

Research

Learning approach and trait anxiety on paramedic and nursing students

Yasin Uzuntarla PhD, is Associate Professor of Health Management and paramedic¹

Affiliation:

¹Gulhane Training and Research Hospital, Ministry of Health, Turkey

Abstract

Introduction

Learning approach and anxiety are important factors in the quality of education. This study was carried out to measure learning approach and trait anxiety levels on paramedic and nursing students.

Methods

This cross-sectional study – undertaken between July and December 2016 – aimed to evaluate paramedic and nursing students studying in Ankara in Turkey. A survey system was used for data collection utilising the Revised Two Factor Study Process Questionnaire and State-Trait Anxiety Inventory methods. The SPSS statistical package program was used to analyse the data. The Kolmogorov-Smirnov test, the Mann Whitney-U test, the t-test, Spearman correlation analysis and multiple regression analysis were used for data analysis.

Results

It was determined that students preferred deep learning; over half of the students were observed to demonstrate lower anxiety levels using this method. As a sub-dimension of surface learning, surface motive was more expressively preferred by the paramedic students. Statistically, no significant relationship was observed between study process and trait anxiety.

Conclusion

Developing deep learning education systems and creating an environment to reduce anxiety is beneficial to students. Further research should be undertaken to determine the relationship between learning approach, socio-demographic characteristics and anxiety.

Keywords:

paramedic; nurse; student; learning approach; trait anxiety

Corresponding Author: Yasin Uzuntarla, yasinuzuntarla@gmail.com

Introduction

Learning approach is an effective factor in determining an individual's learning processes. It also explains the different success levels between students (1–3). Marton and Säljö established the theory of learning approach by carrying out research to determine what students saw as the purpose for learning, and concluded that students showed deep and surface learning approaches (4,5). Deep learning requires questioning, analytical thinking and an ability to associate new information with former knowledge as well as focussing on a subject without losing its essence. Surface learning, however, is defined by learning enough to pass exams with the least effort, memorising subjects and separating them into fragments; hence, losing the subject's integrity (6–8).

Anxiety is a feeling of uncertainty, dissatisfaction and sadness and anticipation of an uncontrollable threat (9–10). There are two types of anxiety: state and trait. State anxiety is an emotional condition, which is temporary and short-lived and specific to that timeframe. Trait anxiety, however, reflects an individual's state of mind. These individuals generally experience constant stress, feel continual misery and dissatisfaction and therefore become vulnerable and fragile and may experience more state anxieties (11–13).

Because the health sector is directly related to human life and does not tolerate error, health workers are expected to graduate with adequate knowledge and experience. This is closely related to students' learning approaches. However, it is known that anxiety leads to a lack of interest in learning and negatively affects learning and academic performance (14–15).

In this study, analysis of learning approaches and trait anxiety levels of paramedic and nursing students were targeted. This objective prompted the research questions:

- Is there a relationship between learning approaches and trait anxiety?
- What socio-demographic characteristics affect learning approaches and trait anxiety?

Methods

Study design

This was a cross-sectional study using a paper-based set of survey forms.

Population

This study was undertaken with students of the Gulhane Nursing School (GNS) and Gulhane Health Vocational School (GHVS), which had been members of the Gulhane Military

Medical Academy in 2016 but had since been demilitarised and handed over to the Health Sciences University. The GNS had 77 female nursing students completing a 4-year study course. The GHVS had 108 male paramedic students undertaking a 2-year study course. The paramedic students averaged 20 years of age and the nursing students 22 years of age. The study was performed between July and December 2016 with those students agreeing to participate in the research. The sample size was not calculated for the study and aimed to reach all the senior students.

Instrument

A survey method, which contained a three-part questionnaire, was used as data collection tool.

The socio-demographic character form: There were seven questions in this section prepared by the researchers regarding participants' school, height and weight, family income level, opinion about school success levels, number of siblings and the education level of parents.

Study process questionnaire: In order to evaluate the learning approach, some inventories were developed by researchers. The Revised Two Factor Study Process Questionnaire (R-SPQ-2F) was used due to its easy implementation and fewer number of questions (16). Onder and Beşoluk translated a scale into Turkish developed by Biggs, Kemberg and Leung (17–18). The Cronbach alpha values were 0.73 for deep learning and 0.64 for surface learning in the original study. This scale contained 20 questions with a 5-fold Likert and consisted of two dimensions: deep and surface learning. The points of each dimension ranged between 10 and 50. Each dimension was further divided into 'motive' and 'strategy' sub-dimensions within itself. Motivation and strategy expressed why learning was wanted and how was learned, respectively. The dimension and sub-dimension scores were obtained from questions as the sum of points. The arithmetic average was accepted as the limit value (16–18).

Trait Anxiety Inventory (TAI): To examine general anxiety level, Oner and Le Compte (1983) translated the developed scale by Spielberger, Gorsuch and Lushene (1970) into Turkish (12,19). The Cronbach alpha value was 0.78 for TAI in the original study. The scale consisted of 20 questions with 4-fold Likert and the scale score varied between 20 and 80 points, with high scores indicating high anxiety. The average points ranged between 36 and 41. In addition, anxiety level evaluations were graded as: 20–35 low, 36–42 intermediate, 43–60 high and 61–80 serious. Those who scored more than 61 points were at serious anxiety limits and considered as having a health problem, hence, they were required to be followed closely (12,13).

Statistical analysis

The SPSS statistical package program (Version 21, Chicago IL, USA) was used to analyse the data. The Kolmogorov-Smirnov test was performed to control the fitness of data to normal distribution. Among nonparametric tests, the Mann-Whitney U test was used to compare inter-group data. Among parametric tests, the t-test was used for independent groups. Spearman correlation analysis was used to determine the relationship between variables while multiple regression analysis was used to determine the effect. The statistical significance threshold was accepted as $p < 0.05$.

Ethics

Written approval, ethics committee and questionnaire board permissions were obtained from the Health Sciences University. The survey was conducted by those who agreed to participate to the study voluntarily.

Results

The participation rate was 98.3%: 100% of the nursing students (NS) ($n=77$) and 97.2% of the paramedic students (PS). Of all the participants, 57.7% were male and PS, and 42.3% were female and NS. Among the total group of participants, 79.2% had a normal body mass index, 40.7% had a family income of \$350–700, 63.2% had three or more siblings, and 62.7% had good school performance. Furthermore, 58.9% of the participants' mother and 45.6% of the participants' father were primary school graduates.

Table 1. Reliability of the scales used in the study

Scales and sub-scales	Number of questions	Reliability co-efficient
R-SPQ-2F general	20	0.67
Deep learning	10	0.82
Deep motive	5	0.67
Deep strategy	5	0.70
Surface learning	10	0.75
Surface motive	5	0.66
Surface strategy	5	0.50
Trait Anxiety Inventory	20	0.79

Reliability meant measurement consistency and high measurement of the internal-consistency-reliability of used scales was important. Reliability co-efficient of scales was 0.67 for the R-SPQ-2F and 0.79 for the TAI. The scales were evaluated as reliable (Table 1).

When school types were taken into account and participants R-SPQ-2F scores were analysed, no statistical significance was observed except for the sub-dimension of surface motive. This score meant studying enough to pass courses and was higher for PS than for NS ($p=0.02$). When scale average was examined, both PS and NS were identified to prefer deep learning to surface learning. More NS preferred deep learning than PS, but the difference was statistically insignificant. When the TAI scores were analysed NS had higher levels of trait anxiety scores than PS, however, no statistical significance among participants was observed ($p > 0.05$) (Table 2).

Table 2. Analysis of the R-SPQ-2F and Trait Anxiety Inventory scores based on school type

R-SPQ-2F	School type	n	Minimum	Maximum	Mean	SD	Z*	p-value
Deep learning	PS	105	12	46	32.68	6.74	0.959	0.33
	NS	77	18	45	33.62	6.03		
Deep motive	PS	105	5	24	16.07	3.58	-0.517	0.60
	NS	77	7	23	16.31	3.21		
Deep strategy	PS	105	7	24	16.60	3.66	-1.298	0.19
	NS	77	8	23	17.31	3.13		
Surface learning	PS	105	15	43	29.82	6.49	-1.691	0.09
	NS	77	13	37	27.72	6.18		
Surface motive	PS	105	6	25	14.93	3.95	-2.276	0.02
	NS	77	6	20	13.58	3.41		
Surface strategy	PS	105	7	22	14.89	3.32	-1.181	0.23
	NS	77	6	21	14.14	3.25		
R-SPQ-2F general	PS	105	40	84	62.51	7.88	0.507**	0.34
	NS	77	40	77	61.35	8.50		
TAI	PS	105	21	46	34.02	5.45	-1.805	0.07
	NS	77	23	56	35.46	5.05		

PS: Paramedic Students, NS: Nursing Students, * Mann-Whitney U test, ** t-test, $p < 0.05$ *

About 62.9% of PS and 49.4% of NS showed low anxiety level. In general, 57.1% of the participants had low, 36.8% medium and 6.1% high anxiety levels. No participant was at serious anxiety level.

As two different groups (PS and NS), deep learning, deep motive and deep strategy and surface learning, surface motive and surface strategy, showed statistically positive and significant relationship with all dimensions and sub-dimensions of study process. Furthermore, there was a significant relationship between surface learning and deep motive. Unfortunately there was a statistically significant relationship between deep learning and sub-dimensions of surface motive. No significant relationship was observed between trait anxiety and learning approach of its sub-dimensions (Table 3).

As the result of regression analysis, deep learning was significantly but negatively affected only by school success level variable ($\beta=-0.168$, $p=0.03$). In addition, there was no

statistically significant effect of variables on surface learning and trait anxiety (Table 4).

Discussion

Research to determine learning approaches has generally focussed on educational science students and occasionally on medical and health science students. Previous studies performed on educational science and medical science students revealed that students frequently choose deep learning (5,20–23). Our study produced similar results as PS and NS prefer deep learning to surface learning profoundly. Deep learning dimension points for NS found in our study (33.62 ± 6.03) and in other Turkish studies (31.30 ± 5.50) seemed to be similar to Nepal (31.36 ± 4.72) and China (33.40 ± 3.40) (1,24–25). Deep learning dimension points of PS however, were found (32.68 ± 6.74) and no comparison was possible as there was no previous study to compare it with.

Table 3. Correlation between R-SPQ-2F and Trait Anxiety Inventory

Dimensions	Deep learning	Deep motive	Deep strategy	Surface learning	Surface motive	Surface strategy	R-SPQ-2F General	TAI
Deep learning	1							
Deep motive	0.913**	1						
Deep strategy	0.914**	0.691**	1					
Surface learning	-0.142	-0.153*	-0.133	1				
Surface motive	-0.236**	-0.250**	-0.205**	0.903**	1			
Surface strategy	-0.048	-0.060	-0.051	0.900**	0.645**	1		
R-SPQ-2F General	0.573**	0.513**	0.533**	0.681**	0.538**	0.692**	1	
TAI	0.038	-0.023	0.088	-0.018	-0.009	-0.043	0.052	1

Spearman Correlation Analysis, * $p<0.05$ and ** $p<0.01$

Table 4. R-SPQ-2F and Trait Anxiety Inventory scales and multiple regression analysis for socio-demographic characters

	R-SPQ-2F				TAI	
	Deep learning		Surface learning			
	β	t	β	t	β	t
School type	0.121	1.405	-0.061	-0.721	0.121	1.386
Body mass index	-0.065	-0.804	0.088	1.109	0.056	0.687
Family income level	-0.152	-1.666	0.031	0.340	0.027	0.295
Number of siblings	0.109	1.250	0.151	1.775	-0.049	-0.557
School success level	-0.168*	-2,189	0.074	0.985	-0.029	-0.372
Education level (mother)	0.021	0.203	-0.023	-0.224	-0.044	-0.420
Education level (father)	-0.041	-0.413	-0.132	-1.357	0.128	1.274
R	0.251		0.311		0.195	
R2	0.063		0.097		0.038	
F	1.672		2.666		0.977	
p	0.119		0.012		0.449	

* <0.05 , β : standardised regression co-efficient, R2: variance

In addition, PS preferred using more surface motive than NS. Reasons for that could be the 2-year college paramedic course but with a complex curriculum, implementation-oriented classes rather than analytical knowledge, hence PS may prefer surface motive to pass the courses. Shah et al (23) supported that more NS favored surface motive than PS did.

More than half of the students had low anxiety levels and average scores of NS were higher than PS. However, the difference was insignificant. This study also revealed that analysing anxiety via school type also analysed gender and that females had higher anxiety levels than males. This may be due to female bio-psychosocial features that relate to anxiety (10,11,13). In addition, the loss of post-graduation job guarantee due to the demilitarisation of schools might have raised the level of anxiety somewhat. However, very few students were observed to have a high level of anxiety. Currently there is a high level of health personnel employment in the civil public sector, which may have kept the level of anxiety related to employment options low.

In the literature, the relationship between learning approach and academic success, self-efficacy, epistemological belief, motivation and control centres were pointed out (1,25). Apart from these variables, our study particularly expressed a correlation between learning approach and trait anxiety, and no significant relation was identified between these two variables.

Regression analysis revealed that only school success level had an effect on deep learning. Yardimci et al found that school success did not affect deep learning on NS (1). It was also evaluated that school success and passing the exam and getting high scores and a short duration characteristic had an adverse effect on the deep learning.

Limitations

The study plan covered PS and NS in Turkey. However, due to demilitarisation of these schools only the final grade students participated in the research.

Conclusion

This study analysed the relationship between learning approach and trait anxiety for the first time. In addition, it is the first attempt at analysing the learning approach of PS, determining PS and NS in terms of learning approach and trait anxiety variables and examining the very last military PS and NS.

Nursing and paramedic students used deep learning profoundly, however, PS preferred more surface motive than NS. More than half of the students had low anxiety levels. No significant relationship between trait anxiety and learning approach was observed. In addition, school success level highly influenced deep learning in a negative direction.

Developing deep learning education systems and creating an environment to reduce anxiety would be beneficial to students. Studies should be undertaken to determine the relationship between learning approach and state anxiety, and further socio-demographic characteristics.

Conflict of interest

The author declares they have no competing interests. The author of this paper has completed the ICMJE conflict of interest statement.

References

1. Yardimci F, Bektas M, Ozkutuk N, Muslu GK, Gerceker GO, Basbakkal Z. A study of relationship between the study process, motivation resources, and motivation problems of nursing students in different educational systems. *Nurse Educ Today* 2017;48:13–8.
2. Entwistle N, McCune V. The conceptual bases of study strategy inventories. *Educ Psychol Rev* 2004;16:325–45.
3. Dart BC, Burnett PC, Purdie NM, Boulton-Lewis G, Campbell J, Smith D. Students' conceptions of learning, the classroom environment, and approaches to learning. *J Educ Res* 2000;93:262–70.
4. Marton F, Säljö R. On qualitative differences in learning: I- outcome and process. *Br J Educ Psychol* 1976;46:4–11.
5. Ekinci N. The relationship between approaches to learning and self-efficacy beliefs of candidate teachers. *Hacettepe University Journal of Education* 2015;30:62–76.
6. Gordon C, Debus R. Developing deep learning approaches and personal teaching efficacy within a preservice teacher education context. *Br J Educ Psychol* 2002;72:483–511.
7. Biggs J. The study process questionnaire SPQ: Manual. Hawthorn, Vic.: Australian Council for Educational Research. 1987.
8. Ali S, Khan HF. Impact of combined modular assessment on deep learning and personal development of medical students. *Pak J Med Sci* 2016;32:191–5.
9. Clark DA, Beck AT. The anxiety & worry workbook: the cognitive behavioral solution. New York: Guilford Press. 2012.
10. Uzuntarla Y, Ugrak U, Cihangiroglu N. Analysis of relationship between trait anxiety and assertiveness. *The Journal of International Social Research* 2016;9:1704–11.
11. Yilmaz IA, Dursun S, Guzeler EG, Pektas K. Determining on anxiety level of university students: a case study. *Electronic Journal of Vocational Colleges* 2014;4:16–26.
12. Oner N, Le Compte A. *Durumluk-surekli kaygi envanteri el kitabı*. İstanbul: Bogazici Matbaasi; 1983.
13. Uzuntarla Y, Cihangiroglu N, Ceyhan S, Eroglu M. The analysis on relationship between trait anxiety and socio-demographic characteristics of university students. *The Journal of International Education Science* 2015;2:156–69.
14. Vitasari P, Abdul Wahab MN, Othman A, Herawan T, Sinnadurai SK. The relationship between study anxiety and

References (continued)

- academic performance among engineering students. *The Procedia – Social and Behavioral Sciences* 2010;8:490–7.
15. Mazzone L, Ducci F, Scoto MC, Passaniti E, D'Arrigo VG, Vitiello B. The role of anxiety symptoms in school performance in a community sample of children and adolescents. *BMC Public Health* 2007;7:347.
 16. Bati H, Tetik C, Gurpinar E. Assessment of the validity and reliability of the Turkish adaptation of the study process questionnaire (R-SPQ-2F). *Turkiye Klinikleri J Med Sci* 2010;30:1639–46.
 17. Biggs J, Kember D, Leung DY. The revised two-factor study process questionnaire: R-SPQ-2F. *Br J Educ Psychol* 2001;71:133–49.
 18. Onder İ, Besoluk S. Adaptation of revise two factor study process questionnaire (R-SPQ-2F) to Turkish. *Education and Science* 2010;35:55–67.
 19. Spielberger C, Gorsuch RL, Lushene RE. *STAI manual for state-trait inventory*. CA: Consulting Psychologist Press; 1970.
 20. Yılmaz MB, Orhan F. The validity and reliability study of the Turkish version of the study process questionnaire. *Education and Science* 2011;36:69–83.
 21. Kanadlı S, Akbas A. The relationship between pre-services science teachers' epistemological beliefs, learning approaches and UPE scores. *Mersin University Journal of the Faculty of Education* 2015;11:116–31.
 22. Ciftci M, Ozan C. Analysis of approaches to learning preferences and perceptions of learning of students in faculty of education. *Pegem Journal of Education and Instruction* 2013;3:55–66.
 23. Shah DK, Yadav RL, Sharma D, et al. Learning approach among health sciences students in a medical college in Nepal: a cross-sectional study. *Adv Med Educ Pract* 2016;7:137–43.
 24. Tiwari A, Chan S, Wong E, et al. The effect of problem-based learning on students' approaches to learning in the context of clinical nursing education. *Nurse Educ Today* 2006;26:430–8.
 25. Olpak YZ, Korucu AT. Investigation of the relation between candidate teachers' approaches to learning and locus of control. *Educational Technology Theory and Practice* 2014;4:77–91.