 1997; Lawrence 2009; Myers 2015; Ramzan & Min, 2013)

The MBTI assessment identifies one's natural preferences; therefore, an individual is not necessarily boxed into a particular type, but prefers to operate or be orientated toward a single one of each of the opposing pairs (Myers & Myers, 1995). This preference is combined to create a person's complete four letter personality type. The combinations of the four dimensions/dichotomies results in 16 possible personality types. For instance, a person with a preference for Introversion, Sensing, Thinking, and Judging would be an ISTJ. The MBTI assessment has many different applications in an academic setting. It can be used to aid students in selection of a major or career exploration, with developing curriculum, or increasing an understanding of learning styles in the classroom (Lawrence, 1997; Martin, 2012; McPherson & Mensch, 2007; Myers, 2015).

Personality Type and Teaching Methods

The dynamic interaction of personality type and teaching methods has been explored by numerous researchers (Caspi, Chajut, Saporta, & Beyth-Marom, 2005; Duff, Boyle, Dunleavy, & Ferguson, 2004; Lawrence, 2009; Murphy, Eduljee, Parkman, & Croteau, 2018; Schmeck & Lockhart, 1983). Utilizing the Big Five personality traits by Costa and McCrae (1992), Chamorro-Premuzic, Furnham, and Lewis (2007) found a link between personality and students' preferred teaching methods indicating that "students appear to have strong preferences both for and against certain teaching methods which suit their temperament, ability, and experience" (p. 249).

Allchin, Engler and Dzurec (2006) in a study of 286 nursing students found that "further study regarding psychological type of nursing students and clinical faculty might be undertaken, to determine optimal ways to structure teaching situations so that both students and faculty have positive experiences in the clinical area" (p. 14). Emerson and Taylor (2007) in a study of 255 students (48 who were enrolled in a section that relied heavily on classroom experiments) found that only students who were ISTJ's and ESTJ's appeared to perform better in sections that were traditional lecture-oriented. Further, Ziegert's (2000) study indicated a distinct relationship between personality and performance, positing that to improve student success a variety of classroom pedagogies should be implemented.

Fleischmann, Nakagawa and Kelley (2016) examined two of the four MBTI dichotomies, Extraversion-Introversion and Sensing-Intuition, and compared the preferences of these dichotomies to standard classroom activities and instructional delivery methods used in an undergraduate engineering course. Their results indicated that the teaching methods lacked the diversity necessary to meet the needs of all of the individual MBTI preferences. In contrast, a pilot study of 73 undergraduate college students found no significant correlations between personality type and preferred teaching methods (Murphy, Eduljee, Croteau & Parkman, 2017). Given the mixed research, this study seeks to examine the relationship between personality type as measured by the MBTI and preferred teaching methods utilized in the classroom.

Research Questions

1. What are the students preferred teaching methods in the four MBTI dichotomies?
2. What are some significant differences in the four dichotomies of the MBTI and preferred teaching methods?
3. What is the relationship between preferred teaching methods and personality types for students in the classroom?

Methodology

Sample

A total of 507 students from Saint Joseph's College of Maine, a liberal arts college, were surveyed. There were 176 (34.7%) males and 331 (65.3%) females. The students ranged in age from 17 to 35 (mean age = 19.92, SD =1.62). The mean age for males was 19.78 (SD = 1.28) and for females was 19.99 (SD = 1.77). The sample included 141 (27.8%) freshmen, 114 (22.5%) sophomores, 142 (28.0%) juniors, and 110 (21.7%) seniors.

Measures

Personality Type

The four personality dichotomies were determined using the Myers-Briggs Type Indicator® (Form M) that measures a person's preference on the four dichotomies. The MBTI was selected since it is utilized in education (Tlili, Essalmi, Jemni, Kinshuk & Chen, 2016), and meets and exceeds the standards for psychological instruments in terms of its reliability. "As a rule of thumb, MBTI provides insights for effective teaching and learning, and it can be usefully employed as a guide for understanding learning styles and improving teaching skills" (Capretz, 2003; p. 5). The internal consistency of the Form M for E-I is .91, for S-N is .92, for T-F is .89, and for J-P is .94 (Myers, McCaulley, Quenk, & Hammer, 1998). The instrument is self-administered and consists of 93 forced choice items that have two options for each item.

Student Preferences for Teaching Methods

This section assessed preferred teaching methods used by the professor in the classroom. Students indicated their level of agreement to the items on a 5 point Likert Scale (1 = strongly agree, 5 = strongly disagree) to 27 items. The 27 items were clustered thematically so that there were nine clusters of items. The items and clusters include:

- **Lecture**: 5 items; Lecture (professor talks) with no visuals, Lecture (professor talks) with handwritten notes, Lecture (professor talks) plus visual – PowerPoint, Lecture (professor talks) plus visual – overhead, Lecture (professor talks) with student interaction
- **Films**: 2 items; Watching a short film – 20 minutes or less, Watching a long film – 20 minutes or more
- **Classroom Discussion:** 4 items; Professor leads a classroom discussion on readings, Professor teaches by questioning students, Free flowing whole classroom discussion, Guest speaker (related to course topic)
- **Experiential Activities:** 2 items; All experiential activities – pairs, All experiential activities – groups of three or more)
- **Games/Demonstrations:** 2 items; Games in the classroom, Demonstrations and practice
- **Student Presentations:** 3 items**;** Individual, Pair of students, Groups of three or more
- **Case Studies:** 3 items; Individual participation, Pair of students, Groups of three or more
- **Quizzes:** 3 items; On the readings, Unscheduled quizzes, Weekly quizzes
- **Research:** 3 items; Library research using experiential activities, Information search using technology, Course readings in the classroom.

The items for this section were adapted from research by Chamarro-Premuzic, Furnham, and Lewis (2007); Mathew and Pillai (2013); Novelli and Fernandez (2007); and Rivkin and Gim (2013). The reliability of the instrument as demonstrated by Cronbach's α was .700.

Results

MBTI Personality Distribution of Participants

Descriptive statistics on the number of students in the MBTI dichotomy are presented in Table 2 and Table 3.

Table 2. Frequencies and Percentages of MBTI Personality Types (n = 507)

Type	E-I	S-N	T-F	J-P
Frequency	269/238	369/138	157/350	268/239
Percentage	53.1/46.9	72.8/27.2	31.0/69.0	52.0/47.1

ISFJ (n = 86) was the most common personality type, accounting for 17% of the students. Next, ESFJ (n = 61, 12%), ESFP (n = 54, 10.7%), ENFP (n = 50, 9.9%), and ISTJ (n = 42, 8.3%), accounted for 57.9% of the students. Sensing and Feeling preference (S-F) was the most common followed by Sensing and Judging preference (S-J) in the top five personality types. The remaining eleven personality types accounted for 42.1% (n = 214) of the sample, with two personality types, ENTJ (n = 4, 0.8%) and INTJ (n = 3, 0.6%) only accounting for 1.4% of all students.

Table 3. Frequencies and Percentages in the Four MBTI Dichotomies

MBTI Dichotomy	Frequency	Percent
ISFJ	86	17.0
ESFJ	61	12.0
ESFP	54	10.7
ENFP	50	9.9
ISTJ	42	8.3
ESTJ	38	7.5
ISFP	36	7.1
ESTP	33	6.5
INFP	29	5.7
ENFJ	19	3.7
ISTP	19	3.7
INFJ	15	3.0
ENTP	10	2.0
INTP	8	1.6
ENTJ	4	.8
INTJ	3	.6
Total	507	100.0

RQ1: MBTI Dichotomies and Preferred Teaching Methods

Across all MBTI dichotomies, students indicated the highest level of agreement for lecture as a teaching method (either with professor-student interaction or using some visual like PowerPoint) in the classroom. Students who identified as extraverts, intuitive, or perceiving (E, N, or P) indicated their highest level of agreement for lecture with student interaction as their preferred teaching method. These teaching methods afford students the opportunity to interact with the professor as well as working independently to clarify their thoughts. Students also indicated a preference for teaching methods that involved demonstrations and practice (Table 4).

Table 4. MBTI Dichotomies and Level of Agreement for Top Three Preferred Teaching Methods

Dichotomy		First	Second	Third
Extraversion-Introversion (E-I)	Extraverts (E)	Lecture (professor talks) with student interaction	Demonstrations and practice	Lecture (professor talks) plus visual - PowerPoint
	Introverts (I)	Lecture (professor talks) plus visual - PowerPoint	Demonstrations and Practice	Lecture (professor talks) with student interaction
Sensing-Intuitive (S-N)	Sensing (S)	Lecture (professor talks) plus visual - PowerPoint	Demonstrations and Practice	Lecture (professor talks) plus visual – student interaction
	Intuitive (N)	Lecture (professor talks) with student interaction	Demonstrations and Practice	Lecture (professor talks) with PowerPoint
Thinking-Feeling (T-F)	Thinking (T)	Lecture (professor talks) plus visual - PowerPoint	Demonstrations and Practice	Lecture (professor talks) with student interaction
	Feeling (F)	Lecture (professor talks) plus visual - PowerPoint	Demonstrations and Practice	Lecture (professor talks) with student interaction
Judging-Perceiving (J-P)	Judging (J)	Lecture (professor talks) plus visual - PowerPoint	Demonstrations and Practice	Lecture (professor talks) with student interaction
	Perceiving (P)	Lecture (professor talks) with student interaction	Lecture (professor talks) with student interaction	Demonstrations and Practice

Students indicated that their lowest level of agreement (Table 4) for preferred teaching methods to be unscheduled quizzes, lecture where the professor talks with no visuals, and library research using experiential activities. These teaching methods are disparate and share no obvious common characteristics other than they lack any interaction with other students or the professor in the classroom (Table 5).

Table 5. MBTI Dichotomies and Level of Agreement for Three Least Preferred Teaching Methods

Dichotomy		**First**	**Second**	**Third**
Extraversion-Introversion (E-I)	Extraverts (E)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities
	Introverts (I)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Student presentations – individual
Sensing-Intuitive (S-N)	Sensing (S)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities
	Intuitive (N)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities
Thinking-Feeling (T-F)	Thinking (T)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities
	Feeling (F)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities
Judging-Perceiving (J-P)	Judging (J)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities
	Perceiving (P)	Unscheduled Quizzes	Lecture (professor talks) with no visuals	Library research using experiential activities

RQ2: Significant Differences in MBTI Dichotomies and Preferred Teaching Methods

Table 6 indicates that significant differences were obtained for the teaching methods and the four dichotomies of the MBTI. For Extraversion-Introversion, significant differences were obtained for fourteen items, with extraverts indicating greater preference for the teaching method than introverts. For Sensing-Intuition (S-N), significant differences were obtained for four items, with students who indicated a sensing type indicating a preference for lecture (professor talks) with no visuals, lecture (professor talks) with handwritten notes, and professor teaches by questioning students. Students who identified as intuition tended to prefer free flowing whole classroom discussion as a preferred teaching method.

For Thinking-Feeling (T-F), significant differences were obtained for five items with thinking students indicating a preference for two items: lecture (professor talks) with no visuals, and student presentations – pairs of students. Students who were feeling indicated a preference for case studies – groups of three or more, course readings in the classroom, and quizzes on the readings. For Judging-Perceiving (J-P), a significant difference was obtained for seven items where students with a perceiving type indicated greater preference for those teaching methods over the judging preference.

Table 6. ANOVA summary for MBTI Dichotomies and Preferred Teaching Methods

Preferred Teaching Method			
Extraversion-Introversion (E-I)	**Extravert (n = 269)**	**Introvert (n = 238)**	*F*
Lecture (professor talks) with student interaction	1.74 (.79)	2.17 (1.05)	28.20**
Professor teaches by questioning students	2.52 (1.03)	3.00 (1.14)	25.03**
Watching a short film – 20 minutes or less	2.41 (.97)	2.60 (1.00)	4.73*
Free flowing whole classroom discussion	2.28 (1.1)	2.24 (.86)	21.75**
All experiential activities - groups of three or more	2.34 (.97)	2.87 (1.05)	34.69**
All experiential activities - pairs	2.36 (.95)	2.75 (.98)	20.31**
Games in the classroom	2.14 (.84)	2.44 (.85)	15.28**
Demonstrations and practice	1.83 (.65)	2.00 (.71)	7.48**
Student presentations - individual	2.87 (1.08)	3.27 (1.13)	16.16**
Student presentations - pair of students	2.44 (.97)	2.89 (1.10)	23.58**
Student presentations - groups of three or more	2.49 (1.02)	2.97 (1.11)	25.89**
Case studies - individual participation	2.54 (.85)	2.80 (.87)	12.15**
Case studies - pair of students	2.39 (.89)	2.66 (.86)	11.92**
Case studies - groups of three or more	2.51 (.99)	2.85 (.94)	16.06**
Sensing-Intuition (S-N)	**Sensing (n = 369)**	**Intuition (n = 138)**	*F*
Lecture (professor talks) with no visuals	3.85 (1.03)	4.07 (1.00)	4.66*
Lecture (professor talks) with handwritten notes	2.51 (1.04)	2.53 (.96)	4.87*
Professor teaches by questioning students	2.74 (1.09)	2.75 (1.12)	5.56*
Free flowing whole classroom discussion	2.54 (1.14)	2.48 (1.11)	13.94**
Thinking-Feeling (T-F)	**Thinking (n = 157)**	**Feeling (n = 350)**	*F*
Lecture (professor talks) with no visuals	3.71 (1.08)	4.00 (.99)	8.48**
Student presentations - pair of students	2.50 (1.02)	2.72 (1.06)	4.96*
Case studies – groups of 3 or more	2.80 (1.08)	2.61 (.93)	4.20*
Course readings in the classroom	2.85 (.95)	2.64 (.79)	6.67*
Quizzes on the readings	4.18 (.90)	4.16 (.94)	4.21*
Judging-Perceiving (J-P)	**Judging (n = 268)**	**Perceiving (n = 269)**	*F*
Professor teaches by questioning students	2.84 (1.16)	2.64 (1.04)	4.24*
Watching a short film – 20 minutes or less	2.59 (.99)	2.38 (.98)	4.78*
Watching a long film – 20 minutes or more	3.21 (1.07)	2.83 (1.15)	14.62**
Free flowing classroom discussion	2.70 (1.12)	2.27 (1.08)	18.78**
All experiential activities – groups of three or more	2.74 (1.08)	2.41 (.98)	12.70**
All experiential activities - pairs	2.66 (1.00)	2.41 (.94)	8.30**
Games in the classroom	2.39 (.91)	2.18 (.80)	6.64**

* $p < .05$, ** $p < .01$. Student responses measured using a 5-point Likert scale where 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, and 5 = strongly disagree

RQ3: MBTI Dichotomies and Nine Clusters of the Teaching Methods

Table 7 presents the correlations among the nine clusters of the preferred teaching methods and MBTI dichotomies. Extraversion was significantly and positively correlated with classroom discussion, experiential activities, games/demonstrations, student presentations, and case studies. Intuition (N) was negatively correlated with classroom discussion (r = -.128). Thinking was positively correlated with classroom discussion (r = .101). Perceiving (P) was negatively correlated with films, classroom discussion, and experiential activities.

Table 7. Correlations among MBTI personality types and Preferred Teaching Methods

	Extraversion-Introversion	Sensing-Intuition	Thinking-Feeling	Judging-Perceiving
Lecture	.081	.072	.018	.008
Films	.071	-.075	.048	-.147**
Classroom discussion	.211**	-.128**	-.002	-.135**
Experiential activities	.242**	-.009	-.058	-.152**
Games/demonstrations	.172**	-.067	-.019	-.084
Student Presentations	.238**	-.004	.101*	-.069
Case studies	.198**	-.042	-.035	-.069
Quizzes	.030	.071	-.067	.038
Research	.010	.022	-.018	.040

* $p < .05$, ** $p < .01$

Discussion

Understanding the relationship between personality type and preferred teaching methods in the classroom allows educators to utilize teaching methods that go beyond traditional lecture. By allowing students to self-reflect, accept responsibility, and be engaged in classroom activities, the educator can enrich the learning experience in the classroom (Fussell, Dattel, & Mullins, 2018; Wehrwein, Lujan & DiCarlo, 2007). Bidabadi, Isfahani, Rouhollahi, & Khalili (2016) indicate that "….a good teaching method helps the students to question their preconceptions, and motivates them to learn, by putting them in a situation in which they come to see themselves as the authors of answers and agents of responsibility for change (p. 170).

In the present study, the prominent personality type (17%) was introversion, sensing, feeling, and judging (ISFJ). In the classroom, these students prefer independent work, they need to develop a relationship with the teacher, they prefer hands-on activities and learn best when presented with visual materials like charts and diagrams, they like receiving professor feedback, and they prefer detailed outlines and planning out activities in advance (Ramzan & Min, 2013). The ISFJ students also prefer teaching methods that involve the professor using some kind of visual like PowerPoint as well as games and demonstrations in the classroom that affords them the opportunity to reflect on the material as well as interact with the professor and other students (Fleishmann, Nakagawa, & Kelley, 2016; Lawrence, 1997; Myers, 1995).

Across all four MBTI dichotomies, students indicated the highest preference for teaching methods that were interactive in nature. This included lecture accompanied by student interaction, as well as the professor using a visual aid like PowerPoint. They also indicated a preference for hands-on activities and interactive activities that involved demonstrations and practice in the classroom. Prior research indicates that when demonstrations are used in the classroom, lecturing tends to be minimized, students are active participants and are challenged to use higher-order thinking skills by creating mental links between new and prior learning (Basheer, Hugerat, Kortam, & Hofstein, 2016; Buncick, Betts, & Horgan, 2001; Villerreal, 2010).

Significant differences were obtained between MBTI dichotomies and the items of the preferred teaching methods. Extraverts indicated a preference for teaching methods that involved professor-student interaction, demonstration and practice in the classroom, using games to help with the material, using student presentations, and case studies to name a few in contrast to those preferred by introverts (Westerman & Simmons, 2007). Students who expressed a sensing type preferred teaching methods that were more individual like lectures where no visuals were used, or the professor used handwritten notes, or the professor asked questions in the classroom. These methods allow the sensing student to establish what the facts are so that they may proceed confidently to work hands-on with the material (Lawrence, 1997). Students who expressed a thinking type preferred teaching methods that involved the professor talking with no visuals and working on student presentations with another student. Students who expressed a perceiving type were more flexible and spontaneous with their learning and

preferred teaching methods that involved diverse strategies like questioning students, watching films, experiential activities, and using games in the classroom (Ziegert, 2000).

Correlations among MBTI personality types and the nine clusters of the preferred teaching methods indicated that significant relationships were obtained. Extraversion (E) was significantly correlated with five clusters of the preferred teaching methods. This finding is not surprising since extraverts are energized by dialogue and working with others through student interaction or presentations (Myers & Myers, 1995). Intuition (N) was significantly and negatively correlated with classroom discussion. These students tend to be abstract thinkers and often look at the bigger picture (Tieger, Barron, & Tieger, 2014). Thinking (T) was positively correlated with student presentations. Perceiving (P) was negatively correlated with films, classroom discussion, and experiential activities, these students are more flexible and spontaneous in the classroom (Myers, McCaulley, Quenk & Hammer, 2009).

Conclusion, Limitations and Recommendations for Future Research

This study is not without its limitations. The current study was conducted at a liberal arts college and across different class standings. It is possible that students who are freshmen may not have been exposed to different teaching methods in the classroom. Thus, we recommend that future research examines professor teaching styles as students progress through their college curriculum, so as to increase student motivation and engagement in the classroom. Additionally, this study investigated traditional, on-campus college students and the classroom teaching methods most commonly used in face-to-face, in-person instruction. Research targeting students participating in online learning environments with a specific focus on teaching methods that are utilized exclusively in online educational environments is recommended.

Although the ISFJ (introverted-sensing-feeling-judging) type was the most prominent type in this study, it is most likely that there will be representation of all personality types in any classroom. This inevitable blend of student personality types will require the professor to consider how to select instructional methods that will have the most impact in the classroom. This heightened awareness of these differing needs among the types may broaden a professor's effectiveness in the classroom. Thus we recommend that the professor may need to consider adapting the chosen teaching methods during the semester based on student performance or as a result of solicited, direct feedback from the students. Jessee, O'Neill, and Dosch (2006) recommend that the presentation of educational content should help the student to reflect, understand, and gain an appreciation of the information in a way that is transactional to their course of study.

Lawrence's (2009) study of type theory highlights the need to consider student personality type when planning instruction in the classroom. While it is not practical to expect professors to become experts on psychological type, there are several simple steps that could be taken to improve students' classroom experience, and ultimately achievement of course learning outcomes. Instructors could begin this process by evaluating their method of transmitting information to their students, while allowing students diverse learning opportunities based on their individual personality preference (Jessee, O'Neill, & Dosch, 2006). If the professor's preferred teaching method has been traditional lecture, they could begin to consider the addition of other teaching methods like demonstrations, case studies, student and professor interactions, that could increase the effectiveness of the lecture as well as increasing student motivation and learning in the classroom. Understanding both personality type and preferred teaching methods would inform educators in their selection of such methods. The present study indicates that instructors could begin this process by evaluating their method of transmitting information to their students and incorporate the most effective teaching methods to ensure student achievement and engagement in their classes.

References

Allchin, L. E., Engler, A. J. & Dzurec, L. C. (2006). Comparing psychological type and explanatory between nursing students and clinical faculty: A pilot study. *School of Nursing Scholarly Works*. 40. http://digitalcommons.uconn.edu/son_articles/40

Basheer, A., Hugerat, M., Kortam, N., & Hofstein, A. (2016). The effectiveness of teachers' use of demonstrations for enhancing students' understanding of and attitudes to learning the oxidation-reduction concept. *EURASIA Journal of Mathematics Science and Technology Education*, *13*(3), 555-570.

Becker, W. E., & Watts M. (2001). Teaching methods in U. S. undergraduate economics Courses. *The Journal of Economic Education*, *32*(3), 269-279.

Bidabadi, N. S., Isfahani, A. N., Rouhollahi, A., & Khalili, R. (2016). Effective teaching methods in higher education: Requirements and barriers. *Journal of Advances in Medical Education & Professionalism*, *4*(4), 170-178.

Brinthaupt, T. M., Clayton, M. A., Draude, B. J., & Calahan, P. T. (2014). How should I offer this course? The course delivery decision model (CDDM). *MERLOT Journal of Online Learning and Teaching*, *10*(2), 326-336.

Buncick, M. C., Betts, P. G., & Horgan, D. D. (2001). Using demonstrations as a contextual road map: enhancing course continuity and promoting active engagement in introductory college physics. *International Journal of Science Education*, *23*(12), 1237-1255.

Capretz, L.F. (2003). Teachers are from heaven, students are from hell – true or false? *Industry & Higher Education*, *17*, 417-422.

Caspi, A., Chajut, E., Saporta, K., & Beyth-Marom, R. (2005). The influence of personality on social participation in learning environments. *Learning and Individual Differences*, *16*, 129-144.

Chamorro-Premuzic, T., Furnham, A. & Lewis, M. (2007). Personality and approaches to learning predict preference for different teaching methods. *Learning and Individual Differences, 17*, 241–250.

Costa, P.T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) Professional Manuals*. Odessa, FL: Psychological Assessment Resources.

Duff, A., Boyle E., Dunleavy, K., & Ferguson J. (2004). The relationship between personality, approach to learning and academic performance. *Personality and Individual differences*, *36*, 1907-1920.

Emerson, T., & Taylor A. (2007). Interactions between personality type and the experimental methods. *The Journal of Economic Education, 38*(1), 18-35.

Faust, J., & Paulson, D. R. (1998). Active learning in the classroom. *Journal on Excellence in College Teaching*, *9*(2), 3-24.

Fleischmann, C., Nakagawa, E. & Kelley, T. (2016). Redesigning the student earning approach through personality types and pedagogies, a case study in an undergraduate engineering course. *Universal Journal of Educational Research 4*(2), 426-431.

Fussell, S., Dattell, A. R., & Mullins, K. (2018). Personality types and learning styles of collegiate aviation students. *International Journal of Aviation, Aeronautics, and Aersopace*, 5(3). https://doi.org/10.15394/ijaaa2018.1223.

Herbster, D. L., Price, E., & Johnson, V. R. (1996). Comparing university students and community college students learning styles and Myers-Briggs Type. Annual Meeting of the Association of Teacher Education, St. Louis, MO.

Jessee, S. A., O'Neill, P. N., & Dosch, R. O. (2016). Matching student personality types and learning preferences to teaching methodologies. *Journal of Dental Education*, *70*(6), 644-651.

Jung. C. G. (2016). *Psychological types or the psychology of individuation.* Mansfield Centre, CT: Martino Publishing (Original work published in 1924).

Leverne, B., Sorenson, R & Hartung T. (1985). Personality type factors of faculty and students implications for agricultural college teaching. *North American Colleges and Teachers of Agriculture, 29*(1), 50-54.

Lawrence, G. (2009). *People types & tiger stripes*: *Using psychological type to help students discover their unique potential*. 4th Edition. Center for Applications of Psychological Type, Inc.

Lawrence, G. (1997). *Looking at Type and Learning Styles*. Gainesville, FL: Center for Applications of Psychological Type, Inc.

Malek, N. P., Hall, J. C., & Hodges, C. (2014). A review and analysis of the effectiveness of alternative teaching methods on student learning in economics. *Perspectives on Economic Education Research*, *9*(1), 75-85.

Marmah, A. M. (2014). Student's perception about the lecture as a method of teaching in tertiary intuitions. Views of students from College of Technology Education, Jumasi (COLTEK). *International Journal of Education and Research, 2*(6), 601-612.

Martin, C. (2012). Looking at type: Your career – using psychological type to find your best-fit career. Gainesville, FL: Center for Applications of Psychological Type, Inc.

Mathew, B. A., & Pillai, M. K. (2013). Student's preferences in teaching and learning methods in classroom: A cross-sectional survey. *Global Journal for Research Analysis*, *5*(4), 200-201.

McPherson, B., & Mensch, S. (2007). Students' personality type and choice of major. *Academy of Information and Management Sciences, 10*(2), 1-18.

Murphy, L., Eduljee, N. B., Parkman, S., & Croteau K. (2018). Gender differences in teaching and classroom participation methods: A pilot study. *Journal of Psychosocial Research, 13*(2), 307-319.

Murphy, L., Eduljee N. B., Croteau, K., & Parkman, S. (2017). Extraversion and introversion personality type and preferred teaching and classroom participation: A pilot study. *Journal of Psychosocial Research, 12*(2), 427-440.

Myers, I. B. (2015). *Introduction to Myers-Briggs Type*. 7th Edition, CPP, Inc.

Myers, I. B., McCaulley, M. H., Quenk, N. L., & Hammer, A. L. (2009). *MBTI Manual: A guide to the development and use of the Myers-Briggs Type Indicator* (3rd Ed.). Palo Alto, CA: Consulting Psychologists Press.

Myers, I. B., McCaulley, M., Quenk, N. L., & Hammer, A. (1998). MBTI® Form M, Mountain View, CA: CPP, Inc.

Myers, I. B., & Myers, P. B. (1995). *Gifts differing*. Palo Alto, CA: Consulting Psychologists Press (Original work published in 1980).

Novelli, E. L., & Fernandes, A. A. H. (2007). Students' preferred teaching techniques for biochemistry in biomedicine and medicine courses. *Biochemistry and Molecular Biology Education*, *35*(4), 263-266.

Oleson, A., & Hora, M. T. (2013). Teaching the way they were taught? Revisiting the sources of teaching knowledge and the role of prior experience in shaping faculty teaching practices. *Higher Education*, *68*, 29-45.

Pawlowska, D. K., Westerman, J. W., Bergman, S. M., & Huelsman, T. J. (2014). Student personality, classroom environment, and student outcomes: A person–environment fit analysis. *Learning and Individual Differences*, *36*, 180-193.

Ramzan, F., & Min, L. L. (2013). Matching student personality types with different learning preferences. In: Proceedings of the Sunway College Johor Bahru Inaugural Conference, Johor Bahru.

Rivkin, A., & Gim, S. (2013). Student preferences regarding teaching methods in a drug-induced diseases and clinical toxicology course. *American Journal of Pharmaceutical Education*, *77*(6), 123.

Schmeck, R. R., & Lockhart, D. (1983). Introverts and extraverts require different learning environments. *Educational Leadership*, *40*(5), 209-216.

Tanner, K. D. (2013). Structure matters: Twenty-one teaching strategies to promote student engagement and cultivate classroom equity. *CBE Life Science Education*, *12*(3), 322-331.

Tieger, P. D., & Barron, B., & Tieger, K. (2014). Do what you are: discover the perfect career for you through the secrets of personality type. Fifth Edition. New York: Little, Brown and Company.

Tlili, A., Essalmi, F., Jemni, M., Kinshuk., & Chen, N. S. (2016). Role of personality in computer based learning. *Computers in Human Behavior*, *64*, 805-813.

Villerreal, A. (2010). Suggestions for conducting effective teaching demonstrations in classrooms with diverse learners. *IDRA Newsletter*, *XXXVII*(1), 1-2.

Wehrwein, E., Lujan, H. & DiCarlo, S. (2007). Gender differences in learning style preferences among undergraduate physiology students. *Advances in Physiology Education*, *31*, 163-157.

Westerman, J. W., & Simmons, B. L. (2007). The effects of work environment on the personality–performance relationship: An exploratory study. Journal *of Managerial Issues*, *19*, 288–305.

Ziegert, A.L. (2000). The role of personality temperament and student learning in principles of economics. *The Journal of Economic Education*, *31*(4), 307-322.

Author Information

Laurie Murphy. M.S., SHRM-SCP, CCP
Saint Joseph's College of Maine
278 Whites Bridge Road
Standish, ME 04084
USA
Contact e-mail: *lmurphy@sjcme.edu*

Nina B. Eduljee, Ph.D
Saint Joseph's College of Maine
278 Whites Bridge Road
Standish, ME 04084
USA

Karen Croteau, Ed.D., CHES, FACSM
Saint Joseph's College of Maine
278 Whites Bridge Road
Standish, ME 04084
USA

Suzanne Parkman, Ph.D., MSN, RN
Saint Joseph's College of Maine
278 Whites Bridge Road
Standish, ME 04084
USA