

An analysis on Structure Equation Model of Convergent Influence on Academic Burnout of Health Major Students in Studying for TOEIC

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보건계열 대학생의 토익 학업소진에 미치는 융복합적인 요인에 관한 구조방정식 모형 분석

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Abstract This study investigates convergent influence on Self Factors(SF), Stress Factors(STF), Resilience & Control Factors(RCF), Test Anxiety(TA), Learning Flow(LF) and academic burnout among Health College Students in TOEIC class(HCST). The survey was administered to 291 HCST from 1 college located in J area during the period from April 3, 2017 to April 14, 2017. The structured self-administered questionnaires were used. With the analysis of covariance structure, we could confirm relationship among the six factors such as SF, STF, RCF, TA, LF and academic burnout. The results of the study indicate that the efforts, to manage these factors, are required to decrease the academic burnout of HCST. Squared multiple correlations, which explain the academic burnout related with the stress from economic pressure and job seeking, test anxiety, learning flow and self factors, were 98.8%. The results are expected to be useful for the development of TOEIC learning curriculum and course to decrease the academic burnout of HCST. In the following study, the analysis about additional factors of influence on academic burnout will be needed.

Key Words : Convergent influence, Health Major Students, TOEIC Study, Academic Burnout, SEM

요 약 본 연구는 보건계열 대학생의 토익학습에서 자아요인, 스트레스요인, 적응 및 통제요인, 시험불안 및 학습몰입과 학업소진의 관련성을 파악하고 학업소진에 미치는 융복합적 영향을 분석하였다. 조사대상은 임의로 선정된 J 지역 1개 대학의 토익학습반에 참여하는 보건계열 대학생 291명으로 하였으며, 자료수집은 2017년 4월 3일부터 4월 14일까지 자기기입식 설문지를 통해 이루어졌다. 공분산 구조분석 결과, 자아요인, 스트레스요인, 적응 및 통제요인, 시험불안, 학습몰입 및 학업소진의 인과관계가 확인되었다. 경제적스트레스 및 취업스트레스, 시험불안, 학습몰입과 자아요인이 학업소진을 설명하는 squared multiple correlations은 98.8%로 나타났다. 이상의 연구결과를 볼 때, 보건계열 대학생의 토익학습의 학업소진을 낮추기 위해서는 이들 요인들을 관리하는 노력이 필요하다. 이러한 결과는 보건계열 대학생의 토익학습의 학업소진을 낮추는 토익학습 교육과정 및 교과목 개발에 활용이 기대된다. 향후연구에서는 학업소진에 영향을 미치는 추가요인에 대한 분석이 필요하다.

주제어 : 융복합적 영향, 보건계열 대학생, 토익학습, 학업소진, 구조방정식

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1. Introduction

The local governments are presenting a variety of medical service policies targeting nationals abroad and foreigners. In order to provide a high-quality medical service, human resource with fluent language skills is essential in addition to good facilities, convenience, and accessibility [1]. As a part of good medical service, interpretation for foreigners shall use accurate medical terms and explain clinical procedures clearly in order to prevent malpractice from happening [2], foreign language skills are considered as fundamental qualification of medical service providers. Ability to provide medical service at international level means medical communication skills including medical knowledge, understanding on hospital system, linguistic ability, etc [3].

Every student in Health majors learns specialized knowledge such as medical care, medical support, hospital administration, etc. in order to be future medical service providers in the field [4]. The students in Health majors are considered as right talents for international medical service as they are required to complete the medical curriculum learning about medical care and hospital system as well as foreign language courses, typically English [5].

The college students need to enhance executive abilities for employment [6], and the role of universities for practical teaching is emphasized accordingly. TOEIC, evaluates communication skills of non-native speakers, has witnessed increase in applicant population every year. More and more institutions and colleges require certain level of TOEIC or mandatory culture course of TOEIC [7]. TOEIC is a test developed in the United States in 1979 and introduced in South Korea in 1982. Since then, the government, public institutions, corporations, colleges and other organizations have utilized the score. The market for TOEIC such as private institutes, textbooks, etc. and share of mass media have ever been increased like forever [8]. Utilization of TOEIC covers employment

process in countless organizations, and many related curriculums in colleges are accounted as official credits [9]. There are even official training school, boot camp, and special course for TOEIC during semester and/or vacation, run as irregular curriculum or extracurricular activities. From the viewpoint of colleges, TOEIC is closely related with education capacity enhancement and financial aid that are presented by internationalization index and industrial-academic cooperation index, etc. To the students, it is one of the basic requirements for occupations and careers [10].

The pressure of foreign language skills on the Health major students is only increasing since they will provide various medical services in public or civil medical facilities after graduation [3]. It shall investigate the variables in TOEIC performance improvement and utilize the findings to strengthen the English capability of Health major students meeting the demand of the times. The English education in colleges must find a way to improve achievement in order to comply with the requests from the internationalization era and job market [11]. As part of the variable management, it points out that the factors that cause academic burnout have to be under control for successful job hunting and scholastic records [12].

It is essential to identify the factors impact on academic burnout of the students in learning foreign languages [13]. Academic burnout is a symptom that shows tiredness, sense of inadequacy, lack of interest, and problems in school performance due to schoolwork stress. Overwhelming stress from excessive academic pressure causes physical, mental and emotional exhaustion with feeling of fatigue, frustration, sense of distance toward learning, stress, sense of mental burnout, feeling of helplessness, cynical attitude, etc [14, 15]. Performance problems from the students' academic burnout are influenced by text anxiety [16], learning flow [17], self esteem [16], self competency [18], self efficacy [19], economic pressure [20], academic stress [12, 21], and sense of adaptation and

control [18]. Among these, the self factors are related with positive self rating, ability to cope with situations, and sense of self competency. This category includes stress [13], test anxiety [16, 22], academic burnout [12] and learning flow [17, 23]. Stress from economic pressure [20] and job seeking [24] are related with academic performance while school resilience [25] and sense of academic control [18] have something to do with test anxiety and learning flow. Test anxiety causes the worries and tensions including various body symptoms, and regardless of test, it also impacts on learning flow [26] and academic burnout [27]. Learning flow is how student is buried into current learning or activity [28], being related with academic control [29]. In short, it produces a model of structural equation by collecting and organizing both direct and indirect impact pathways of self factors, stress factors, resilience and control factors, text anxiety and learning flow on academic burnout.

Despite the increasing need to enhance Health major students' employment capability focused on the job as well as foreign language communication skills, the studies on academic burnout relevance are insufficient to effectively increase language learning achievement. The existing researches had investigated factors similar to academic burnout, self elements, stress elements, test anxiety and studying immersion respectively but the understanding on relations between the factors of Health major students, relative importance and convergence approach to the influences are highly desired. In conclusion, as demands for the implementation of international competency increase for Health major students, this study identifies academic burnout with self factors, stress factors, adaptation and control factors, test anxiety and studying immersion as well as general characteristics. Further, the variables are subject to the analysis of mutual relation and convergence.

This study investigates the reciprocal relation between Health major students' self factors, stress

factors, resilience and control factors, test anxiety, learning flow, academic burnout, and convergence impacts of the relations. In order to adapt the increasing demand for TOEIC and actively meet the need of international medical service with quality, it aims to provide data for TOEIC curriculum and subject development while reducing the possibility of academic burnout.

2. Methods

2.1 Subjects

The data was collected from April 3rd, 2017 to April 14th, 2017 for two weeks. The proper sample size was calculated by G power 3.1 program [30] for t-test, ANOVA, correlation analysis and multiple regression analysis. The result of analysis with significance level (0.05), test power (0.95) and effect size (0.15) estimated F critical region 1.50 and necessary sample number as 264. Considering elimination rate, 400 people was determined as survey target. The survey randomly selected one college that has Health department at J region and randomized 400 students at the special course for TOEIC. As a result of the survey, 322 students returned the questionnaires (recovery rate 80.5%) and 31 copies of them were excluded due to trustless responses. Finally, the 291 questionnaires remained were analyzed.

The investigators were familiarized with research ethic and study contents before visiting the college to collect data. Randomly chosen students of Health department were informed the purpose, contents and how to fill the questionnaire at one on one interview. The students assented to participate in the study and filled in the structured anonymous self-administered questionnaire personally. The investigators collected the responses on the spot.

2.2 Research tool

The questionnaire consists of population sociology (9 items), college life (7 items), health-related activity (5 items), self esteem (10 items), self competence (6 items), self efficacy (18 items), economic stress (8 items), job seeking stress (22 items), school resilience (22 items), academic control (7 items), test anxiety (20 items), learning flow (29 items) and academic burnout (15 items). The internal reliability Cronbach's α value for measuring factors was estimated as shown in <Table 1>.

<Table 1> The Mean \pm SD and Cronbach's α of scale

Scale	Sub-domains	No.	Mean \pm SD	Cronbach's α
Self esteem		10	28.19 \pm 4.04	.813
Self competence		6	17.14 \pm 8.44	.818
Self efficacy		18	79.03 \pm 13.08	.889
Economic stress		8	17.56 \pm 4.40	.920
Job Seeking Stress	Personality stress	6	9.49 \pm 4.34	.858
	Home environment stress	5	8.10 \pm 4.19	.869
	Schoolwork stress	4	7.30 \pm 3.68	.865
	School environment stress	4	7.01 \pm 3.44	.830
	Unstable job stress	3	3.83 \pm 1.86	.811
	Total	22	35.73 \pm 14.24	.936
School Resilience	Interest in school life	7	19.23 \pm 3.56	.791
	Attitudes to study and grades	5	13.44 \pm 2.42	.636
	Compliance with school regulations	10	34.42 \pm 3.83	.744
	Total	22	67.09 \pm 7.37	.820
Academic Control		7	23.56 \pm 4.80	.865
Test Anxiety	Tension	5	11.20 \pm 3.84	.875
	Worry	6	12.74 \pm 4.30	.873
	bodily symptom	5	8.07 \pm 3.16	.831
	test-irrelevant thinking	4	7.12 \pm 2.84	.833
	Total	20	39.12 \pm 12.47	.946
Learning Flow	Combination of challenges and skills	3	8.91 \pm 4.16	.584
	Integration of behavior and consciousness	3	7.87 \pm 2.39	.718
	Clear goals	3	7.45 \pm 2.37	.843
	Specific feedback	3	7.25 \pm 2.39	.702
	Focus on task	3	7.22 \pm 2.37	.795
	Sense of control	3	7.33 \pm 6.09	.771
	Loss of consciousness	3	6.95 \pm 2.53	.849
	Distorted of time and sense	3	7.842 \pm 2.44	.802
	Purposeful self-experience	5	11.73 \pm 3.96	.866
	Total	29	72.55 \pm 19.23	.960
Academic Burnout	Exhaustion	5	16.28 \pm 4.87	.909
	Cynicism	4	11.00 \pm 16.57	.884
	Inefficacy	6	17.18 \pm 4.05	.852
	Total	15	44.46 \pm 10.37	.904

The self-worth under self category utilizes the scale with 10 questions adapted by Jeon Byeongje [32] on the basis of Rosenberg [31] scale. The score is ranged 10-40 and higher result confirms higher self esteem. For self competence, it uses the scale (6 items) written by Park Hyeongsun [25] using Hernandez[33] scale and etc. The score is ranged 6-24 and higher result shows higher self competence. Yang Sukmi [35] reconstructed Tipton and Worthington's GSE (The Generalized Self-Efficacy scale) [34] for self efficacy. The 18 scale items were examined for validity. The score is ranged 18-126 and higher result identifies higher self efficacy.

Economic stress under the stress category uses the scale (8 items) modified and supplemented by Oh Seunghwan [37] on the basis of Conger and etc. [36] The score is ranged 8-32 and higher result confirms greater stress. Job seeking stress utilizes the scale (22 items) modified and complemented based on CMI (Cornell Medical Index) [38]. This test has five sub-domains; personality stress (6 items), home environment stress (5 items), schoolwork stress (4 items), school environment stress (4 items), and unstable job stress (3 items). The score range is 22-110 and higher result means greater employment stress.

School resilience and control category was modified and complemented by Park Hyeongsun into the scale with 22 items on the basis of Mastern and etc. [39] This test has three sub-domains; interest in school life (7 items), attitude toward study and grade (5 items), and compliance with school regulations (10 items). The score is 22 through 88 and higher result represents better school resilience. Academic control was measured by the scale (7 items) modified and supplemented by Lee Youngbuk et al. [41] on the basis of Karasek et al [40]. The score is 7 to 35 and higher result indicates better academic control.

The text anxiety used the scale (20 items) adapted by Jo Youngrae [43] using the measuring scale of Benson et al. [42] This test has four sub-domains;

tension (5 items), worry (6 items), bodily symptom (5 items) and test-irrelevant thinking (4 items). The score is 20 through 80 and higher result implies greater test anxiety.

Learning flow was measured by the scale (29 items) validated by Kim Ayoung et al [45] based on the scale of Csikszentmihalyi [44]. This test consists of nine sub-domains: combination of challenges and skills (3 items), integration of behavior and consciousness (3 items), clear goals (3 items), specific feedback (3 items), focus on task (3 items), sense of control (3 items), loss of consciousness (3 items), distorted of time sense (3 items), and purposeful self-experience (5 items). The score is ranged from 29 to 145 and higher result indicates deeper learning flow.

For academic burnout, it utilizes the scale with 15 items [15] targeting the Korean students, which was validated based on Schaufeli et al. [14]'s MBI-SS(Maslach Burnout Inventory-Student Survey). This test has three sub-domains: exhaustion (5 items), cynicism (4 items) and inefficacy (6 items). The score range is 15-75 and higher result represents greater academic burnout.

2.3 Data processing

The data collected was computerized and analyzed for statistic results by using SPSSWIN(ver 22.0). Pearson's correlation coefficient was obtained in order to identify correlation between self esteem, self competence, self efficacy, economic stress, job seeking stress, school resilience, academic control, test anxiety, learning flow and academic burnout.

The structural equation model utilizes SPSS Amos(ver 22.0) and maximum-likelihood classification for estimation of parameter. The variables used for the equation consider each model components as latent variables and selected the variables corresponding to each component as observing variables. The selection of variable was performed to not only support the theoretical model with significant relevance shown at

the individual simple analysis on each path but also constitute proper model based on model fit. Self factors were included into the structural equation model as exogenous latent variable. The endogenous variables suggested by the theoretical model such as stress factors, resilience and control factors, test anxiety, learning flow, academic burnout and Y-observing variable were added to the structural equation model. Each path's effect was divided into the route transforms from exogenous latent variable to endogenous latent variable, and the route between endogenous variables. Direct effects on the routes are displayed. The significance level of every statistics is $p < 0.05$.

3. Results

3.1 General characteristics of participants

The general characteristics of the 291 survey participants cover gender, age, BMI, religion, economic status of family, conversations with parents, parental rearing attitudes, home atmosphere, family life satisfaction, school records, relation with professors, relation with friends, school bullying or violence experienced, school life satisfaction, drinking alcohol, cigarette smoking, regular eating, regular exercise, sleeping hours, hobby or leisure life, and subjective health status <Table 2>.

3.2 Correlation between academic burnout and related variables

The correlations between academic burnout and related factors are significant as follows: self esteem ($r = -.471$, $p < .01$), self competence ($r = -.461$, $p < .01$), self efficacy ($r = -.599$, $p < .01$), economic stress ($r = .239$, $p < .01$), the sub-domain of job seeking stress; personality stress ($r = .375$, $p < .01$), home environment stress ($r = .148$, $p < .05$), schoolwork stress ($r = .414$, $p < .01$), school environment stress ($r = .239$, $p < .01$),

<Table 2> General characteristics of subject(n=291)

Control variable	Classification	N(%)
Gender	Male	53(18.2)
	Female	238(81.8)
Age(year)	<20	122(41.9)
	20≤	169(58.1)
	≤18.4	76(26.1)
	18.5-22.9	179(61.5)
BMI(kg/m ²) [†]	23.0-24.9	19(6.5)
	25.0≤	17(5.8)
	Yes	127(43.6)
	No	164(56.4)
Economics status of family	Difficult	125(43.0)
	Good	166(57.0)
Conversations with parent	Often	247(84.9)
	Almost never	44(15.1)
	Acceptable	235(80.8)
Parental rearing attitudes	Strict	56(19.2)
	Good	276(94.8)
Home atmosphere	Bad	15(5.2)
	Satisfied	268(92.1)
Family life satisfaction	Dissatisfied	23(7.9)
	Good	48(16.5)
School record	Medium	195(67.0)
	Bad	48(16.5)
	Good	277(95.2)
Relationship with the Professor	Bad	14(4.8)
	Good	279(95.9)
Relationship with the friend	Bad	12(4.1)
	Yes	19(6.5)
School bullying or violence experienced	No	272(93.5)
	Satisfied	216(74.2)
School life satisfaction	Dissatisfied	75(25.8)
	Yes	220(75.6)
Drinking alcohol	No	71(24.4)
	Yes	38(13.1)
Cigarette smoking	No	253(86.9)
	Yes	73(25.1)
Regular Eating	No	218(74.9)
	Yes	62(21.3)
Regular exercise [‡]	No	229(78.7)
	<7	185(63.6)
Sleeping time(hr)	7≤	106(36.4)
	Enough	118(40.5)
Hobbies & leisure life	Not enough	173(59.5)
	Good	204(70.1)
Subjective Health status	Bad	87(29.9)

[†] BMI were divided into four groups, Under weight group(≤18.4 of BMI score), normal weight group(18.5≤ BMI score≤ 22.9), Over weight group(23.0≤ BMI score≤ 24.9), Obese group(25.0≤ BMI score)
[‡] : At least three times a week, more than 30 minutes at a time.

unstable job stress (r=.221, p<.01), the sub-domain of school resilience; interest in school life (r=-.738, p<.01), attitude to study and grades (r=-.466, p<.01), compliance with school regulations (r=-.262, p<.01), academic control (r=-.314, p<.01); the sub-domain of test anxiety, tension (r=.342, p<.01), worry (r=.439, p<.01), bodily symptoms (r=.334, p<.01), test-irrelevant

thinking (r=.396, p<.01), the sub-domain of learning flow; combination of challenge and skills (r=-.434, p<.01), integration of behavior and consciousness (r=-.560, p<.01), clear goals (r=-.387, p<.01), specific feedback (r=-.347, p<.01), focus on task (r=-.444, p<.01), sense of control (r=-.333, p<.01), loss of consciousness (r=-.447, p<.01), distorted of time and sense (r=-.447, p<.01) and purposeful self-experience (r=-.378, p<.01) <Table 3>.

3.3 Result of covariance structure analysis

One exogenous concept (self factors) and five endogenous (economic stress, job seeking stress, school resilience, sense of academic control, test anxiety, learning flow and academic burnout) were theoretical variables to establish the model. The observed variables in self factors were from self esteem, self competence and self efficacy. The observed variables in stress factors were measured from economic stress and job seeking stress. The observed variables in adaptation and control factors were based on the scores estimated from school resilience and academic control. The observed variables of test anxiety, learning flow and academic burnout were from the scores of test anxiety, learning flow and academic burnout scales respectively.

Looking at the model suitability, absolute fit index shows $\chi^2=320.768(df=303)$ and $\chi^2/df=1.059$ less than 3, and significance probability p=.231 larger than .05 which means the model was suitable. Root mean square residual (RMR) was .038 which means the fidelity was fine. The goodness of fit index (GFI) .931 presents high fidelity while the adjusted GFI .901 also shows fine fidelity. The RMSEA .014 implies good model. In the incremental fit index, the normed fit index (NFI) was .997 which meets the model's fidelity. The nonstandard fit index (TLI) was .996 which shows fine fidelity. The comparative fit index (CFI) was .997 that shows fine fidelity <Table 4>.

<Table 3> Correlation coefficients between MBI-SS and the sub-domains of related variables

Var	MBI-SS†	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
1		1																									
2		-.46**	1																								
3		-.39**	.58**	1																							
4		.23**	-.27**	-.25**	-.219**	1																					
5		.37**	-.23**	-.23**	-.24**	.231**	1																				
6		.14*	-.161**	-.130*	-.045	.431**	.564**	1																			
7		.41**	-.23**	-.33**	-.322**	.235**	.674**	.46**	1																		
8		.23**	-.20**	-.184**	-.181**	.137	.529**	.515**	.605**	1																	
9		.221**	-.155**	-.178**	-.115	.172**	.742**	.57**	.542**	.474**	1																
10		-.73**	.412**	.423**	.530**	-.184**	-.214**	-.102	-.319**	-.284**	-.214**	1															
11		-.46**	.257**	.335**	.407**	-.138*	-.248**	-.08	-.324**	-.027	-.223**	.381**	1														
12		-.282**	.106	.173**	.178**	-.08	-.200**	-.135	-.243**	-.195**	-.255**	.233**	.332**	1													
13		-.314**	.208**	.238**	.289**	-.254**	-.279**	-.203**	-.271**	-.109	-.244**	.252**	.355**	.183**	1												
14		.342**	-.302**	-.329**	-.347**	.210**	.453**	.213**	.337**	.273**	.285**	-.193**	-.042	.05	-.097	1											
15		.439**	-.373**	-.357**	-.342**	.189**	.517**	.254**	.467**	.313**	.336**	-.264**	-.139**	-.08	-.175**	.840**	1										
16		.334**	-.223**	-.283**	-.237**	.201**	.502**	.305**	.340**	.323**	.407**	-.254**	-.080	-.163**	-.182**	.716**	.639**	1									
17		.365**	-.283**	-.337**	-.313**	.178**	.393**	.377**	.354**	.232**	.357**	-.272**	-.221**	-.224**	-.217**	.600**	.684**	.631**	1								
18		-.434**	.238**	.413**	.430**	-.164**	-.248**	-.033	-.257**	-.035	-.143**	.327**	.589**	.165**	.388**	-.182**	-.233**	-.135**	-.200**	1							
19		-.500**	.315**	.434**	.533**	-.130**	-.124**	.064	-.192**	.047	.023	.443**	.449**	.089	.330**	-.205**	-.251**	-.131**	-.214**	.535**	1						
20		-.387**	.245**	.375**	.433**	-.147**	-.091	.016	-.140**	-.002	.018	.230**	.342**	.032	.305**	-.242**	-.316**	-.106	-.233**	.510**	.677**	1					
21		-.347**	.144	.232**	.342**	-.009	.020	.106	-.072	.081	.02	.231**	.232**	-.019	.164**	-.164**	-.207**	-.035	-.165**	.382**	.739**	.697**	1				
22		-.444**	.254**	.372**	.477**	-.185**	-.162**	.016	-.225**	-.039	.007	.239**	.333**	-.002	.270**	-.239**	-.345**	-.187**	-.227**	.532**	.762**	.675**	.648**	1			
23		-.333**	.219**	.316**	.382**	-.144**	-.033	.071	-.130**	.023	.038	.238**	.316**	.014	.240**	-.189**	-.247**	-.100	-.195**	.432**	.704**	.648**	.685**	.728**	1		
24		-.447**	.240**	.337**	.443**	-.117**	-.033	.094	-.009	.039	.038	.330**	.238**	-.032	.143**	-.231**	-.238**	-.110	-.249**	.387**	.722**	.602**	.657**	.710**	.700**	1	
25		-.447**	.235**	.330**	.482**	-.135**	-.123**	.035	-.185**	-.013	-.032	.356**	.409**	.051	.308**	-.243**	-.319**	-.145	-.278**	.530**	.725**	.625**	.335**	.761**	.708**	.726**	1
26		-.378**	.178**	.335**	.411**	-.141**	-.094	.065	-.133**	.036	.024	.238**	.304**	-.007	.221**	-.239**	-.278**	-.124**	-.239**	.430**	.721**	.638**	.722**	.715**	.818**	.764**	.744**

* : p<.05, ** : p<.01.

† : MBI-SS : Maslach Burnout Inventory-Student Survey.

<Table 4> Model identification

Model Fit	
Absolute fit index	$\chi^2 = 320.768$ (df = 303), $\chi^2/df = 1.059$, p = .231
	RMR(Root Mean Square Residual) = .038
	GFI(Goodness of Fit Index) = .931
	AGFI(Adjusted Goodness of Fit Index) = .901
	RMSEA(Root Mean Square Error of Approximation) = .014
Incremental fit index	NFI(Normed Fit Index) = .997
	TLI(Tucker-Lewis Index) = .996
	CFI(Comparative Fit Index) = .997

The effects of exogenous latent variable on endogenous latent variable showed that self factors has path-coefficient of .093 (-.825) with regard to academic burnout, which means negative direct effect. The path-coefficient on test anxiety was -.175(-.502) indicating negative direct effect. The path-coefficient on learning flow was .047(.163) indicating positive direct effect. The path-coefficient between endogenous

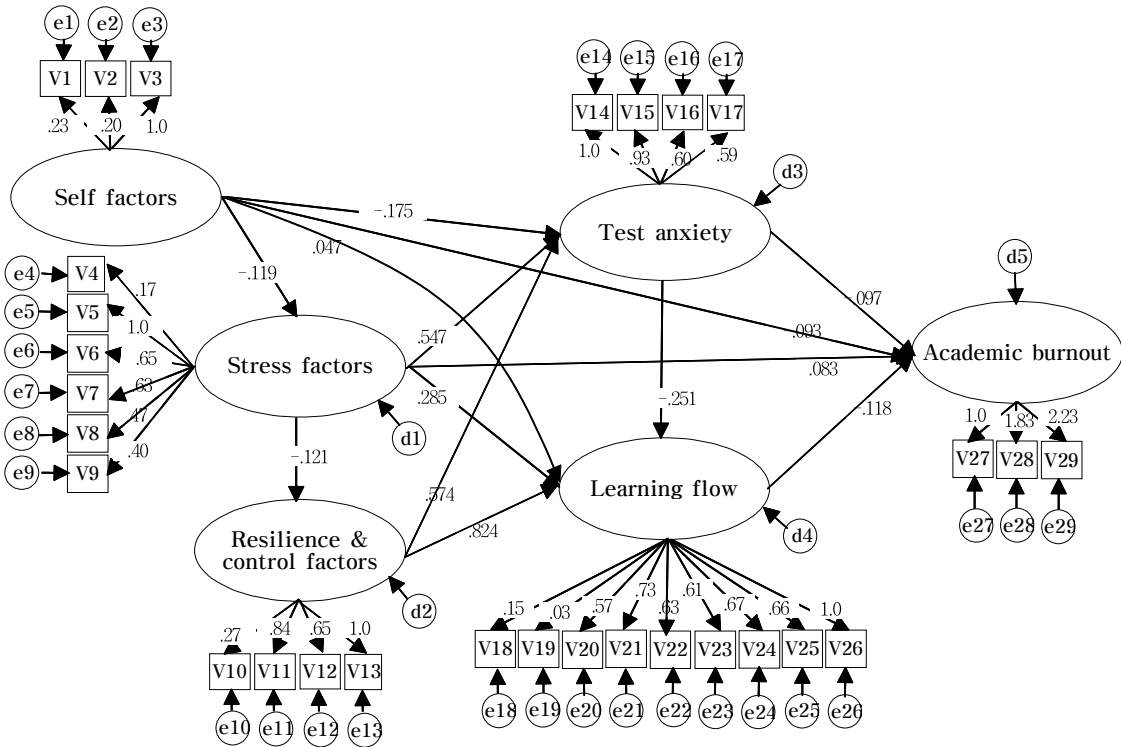
variables found out as follows: economic stress and job seeking stress has the path-coefficient of .083(.264) which implies positive direct effect. The path-coefficient on school resilience and academic control was -.121(-.220) indicating negative direct effect. The path-coefficient on test anxiety .547(.559) presented positive direct effect. The path-coefficient of learning flow .285(.354) has positive direct effect on academic burnout. With regard to school resilience and academic control, the path-coefficient of test anxiety .574(.321) showed positive direct effect as well as the path-coefficient on learning flow .824(.561). Test anxiety's path-coefficient was -.097(-.301) and the path-coefficient on learning flow was -.251(-.305), both were negative direct effect. Learning flow has -.118(-.300) of path-coefficient indicating negative direct effect.

<Table 5> Structural model of endogenous and exogenous variables

Unit : Regression Weights(Standardized Regression Weights)

	Endogenous variable		Test Anxiety	Learning Flow	Exogenous variable Self Factors	Error Z	Coefficient of determination SMC [¶]
	Economic Stress & Job Seeking Stress	School Resilience & Academic Control					
Economic Stress & Job Seeking Stress					-.119** (-.333)	.023	.111
School Resilience & Academic Control	-.121** (-.220)						.136
Test Anxiety	.547** (.559)	.574** (.321)			-.175** (-.502)	.029	.489
Learning Flow	.285** (.354)	.824** (.561)	-.251** (-.305)		.047* (.163)	.028	.482
Academic Burnout	.083** (.264)		-.097** (-.301)	-.118** (-.300)	-.093** (-.825)	.021	.988

* : p<0.05 , ** : p<0.01, ¶ : Squared Multiple Correlations(SMC)



V1	Self esteem	V8	School environment stress	V15	Worry	V22	Focus on task
V2	Self competence	V9	Unstable job stress	V16	bodily symptom	V23	Sense of control
V3	Self efficacy	V10	Interest in school life	V17	test-irrelevant thinking	V24	Loss of consciousness
V4	Economic stress	V11	Attitudes to study and grades	V18	Combination of challenges and skills	V25	Distorted of time and sense
V5	Personality stress	V12	Compliance with school regulations	V19	Integration of behavior and consciousness	V26	Purposeful self-experience
V6	Home environment stress	V13	Academic Control	V20	Clear goals	V27	Exhaustion
V7	Schoolwork stress	V14	Tension	V21	Specific feedback	V28	Cynicism
						V29	Inefficacy

[Fig. 1] Path diagram of structural equation modeling

SMC(Squared Multiple Correlations) is the ratio of dependent variables explained by independent variable. In case of economic and job seeking stress, the variance of .111 was explained by self factors. That is, self factors explain these stresses 11.1%. For school resilience and academic control, the variance explained by the stresses above was .136. Economic stress and job seeking stresses explains school resilience and academic control by 13.6%. As for test anxiety, the variance .489 was explained by economic stress, job seeking stress, school resilience, academic control and self factors indicating 48.9% of explanation. The variance of learning flow was .482 on the basis of economic stress, job seeking stress, school resilience, academic control, test anxiety and self factors indicating 48.2% of explanation. Academic burnout has the variance of .988 explained by the five elements above. It means 98.8% of explanation. The path-coefficients above are significant in self factors on learning flow at 5% level while others are at 1% <Table 5>, [Fig. 1].

4. Discussion

This study aims to review the correlations between self factors, stress factors, resilience and control factors, test anxiety, learning flow and academic burnout experienced by Health major students who are under increasing pressure of TOEIC score. Due to the internationalization in medical service field, the students in Health majors are required to have ability of foreign language skills more and more in order to perform quality medical service [3]. It increases social pressure toward TOEIC score on Health major students after graduation. TOEIC is a fundamental qualification for major curriculum as well as graduate school advancement [7]. English communication skill is essential to employment and job performance to the students [5]. Even in college, textbooks for major and

culture are in English to cultivate personality, job performance required by the society, and learning ability for academic development in graduate school. Academic burnout occurred in learning English is considered to cause serious problem in individual personality, studying major, employment and work life. Social pressure on English skills is ever increasing against the students in Health college where is being internalized. It is natural that the pressure leads to academic burden on them. As the demand for English ability strengthens in medical field, TOEIC score becomes basic qualification. In this reality, investigating variables related with academic burnout in TOEIC studying will help the English curriculum for practical use so the socially required function can be carried out actively.

As mentioned earlier, the scales used to measure the levels of self factors, stress factors, resilience and control factors, text anxiety, learning flow and academic burnout were verified. The survey result of this research also showed high reliability coefficient indicating how the results are credible.

This study carried out covariance structure analysis with exogenous latent variable (self factors) and endogenous latent variables (stress factors, resilience and control factors, text anxiety, learning flow and academic burnout) in order to investigate the causal relationship between the influential factors on academic burnout. As a result, the general suitability of the model was confirmed fine as well as the model's composition. The effects of exogenous latent variables on endogenous latent variables showed that self factors has $-.093(-.825)$ of the path-coefficient on academic burnout indicating negative direct effect. The path-coefficient of stress factors was $-.119(-.333)$ negative direct effect, the path-coefficient of test anxiety was $-.175(-.502)$ negative direct effect too. The path-coefficient of learning flow was $.047(.163)$ which is positive and direct effect. The path-coefficients of endogenous variables were as follows: stress factors

(.083(.264)), and text anxiety (.547(.559)), and learning flow (.285(.354)) have positive direct effect while resilience and control factors (-.121(-.220)) has negative direct effect. The path-coefficient of resilience and control factors was positive direct .574(.321) as well as the one of learning flow .824(.561). The path-coefficient of test anxiety was -.097(-.301) and the value of learning flow was -.251(-.305), both effects were negative direct. The path-coefficient of learning flow against academic burnout was -.118(-.300), negative direct effect. The results of self esteem [16], self competence [18], and self efficacy [19] were confirmed as self factors in this study. It studied that school resilience [25] and academic control [18] influence on academic burnout relating to test anxiety and learning flow [46]. Positive assessment on oneself, sense of competence, coping capabilities to situations are considered as relaxant against academic burnout. It also checked that learning flow [17, 23, 26] has impact on academic burnout, which explains study process and activities such as purpose, challenge, ability, behavior, consciousness feedback, focus on task, consciousness, time sense and purposive experience. Interest in school life, positive attitude toward study and score, school resilience for obeying to school regulations, and sense of control for study and decision are likely to reduce the possibility of academic burnout. For stress factors, it confirmed the correlation of academic burnout with job seeking stress; economic problem [20], personality, home environment, academic grade, school environment, unstable job stress. This result is similar to the existing researches. Health major students' academic burnout in TOEIC study will be reduced by increasing self esteem, self competency and self efficacy, as well as economic and job seeking stress with proper degree of test anxiety. For development and management of curriculum and subject for TOEIC, this research suggests review and consideration on self factors, learning flow, test anxiety and stress factors. That means, the TOEIC curriculum for Health major

students must manage these influential factors significantly.

The limits of this research are various. First, the survey only targeted the students of a Health college in a region. It is difficult to generalize the result applying to the entire Health college students. Second, it conducted cross-sectional research in order to understand the influences of self factors, stress factors, resilience and control factors, text anxiety and learning flow on academic burnout. Lack of time series does not allow to extend the interpretation since the cross-sectional result only indicates the causal relationship at the moment of the research. Third, the survey method was subjective self-administered questionnaire to measure desperation, stress factors, resilience and control factors, learning flow and academic burnout. It is inevitable to have response bias in the process. However, this research about TOEIC studying of Health major students is significant to analyze the mutual impacts and convergence of the moderating variables such as self factors, stress factors, resilience and control factors, test anxiety and learning flow via covariance structural analysis. Future studies should perform sample survey in large scale for the danger factors against academic burnout of Health major students, as well as the mediated effect [47] between additional factors related. The results of this study are necessary to conduct convergence application with recent investigations including English learning with smart phone [48, 49], improving English pronunciation [50], learning material system for improving learning performance [51], TOEIC blended learning [52], etc. It will also require institutional supports, for instance, curriculum and subject development in order to improve learning performance of TOEIC by searching improvements of each factor's academic burnout.

5. Conclusion

This study investigates the correlation of academic burnout with self factors, stress factors, adaptation and control factors, test anxiety, and learning flow with regard to Health major students' English learning. It randomly selected a TOEIC class of a university located in J region and carried out an anonymous structured self administered survey from 3rd April, 2017 to 14th April, 2017 for about a month. 291 people in the class were randomly selected as participants. The covariance structure analysis results confirmed the cause and effect relationship between academic burnout and self factors, stress factors, adaptation and control factors, test anxiety, and learning flow. Self factors give bigger influence on academic burnout. In conclusion, it requires efforts to manage these factors in order to reduce academic burnout of Health college students.

REFERENCES

- [1] J. Y. Han, E. M. Choi, K. Y. Ji, "An analysis of the importance-satisfaction of convergent medical tourism service quality", *J of Digital Convergence*, Vol. 13. No. 7, pp. 403-412, 2015.
- [2] K. N. Jin, "Global medical tourism coordinator: current situation and future vision", *Korea J of Hospital Management*, Vol. 18, No. 2, pp. 1-14, 2013.
- [3] S. J. Lee, "A study on the medical tourism and activation: with focus on medical communication", *J of Digital Convergence*, Vol. 12. No. 3, pp. 391-397, 2014.
- [4] S. Y. Bae, S. H. Kim, "Analysis of convergent influence of self esteem, depression, hopelessness, locus of control and type a behavior pattern on job seeking stress among some college women", *J of Digital Convergence*, Vol. 14. No. 12, pp. 323-333, 2016.
- [5] H. G. Ryu, Y. J. Han, W. H. Jang, J. J. Kim, "Research of awareness of the people in charge of medical tour regarding the qualifying examination of international medical tour coordinator", *The Korean J of Health Service Management*, Vol. 8, No. 3, pp. 63-73, 2014.
- [6] Y. H. Seoung, S. S. Kim, "The structural relationship of employment capability reinforcement programs for health-related college students to academic achievement and the adjustment to college life, *The J of digital policy & management*, Vol. 11, No. 2, pp. 355-363, 2013.
- [7] K. I. Shin, "The effects of TOEIC teaching as a compulsory course in a college", *Linguistics Studies*, No. 24, pp. 125-137, 2012.
- [8] D. H. Choi, "A critical study on the diffusion process of TOEIC in Korean society", Master Thesis, Yonsei University, pp. 10-12, 2016.
- [9] DOI: <http://magazine.kcue.or.kr/index.htm/TOEIC>. 2014.03.04
- [10] YBM/Korea, "Essential competitiveness for job success. TOEIC & TOEIC Speaking". TOEIC Committee Newsletter No. 81, 2014.
- [11] M. Y. Choi, T. I. Han, "A study on the variables influencing student achievement in a blended learning of college english", *The J of Digital Policy & Management* Vol. 11, No. 10, pp. 719-730, 2013.
- [12] K. H. Chun, "Relationship between academic burnout of medical and graduate students and related variables", *Korean Medical Education Review*, Vol. 16, No. 2, pp. 77-87, 2014.
- [13] K. O. Lim, Y. T. Choi, "Study on university students' personality types and stress management techniques and their effect on academic burnout-based on the MBTI personality assessment, *The J of the Korea Institute of Electronic Communication Sciences*, Vol. 8, No. 5, pp. 785-790, 2012.
- [14] W. B. Schaufeli, I. M. Martínez, A. M. Pinto, M. Salanova, A. Bakker, "Burnout and engagement in university students: A cross-national study", *J of Cross-Cultural Psychology*, Vol. 33, pp. 464-481, 2002.
- [15] H. Shin, A. Puig, J. Lee, J. H. Lee, S. M. Lee, "Cultural validation of the maslach burnout

- inventory for korean students", *Asia Pacific Education Review*, Vol. 12, pp. 633-639, 2011.
- [16] S. U. Yoon, Y. S. Kwon, "Relationship between test anxiety and self-esteem in partial health related department convergence College students, *J of the Korea Convergence Society* Vol. 4, No. 4, pp. 91-98, 2015.
- [17] S. H. Kim, S. Y. Park, "Factors influencing on learning flow of nursing students", *J of the Korea Academia-Industrial cooperation Society*, Vol. 15, No. 3, pp. 1557-1565, 2014.
- [18] H. G. Baek, P. S. Kim, T. H. Ha, "Study on the effective factors of learning motivation and achievement of the digital textbook using a structural equation model", *The J of digital policy & management*, Vol. 6, No. 1, pp. 123-135, 2008.
- [19] S. J. Kang, E. J. Kim, H. J. Shin, "Convergence study about problem-based learning and self-directed learning ability, problem solving skills, academic self-efficacy, motivation toward learning of nursing students", *J of the Korea Convergence Society*, Vol. 7, No. 2, pp. 33-41, 2016.
- [20] Y. J. Choi, "Stress, suicidal ideation, and protective factors in college students", *National Youth Policy Institute*, Vol. 23, No. 3, pp. 77-104, 2012.
- [21] S. H. Kim, S. Y. Han, J. D. Kim, S. M. Choi, S. J. Lee, J. H. Lim, H. Chae, "Study on stress and burnout in medical education at the school of korean medicine", *J of Oriental Neuropsychiatry*, Vol. 26, No. 2, pp. 103-116, 2015.
- [22] H. S. You, Y. K. Yang, "The influence of self-resilience and academic self-concept on test anxiety in undergraduates", *J Korean Acad Fundam Nurs*, Vol. 21, No. 3, pp. 275-282, 2014.
- [23] S. J. Yune, S. Y. Lee, B. S. Kam, S. J. Im, "The relationships among learning emotions, learning attitudes, major satisfaction, learning flow, and academic achievement of medical school students", *JFMSE*, Vol. 28, No. 2, pp. 582-595, 2016.
- [24] S. H. Shin, "A study on employment stress of health college students", *JKSDH*, Vol. 10, No. 4, pp. 663-670, 2010.
- [25] H. S. Park, "The school resilience of Korean adolescents in poverty", *Doctoral dissertation*, Seoul National University, 1998.
- [26] J. Y. Yang, "The mediating affects of self determination motivation in the relation between university", *Master Thesis*, Pusan National University, 2015.
- [27] M. S. Chae, "Multiple mediated effects of test anxiety and depression in the relation between socially-prescribed perfectionism and academic burnout, *Doctoral dissertation*, Chonnam National University, 2016.
- [28] E. Y. Lee, S. H. Kim, "Effect of professor trust and learning flow among allied health students", *JKSDH*, Vol. 16, No. 4, pp. 643-649, 2016.
- [29] S. Y. Lee, Y. J. Kang, "Influence of instructor trust on learning flow and academic achievement in dental hygiene students", *JKSDH*, Vol. 15, No. 5, pp. 687-693, 2016.
- [30] F. Faul and E. Erdfelder, A. Lang, A. Buchner, "G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences," *Behavior Research Methods*, Vol. 39, No. 2, pp. 175-191, 2007.
- [31] M. Rosenberg, "Society and the adolescent self-image. NJ: Princeton University Press", pp. 46-68, 1965.
- [32] B. J. Jon, "Self-esteem: A test of its measurability", *Yonsei J*, Vol. 11, pp. 107-129, 1974.
- [33] L. P. Hernandez, "The role of protective factors in the school resilience of Mexican American high school students", *Doctoral dissertation*, Stanford University, 1993.
- [34] R. M. Tipton, E. L. Worthington, "The measurement of generalized self-efficacy: A study of construct validity", *J of Personality Assessment*, Vol. 48, pp. 545-548, 1984.
- [35] S. M. Yang, "The development and effectiveness of group program on empowerment for the parents with mentally retarded adults", *Seoul National*

- University, Doctoral Dissertation, 2000.
- [36] R. D. Conger, G. H. Jr. Elder, F. O. Lorenz, K. J. Conger, Simons, R. L., Whibeck, L.B., Huck, S., & Melby, J. N. 1990. "Linking economic hardship to marital quality and instability." *J of Marriage and the Family* 52: 643-656.
- [37] S. H. Oh, "A study Determinants of adolescents' adaptation in low income broken family", Doctoral dissertation, Seoul National University, 2001.
- [38] H. J. Kim, Y. R. Kang, "The relationship between job seeking stress and career maturity of dance majoring students", *Korean J of Dance Education*, Vol. 8, No 2, pp 57-84, 2008.
- [39] A. S. Masten and J. D. Coastworth, "The development of competence in favorable and unfavorable environment: Lessons from research on successful children", *American Psychologist*, Vol. 53. pp. 205-221, 1998.
- [40] R. Karasek, C. Bisson. "The job content questionnaire(JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics", *J of Occupational Health Psychology*, Vol. 3, No. 4, pp. 322-355, 1998.
- [41] Y. B. Lee, S. M. Lee, J. Y. Lee, "Development of korean academic burnout scale", *The Korea Educational Review*, Vol. 15, No. 3, pp. 59-78, 2009.
- [42] J. Benson, N. El Zahhar "Further refinement and validation of the revised test anxiety scale. structural equation modeling", *A Multidisciplinary J*, Vol. 1, No. 3, pp. 203-221, 1994.
- [43] Y. R. Cho, "The role of metacognition in test anxiety above and beyond depression, perfectionistic concerns over mistakes, study skills, and academic self-efficacy", *Korean J of Clinical Psychology*, Vol. 27, No. 3, pp. 709-727, 2008.
- [44] M. Csikszentmihalyi, "Creativity: flow and the psychology of discovery and invention(1st ed.), NY: Harper-Collins Publishers", 1996.
- [45] A. Y. Kim, H. Y. Tack, C. H. Lee, "The development and validation of a learning flow scale for adults", *KJEP*, Vol. 24, No. 1, pp. 33-39, 2010.
- [46] S. M. Hong, S. H. Kim, S. Y. Bae, "A study on convergence factors related with academic burnout of students in health majors in studying for TOEIC", *J of Digital Convergence*, Vol. 15. No. 6, pp. 315-317, 2017.
- [47] O. Choi, W. S. Lee, "Mediating effects of self-efficacy in the relationships between academic burnout and school adjustment on middle school students", *J of Digital Convergence*, Vol. 12. No. 9, pp. 455-463, 2014.
- [48] Y. Y. Kim, "A study on smartphone use by korean adult ELT learners", *J of Digital Convergence*, Vol. 12. No. 4, pp. 21-32, 2014.
- [49] J. T. Kim, "The development and validation of a mobile-based english speaking test convergence model", *J of the Korea Convergence Society*, Vol. 7 No. 2, pp. 25-31, 2016.
- [50] H. S. Park, "A Study on the foreign accent of english stressed syllables," *J of IT Convergence Society for SMB*, Vol. 6, No. 4, pp. 51-57, 2016.
- [51] J. I. Yi, J. S. Han, "A study on developing a learning material screening system for improving foreign language learning efficiency," *J of Convergence for Information Technology*, Vol. 7, No. 1, pp. 87-92, 2017.
- [52] M. Y. Choi, T. I. Han, "A Comparison of learning effectiveness in face-to-face versus blended learning of TOEIC", *J of Digital Convergence*, Vol. 13. No. 10, pp. 517-525, 2015.

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