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LEARNING STYLES AMONG MALE AND FEMALE NURSING STUDENTS AT NAJRAN UNIVERSITY

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Abstract:

Background: *Learning styles assist learners to learn more easily, remember information, think more positively about university and learning subjects, achieve intended learning outcomes, and utilize information successfully.*

Aim: *Identify the learning styles among male and female nursing students at Najran University.*

Methods: *A descriptive correlational research design was conducted at nursing colleges Najran University (male and female sections). The study comprised a convenient sample of all nursing students registered in the colleges (male and female) during the second semester 2018-2019 academic year. Two tools were used for data collection: Tool I: Sociodemographic and academic history questionnaire. Tool II: A modified version of C.I.T.E instrument to asses learning styles.*

Results: *The findings revealed that the mean age among male student is 24.32±2.54 compared to 24.34±3.112 among females. the majority of male and female students rated themselves as average, good and very good in computer skills. A high preference for auditory-visual-kinesthetic learning style among 73.9% of the male student compared to almost all (99%) the females.*

Conclusion: *Auditory-visual-kinesthetic learning style was major among the majority of male and female nursing students. Furthermore, the majority of male and female nursing students rated themselves as average, good and very good in computer skills.*

Key words: *learning styles, nursing students.* .

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INTRODUCTION:

Learning plays a very significant role in human life, is a concept that has been explained and defined very differently by scientists and philosophers since ancient times. Today, almost, all of the teachers and psychologists describe learning as the permanent behavioral change derived from experiences. A student's vision, relationship with others, cognitive, emotional, and physical structure determine his/her learning style. [1,2] Learning styles are vital aspects in education psychology in any discipline, characterized by continuous affective and cognitive behaviors which indicate how each individual communicates in learning environments or situations. [3,4]

The concept of learning styles has developed among professional learners at all stages of the educational organization. Learning style refers to the unique ways an individual processes and retains new information and skills. Some students seem to learn better when information is presented through words known as verbal learners, while others seem to learn better when it is presented through images known as visual learners. Some students are active and prefer to work in a group, while others are reflective who prefer learning alone. There is evidence that diverse learning styles affect school achievements. [5,6]

Learning styles assist learners to learn more easily, remember information, think more positively about university and learning subjects, achieve intended learning outcomes, and utilize information successfully. Mismatched learning styles can lead to poor performance, challenges, and uncomfortable learning experiences for the learners. [7] Therefore, recognizing students' learning style preferences is necessary for providing effective learning opportunities. [8]

When students access health professional programs such as nursing at universities, they face a variety of different ways of teaching and learning. As they enter professional programs, they begin to take courses that require more practical learning, critical thinking and independent learning. Developing knowledge of different learning styles will help teaching staff members improve curricula and implement teaching methods that will be fun for students and most likely affect their learning and teaching environment. [9]

Aim of the study:

This study aims to identify the learning styles among male and female nursing students at Najran University.

METHODS:

This descriptive correlational research design was conducted at nursing colleges Najran University (male and female sections). The study comprised a convenient sample of all nursing students registered in the colleges (male and female) during the second semester 2018-2019 academic year and accepted to participate in the study. Level one was excluded because they study in the preparatory year college.

Two tools were used for data collection: Tool I: Sociodemographic and academic history questionnaire. It was developed by the researchers to collect socio-demographic data such as age, gender, residence, computer and e-learning skills, father and mother education. It also contain academic level, and GPA in the previous semester. Tool II: A modified version of C.I.T.E instrument to asses learning styles. [10] Babich, Burdine, Albright, and Randol, 1976, primary developed this tool. Then, it was adapted by Kathy Clark, Linn-Benton 2017 at Murdoch Teachers Center in Wichita/Kansas to assist teachers to assess the learning styles favored by their students. This tool is distributed to three parts. *First,* 45 queries to evaluate learning style. Each query rated on four point Likert scale (4 most like to 1 least like). *Second,* partition of the 45 questions on types of different learning styles. *Third,* the scoring system of the tools that decide whether the learning style is major, minor or negligible.

A written formal permission to carry out the study was obtained from the accountable authorities of nursing college dean /Najran University.

Ethical Considerations: oral consent was taken from each student after clarification of the study aim. Namelessness was considered when collecting data. All data was confidential and used only for the aim of research. All students were informed about their right for participation refusal or withdrawal at any time without any consequences.

The researcher develop the tool 1 and tested it for content validity by a jury of 5 expertise in the specialty as well as reliability by Cronbach alpha coefficient test(r-0.79). Tool (II) were modified, and translated, then it was tested for content validity by a jury of 5 expertise in the specialty as well as reliability by Cronbach alpha coefficient test(r-0.80).

A pilot study was done 19 students (10% of the study sample) to secure tools clarity and the applicability. The pilot study was omitted from the core study sample.

Field work: google form of the questionnaire was used to collect the data. The questionnaire distributed to the academic advisor of the nursing students then each advisor create convention with his student to fill the questionnaire. After explaining the study objectives and taking oral consent, each student is asked to read the questionnaire carefully and response according to herself. The researcher attend each meeting. They are allowed to ask for any elaboration. Average time for the completion of questionnaire (20-25 minutes).

Statistical analysis: Data was explored using descriptive statistics such as numbers, percentage, mean and stander deviation. The differences between the two groups were tested using Chi-square, Monte Carlo, t test, and fisher exact.

RESULTS:

Table I: Percent distribution of the study participants according to their socio-demographic characteristics and GPA

Socio-demographic	Male students N (92)	%	Female students N (100)	%	Significant test P value
Age					
18<20 years	44	47.8	58	58	FET=5.288
20-25 years	48	52.2	42	42	P=0.436
Age (mean ± SD)	24.32±2.54		24.34±3.11		t=0.553 p=0.876
Educational level					
Level 2	27	29.3	33	33	
Level 3	19	20.7	26	26	
Level 4	10	10.9	11	11	FET=5.277
Level 5	11	12.0	6	6	P=0.534
Level 6	12	13.0	14	14	
Level 7	11	12.0	6	6	
Level 8	2	2.2	4	4	
Residence					
Urban	70	76.1	92	92	X^2=2.204
Rural	22	23.9	8	8	P=0.002*
Father educational level					
Illiterate	13	14.1	7	7	FET=6.525
Read and write	25	27.2	26	26	P=0.158
Secondary school	28	30.4	36	36	
University education	21	22.8	30	30	
Master or PHD	5	5.4	1	1	
Mother educational level					
Illiterate	29	31.5	32	32	
Read and write	25	27.2	37	37	FET=4.317
Secondary school	12	13.0	14	14	P=0.373
University education	4	4.3	2	2	
Master or PHD	22	23.9	15	15	
GPA(mean ± SD)	3.21± 0.73		2.94± 0.81		t= 0.817 p=0.190

FET= fisher exact X^2= chi-square t= independent t test *significant at 0.05

Table 1 shows no statistically significant differences between male and female students in their sociodemographic characteristics, except for residence. Where, the mean age among male student is 24.32±2.54 compared to 24.34±3.112 among female. The majority of male and female student were from level 2(29.3%, 33%) and level 3 (20.7%, 26%), respectively. The majority of female students are urban area residence compared to three quarters of the male (76.1%) students. Around one third of the male student father (30.4%) and female student father (36%) are secondary school educated. Nearly, an equal proportion of male student mothers (31.5%) and female student mothers (32%) are illiterates. The male student GPA is higher (3.21± 0.73) than female

(2.94± 0.81) without statistically significant difference.

Table 2: Comparing the computer and e-learning skills among male and female student.

Skills	Male students N (92)	%	Female students N (100)	%	Significant test P value
Computer skills					
Poor	14	15.2	2	2	
Fair	28	30.4	36	36	FET=12.441
Good	26	28.3	26	26	P=0.006*
Very good	24	26.1	36	36	
Black board skills					
Poor	12	13.0	7	7	
Fair	26	28.3	33	33	X^2=2.823
Good	23	25.0	21	21	P=0.415
Very good	31	33.7	39	39	

Table 2 Illustrate that one third of the male students (30.4%) evaluated their computer skills as fair. While 36% of the female students evaluated their computer skills as very good. The difference between the two groups is statistically significant (P=0.006). Furthermore, nearly an equal proportion of both male (33.7%) and female (39%) students evaluated their e-learning skills as very good without statistically significant differences between the two groups.

Table 3: Comparing the learning styles among male and female student.

	Male (N=92)						Female (N=100)					
	Major		Minor		Negligible		Major		Minor		Negligible	
	N	%	N	%	N	%	N	%	N	%	N	%
Visual-Language	49	53.3	21	22.8	22	23.9	58	58	6	6	36	36
P value					X^2= 12.157		P=0.002*					
Visual-Numerical	7	7.6	25	27.2	60	65.2	33	33	8	8	59	59
P value					X^2= 25.377		P=0.000*					
Auditory-Language	66	71.7	25	27.2	1	1.1	78	78	22	22	0	0
P value					FET=1.8		P= 0.355					
Auditory-Numerical	5	5.4	22	23.9	65	70.7	3	3	10	10	87	87
P value					FET=7.835		P= 0.020*					
Auditory-Visual-Kinesthetic	68	73.9	24	26.1	0	0	99	99	1	1	0	0
P value					FET= 31.715		P= 0.000*					
Social-Individual	71	77.2	18	19.2	3	3.3	91	91	9	9	0	0
P value					FET= 7.703		P= 0.011*					
Social-Group	22	23.9	24	26.1	46	50.0	32	32	5	5	63	63
P value					FET= 17.163		P= 0.000*					
Expressive Oral	50	54.3	29	31.5	13	14.1	67	67	22	22	11	11
P value					X^2= 3.270		P=0.195					
Expressiveness-Written	18	19.6	34	37.0	40	43.5	40	40	10	10	50	50
P value					X^2= 22.252		P=0.000*					

Table 3 portrays that there is a statistically significant differences between male and female students in all learning styles except auditory-language. Visual-langue learning style is major among 53.3% of the male student compared to 58% of the females.Visual-numerical is major among only 7.6% of the male student compared to 33% among females. In addition, auditory-language is major learning style among 66% of the male student compared to 78% of the females. Auditory-numerical is negligible learning style among 70.7% of the male students compared to 87% of the females. In addition,

auditory-visual-kinesthetic is major learning style among 73.9% of the male student compared to almost all (99%) the females. Social-individual is major learning style for 77.2% of the male student compared to 91% of the females. On the contrary, social-group leaning style is negligible among 50% of the male students compared to 63% of the females. Expressive oral learning style is major among 54.7% of the male students compared to 67% of the females. Lastly, expressiveness-written learning style is major among 43.5% of the male students compared to 50% among females.

Table 4: The relationship between learning style and computer skills .

Learning style		Computer skills (N=192)								P value
		Poor		Fair		Good		Very good		
Visual Language	Negligible	6	3.13	27	14.06	13	6.77	12	6.25	
	Minor	5	2.60	4	2.08	7	3.65	11	5.73	X^2= 15.403
	Major	5	2.60	33	17.19	32	16.67	37	19.27	P=0.017*
Visual-Numerical	Negligible	6	3.13	37	19.27	38	19.79	38	19.79	
	Minor	7	3.65	5	2.60	7	3.65	14	7.29	FET= 21.010*
	Major	3	1.56	22	11.46	7	3.65	8	4.17	P=0.001*
Auditory-Language	Negligible	0	0.00	1	0.52	0	0.00	0	0.00	
	Minor	5	2.60	12	6.25	16	8.33	14	7.29	FET= 5.431
	Major	11	5.73	51	26.56	36	18.75	46	23.96	P=0.530
Auditory-Numerical	Negligible	11	5.73	52	27.08	40	20.83	49	25.52	
	Minor	4	2.08	11	5.73	9	4.69	8	4.17	FET= 3.852
	Major	1	0.52	1	0.52	3	1.56	3	1.56	P=0.684
Auditory-Visual-Kinesthetic	Negligible	0	0.00	0	0.00	0	0.00	0	0.00	
	Minor	6	3.13	4	2.08	4	2.08	11	5.73	FET= 12.063
	Major	10	5.21	60	31.25	48	25.00	49	25.52	P=0.005*
Social-Individual	Negligible	0	0.00	0	0.00	2	1.04	1	0.52	
	Minor	3	1.56	10	5.21	4	2.08	10	5.21	FET= 5.240
	Major	13	6.77	54	28.13	46	23.96	49	25.52	P=0.476
Social-Group	Negligible	6	3.13	42	21.88	29	15.10	32	16.67	
	Minor	6	3.13	4	2.08	9	4.69	10	5.21	X^2= 11.121
	Major	4	2.08	18	9.38	14	7.29	18	9.38	P=0.085
Expressive Oral	Negligible	3	1.56	10	5.21	7	3.65	4	2.08	
	Minor	4	2.08	13	6.77	15	7.81	19	9.90	FET= 5
	Major	9	4.69	41	21.35	30	15.63	37	19.27	P=0.545
Expressiveness-Written	Negligible	7	3.65	30	15.63	27	14.06	26	13.54	
	Minor	7	3.65	11	5.73	10	5.21	16	8.33	FET= 7.083
	Major	2	1.04	23	11.98	15	7.81	18	9.38	P=0.310

Table 4 elaborates statistically significant relation between computer skills and visual-language (p=0.017), visual-numerical (p=0.010), and auditory-visual-kinesthetic (p=0.005). No significant relation was observed between computer skills and the other learning style.

Table 4: The relationship between learning styles and e-learning skills.

Learning style		e-learning skills (N=192)								P value
		Poor		Fair		Good		Very good		
Visual-Language	Negligible	8	4.17	22	11.46	11	5.73	17	8.85	
	Minor	2	1.04	6	3.13	7	3.65	12	6.25	FET= 4.913
	Major	9	4.69	31	16.15	26	13.54	41	21.35	P=0.562
Visual-Numerical	Negligible	6	3.13	39	20.31	27	14.06	47	24.48	
	Minor	3	1.56	7	3.65	8	4.17	15	7.81	FET= 15.627
	Major	10	5.21	13	6.77	9	4.69	8	4.17	P=0.015*
Auditory-Language	Negligible	0	0.00	1	0.52	0	0.00	0	0.00	
	Minor	1	0.52	15	7.81	12	6.25	19	9.90	FET= 7.475
	Major	18	9.38	43	22.40	32	16.67	51	26.56	P=0.227

Auditory-Numerical	Negligible	17	8.85	47	24.48	38	19.79	50	26.04	
	Minor	1	0.52	10	5.21	6	3.13	15	7.81	FET= 6.890
	Major	1	0.52	2	1.04	0	0.00	5	2.60	P=0.296
Auditory-Visual-Kinesthetic	Negligible	0	0.00	0	0.00	0	0.00	0	0.00	
	Minor	2	1.04	6	3.13	5	2.60	12	6.25	FET= 1.507
	Major	17	8.85	53	27.60	39	20.31	58	30.21	P=0.696
Social-Individual	Negligible	0	0.00	1	0.52	1	0.52	1	0.52	
	Minor	2	1.04	8	4.17	6	3.13	11	5.73	FET= 1.256
	Major	17	8.85	50	26.04	37	19.27	58	30.21	P=0.996
Social-Group	Negligible	11	5.73	44	22.92	19	9.90	35	18.23	
	Minor	2	1.04	6	3.13	7	3.65	14	7.29	FET= 13.751
	Major	6	3.13	9	4.69	18	9.38	21	10.94	P=0.029*
Expressive Oral	Negligible	4	2.08	8	4.17	5	2.60	7	3.65	
	Minor	0	0.00	16	8.33	11	5.73	24	12.50	FET= 11.678
	Major	15	7.81	35	18.23	28	14.58	39	20.31	P=0.035*
Expressiveness-Written	Negligible	10	5.21	27	14.06	20	10.42	33	17.19	
	Minor	2	1.04	16	8.33	9	4.69	17	8.85	FET= 2.836
	Major	7	3.65	16	8.33	15	7.81	20	10.42	P=0.814

Table 5 portrays statistically significant relation between e-learning skills and visual-numerical (p=0.015), social-group (p=0.029), and expressive oral (p=0.036). No significant relation was observed between e-learning skills and the other learning styles.

DISCUSSION:

Learning style is a major consideration in planning for effective and efficient instruction and learning. [11] Nursing student learning preferences must be understood to most effectively develop methods that will result in educating well-prepared nursing professionals. [9]

Moreover, It is necessary for nursing students to be prepared with computer technology skills during and after their study period. The findings of the present study revealed that the majority of male and female students rated themselves as average, good and very good in computer skills. The difference between male and female students is statistically significant in favor of females students. In this regard Tubaishat et al who had reported that nursing students showed positive attitudes towards technology, with the highest attitude scores being in their final year as the students spent more time on their nursing education. [12] Moreover, Niyomkar had stated that nursing students reported that they had moderate computer competency. [13]

On the other hand, Deltsidou et al and Robabi and Arbabiarjou reported different finding. The former had investigated nursing students' computer skills and stated that information technology skills of nursing students are far behind of flexible learning requirements. The latter concluded that the medical sciences students' familiarity with computer literacy was not satisfactory. [14,15]

Moreover, more than one-third of both male and female students evaluated their e-learning skills as very good without statistically significant differences between the two groups. This result attributed to increasing e-learning in nursing education and enables students to engage in exciting ways of learning through collaboration and serves to develop and implement technology that improves every aspect of education. In this respect Xing et al who had found a positive attitude toward e-learning among their study participants. [16]

Nursing is a very active profession that requires the ability to perform a great variety of clinical skills. The female and male Saudi nursing students in this study show a high preference for auditory-visual-kinesthetic learning style among 73.9% of the male student compared to almost all (99%) the females. At least three studies are in line with the present study results. *First,* McKenna et al who had found that the majority of nursing students were more inclined toward kinaesthetic and least toward auditory learning style. [17] *Second,* Stirling and Alquraini had conducted a cross-sectional study to Using VARK to assess Saudi nursing students' learning style preferences. Reported that the kinaesthetic learning style was the highest ranked preference for all groups of nursing students. [9] Third, Stirling, 2017 had stated that kinesthetic learning is the preferred style for the majority of nursing student. [18].

On the contrary, Hallin had studied learning styles preference among nursing students at Swedish rural

university. Found the majority of nursing students were flexible' in their learning style preferences and had none or few strong preferences. The difference between Swedish study and the current one may be attributed to the difference of tools used to asses learning style. As he used the productivity environmental preference survey, while the current study used a modified version of C.I.T.E instrument to asses learning styles of nursing students. [19]

The present study portrays statistically significant relation between e-learning skills and visual-numerical, social-group, and expressive oral. While Meyers didn't found any significant relationship between a student's learning style and their e-learning skill. [20] furthermore, a statistically significant relation was observed between computer skills and visual-language visual-numerical and auditory-visual-kinesthetic learners. Therefore, an important implication for nurse education practice is the need for nurses teachers to be familiar with student learning styles and in an effort to maximize student learning potential, using a range of teaching and learning methodologies and assessments that develop all learning styles. [21]

CONCLUSION:

Based on the present study it can be concluded that auditory-visual-kinesthetic was major among the majority of male and female nursing students. Furthermore, the majority of male and female nursing students rated themselves as average, good and very good in computer skills. More than one-third of both male and female students evaluated their e-learning skills as very good without statistically significant differences between the two groups.

Recommendation:

- Nursing educator should be able to identify their students' learning style to maximize their learning potentials.
- The nursing courses should emphasis on skill lab and simulation, as the nursing students are preferred auditory-visual-kinesthetic learning style.

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