

THE INFLUENCE OF SEX, PERSONALITY TYPES AND TRAIT-ANXIETY ON LEARNING STYLES AMONG UNIVERSITY STUDENTS IN JORDAN

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Abstrak: Penyelidikan ini bertujuan untuk menyelami pengaruh jantina, jenis personaliti dan kebimbangan-trait terhadap gaya belajar dari perspektif pendekatan pembelajaran dalam kalangan pelajar universiti. Penyelidikan ini telah dijalankan di Jordan. Sampel seramai 1,000 orang pelajar Universiti Jordan dipilih daripada dua aliran pengajian, iaitu Kemanusiaan dan Sains. Keputusannya menunjukkan berlainan pelajar mengamalkan gaya belajar yang berlainan. Tidak terdapat kesan jantina dan jenis personaliti terhadap pendekatan pembelajaran. Juga tidak terdapat kesan interaksi jantina dengan kebimbangan-trait, serta jantina dengan jenis personaliti. Walau bagaimanapun, terdapat kesan signifikan kebimbangan-trait dan juga interaksi kebimbangan-trait dengan jenis personaliti ke atas gaya belajar. Paras kebimbangan-trait yang tinggi mencelaruhan pilihan kepada pendekatan pembelajaran, manakala paras kebimbangan-trait yang rendah memperkukuhkan pemilihan pendekatan menurut pilihan yang normal bagi setiap pelajar. Kedua-dua golongan pelajar ekstrovert dan introvert berkeimbangan-rendah mengekalkan pilihan kepada pendekatan pembelajaran yang normal bagi diri masing-masing; manakala pelajar ekstrovert berkeimbangan-tinggi lebih terjurus kepada pendekatan metodikal, elaboratif dan pengekal fakta dibandingkan dengan pelajar introvert yang juga berkeimbangan-tinggi.

Abstract: This study investigates the influence of sex, personality types and trait-anxiety on learning styles among university students in Jordan from the perspective of approaches to learning. A sample of 1,000 students from University of Jordan has been selected from two academic streams, i.e. Humanities and Sciences. The results indicate that different students employ different learning styles. There are no direct effects of sex, and personality types on approaches to learning. Also there is no interaction effects of sex and trait-anxiety, as well as sex and personality types. However, there is a significant effect of trait-anxiety as well as an interaction effect of trait-anxiety and personality types on learning styles. High trait-anxiety level disrupts the normal choice of approaches to learning; whereas low trait-anxiety regulates the choice to normality. Low trait-anxiety extroverted and introverted students maintain their normal choice of learning approaches; whereas the high trait-anxiety extroverted students obtain higher scores than their introverted counterparts in methodical study, elaborative processing and fact retention.

INTRODUCTION

Learning styles are consistent habitual ways one processes information and executes learning activities. Researchers often define "learning styles" from different perspectives. Gregorc (1979), emphasized distinctive behaviours and modalities. Kolb (1984) specified hereditary characteristics, past experiences and environment. Schmeck (1983) defined learning styles as a pattern of information processing activities used to prepare for an anticipated memory task. Dunn (1999) observed differences in learning outcomes of various students and believed that these differences were the results of learner ability. She employed this perspective to develop an instrument to measure learning styles.

The study reported in this paper defines "learning styles" from the perspective of Schmeck's conception of learning approach which contains methodical study, fact retention, deep processing and elaborative processing approaches (Schmeck 1983, 1988; Schmeck, Ribich & Ramanaiah 1977). Learning styles has been widely recognized in education literature to be different among different students (Biggs 1993; Kember & Gow 1990; Ramsden 1987; Schmeck 1991; 1998, Watkins & Hattie 1990). University students have to cope with heavy academic demands. Consequently, they adopt different ways of studying. One way could be a surface approach (Franson 1977) for there is a relationship between academic workload and surface approach to studying (Ramsden & Entwisle 1981). However, due to certain methods of academic assessment students may adopt an achieving approach.

Human being is adaptive. According to Jung (1971), psychological types develop in personality dimensions as people direct their energies toward each pair of the opposite modes of psychic functions (Sensing or Intuition, Thinking or Feeling, Judging or Perceiving and Extroversion or Introversion). Because one of each pair eventually becomes a preferred mode of operation, psychological type theory predicts that the preferred mode will become more reliable and better developed. This habitual use of preferences leads to fundamental differences between people and to predictable patterns of behaviour. Jung called his personality type theory as a "psychology of consciousness" because he believed it explained basic structures of the conscious mind. Jung's theory also described the dynamic interaction of the preferences within an individual's consciousness. He believed that we have a dominant or superior mental function; arising from among the four functions of sensing-intuition, thinking-feeling, judging-perceiving and extroversion-introversion that constitutes the core of our personality – our basic identity.

Anxiety is a common feeling usually involving worry about the future. It can range from a vague feeling of uneasiness and discomfort to intense feeling of

terror about impending danger. Anxiety affects the execution of various physiological and mental processes. Some of the effects motivate us to more thoroughly prepare for quality performance; such as in situations involving examinations and athletic competitions. However, anxiety can also become so intense that it interferes with our ability to function normally. Anxiety, part of an individual's emotional structure, is most commonly referred in modern psychology to denote a transitory emotional state or condition characterized by feelings of tension and apprehension and heightened autonomic nervous system activities (Spielberger 1972). This emotional state has both negative and positive effects on learning.

Kember and Gow (1990), indicated that there was an overwhelming effect of information overload in learning. High academic pressure, heavy workload, and examination demands are common causes of anxiety. Students who experience high-anxiety perceive the world to be more dangerous than their low-anxiety counterparts. Furthermore, high trait-anxiety students are more vulnerable to be stressful than their low trait-anxiety counterparts (Spielberger 1972).

Personality types form another variable that influences learning styles which affect academic performance. It is important to make a study on this variable. Entwistle (1988) showed that in order to understand differences in students' approaches to learning, we should view them as persons with individual differences in personality and emotional veins that would modify their learning approaches. Therefore, for a better understanding of students' learning styles from the perspective of learning approaches, it is necessary to relate gender, personality types and trait-anxiety to their learning approaches.

At present, there are only a few studies in the Arab world that investigate learning styles from the perspective of learning approaches. A variety of studies indicate that extroverts learn more rapidly than introverts on difficult tasks and they also tend to recall or retrieve information far better than the introverts (Miller 1991). Sex has been widely known to influence learning styles (Clark 1986; Entwistle & Wilson 1977; Ricardson 1993). In the Arab world, Magdi (1988) showed that students employ different approaches to learning when attempting to accomplish their tasks. Male students prefer to employ deep processing, whereas female students prefer elaborative processing and fact retention approaches. Findings from other studies, however, are not consistent with this. For example, Yasser and Kazem (1998) found no significant difference due to sex. It is still very unclear about the effect of sex on learning styles among Arab students.

It is timely to conduct a study in an Arab country, which relate sex, personality types and trait-anxiety towards learning styles from the perspective of learning

approaches. In Arab countries, there are very few studies on how students approach to learning in relation to sex, trait-anxiety and personality types. These variables are still in need of further studies to determine their influence on learning styles.

PURPOSE

The purpose of the present study is to investigate the influence of sex, personality types and trait-anxiety on students' learning styles from the perspective of Schmeck's conception of "learning approach" involving methodical study, fact retention, deep processing and elaborative processing.

METHOD

This research was designed as a sample survey conducted on full-time students at the University of Jordan.

Sample

The technique of multi-stage random sampling was employed for sample selection since it provided a more accurate representation in a less time consuming manner (Fraenkel & Wallen 1996). All faculties and departments in the University of Jordan were involved. In each department, the students were clustered according to their status as freshmen, sophomores, juniors and seniors for random selection. A total of 1,000 male and female students were selected. They were between 18 to 25 years old.

Instruments

Three kinds of instruments described below were employed in this research.

1. *Inventory of Learning Process (ILP)*: This inventory contained 62 items. It was developed by Schmeck, Ribich and Ramanaiah (1977). Each item was scored on a two-point scale (true-false). It contained four sub-scales which could be summarized as follows:

- **Methodical study**: This sub-scale measured the use of systematic and customarily recommended techniques on how to study.
- **Fact retention**: This sub-scale measured an individual's preference for remembering facts and details.

- Deep processing: This sub-scale measured the degree to which students evaluate, organize and discriminate the information they studied.
- Elaborative processing: This sub-scale measured the extent to which students use visual imagery and apply new information in their lives.

The version of the instrument used in this study was developed by Schmeck (1983) and had been translated into Arabic by Magdi (1988).

2. *Myers-Briggs Type Indicator (MBTI)*: MBTI questionnaire, form M, was used to assess personality types. The questionnaire as a whole contained 93 items corresponding to four dimensions of personality, where each dimension was represented in a bi-polar opposites (Dimension 1: Extroversion-Introversion; Dimension 2: Sensing-Intuitive; Dimension 3: Thinking-Feeling; Dimension 4: Judgement-Perceiving). The subjects would be required to make a forced-choice response between the opposite alternatives. For the purpose of this research only, MBTI Extroversion-Introversion sub-scale was employed. This sub-scale was translated into Arabic and piloted before used in the actual research.
3. *State-Trait Anxiety Inventory (STAI)*: The trait-anxiety instrument was one of the two instruments in Spielberger's (1972) STAI. It contained 20 items, with each having a 4-point response scale. The scales are labelled as *being almost never, sometimes, often and almost always* (Spielberger 1983). This inventory was also translated into Arabic and piloted before used in the actual research.

Validity and Reliability of Instruments

To achieve a degree of validity for the translated contents of MBTI and STAI, the standard translation procedure was followed. In the first step, the researcher engaged an Arab specialist in English language to translate them. This was followed by a second step whereby they were retranslated into English and checked by a psychologist who was fluent in both Arabic and English. Following this, all three instruments were subjected to estimations on content validity by experts in the field. The recommendations of experts were accepted and the questionnaire items were further refined to maintain validity.

A pilot study was conducted to estimate the test-retest reliability of the instruments. The test-retest correlation coefficients for the four sub-scales of ILP were found to be in the range of 0.74 to 0.88, which means each sub-scale was highly reliable (Table 1).

Table 1. Reliability estimate of ILP

ILP sub-scales			
Deep processing	Methodical study	Fact retention	Elaborative processing
r = 0.88	r = 0.74	r = 0.80	r = 0.84

The test-retest data for MBTI Extraversion-Introversion sub-scale was found to be highly reliable ($r = 0.85$). Similarly, the test-retest reliability data for the trait-anxiety instrument was also found to be very high ($r = 0.88$).

Procedure

The instruments were administered to each subject at the onset of October, 2001 academic session. The subjects were assured that their responses would be kept completely confidential and they were asked to respond to a statement of information consent. The next step was an explanation of the general instructions for filling out the instruments. The subjects were then told to send back the responded instruments the next day. Finally, 75 students were excluded because of incomplete information. Thus 925 of 1,000 students remained in the sample. The data collected from these 925 students were analyzed. This study utilizes a univariate 3-way factorial $2 \times 2 \times 2$ design (sex, personality types and trait-anxiety) to test the main effects, and the effects of their interactions on approaches to learning.

RESULTS AND DISCUSSION

The results reveal that, university students adopt different learning styles from the perspective of approaches to learning. Sex does not have any main effect on approaches to learning. Trait-anxiety produces significant main effects. The effect of personality types is not significant. There is no interaction on effects of sex and personality types as well as sex and trait-anxiety. However, there is an interaction effect of personality types and trait-anxiety (see Table 2).

Table 2. Summary of univariate 3-way ANOVA results for the effects of sex, personality types and trait-anxiety on learning styles

Source	Wilk's Lambda	df	Sig.
Sex	0.990	4/571	0.201
Personality types	0.993	4/571	0.434
Trait-anxiety	0.882	4/571	0.000
Sex*Trait-anxiety	0.995	4/571	0.604
Sex*Personality types	0.996	4/571	0.710
Trait-anxiety*Personality types	0.965	4/571	0.000
Sex*Personality types*Trait-anxiety	0.988	4/571	0.133

Although there is no significant main effect of sex, it is found that the males tend to score higher than the females in methodical study and elaborative processing; while female students score higher than the males in fact retention. It seems that, there is a non-significant tendency for the male students to choose the more effective learning styles compared to the females.

Trait-anxiety has a direct main effect on approaches to learning. This may be due to the fact that a high trait-anxiety level disrupts the normal choice of approaches to learning; whereas low trait-anxiety regulates the choice to normality. In the literature, some studies show that a high-anxiety level facilitates learning; yet others indicate that it is disruptive (Crismore & Hill 1984, 1988; Innes 1971). Meanwhile, there are other studies showing that a low-anxiety level facilitates learning and performance (Sarason 1975; Townsend & Mahoney 1981) and a high-anxiety is disadvantageous to learning. Theoretically, on the one hand, people experiencing high-anxiety levels would be highly aroused to irrelevant stimuli and, on the other hand, they would be insensitive to the impinging stimuli in low-anxiety. Hence, quality learning and performance are only found in the state of middle-anxiety level (Biggs & Telfer 1987). This leads to the general observation that the states of anxiety nearer to the middle-anxiety level (from the directions of both high and low-anxiety levels) are increasingly facilitative of learning and performance. In the present study, the level of high trait-anxiety may be closer to the peak of emotional arousal, and, as such, it disrupts the choice of approaches to learning; whereas low trait-anxiety level may be closer to the mid-point emotional arousal; hence, it regulates the choice toward the approach one normally adopts.

The present study does not find any direct main effect of personality types on learning styles. This may be due to the fact that it is restricted to the two personality types of intorvesion-extroversion only. If the whole range of personality types have been implicated in this research (Sensing-Intuition, Thinking-Feeling; Judging-Perceiving and Introversion-Extroversion), their

effects may be found directly on learning styles. However, even with the two personality types assessed in this study, it is still found that they indirectly affect learning approaches through the interaction effects of introversion-extroversion and trait-anxiety. In this interaction, the low trait-anxiety extroverted and introverted students maintain their normal choice of learning approaches; whereas the high trait-anxiety extroverted students obtain higher scores than their introverted counterparts in methodical study, elaborative processing and fact retention. This means that although trait-anxiety has a direct main effect on learning styles, yet, in a simultaneous combination of trait-anxiety and personality types of introversion-extroversion, there is no consistent influence. It should be clear that the previously found direct main effects of trait-anxiety *per se* on learning styles are quite weak.

In sum, it may be suggested that since there is a tendency for male and female students to differ in the choice of learning approaches, future studies may be undertaken to scrutinize gender differences more closely. Perhaps it could be studied in combination with other variables such as the male and female students' field of studies, educational stages and social and economic status. Similarly the inconsistent effects of trait-anxiety in combination with personality types found in the present study also merit further scrutiny. It seems that future studies should employ a wider band of trait-anxiety measures parallel with the whole range of personality types measures (Sensing-Intuition, Thinking-Feeling; Judging-Perceiving and Introversion-Extroversion) in connection with learning styles from the perspective of learning approaches.

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