

Convergent Influence of Job Seeking Stress, Self Efficacy and Academic Burnout on TOEIC Test Anxiety at TOEIC study among Health College Students

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보건계열 대학생의 TOEIC 학습에서 취업스트레스, 자기효능감 및 학업소진이 TOEIC 시험불안에 미치는 융복합적인 영향

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Abstract This study investigates convergent influence on test anxiety and its association with job seeking stress, academic burnout, self efficacy among health college students in TOEIC class. Data collection was carried out using a self-administered questionnaire from April 3 to April 14, 2017 and the target was randomly selected 291 Health College Students in TOEIC class from 1 college located in J city. Test anxiety was positively correlated with job seeking stress and academic burnout, and it was negatively correlated with self efficacy. With the analysis of covariance structure, we could confirm relationship among job seeking stress, academic burnout, self efficacy and test anxiety. Job seeking stress was more influential on test anxiety than academic burnout and self efficacy. The results of the study indicate that the efforts, to manage these factors, are required to decrease the test anxiety of health college students in TOEIC class. The results are expected to be useful for the development of TOEIC learning curriculum decrease the test anxiety of TOEIC study among health college students in TOEIC class. In the following study, the survey about additional factors of influence on test anxiety will be needed.

Key Words : Convergent influence, Health college students, TOEIC study, Test anxiety, SEM

요 약 본 연구는 보건계열 대학생의 토익학습에서 취업스트레스, 자기효능감 및 학업소진과 시험불안의 관련성을 파악하고 시험불안에 미치는 융복합적 영향을 분석하였다. 자료수집은 2017년 4월 3일부터 4월 14일까지 자기기입식 설문지를 사용하였으며, 조사대상은 임의로 선정된 J시 소재 대학의 토익학습반에 참여하는 보건계열 대학생 291명으로 하였다. 시험불안은 취업스트레스 및 학업소진과는 양의 상관관계를, 자기효능감과는 음의 상관관계를 보였다. 공분산 구조분석 결과, 취업스트레스, 학업소진, 자기효능감 및 시험불안의 인과관계가 확인되었다. 취업스트레스는 자기효능감 및 학업소진보다는 시험불안에 더 큰 영향을 미쳤으며, 취업스트레스 및 학업소진이 높아질수록, 자기효능감이 낮아질수록 시험불안이 높아지는 것으로 나타났다. 이상의 연구결과를 볼 때, 보건계열 대학생의 토익학습의 시험불안을 낮추기 위해서는 이들 요인들을 관리하는 노력이 필요하다. 이러한 결과는 보건계열 대학생의 토익학습의 시험불안을 낮추는 토익학습 교육과정 개발에 활용이 기대된다. 향후연구에서는 시험불안에 영향을 미치는 추가요인에 대한 조사가 필요하다.

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

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Received April 24, 2018

Accepted July 20, 2018

Revised May 28, 2018

Published July 28, 2018

1. Introduction

Health College students shall acquire knowledge on medical service, medical support and hospital administration from various curriculum and they shall be in charge of medical service, medical information management and hospital administration management in medical institutions after graduation[1,2].

For recent medical environment, demand on global medical service is being increased and good-quality medical service corresponding to this, efficient hospital administration management and high request on customer satisfaction is being increased day by day[3,4]. When the hospitals provide medical and administration service to foreign patients or guardians, they can utilize interpretation or mobile application but it is difficult to expect accurate support for medical terms and clinical process[2]. In addition, interpretation by the person who did not major in Health Department or ordinary translating machine may nearly cause medical mistake[5]. Therefore, foreign language communication ability by hospital workers is necessary ability to perform medical service in good quality and it is accepted as basic features[6].

By this demands of the times, Health College students who are core manpower to be in charge of medical service in medical institutions in the future shall learn each major knowledge, understand medical system through field practice and have foreign language communication ability such as English in order to accept global medical demand[2,7]. Health College students shall learn English which is utilized as actual official language and prepare themselves to have global medical service ability and foreign language communication ability[4,7].

TOEIC[8] is utilized in curriculums in domestic universities, employment and promotion process in companies and civil service examination and it is recognized as basic score on acquisition and evaluation of reading and listening of English to learners whose mother tongue is not English[4]. As university

education's interest in improving practical ability of foreign language is being increased, the number of people taking TOEIC is increasing and utilization of TOEIC is getting high in several occupational clusters [4]. Universities which have Health Colleges adopted and utilized TOEIC in liberal arts subjects or special curriculum in order to improve global medical service and communication ability[4,8]. TOEIC is widely used to improve and verify internationalization work ability of Health College students and therefore university students' interest is being increased. In order to intensify and evaluate global capability of Health College students, TOEIC study provides good means and in proportion to increasing desire of college students who want to achieve high TOEIC score, physical and emotional problem from TOEIC studying was occurred and it is connected to test anxiety such as worry, tension, bodily symptom and test-irrelevant thinking[2,4,9].

Test anxiety at TOEIC may cause failure in test due to fear or concern feeling before, in the middle and after the test[4] and also it may cause emotional problems[2]. Test anxiety at TOEIC was reported as related to job seeking stress regarding emotional problems such as anxiety and depression[10] and job seeking stress was proved to influence to self-efficacy which is the belief to do what is corresponding to the situation[2,4]. Job seeking stress and self-efficacy is physical, mental and emotional exhaustion status due to study and it was reported that it gives influence to academic burnout[8,11] showing physically exhausted status, inefficacy and cynicism[2,4]. Previous studies reported a partial association with individual factors related to test anxiety, but analysis shows that job seeking stress, self-efficacy, exhaustion, and test anxiety are not mutually related and do not affect each other. Thus, this study would like to assume structural equation model by arranging and expanding correlation and path investigation that job seeking stress, self-efficacy and academic burnout gives direct and indirect influence to test anxiety.

Recently, as social demand on intensifying English communication capability is getting high in order to improve globalized practical business skills on medical service and hospital administration ability to Health College students, test anxiety at TOEIC studying is coming to the fore, but survey on this issue is incomplete. Existing former studies covered similar factors to test anxiety and job seeking stress, self-efficacy and academic burnout individually, but convergent approach is incomplete to comprehend correlation between job seeking stress, self-efficacy and academic burnout of health College students and test anxiety and investigate relative importance and influence that these factors give to test anxiety. Therefore, this study would like to determine test anxiety according to job seeking stress, self-efficacy and academic burnout at TOEIC studying among Health College students and analyze mutual relation and convergent influence of these factors and test anxiety.

This study comprehends mutual relation of job seeking stress, self efficacy and academic burnout and test anxiety at TOEIC studying among Health College students and convergent influence between factors and provides data to be utilized to reduce TOEIC test anxiety of Health College students who should actively accept environment change of increasing demand of TOEIC study and good-quality international medical service demand.

2. Study method

2.1 Subject of survey

In order to determine appropriate sample number, the minimum required sample number was calculated as 264, at F rejection region 1.50 when analyzing test power at significance level 0.05, test power 0.95 and effect size 0.15 for t-test, ANOVA, correlation analysis and multiple regression analysis with G power 3.1 program[12], and this study determined the number as

400 people considering poor response.

Data collection was conducted during 2 weeks from April 3rd to April 14th, 2017 by using structured self-administered questionnaire. This study randomly selected one university operating Health College in J city and randomized 400 university students in Health College who are participating in TOEIC study class. From the result of questionnaire survey, 322 questionnaires were collected(collection rate 80.5%) and this study conducted statistical analysis for 291 questionnaires excluding 31 questionnaires having poor response.

In order to observe study ethics, researchers who are well-informed of survey contents and study ethics personally visited the university and received participants' consent one to one and, then, explained the right to cancel, purpose of this study, survey contents and method to complete the questionnaire and asked participants to complete the questionnaire and then collected them on the spot.

2.2 Survey tool

The questionnaire is consisted of 22 questions regarding job seeking stress, 15 questions regarding academic burnout, 18 questions regarding self-efficacy and 20 questions regarding test anxiety. 22 Job seeking stress questions[13] are job seeking stress test questions after correcting CMI(Cornell Medical Index) and consisted of 5 subordinate categories as follows: 6 questions on personality stress, 5 questions on home environment stress, 4 questions on schoolwork stress, 4 questions on school environment stress and 3 questions on unstable job stress. The range of score is 22-110 and the higher the score is, job seeking stress is high. 15 Academic burnout questions[14] is the criterion validated MBI-SS(Maslach Burnout Inventory-Student Survey)[15] to Korean students and consisted of 3 subsidiary categories as follows; 5 questions on exhaustion, 4 questions on cynicism and 6 questions on inefficacy. The range of score is 15-75 and the higher the score is, academic burnout is high. 18 self-efficacy

Table 1. The normality, validity and reliability of used scale

Scale Sub-domains	No.	Range	Mean±SD	Normality				Validity					Reliability							
				Min	Max	Skewness	Kurtosis	λ	CMIN/DF	p	NFI	CFI	TLI	RMSEA	Cronbach's α (%)					
Total Job seeking stress	22	22-110	35.73±14.24	22	97	1.42	1.89	>.5												
Personality stress	6		9.49±4.34	6	28	1.43	1.70	.88												85.8
Home environment stress	5		8.10±4.19	5	23	1.31	.68	.65												86.9
Schoolwork stress	4		7.30±3.68	4	19	1.07	.19	.76												86.5
School environment stress	4		7.01±3.44	4	20	1.10	.42	.60												83.0
Unstable job stress	3		3.83±1.86	3	14	2.77	7.92	.84												81.1
Self efficacy	18	18-126	79.03±13.08	36	115	.02	.34	.79												88.9
Total Academic burnout	15	15-75	44.46±10.37	17	75	.11	.17		.34	.56	.99	.99	.99	.99	.01					90.4
Exhaustion	5		16.28±4.87	5	25	-.31	-.40	.59												90.9
Cynicism	4		11.00±16.57	4	20	.40	-.29	.99												88.4
Inefficacy	6		17.18±4.05	6	30	.17	.91	.71												85.2
Total Test anxiety	20	20-80	39.12±12.47	20	80	.84	.57		1.65	.20	.99	.99	.99	.99	.05					94.6
Tension	5		11.20±3.84	5	20	.53	-.31	.95												87.5
Worry	6		12.74±4.30	6	24	.68	.12	.88												87.3
Bodily symptom	5		8.07±3.16	5	20	1.32	1.78	.76												83.1
Test-irrelevant thinking	4		7.12±2.84	4	16	.91	.58	.79												83.3

questions are criterion of GSE(The Generalized Self-Efficacy scale)[16] reorganized and validated by Yang Sook Mi[17] and the range of score is 18-126. The higher the score is, self-efficacy is high. 20 test anxiety questions are criteria of measurement tool by Benson et al.[9] adapted by Cho Yong Rae[18] and consisted of 4 subordinate categories as follows: 5 questions on tension, 6 questions on worry, 5 questions on bodily symptom and 4 questions on test-irrelevant thinking. The range of score is 20-80 and the higher the score is, test anxiety is high.

The number of questions, range of score, average, standard deviation, normality, validity and reliability of criteria measuring each factors is as shown in Table 1. As the value of skewness and kurtosis of measured criteria does not exceed absolute value 2, it satisfied normality assumption. From the result of confirmatory factor analysis in order for verification of validity of measured criteria, the value of standard factor loadings(λ), χ^2/df , p, NFI(Normed Fit Index), CFI(Comparative Fit Index), TLI(Tucker-Lewis Index) and RMSEA(Root Mean Square Error of Approximation) corresponded to the criteria, so the validity was verified as appropriate. Cronbach's α of used criteria was over 80%, so it was reliable level.

2.3 Data treatment

Surveyed data was statistically analyzed by using SPSSWIN/AMOS(ver 23.0). This study calculated Pearson's product moment correlation coefficient of job seeking stress, academic burnout, self-efficacy and test anxiety. For structural equation model, this study estimated parameter in maximum-likelihood method and selected each model composition elements as latent variable and variables applicant to each composition elements as observation variable. For selection of variables, this study selected variables which have significant relevance in individual simple analysis, support theoretical model and compose proper model in model fit. For exogenous latent variables, this study included job seeking stress into structural equation model and included endogenous latent variables suggested by theoretical model, self-efficacy, academic burnout, test anxiety and Y observation variable, into structural equation model. For the effect of each paths, this study marked direct effect to be applied in each path from exogenous latent variable to endogenous latent variables and path between endogenous latent variables. Significance level of all statistics was $p < .05$.

3. Study result

3.1 Demographic factors of subject of survey

Subject of survey, 291 students, including gender and age is as shown in Table 2.

Table 2. Demographic factor of subject(n=291)

Control variable	Classification	N(%)
Gender	Male	53(18.2)
	Female	238(81.8)
Age(year)	≤ 19	122(41.9)
	20	101(34.7)
	21≤	68(23.4)

Table 3. Correlation coefficients between test anxiety and the sub-domains of related variables

Var.	Test anxiety	1	2	3	4	5	6	7	8	9
1. Personality stress	.534**	1								
2. Home environment stress	.291**	.534**	1							
3. Schoolwork stress	.431**	.291**	.564**	1						
4. School environment stress	.331**	.431**	.674**	.496**	1					
5. Unstable job stress	.388**	.331**	.529**	.515**	.605**	1				
6. Self efficacy	-.388**	.388**	.742**	.557**	.542**	.474**	1			
7. Exhaustion	.479**	-.388**	-.249**	-.045	-.322**	-.181**	-.115	1		
8. Cynicism	.325**	.479**	.332**	.146	.293**	.201**	.127	-.423**	1	
9. Inefficacy	.202**	.325**	.322**	.153*	.373**	.222**	.280**	-.432**	.576**	1

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

3.2 Correlation between test anxiety and relevant variables

Reviewing correlation between test anxiety and relevant variables, it showed positive correlation with subordinate category of job seeking stress such as personality stress, home environment stress, schoolwork stress, school environment stress and unstable job stress, but showed negative correlation with self-efficacy, and showed positive correlation with subordinate category of academic burnout such as exhaustion, cynicism and inefficacy as shown in Table 3.

3.3 Result of covariance structure analysis

This study set up model with one exogenous concept(job seeking stress) and 3 endogenous concepts (self-efficacy, academic burnout and test anxiety) as theoretical variance. Observation variable of job seeking stress is the score measured from subordinate category of job seeking stress such as personality

stress, home environment stress, schoolwork stress, school environment stress and unstable job stress, observation variable of self-efficacy is the score measured from self-efficacy criteria, observation variable of academic burnout is the score measured from subordinated category of academic burnout such as exhaustion, cynicism and inefficacy criteria and observation variable of test anxiety is the score measured from subordinate category of test anxiety such as tension, worry, bodily symptom and test-irrelevant thinking criteria.

Model fit value is below 3 in absolute fit index with result $\chi^2=49.043(df=37)$, $\chi^2/df=1.325$, significance probability is bigger than .05 with the result $p=.089$, so the model is suitable and the fit is good showing 0.032 in RMR and the fit was high showing .975 for GFI and .939 for AGFI and this can be considered as good model with the value of RMSEA .034. However, for Incremental fit index, NFI was .978 and the fit of model was satisfied, TLI was .988 and the fit was good and CFI was .994 showing high fit result as shown in Table 4.

Table 4. Model identification

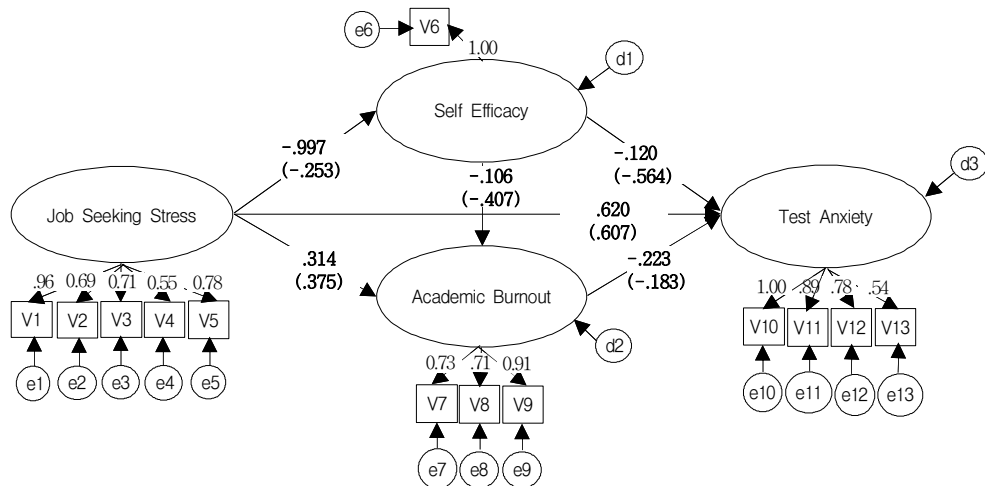
	Model Fit
Absolute fit index	$\chi^2 = 49.043(df = 37)$, $\chi^2/df = 1.325$, $p = .089$
	RMR(Root Mean square Residual) = .032
	GFI(Goodness of Fit Index) = .975
	AGFI(Adjusted Goodness of Fit Index) = .939
	RMSEA(Root Mean Square Error of Approximation) = .034
Incremental fit index	NFI(Normed Fit Index) = .978
	TLI(Tucker-Lewis Index) = .988
	CFI(Comparative Fit Index) = .994

Table 5. Structural model of endogenous and exogenous variables

Unit : Regression Weights(Standardized Regression Weights)

	Endogenous variable		Exogenous variable	Error	Coefficient of determination
	Self Efficacy	Academic Burnout	Job Seeking Stress	Z	SMC [¶]
Self Efficacy			-.997(-.253)**	.233	.064
Academic Burnout	-.106(-.407)**		.314(.375)**	.051	.565
Test Anxiety	-.120(-.564)**	-.223(-.183)*	.620(.607)**	.071	.479

* : p<.05 , ** : p<.01, ¶ : Squared Multiple Correlations(SMC)



V1	Personality stress	V5	Unstable job stress	V9	Inefficacy	V13	Test-irrelevant thinking
V2	Home environment stress	V6	Self efficacy	V10	Tension		
V3	Schoolwork stress	V7	Exhaustion	V11	Worry		
V4	School environment stress	V8	Cynicism	V12	Body symptom		

Fig. 1. Path diagram of structural equation modeling

Reviewing effect of exogenous latent variable for endogenous latent variable, job seeking stress showed positive(+) effect to test anxiety with path coefficient .620(standard coefficient:.607), showed negative(-) effect to self-efficacy with path coefficient -.997(-.253) and showed positive(+) direct effect to academic burnout with path coefficient .314(.375). Considering path coefficient between endogenous variables, self-efficacy showed negative(-) direct effect to test anxiety with path coefficient -.106(-.407) and showed negative(-) direct effect to academic burnout with path coefficient -.120(-.564). Academic burnout showed negative(-) direct effect to test anxiety with path coefficient -.223(-.183).

SMC(Squared Multiple Correlations), the ratio

explaining dependent variable by independent variable, explained that self-efficacy is explained in 0.064 by job seeking stress and this means job seeking stress explained self-efficacy 6.4%. Academic burnout is explained in .565 by job seeking stress and self-efficacy and it means job seeking stress and self-efficacy explained academic burnout 56.5%. In addition, in case of test anxiety, it is explained in .479 by job seeking stress, self-efficacy and academic burn out and it means that job seeking stress, self-efficacy and academic burnout explained test anxiety 47.9%. Above path coefficients showed 5% level for academic burnout for test anxiety, but the coefficients were significant showing 1% level for the rest variables as shown in Table 5 and Fig. 1.

4. Consideration

This study reviewed correlation between job seeking stress, self-efficacy and academic burnout and test anxiety in TOEIC studying among Health College students who should accept the change of global medical environment spontaneously. For survey, validated measurement tools were used and the result of survey was judged to be reliable because it was confirmed that there is no problem in normality, validity and reliability of these measurement tools.

Reviewing correlation between test anxiety and relevant factors, test anxiety showed positive correlation with job seeking stress and academic burnout and showed negative correlation with self-efficacy, which is similar to existing studies [19-21] showing job seeking stress, self-efficacy and academic burnout is related to test anxiety.

In order to estimate causal relationship between job seeking stress, self-efficacy and academic burnout which influence to test anxiety at TOEIC studying, this study conducted covariance structure analysis by regarding job seeking stress as exogenous latent variable and regarding self-efficacy, academic burnout and test anxiety as endogenous latent variable. From the result of it, absolute fit index and incremental fit index value was good, so it was judged that there is no problem in model composition. Self-efficacy showed $-.997(-.253)$ path coefficient from job seeking stress. Academic burnout showed $.314(.375)$ path coefficient from job seeking stress and $-.120(-.564)$ path coefficient from self-efficacy. Test anxiety showed $.620(.607)$ path coefficient from job seeking stress, showed $-.106(-.407)$ path coefficient from self-efficacy and showed $-.223(-.183)$ path coefficient from academic burnout. From confirmed causal relationship from structure model, it seems that test anxiety is most influenced by job seeking stress, and next variable was self-efficacy and academic burn out in the order. Also, it was proved that job seeking stress, self-efficacy and academic burnout explains test anxiety 47.9%. Through

these results, we could confirm the result of existing survey that job seeking stress of Health College students are related to several emotional factors[1] and these are directly related to test anxiety[20], and also it was proved that emotional support and consultation is necessary to relieve subordinated category of job seeking stress such as personality stress, home environment stress, schoolwork stress, school environment stress and unstable job stress. The comment that self-efficacy of Health College students is related to major, certificate and test anxiety[21] was proved similarly for TOEIC test anxiety and alike the survey that academic burnout is highly related to test anxiety[2,19], Health College students are influenced by self-efficacy and academic burnout in TOEIC test anxiety. As noted in previous studies, Health College students are exposed to multiple stress such as inefficacy, cynicism, exhaustion, frustration, depletion and helplessness in TOEIC study as well as studying major subjects[2,4]. So, the problems of academic burnout for TOEIC study are occurred and these are connected to test anxiety. It was confirmed that when Health College students' job seeking stress at TOEIC studying is reduced, self-efficacy will be enhanced and academic burnout will be decreased, and then finally it can reduce test anxiety. That is to say, it was confirmed that job seeking stress, self-efficacy and academic burnout for TOEIC study is directly and indirectly related to test anxiety. It is estimated that job seeking stress, self-efficacy and academic burnout should be treated importantly, in order to reduce test anxiety which can be inevitably occurred due to TOEIC study to enhance Health College students' English communication skill who prepare for work capability for global medical service. For development of curriculum and subjects, lecture and learning method, learning management of evaluation to be operated for liberal arts subjects and special curriculum in regular curriculum of university for TOEIC study, it is necessary to concentrate on effort to perceive and utilize the relevance between job seeking stress,

self-efficacy and academic burnout and test anxiety.

This survey was conducted targeting Health College students in university located in one region only, so it is limited to generalize the result of this study into all university students. This study is cross-sectional study, which shows causal relationship at the time of survey, so it is limited to stretch the meaning. Also, as the measurement of job seeking stress, self-efficacy, academic burnout and test anxiety used for this survey was performed relying on respondents' subjective self-administered method, so it is difficult to consider that this study avoided all risks of response bias. However, this study is considered to have significance that it analyzed mutual and convergent influence of mediation variables such as Health College students' job seeking stress, self-efficacy and academic burnout for TOEIC studying, to test anxiety through structural equation model. In the future studies, it is necessary to conduct survey regarding additional risk factors influencing to Health College students' test anxiety. The result of this study is expected to be utilized in recent mobile English learning system[22,23] and efficient learning method[24, 25] In addition, it shall be necessary to investigate plans to reduce test anxiety per each identified factors and utilize them to decrease test anxiety at TOEIC study and improve learning performance.

5. Conclusion

This study investigated causal relationship between Health College students' job seeking stress, self-efficacy, academic burnout and test anxiety at TOEIC study. This study analyzed the result of self-administered questionnaire survey completed by 291 Health College students randomly selected from TOEIC studying class in randomized universities located in J city for 2 weeks from April 3rd, 2017 to April 14th, 2017. Test anxiety showed positive correlation with job seeking stress and academic burnout and showed

negative correlation with self-efficacy. From the result of analysis on structural equation model, it was confirmed that there is direct and indirect causal relationship between job seeking stress, self-efficacy, academic burnout and test anxiety, and the factor influencing to test anxiety most was job seeking stress and, in sequence, self-efficacy and academic burnout. Therefore, it is necessary to concentrate efforts to manage these factors, in order to reduce Health College students' TOEIC test anxiety.

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