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Personality characteristics of dental students in Kuwait University associated with preferred teaching methods

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PERSONALITY CHARACTERISTICS OF DENTAL STUDENTS IN KUWAIT
UNIVERSITY ASSOCIATED WITH PREFERRED TEACHING METHODS

By

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DEDICATION

This thesis is dedicated to my family for their continuous motivation and support.

PERSONALITY CHARACTERISTICS OF DENTAL STUDENTS IN KUWAIT
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Abstract

By Dalal Hasan

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This study examined personality characteristics of dental students at Faculty of Dentistry

at Kuwait University and investigated the relationships between personality characteristics of

these students and their preferred teaching methods. In order to assess personality

characteristics, The Myers-Briggs Type Inventory (MBTI) was used. For teaching method

categorization Grasha's (2002) classification was used. This research builds knowledge about

personality traits as measured by the Myers-Briggs Type Inventory® of dental students in

Kuwait. Further, it adds knowledge about teaching methods preferred by dental students. Two

surveys, the Myers- Briggs Type Indicator® Form M and a brief learning preference for teaching

methodology survey, served as data collection instruments. Twenty-seven out of 43 dental

students were interested in participation. Twenty-three (53.4%) students completed both

surveys. After the data were analyzed, no dominant personality types among the dental students

surveyed was uncovered. There were, however, four types slightly more represented than others.

This study did find some correlations between certain subgroups and preferences for teaching

methods. The study also found that students perceived Hybrid and Demonstrator methods as

both the most preferred and most beneficial. Overall, the findings support that there is

association between personality and preferences of teaching method and there is a preference of

a teaching method over the other in dental education in general.

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CHAPTER 1: INTRODUCTION

Dentistry is a rapidly growing field with numerous subbranches. Dental students need to cover tremendous amounts of information as they learn to assess, diagnose, develop treatment plans, manage patients, deliver treatment, and evaluate outcomes. This, of course means that dental education today is complex and requires that faculty cultivate various ways of thinking, teaching, and problem-solving to prepare the dental students to their future career. Dental education typically involves two parts: didactic instruction and clinical practice. Both parts intertwine and require a range of teaching methods to deliver the information.

Murphy et al. (2004) conducted an investigation into learning preferences of dental students and concluded that, in general, dental students tend to prefer visual learning and learning by reading and writing, preferences that work well for lecture presentations with picture, diagrams, handout, or guided notes. These researchers also noted that, although most students favor visual learning, there are a significant number of students who prefer to learn by doing or listening. Like visual learners, those who prefer audio learning may appreciate lectures and enjoy in-class discussion and case studies to understand the material better.

The authors suggest that students may need to expand or shift approaches to learning and that some may even develop new preferences as they transition from didactic, lecture intensive instruction to learning by doing. They also assert that faculty would increase the likelihood of meaningful learning if they attend to students' differences and, at the very least, encourage students to be aware of how they learn.

> Faculty should . . . attempt to understand why students want to learn in different ways. The simple gesture of an instructor asking "How would you like me to teach you?" may lead to a meaningful discussion of new ways to create a deeper level of learning. (Murphy et al., 2004. p. 865)

Jessee et al. (2006) suggest that students' receptivity to a particular method of teaching and, by extension, the extent to which they master material being taught are related to particular personality characteristics. Further, these authors assert that faculty would do well to attend to ways certain student characteristics influence learning.

> To maximize the clinical learning experience, faculty should present information and guidance in a manner that allows all students to use or express their individual preferences to understand, appreciate, and apply new information or skills. For these desired outcomes to occur, the transfer of knowledge should be compatible with a student's learning preference. (p. 650)

The research reported here responds to the work of both Murphy et al. (2004) and Jessee et al. (2006). It examines personality characteristics as measured by the Myers Briggs Type Inventory of two cohorts of dental students in the Faculty of Dentistry of Kuwait University and examines the relationships between these types and student learning preferences.

Dental Education in Kuwait

Dental education in Kuwait is rather new. An Amiri decree in 1996 was issued to establish the Faculty of Dentistry in Kuwait University, and the first 26 dental students were admitted to the dental school in 1998 (Behbehani, 2003). The first class graduated in 2005. The mission of the Faculty of Dentistry is "to promote oral health in Kuwait through education, research and cooperation with other professional health care institutions as well as the community at large" (p. 51). The dental curriculum is presently a 7-year program with the last 3 years or 6 semesters spent in College of Dentistry where students get their clinical dental courses and training. Before that, the students acquire their preprofessional courses in Health Science Center and their preclinical courses in Faculty of Medicine. After the first four years where they share the same classes with their medical college peers, they earn Bachelor of Basic Medical Science degrees.

The dental curriculum is based on multiple principles. These include integration of clinical and didactic instruction, a community-based learning approach, an emphasis on comprehensive dental care, a competency-based curriculum, a focus on preventive dentistry and oral health promotion, embrace of an evidence based approach, use of problem-solving methodologies, ethics and professionalism, and lifelong learning goals (Behbehani, 2003).

Multiple Teaching Methods in Dental Education

Multiple teaching styles/methods are available to educate students in Kuwait University and in other countries. The learning environment of dental students differs from that of many other college students in that it includes clinics, labs, and lecture rooms. These settings, especially the clinic, are challenging for both teacher and students. Instructor and learner interactions are different from those in the lecture hall and require a range of teaching styles (Gerzina et al., 2005). Teaching style refers to the teaching preferences of a teacher. A teaching style is not concerned with what one teaches but, primarily, with how one teaches it. Irby (1995) refers to teaching style as the manner, method, or means by which teachers try to deliver information and influence the understanding and behavior of their learners. It has been argued that teaching style is a major contributor to teaching effectiveness or, in other words, to student learning (Alias et al., 2008).

Grasha (2002) uses two large categories, teacher-centered or student-centered, to classify teaching styles. Within these categories, he identifies four styles. These are formal authority, demonstrator, facilitator, and delegator. Alias et al. (2008) explained these styles as follows:

> The formal authority style is a teacher-centered style that discourages student-student and student teacher collaborations. The demonstrator style is also a teacher-centered style with a difference; it encourages students' participations in the teaching and learning process. The facilitator style on the other hand is a student-centered style that facilitates and encourages students to be responsible for their own learning achievements through teacher-designed activities. The delegator teacher is also student- centered in their

approaches giving much more control and responsibility for learning to students. Delegators often delegate works to students and such as expecting them to design and implement a complex learning project and will only provide feedback if consulted. (p. 2)

The previous highlighted styles can be used as a solo method or combined as hybrid. Other styles and classifications are available. However, for the purpose of this study Grasha's teaching styles classification were used.

Personality Types and Preferences

Personality is defined, in a simple way, as the characteristic sets of behaviors, thoughts, and emotions that evolve from biological and environmental factors (Corr & Matthews, 2009). Multiple theories have examined the phenomenon of personality from many perspectives including psychological, social, cognitive, neuroscientific, and more. Major early theories of personality psychology, developed by Freud, Jung, Adler, Kelly, Rogers, Maslow, and others were essentially theories of human nature. In contrast, modern personality psychology focuses almost entirely on individual differences (Buss & Penke, 2015).

For Freud, all humans had the same basic instincts, such as sexual and aggressive instincts, and all went through a common progression of psychosexual stages. For Maslow, all humans had the same basic order of needs, beginning with physiological needs, like hunger and thirst. Only after these foundational needs were met, would persons shift attention to other needs including the need for, safety, feeling of belonging, and other social needs (Buss & Penke, 2015).

Another widely used theory was developed by Swiss Psychiatrist Carl Jung. Jung's typology theory which was based on clinical observation, introspection, and anecdotes suggested a classification of four cognitive functions (thinking, feeling, sensation, and intuition). Each of these has one of two polar orientations (extraversion or introversion), giving a total of eight dominant functions (Blutner & Hochnadel, 2010).

Just as there are many theories of personality, there also exist many tests to determine one's personality. These include among others: Big Five Inventory, Minnesota Multiphasic Personality Inventory, Rorschach Inkblot test, Neurotic Personality Questionnaire, Eysenck's Personality Questionnaire, and The Myers–Briggs Type Indicator (MBTI) (Boyle et al., 2015). Another instrument, MBTI involves a self-reported questionnaire that is based on personality theory proposed by Jung (Blutner & Hochnadel, 2010). It classifies a person's personality along "four dichotomous categories" (p. 247).

John Carlson (1998) provides a nice discussion of the MBTI's categories or dimensions:

[The first] dimension refers to an individual preference for obtaining information directly from others (extraversion) or from oneself, such as through reading or reflection (introversion). . . .The SN scale relates to a person's preference either for empirical, sense-based data (sensation) or for self-generated information, hunches, or the "sixth-sense" (intuition). The TF scales attempt to measure the difference between the respective tendencies of some people to prefer logical, synthetic, or analytical approaches to information (thinking) and the preferences of other people for more personal, subjective, and evaluative assessments of information (feeling). (p. 484)

Blutner and Hochnadel (2010) use slightly different language in their descriptions of the components the MBTI seeks to classify:

In the MBTI, the first component is (Extraverted/Introverted) which indicates the preferred attitude. The second component implies the preferred irrational function: whether one tends to take in new information as it is (Sensing) or connect it with ideas of what could be (Intuition). The third component indicates whether one value emotions over logic and reason (Feeling) or whether the contrary (Thinking) which is the preferred rational function. Last but not least, the fourth component specifies whether an individual prefers planned order and quick decisions (Judging) or spontaneity and contemplation (Perceiving). (p. 247)

MBTI is a popular instrument for characterizing personality traits in both the classroom and the workplace. Several studies of dental students have been published on Myers-Briggs personality types (Jessee et al., 2006; Rodriguez et al., 2017; von Bergmann et al., 2014; Wu et al., 2007).

The Purpose of This Research

This research builds knowledge about personality traits measured by the Myers-Briggs Type Inventory® of dental students in Kuwait. In addition, it adds knowledge about teaching methods preferred by dental students and analyzes/investigates if there is correlation between personality traits and preferred teaching methods. The purpose of this study was to identify personality types of undergraduate dental students in Kuwait University as measured by the Myers-Briggs Type Inventory® and to see if there were associations between personality types/characteristics and preferred teaching methods. The study has the potential to enhance educational experiences and the delivery of information for current and future students.

CHAPTER 2: LITERATURE REVIEW

This study examined personality characteristics of dental students at Faculty of Dentistry at Kuwait University and investigated the relationships between personality characteristics of these students and their preferred teaching methods. In order to assess personality characteristics, The Myers-Briggs Type Inventory (MBTI) was used. For teaching method categorization Grasha's (2002) classification was used.

The literature review supporting this study is organized as follows: preferred teaching methods with dental students; teaching methods classifications; personality and its impact on teaching/learning; personality of dental students according to MBTI; personality as linked with preferred teaching methods; MBTI as an instrument; and explanations of MBTI types.

Dental Students' Preferred Teaching Methods

The environment of dental education is unusual in that it is not confined to a classroom or a lab, but it also includes student-faculty and student-patient interactions in the dental clinics. Noting this reality, Murphy et al. (2004) report that dental students prefer one teaching method over others. They elaborate by pointing out that dental students prefer visual learning more than others in their sample population and, conversely, that these students prefer kinesthetic learning (learning by carrying out physical activities) less than the sample population. In addition, some dental students change their learning preferences as the learning environment changes from lecture hall to preclinical laboratory to patient clinic. Other dental students switch preferences as the dental curriculum shifts from primary lecture to clinical training. Murphy and colleagues suggest that faculty should attempt to understand why students want to learn in different ways.

A more recent study by Shenoy and Shenoy (2013) contradicts Murphy et al. (2004) and reports that dental students in Manipal College of Dental Sciences in India prefer a multimodal learning and a more of kinesthetic method of learning. Out of 100 students only 49 student choose a single mode of learning, and, out of unimodal learners 23 preferred the kinesthetic modes of learning. The authors conclude that it is the responsibility of both faculty and students to be aware of the students' learning style preferences to improve learning experience. They further assert that it is responsibility of faculty to present the information in multiple ways to meet students' needs.

Teaching Methods Classifications

Teaching style is about how the information is conveyed rather than the information itself. Irby (1995) refers to teaching style as the manner, method, or means by which teachers try to deliver information and influence the understanding and behavior of their learners. That being said, Alias et al. (2008) argue that some teaching methods are more effective than others. In the same study, they conclude that teaching styles in higher education institutions differ depending on disciplines. The framework for considering teaching styles that is used in this study is Grasha's teaching style model (2002). Grasha (2002) defines teaching style as "the enduring preferences that faculty display in the attitudes and behaviors they exhibit in their teaching and learning interactions with students" (p. 140). He organizes his classification, first, as to whether each is student-centered or teacher-centered. According to him, there are four categories of teachers: formal authority, demonstrator, facilitator or delegator. Each is defined below.

Formal Authority

Formal authority is one-way teaching where the teacher presents the information and the student takes notes. An example of that is a lecture where there is no student teacher collaboration.

Demonstrator

The demonstrator teacher combines lectures with presentations, demonstrations, and class activities where students apply what they have learned. An example of that would be a lecture that precedes a lab to explains steps of a procedure.

Facilitator

The facilitator asks a question, and students, through activity, develop problem-solving skills. This type of teaching is an activity-based style similar to problem-based learning. It is a student-centered style that uses a teacher-designed activity to encourage students to be responsible of learning achievement.

Delegator

The delegator teacher has an observer role as students collaborate to reach conclusion. The teacher will give feedback only if asked to do so. An example is a group or case presentation. This is a student-centered style.

Hybrid

Grasha adds one more style to the previous styles. A hybrid style is two or more of the previous styles combined.

Personality and Its Impact on Teaching/Learning

Teachers and students invariably interact with different styles as students and teachers come from diverse backgrounds and cultures and possess different approaches to both teaching and learning. Both learning styles and teaching styles are associated with personality

(Brownfield, 1993; Kothari & Pingle, 2015). Even as students prefer to learn in a certain way, teachers favor teaching in a way that they see fit or simply in a way that feels comfortable.

Personality and Teaching Style

One early study states simply that "teachers teach the way they learned" (Dunn & Dunn, 1979, p. 241). Dunn and Dunn elaborate that teachers do so because they believe that the way they learned is the correct or easier way, and, consequently, they direct their students to learn in the same manner that worked with them. Taking a different view, a recent study that investigated personality traits and teaching styles in management teachers found that the different teaching styles are associated with personalities and that different instructional approaches distinguish individuals with the different combinations of personality traits (Kothari & Pingle, 2015).

Personality and Learning Style

According to Brownfield (1993), an instrument such as MBTI is useful for educational purposes in that it, not only identifies the personality types of the students, but also guides them to identify their particular learning style. However, there are many other factors that impact learning style such as parental influence, learning environment, maturity level, self-motivation, and attitude. This, of course, means that it difficult to correlate learning style and personality type. Still, personality types can predict what kinds of environments, instructional tools, and behaviors hinder or encourage learning for a particular student.

Personality and Teaching Methods

Matching students to their preferred teaching methods can assist student learning. Jessee et al. (2006) recommend that faculty offer multiple learning opportunities to students to promote motivation and allow for an expression of preference. In addition, they advocate educating

students about their individual personality types in order to help them manage their own learning and to understand their own behavior, the behavior of others, and the best way to interact with others including other students, faculty, and patients. "An appreciation for and application of [personality] types by both faculty and students would not only contribute to the effectiveness of any clinical curriculum but should also produce a more competent, effective, and content practitioner" (p. 651).

Chamorro-Premuzic et al. (2007) study explores the degree to which personality and learning approaches can explain preferences for specific teaching modalities. In order to do this, they used the big five traits which are openness, conscientiousness, extraversion, agreeableness, and neuroticism for their personality framework and categorized teaching methodology from small to large and interactive to theoretical/taught courses. These scholars report a consistent pattern of associations between learning approaches and preferences for different teaching modalities.

MBTI as Instrument

Myers-Briggs type indicator (MBTI) was developed by Katharine Cook Briggs and her daughter, Isabel Briggs Myers, based on Carl G. Jung's theory of psychological type (Blutner & Hochnadel, 2010).

Jung's Theory

Jung believed that all people were born with an innate tendency to a type and that people will tend to express their type in their daily interactions. Jung argued that there are no pure types, but that there are sets of psychological opposites and that people have different preferences for different personalities. Jung also claimed that all people have a set of four psychological functions which are called Thinking, Feeling, Sensing and Intuition (represented

by the letters TFS and N for intuition) which operate within one of two different attitudes: Introversion and Extraversion (represented as I and E). Naturally, people use all four psychological functions. However, they tend to have preferences that they predominantly use. The combination of types and the dominance of certain attitudes and functions provide the foundation from which different types of personality emerge (Blutner & Hochnadel, 2010).

History

The mother-daughter team of Katherine C. Briggs and Isabel Briggs Myers developed the Myers Briggs personality test in 1943 after the tragedies of World War II. Both women desire to help people understand each other to prevent future conflict and had an interest to understand people's personality and why they behave the way they do. They did not have any formal education when they started creating the instrument, however, with their hard work, trial and error, and perseverance MBTI was created (Myers & Myers, 2010).

How Does It Work

MBTI classifies a person's personality along four dichotomous categories. The first element indicates the preferred attitude (Extraverted/Introverted – coded as E or I). The second element indicates what scholars call the preferred irrational function – does a person take in new information as it is (Sensing - S) or connect multiple ideas/situations to reach a conclusion of what could it be (Intuition - N). The third element indicates the preferred rational function – does a person value emotions over logic and reason (Feeling - F) or vice versa (Thinking -T). The fourth element indicates which, the rational or irrational function, is more important, i.e. preferring planned order and quick decisions (Judging -J) or spontaneity and observation (Perceiving- P) (Blutner & Hochnadel, 2010).

After a person take self-reported MBTIs questionnaire, a four letter type will be assigned to him/her that reflects the respondent's preference. These four letters include one letter of each element discussed before, ending up with 16 different types of personality.

MBTI Uses

The MBTI is a commonly used personality test in workplaces, schools, churches, community groups, management workshops, and counseling centers. Many people see the MBTI as tool that helps them understand their own behavior and the behavior of others (Pittenger, 1993).

Reliability and Validity

The popularity of MBTI does not, in and of itself, mean that it is a reliable or valid instrument. Indeed, through the years, it has been argued whether it reliable or valid or simply not. Pittenger (1993) who argues against the test asserts that the MBTI attempts to force the complexities of human personality into an artificial and limiting classification scheme which is not possible because the 16 suggested types reduce attention to the unique qualities and potential of each individual. On the other hand, more recent studies, as reported in the MBTI manual, demonstrate that the assessment has good internal consistency and test-retest reliability. In addition, validity has been established in several ways. For example researchers have correlated the results of the MBTI Form M assessment with the results of with six other assessments. The correlations show expected relationships with these other instruments (Schaubhut et al., 2009).

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MBTI Type Explanation

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After analyzing the questionnaire, a type is assigned for each individual. The indicator yields four letter preferences, one letter for each of the two sides. These letter indicates: Extravert, Introvert, Sensing, iNtuitive, Thinking, Feeling, Judgment, and Perception

(Capitalized letters signifies what the letter means). There are a total of sixteen types. Each is a combination of the four preferences. For example ISTJ, which is the most common type in the Jessee et al. (2006) and Al-Dlaigan et al. (2017) studies, is an individual who shows a preference to focus his/her energy inward on ideas and concepts (I); prefers to gather information through facts through the use of their five senses (S); makes decisions logically and disconnects them from his/her emotions (T); and when dealing with others, s/he prefers planned and quick decisions (J). Jesse et al. further elaborated on ISTJ type:

> Individuals who are ISTJ types have an abiding sense of responsibility for what they feel must be done that is supported by their desire for and command of facts as well as their organizational abilities. They like structure, routine, and closure and do not work well in situations where rules constantly change. They see themselves as quiet, serious, and realistic, making decisions analytically, logically, and impersonally based on experience. ISTJs are usually more focused on their assigned tasks than to the opinion of others, presuming that they have similar beliefs and values. Their Judging (J) attitude results in their need to know what is expected of them and represents their preference not to spend time discovering it themselves. Sensing (S) types want a clear statement of what the instruction is about, followed by a visual or auditory example or demonstration providing first-hand concrete examples. They dislike being rushed and need to see the usefulness of assignments or tasks up front. ISTJ individuals prefer instruction that is well structured and logical, moving from concrete to abstract. (pp. 648-649)

Each type gives an idea about how an individual acquires information and how does s/he process it.

Personality of Dental Students According to MBTI

Several personality studies of dental students have been conducted using a variety of personality tests, the most common being the MBTI (Jessee et al., 2006; Rodriguez et al., 2017). According to Rodriguez et al., the most common personality preferences of dental students were Sensing (87%), Judging (81.5%), and Thinking (52.5%) and the most common personality types, ESTJ (20.7%), ISTJ (17.4 %), ESFJ (16.3%) and ISFJ (14.1%). Jessee et al. (2006) found the same four personality types among dental students, but the types differed slightly in their order

and percentage. On the other hand, the two most underrepresented personality preferences in Rodriguez et al. study were Intuiting (11%) and Perceiving (11%) (2017).

Another study by Wu (2007) that investigated personality types of Chinese dental school applicants found that cultural background and motive can play a role in dental applicant personality. In addition, the personalities of Chinese applicants have some similarities with and some differences from English applicants. Chinese dental applicants tend to be more introverted than their English colleagues. Moreover, the most common types of Chinese dental school applicants were ISTJ, ESTJ, and ISFP.

Dalanon and Matsuka (2018) examined personality of Filipino dental students and found that the majority of the respondents were INFP (17.19%), ENFP (14.45%), and ESFP (12.11%). Additionally, Filipino dental students were mostly perceiving, thinking, intuitive. They also tended to be extroverts.

Another study was done in a neighboring country to Kuwait in Riyadh, Saudi Arabia assessing dentists from different specializations concluded that the most common personality type is ISTJ. Indeed, these dentists scored higher for introversion with an average of 65% than extroversion (Al-Dlaigan et al., 2017).

This study used MBTI to assess personality types of dental students in Kuwait University. It used Grasha's teaching style model (2002) to determine preferred teaching methods of dental . It then analyzed/investigated if there was a correlation between personality traits and preferred teaching methods. This builds knowledge about personality traits of dental students in Kuwait, and it gives understanding about teaching methods preferred by dental students. This, in turn, has the potential to enhance educational experiences and the delivery of information.

CHAPTER 3: METHODOLOGY

Purpose

The purpose of this study was to identify personality types of undergraduate dental

students in Kuwait University as measured by the Myers-Briggs Type Inventory® and to see if

there were associations between personality types/characteristics and preferred teaching

methods. The results of this study have the potential to enhance educational experiences and the

delivery of information for upcoming students. This research builds knowledge about

personality traits as measured by the Myers-Briggs Type Inventory® of dental students in

Kuwait. Further, it adds knowledge about teaching methods preferred by dental students.

Institutional Approval

In November 2019, the research was approved by both Health Science Centre Ethical

Committee Kuwait University and University of The Pacific – Institutional Review Board. Only

the primary investigator and faculty advisors had access to collected data. Both online websites

profiles were secured and protected with passwords. During and after the study, participants'

names were not associated in any publication or presentation with the information collected

about them or with the research findings of the study.

Instrumentation

Two surveys, the Myers- Briggs Type Indicator® Form M and a brief learning preference

for teaching methodology survey, served as data collection instruments. The informed consent

document was a part of the teaching methodology survey. In order to obtain reliable MBTI

results, individuals taking this instrument were assured that their results would be kept

confidential. Participants did not have to pay to access the MBTI survey since the researcher had

purchased access to the MBTI survey. The researcher received permission to purchase and administer the instrument from Myers- Briggs Company under its educational eligibility requirements.

 "The Myers-Briggs Type Indicator, Form M, is a ninety-three-item, forced-choice instrument containing both word-pair and phrase questions. It is the most widely used personality instrument in the world whose results reflect innate psychological or mental dispositions" (Jessee et al., 2006, p. 647). The teaching methodology preference survey was designed by the researcher in consultation with advisers and was based on the Grasha's (2002) framework.

Data Collection

In December 2019, dental students in 6th and 7th year in Kuwait University – Faculty of Dentistry were invited to participate in the study through an invitation flyer sent through WhatsApp messenger. The rationale for choosing to survey students in these two cohorts relates to where the students are in their program. The 5th, 6th and 7th years are clinical years in Kuwait University – Faculty of Dentistry. The 6th and 7th year dental students were chosen because students have made the transition from didactic to clinical teaching for at least a year, experienced different teaching methodologies, and had the time to developed a preference or preferences.

The invitation flyer was sent by the Kuwait Dental Student Society (KDSS). The flyer was sent to 21 7th year students and 22 6th year students (40 female and 3 male). The majority of dental students in Kuwait university through the years are females. Dental students who were interested in participating contacted the researcher through email or WhatsApp messenger and

indicated their willingness to participate in the study. Then, an invitation email was sent to all who volunteered to participate. The invitation email contained a link to two online surveys.

Participants were told that they could expect to spend 35 minutes answering questions of Myers- Briggs Type Indicator® survey and teaching methodology preferences survey. Each person who completed the survey and indicated in the survey that s/he was interested to get his/her personality report received MBTI® Interpretive Report college edition.

Twenty-seven out of 43 dental students were interested in participation. Twenty-three (53.4%) students completed both surveys. One student completed the teaching methodology survey only. Her information was not used. All 23 dental students participant were females.

Data Analysis

Data were arrayed on an Excel spread sheet and analyzed using SPSS. Descriptive and Correlation statistics were used. For Personality type, each of the four dichotomous categories was analyzed separately and a letter code was given for example E or I, S or N, etc. On the other hand, for teaching methodology preference or benefit, Likert-Scale item number codes were given; 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree, 1 for strongly disagree.

CHAPTER 4: RESULTS

As noted earlier, this research builds knowledge about personality traits measured by the Myers-Briggs Type Inventory® of dental students in Kuwait. In addition, it adds knowledge about teaching methods preferred by dental students and analyzes/investigates if there are correlations between personality traits and preferred teaching methods. In order to do this, two surveys, the Myers- Briggs Type Indicator® Form M and a brief learning preference for teaching methodology survey were distributed. Then, data were arranged on an Excel spread sheet and analyzed using SPSS. Descriptive and Correlation statistics were used.

Twenty-seven out of 43 dental students were interested in participation. Twenty-three (53.4%) students completed both surveys. All 23 dental students participant were females.

Personality Profile and Preferences

The distribution of the personality types according to MBTI for participating dental students is shown in Table 1. The limited number of participants (N=23) made it impossible to claim that there were "most" or "least" common types. However, the personality types which had most dental students (3 dental students or 8.7%) were ISFJ, INFJ, INTJ, and ENFP. Moreover, none of dental students identified as ISFP, ESTP, ENTP, and ENTJ. For all students, there were more students in Introversion and Judging subgroups (65%) than Extraversion and Perceiving (35%). The number of students in Sensing and Intuition subgroups were almost identical. Feeling (61%) had more students than thinking (39%)

Table 1

Myers-Briggs Type Indicator® Dental Student Type and Preferences Table

Teaching Method Preference

In order to determine students' preferred teaching methods, I conducted a one-way repeated measures ANOVA with teaching methods as the factor, $F(1,22) = 13.506$, $p = .001$, using the lower-bound adjustment to account for lack of sphericity (a statistical assumption).

The results indicate variability in terms of the average ratings of preferences for teaching methods. The highest rated teaching model (Hybrid, mean=4.65) was significantly higher than all models except Demonstrator. Demonstrator (mean=4.52) was significantly higher than Facilitator, Delegator, and Authority. Facilitator (mean=3.83) was significantly higher than Delegator. No other pairs were found to differ. See Table 2 below.

Table 2
Pairwise Comparisons of Mean Preference Ratings Following Up a Significant One-way Repeated Measures ANOVA (n=23).

	Mean	SD	Demonstrator	Facilitator	Delegator	Authority
Hybrid	4.65	0.647	ns	.006	.000	.000
Demonstrator	4.52	0.790		.008	.000	.000
Facilitator	3.83	1.337			.019	Ns
Delegator	3.04	1.147				Ns
Authority	2.91	1.125				

Note. Non-significant (ns) differences are based on p > .05.

Teaching Method Benefit

In order to determine students' benefits from various teaching methods, I conducted one-way repeated measures ANOVA with teaching methods as the factor, $F(1,22) = 9.851$, $p = .005$, using the lower-bound adjustment to account for lack of sphericity (a statistical assumption). The results show that the average ratings vary across types of teaching methods in terms of benefits. The highest rated teaching model (Hybrid, mean=4.65) was significantly higher than all models except Demonstrator. Demonstrator (mean=4.52) was significantly higher than Facilitator, Authority, and Delegator. Facilitator (mean=3.78) was significantly higher than Delegator. No other pairs were found to differ. See Table 3 below.

Table 3
Pairwise Comparisons of Mean Benefit Ratings Following Up a Significant One-way Repeated Measures ANOVA (n=23).

	Mean	SD	Demonstrator	Facilitator	Authority	Delegator
Hybrid	4.65	0.647	Ns	.001	.002	.000
Demonstrator	4.52	0.790		.004	.009	.000
Facilitator	3.78	1.204			Ns	.018
Authority	3.65	1.071				ns
Delegator	3.13	1.254				

Note. Non-significant (ns) differences are based on p > .05.

Differences in Preferences or Benefits Associated with Personality Characteristics

In order to understand if and how students' personality characteristics were associated with preferences for teaching methods and/or with benefits associated with those methods, I conducted a series of two-way ANOVAs where each had a between-subjects factor (personality dimension) and a within-subjects factor (type of teaching model). This was repeated 4 times to account for each dimension of the Myers-Briggs Type Indicator (Extrovert vs Introvert; Sensing vs Intuition; Feeling vs Thinking; and Judging vs Perceiving). The profiles (across the 5 teaching methods) for the preference/benefit ratings were not found to significantly differ between any of the personality contrasts. Given, however, that this is an exploratory study with a very small sample with insufficient statistical power, it was more appropriate to focus on the descriptive statistics and conduct exploratory analyses, relaxing the Type I Error rate (alpha level) so as to potentially pick up differences that might be explored further in future studies conducted with larger samples. In the following section, I discuss the results of independent t-tests test (another correlational analysis) that were carried out to help overcome the very small sample.

Difference in Preferences

When a series of independent-samples t-tests were performed to check differences in preferences, a difference was found between Sensing vs Intuition subgroups in terms of preference ratings for the Delegator teaching method, $t(21)= -2.664$, $p= .015$, with the Intuition subgroup rating it higher. In addition, two other marginally significant differences were detected. The Sensing vs Intuition subgroups also differed in their preference ratings for the Hybrid teaching method ($p=.053$). Again, the Intuition subgroup rated the Hybrid method higher. The Judging vs Perceiving subgroups differed in terms of preference ratings for the

Delegator teaching method (p= .098) with the Judging subgroup rating the Delegator method

higher on average. See Table 4 below.

Table 4
Differences Found Between Personality Types on Teaching Type Preferences.

Pair	Personality Subgroup	Sample Size	Mean	SD	Teaching Type	p-value
1	Sensing (S)	11	2.45	0.820	Delegator	.015
	Intuition (N)	12	3.58	1.165		
2	Sensing (S)	11	4.36	0.809	Hybrid	.053
	Intuition (N)	12	4.92	0.289		
3	Judging (J)	15	3.33	1.234	Delegator	.098
	Perceiving (P)	8	2.50	0.756		

Difference in Benefits

Another series of independent-samples t-tests were performed to check for differences in

benefits, a marginally significant difference was found between Sensing vs Intuition subgroups

in terms of benefits ratings for the Delegator teaching method, $t(21)= -1.915$, p= .069, with the

Intuition subgroup rating it higher. A second marginally significant difference was also detected.

The Judging vs Perceiving subgroups differed in terms of benefits ratings for the Demonstrator

teaching method, $t(21)= 1.853$, p= .078) with the Judging subgroup rating it higher, on average.

See Table 5 below.

Table 5
Differences Found Between Personality Types on Teaching Methods Benefits.

Pair	Personality Subgroup	Sample Size	Mean	SD	Teaching Type	p-value
1	Sensing (S)	11	2.64	1.286	Delegator	.069
	Intuition (N)	12	3.58	1.084		
2	Judging (J)	15	4.73	0.594	Demonstrator	.078
	Perceiving (P)	8	4.13	0.991		

Interpreting the Results

The personality types that had the most dental students, 3 dental students (8.7%) in each type, were ISFJ, INFJ, INTJ, and ENFP. These personality types differ from the three most common personality types recorded by Jessee et al. (2006) and Rodriguez et al. (2017). Both of these studies found ESTJ , ISTJ , and ESFJ to be most common among the dental students surveyed. The three personality types representing the largest – albeit it still small – number of students in this study differ also from the most common types of Chinese dental school applicants which were ISTJ, ESTJ, and ISFP (Wu, 2007). The personality types of this group of Kuwaiti students also differed from those reported by Al-Dlaigan et al. (2017) in their examination of students in Saudi Arabia. In this instance, though, the difference was in only one dichotomous pair. Al-Dlaigen and colleagues reported that ISTJ was the dominant type for their students. In my study one of the three most common —although not dominant— was ISFJ. Perhaps more importantly, Al-Dlaigan et al. noted that that 68% of their respondents rated themselves as introverted. In my study, the percentage of I ratings was similar (65%).

Further, ISFJ, a fairly common personality type in both Jessee et al. (2006) and Rodriguez et al. (2017), was one of most scored personality types in my study. Moreover, the second most common personality type of Filipino dental students ENFP was also one of the four most common types in my study (Dalanon & Matsuka, 2018).

For all students, Introversion and Judging (65%) were preferred over Extraversion and Perceiving (35%). Preferences of Sensing and Intuition were almost identical. Feeling (61%) was preferred more thinking (39%). The only similarity between my findings and those of Jessee et al. (2006) and Rodriguez et al. (2017) studies was that Kuwaiti dental students were more Judging than Perceiving.

The most preferred method of teaching in my study in descending order were Hybrid, Demonstrator, Facilitator, Delegator, and Authority. Both Hybrid and Demonstrator were significantly higher than the other three methods. Hybrid ranking, the first preferred method, aligns with Shenoy and Shenoy's (2013) study where students prefer multimodal way of study over a single mode.

Perceived benefits from the teaching methods differed slightly in order when compared to reported preferences. The methods that, in the view of my respondents were most beneficial were, in descending order, Hybrid, Demonstrator, Facilitator, Authority, and Delegator.

Associations between personality traits/subgroups and preferences/benefits of teaching methods were found. Dental students in Intuition subgroups preferred Delegator and Hybrid teaching methods more than the Sensing subgroup did. Dental students in the Judging subgroup preferred the Delegator teaching method more than the Perceiving subgroup. In term of benefits, Dental students in Intuition subgroups perceived that they benefited from Delegator teaching method more than Sensing subgroup. And, the Judging subgroup reported that they benefited from the Demonstrator teaching method more than the Perceiving subgroup.

CHAPTER 5: DISCUSSION

Making Sense of the Results

Personality Types

A primary purpose of this study was to investigate personality types of Kuwaiti dental students as measured by the Myers-Briggs Type Inventory®. Its findings complement those of others including Al-Dlaigan et al. (2017), Dalanon and Matsuka (2018), Jessee et al. (2006), Rodriguez et al. (2017), and Wu (2007) and add to our growing understanding of personalities of individuals in dentistry.

Twenty-three dental students, all female, participated in this study. No types emerged as being dominant. However, four personality types, SFJ, INFJ, INTJ, and ENFP, each had three students or 8.7 % of respondents each. Moreover, none of dental students identified as ISFP, ESTP, ENTP, or ENTJ. When single characteristics were compared, the Kuwaiti dental students were more represented in Introversion and Judging subgroups (65%) than in the Extraversion and Perceiving groups (35%). Also, a larger percentage identified as Feeling (61%) rather than Thinking (39%). Approximately the same number of students identified as Sensing (11 students or 48%) and Intuition (12 students or 52%)

The results of this study were not entirely consistent with previous studies on term of personality preferred subgroups and personality common types. As noted, the personality types most represented among Kuwaiti dental students were ISFJ, INFJ, INTJ, and ENFP. These personality types differ from the three most common personality type recorded by Jessee et al. (2006) and Rodriguez et al. (2017). Both of these studies found ESTJ , ISTJ, and ESFJ to be most common among the dental students surveyed. Personality types of Kuwait's students also

differed from the most common types of Chinese dental school applicants which were ISTJ, ESTJ, and ISFP (Wu, 2007). They were also different from the types of Saudi Arabian students as reported by Al-Dlaigen et al. (2017). Although it could be argued that the differences between this study and Al-Dlaigen et al.'s were less dramatic.

There are various possible explanations for these differing results. Three of the previous studies were done in the USA (Jessie et al., 2006; Rodriguez et al., 2017), China (Wu, 2007), and the Philippines (Dalanon, 2018) where the cultures differ from that of a middle eastern Arab country. Another factor that could have influenced results is that all participants in this study were females. Indeed, there are only 3 male dental students in the 6th and the 7th years of Kuwait University. Last but not least, the sample size (23 dental students) in this exploratory study likely influenced the results and made it more difficult for a dominant type or types to emerge. Had there been more participants, we might have seen greater representation in some of the 16 personality subtypes that are available within the MBTI categorization.

Preferences for Teaching Methods

Another purpose of this study was to survey Kuwaiti dental students' preferred methods of teaching to see if there were associations between personality types and preferred methods. A brief survey used Grasha's (2002) framework to identify teaching methods and asked students to, first, identify their preferred methods and, second, to indicate the extent to which they believed that they benefitted from learning under a particular method.

The twenty-three respondents from Kuwait University Faculty of Dentistry reported that their most preferred methods of teaching in descending order were Hybrid, Demonstrator, Facilitator, Delegator, and Authority. Both hybrid and demonstrator were ranked significantly higher than the other three methods. These dental students' preference are consistent with those

of previous studies where students report that they prefer more than a single method of teaching and prefer kinesthetic mode of learning if forced to choose a single mode (Shenoy & Shenoy, 2013). Kinesthetics which is learning by physical activity is similar to the Demonstrator method which combines a lecture with a class activity that requires students to apply what they learn. Dental students' inclination toward these methods could, in part, be linked to the dual nature of dental curriculum which combines didactics and clinical practice. It is possible that students developed an appreciation of these methods because they are exposed to them. It is also possible that students were attracted to dentistry in the first place because they recognized that their learning would, of necessity, require that they move beyond traditional didactic or lecture type learning experiences if they were to actually practice dentistry

A more detailed analysis revealed that dental students in Intuition subgroups preferred Delegator and Hybrid teaching methods more than those in the Sensing subgroup. Intuitive people connect information to ideas and try to self-generate their own ways of understanding rather than simply taking in the information (Sensing). This may explain why those in this group prefer Hybrid method (taking information in multiple ways to get their own understanding) and Delegator (collaborating to reach their own conclusion where the teacher takes a passive role) (Alias et al., 2008; Blutner & Hochnadel, 2010; Grasha, 2002).

Another finding was that Kuwaiti dental students in the Judging subgroup preferred the Delegator teaching method more than those in the Perceiving subgroup. Judging people tend to prefer planned order and quick decisions. In contrast, Perceiving individuals are spontaneous and contemplative. With Delegator teaching methods, those whose personalities tend toward Judging would thrive since this method asks students to use planned strategies to reach quick decisions. In contrast, Perceiving personality types might be frustrated by demands to follow

planned approaches since they prefer a combination of reflection or contemplation and spontaneity. In addition, respondents in the Judging subgroup reported that they benefited from the Demonstrator teaching method more than those in the Perceiving subgroup. This could be explained by the fact that Demonstrator method involves teaching the use of a planned procedure to reach a quick outcome (Blutner & Hochnadel, 2010; Grasha, 2002).

Recommendations

For Future Research

This study consists of 53% of Kuwait University dental students in their 6th and 7th years. It was an exploratory study and, thus, the small sample size was acceptable. That said, there was insufficient statistical power for the results to be generalized to future dental students in Kuwait University or to students at other dental institutions. Future research using a larger sample would increase statistical power and would perhaps, provide a clearer picture of personality types of students studying dentistry.

Additional research with larger samples investigating dental students' preferences for certain teaching methods would also be useful in expanding our understanding of this group of students. This is especially important as dental education continues to evolve and to seek more effective ways of ensuring high levels of student learning and competence. Hendricson (2012) provides a nice overview of ongoing efforts to reform teaching and learning in dentistry. He notes both successes and failures of these efforts. Hendricson's "take home message" (p. 129) is that the focus of dental education should be at "the micro level (the intersection of students and teachers) rather than at the macro level (trying to alter major institutional processes)" (pp. 129-130). In doing so, we are not trying to find the best method that fit all students rather we are trying to find best educational match between teacher and student. Investigating instructors' and

students' personality types and teaching and learning preferences within institutions or programs could facilitate the discovery of methods that work for specific stakeholders.

Surveying a sample of graduated dentists and evaluating their preferences and what teaching method benefited them the most in their career might also provide insight into instructional methods that yield powerful, long-term learning.

Qualitative studies that include interviews, focus groups, and observations with students and faculty would also be useful in exploring personality types and their links to teaching and learning in dental education. Such studies could provide opportunities for participants to explain thinking, discuss experiences, and demonstrate how personalities manifest themselves in a variety of educational settings. In addition, qualitative studies give a better understanding why a personality subgroup might have an inclination to one method of teaching more than the others.

For Practice

Following Hendricson (2012), I recommend that faculty and dental students at individual dental schools investigate personality types and preferences for teaching methods within their institutions. Understanding personality types of both faculty and students will help them understand their behavior and the behavior of others. This can be done through providing opportunities for dental students to learn more about themselves by using MBTI questionnaire which provide multiple reports and instruments that might help them explore their learning preferences and behavior. Faculty, in turn, could be enrolled in courses about how to use and implement the MBTI instrument through faculty development days which could assist them to identify different personality types and tailor a specific approach for each student.

At Kuwait University, and, indeed, at other universities, differences between teaching method preferences as reported during dental students in their clinical years compared with

preferences from non-clinical dental students could reveal vital information for developing future curriculum to match students' preferences. Also, it would be interesting to follow the students during their seventh year of dental education and check if personality type or preference would change with time to match profession requirements.

It is important to note that everyone uses all eight preferences of mental attitude and function of MBTI every day, although each person has a preference for one of the dichotomous pair. This should be acknowledged when planning a lecture, lab, or problem based learning seminar. To nurture the educational experience, information should be presented in multiple mode/method to help with dental students understanding and preference. Students' could be encouraged to learn both how to use their preferences to facilitate learning and to work easily with instructional methods they do not prefer. In addition, in cases where the faculty work with small groups, identifying students personality type and asking students to express their preferred teaching method will improve the teaching outcome.

Limitations

The sample size, while representative of students at one university, was too small to draw generalizable inferences. Linking certain personality preferences to teaching method require further investigation with larger sample to avoid a lack of statistical power.

Conclusion

The importance of personality subtypes and their relationship to teaching methodologies require further investigation. My study did not uncover any dominant personality types among the dental students surveyed. There were, however, four types were slightly more represented than others. My study did find some correlations between certain subgroups and preferences for teaching methods. I also found that students perceived Hybrid and Demonstrator methods as

both the most preferred and most beneficial. Overall, the findings support that there is

association between personality and preferences of teaching method and there is a preference of

a teaching method over the other in dental education in general.

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APPENDIX A: TEACHING METHODOLOGY SURVEY

The purpose of this research is to see if there are associations between certain personality characteristics and a preference for a particular teaching style. Please read the statements below about particular teaching style and indicate.

a) The degree to which you prefer/like a particular teaching method.

b) Your beliefs about how much you learn from/benefit from a particular teaching method.

Question 1 - Please use your best judgment to respond to the following statement about teaching

methodologies.

I prefer Authority style of teaching.

(The Authority Style involves lecture. Communication is one way. The teacher presents information, and students take notes.)

Strongly agree   Agree   Neutral   Disagree   Strongly disagree

Question 2 - Please use your best judgment to respond to the following statement about teaching methodologies.

I prefer Demonstrator style of teaching.

(The Demonstrator Style involves lab-related lecture. The teacher combines lectures with presentations, demonstrations and class activities. Student apply what they have learned.)

Strongly agree   Agree   Neutral   Disagree   Strongly disagree

Question 3 - Please use your best judgment to respond to the following statement about teaching

methodologies.

I prefer Facilitator style of teaching.

(The Facilitator Style involves problem based learning Teachers ask questions (active), and students through activity develop problem solving skills.)

Strongly agree   Agree   Neutral   Disagree   Strongly disagree

Question 4 - Please use your best judgment to respond to the following statement about teaching methodologies.

I prefer Delegator style of teaching.

(The Delegator Style involves group presentation. Teachers have an observer role (passive), and students collaborate to reach conclusions.)

Strongly agree   *Agree*   *Neutral*   *Disagree*   *Strongly disagree*

Question 5 - Please use your best judgment to respond to the following statements about teaching methodologies.

I prefer Hybrid style of teaching.

(The Hybrid Style is a combination of different style discussed above.)

Strongly agree   *Agree*   *Neutral*   *Disagree*   *Strongly disagree*

Question 6 - Please use your best judgment to respond the following statement about teaching methodologies.

I benefit from Authority style of teaching.

(The Authority Style involves lecture. Communication is one way. The teacher presents information, and students take notes.)

Strongly agree   *Agree*   *Neutral*   *Disagree*   *Strongly disagree*

Question 7- Please use your best judgment to answer the following statements about teaching methodologies.

I benefit from Demonstrator style of teaching.

(The Demonstrator Style involves lab-related lecture. Teacher combines lectures with presentations, demonstrations, and class activities. Students apply what they have learned.)

Strongly agree   *Agree*   *Neutral*   *Disagree*   *Strongly disagree*

Question 8 - *Please* use your best judgment to answer the following statements about teaching methodologies.

I benefit from Facilitator style of teaching.

(The Facilitator Style involves problem based learning. Teacher asks questions (active), and students, through activity, develop problem solving skills.)

Strongly agree　　　　*Agree*　　　　*Neutral*　　　　*Disagree*　　　　*Strongly disagree*

Question 9 - Please use your best judgment to respond to the following statement about teaching methodologies.

I benefit from Delegator style of teaching.

(The Delegator Style involves group presentation. Teachers have an observer role (passive), and students collaborate to reach conclusions.)

Strongly agree　　　　*Agree*　　　　*Neutral*　　　　*Disagree*　　　　*Strongly disagree*

Question10 - Please use your best judgment to answer the following statement about teaching methodologies.

I benefit from Hybrid style of teaching.

(The Hybrid Style is a combination of different style discussed above.)

Strongly agree　　　　*Agree*　　　　*Neutral*　　　　*Disagree*　　　　*Strongly disagree*

I want my Myers-Briggs personality report to be shared with me.

Yes   No

If "Yes," please provide an email address _____