Generic Skills Measurement of Students at Fukuoka Dental College: The Usefulness of the Progress Report on Generic Skills (PROG) Test

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Research Article

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ABSTRACT

In recent years, university education has been called upon to cultivate new abilities known as "generic skills," which have been defined in various ways by the different ministries and agencies advocating their necessity. These generic skills are also indispensable for dentistry graduates and skills training is important in the context of dental education. However, while conventional dental education has heretofore conducted assessments with regard to knowledge, understanding and professional ability when evaluating learning results, higherorder integrative capabilities such as generic skills have not been evaluated. Therefore, after introducing the Progress Report on Generic Skills (PROG) Test as an evaluation method for measuring generic skills to examine their relationship with academic achievement. Administering PROG Test soon after the time of admission, it was possible to measure generic skills at the time of admission, within which the overall literacy results were related to academic ability at the time of admission and subsequent academic performance. We can report the suggested possibility that the PROG test may be used to evaluate generic skills among dentistry students.

INTRODUCTION

In recent years, university education has been called upon to cultivate new abilities known as "generic skills". Generic skills, also known as "translatable skills," are high-order skills that can be applied in a variety of circumstances, such as creativity, flexibility, independence, ability to work in a team, communicative ability, critical thinking, time management, leadership, planning ability, and self-management ^[1]. These skills have been variously defined by the different Japanese government ministries and agencies advocating their necessity, as with the term "human power" proposed by the Cabinet Office ^[2], "core skills for working adults" proposed by the Ministry of Economy, Trade and Industry (METI) ^[3], "academic competency" proposed by the Central Education Council ^[4], "employability" proposed by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) ^[5], and "fundamental general-purpose skills" in the field of career education ^[6].

Dental education requires not only the interpretive and thinking abilities that accompany the simple memories gradually cultivated from early education through high school but also the general-purpose skills such as clinical reasoning and the integration of learning content from individual subjects taken thus far; these skills are also indispensable abilities for dentists to have upon graduation. Although Kawashima describes generic skills training by such means as Project-Based Learning internships and ser-

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vice learning ^[1], METI favors skills training in programs related to university specializations over special programs aiming solely at generic skills training ^[7]. However, very few universities carry out generic skills training over the entire undergraduate curriculum, with most undertaking such training in the context of first-year introductory and liberal arts subjects ^[8]. At Fukuoka Dental College, we have introduced an initiative that aims to carry out generic skills training in our first-year introductory and liberal arts subjects as well as in the entire six-year undergraduate curriculum, and then evaluate and visualize the skills that have been acquired. However, while conventional dental education has heretofore conducted assessments with regard to knowledge, understanding, and professional ability when evaluating learning results, higher-order integrative capabilities such as generic skills have not been evaluated.

Therefore, in the academic year 2016, we introduced the Progress Report on Generic Skills (PROG) Test to measure generic skills, and have examined the actual extent and nature of the relationship between generic skills at the time of admission, academic ability at the time of admission and Grade Point Average (GPA) in Year 1.

TARGET AND METHODS

Target

In the beginning, the survey was explained orally and via a document, and after checking the consent, it was conducted.

- 1. When it is used for any purpose other than study support, it becomes anonymous to connect all data and process and use it so that an individual cannot specify.
- 2. You can refuse use of data.
- 3. Opt-out is possible, even if it once agrees.

Get consent for use of education data from students and parents in research, upon admission than 2018. The period before it, after explaining the above mentioned contents to a student, was put into effect. Although all the target students' consent was checked orally, a less than 20-year-old guardian's consent is not checking this time. Thus, this research was done by having adopted the principle of Declaration of Helsinki, and was performed by obtaining the approval of Ethical Review Board, Fukuoka Dental College.

The study involved 97 students, all of whom were students enrolled in Year 1 in the academic year 2016, and who appeared for the Comprehensive Academic Achievement Examination (CAAE) and PROG Test conducted on April 12, 2016. The competency elements of the PROG Test results for 94 of these students were used, after 3 of the 97 students were identified as ineligible due to an insufficient number of completed responses.

Analysis of PROG Test Results

Tables 1 and 2 shows an outline of the PROG Test. For the literacy test, we used a 7-stage judgment result for overall literacy, and for the 6 items comprising 4 problem-solving skills and 2 processing skills, we used a 5-stage judgment result. For the competency test, we used a 7-stage judgment result for the overall competency and 3 competency skills, and a 5-stage judgment result for the 9 constituent elements comprising these 3 competencies.

Data Used

We used the total scores for the PROG Test and the CAAE administered on the same day, students' Year 1 GPA for 2016 and their grades for 22 subjects offered in Year 1. After linking this data using the PROG Test results and student identification numbers, the student identification numbers were deleted so that the data could be used as unlinkable anonymized data.

Statistical Processing

To investigate the relationships among the PROG Test results, academic ability at the time of admission, and learning results after admission, we calculated Spearman's rank correlation coefficient with respect to the judgment result of each element of the PROG Test and the overall CAAE scores, Year 1 GPA scores, and grades for 22 subjects offered in Year 1.

RESULTS

The averages of the results for overall CAAE scores, Year 1 GPA, grades for subjects offered in Year 1, and PROG Test measurement items are shown in **Tables 3-5**.

Relationships between overall CAAE scores and PROG test measurement items: While a significant positive correlation was found between overall CAAE scores and overall literacy (ps=0.303, p<0.01), no significant correlation was found with overall competency. In terms of literacy elements, significant positive correlations were found with the ability to analyze data, the ability to identify problems, and verbal processing ability (data analysis: ps=0.300, p<0.01, ability to identify problems: ps=0.245, p<0.05, verbal processing ability: ps=0.202, p<0.05). In terms of competency elements, no significant correlations were found with overall CAAE scores for any items.

	Literacy Test	t		Lit	eracy	
Format	Mark format				6 skills	
Questions	30 problems				Data collection	
Time allowed	45 minutes 1. Problem-so Collection/D Analysis/Ide		Overall Literacy	Problem-solving skills	Data analysis Identifying Problems Conceptual Ability	4 Skills
Areas measured	Problems/C	onceptual Ability)	-		Expressiveness Execution	Not measured
	Processing S	Skills			Verbal	
				Processing Skills	Non-verbal	
	Competency Te	est		Com	petency	
Format	Mark format			3 skills	9 Elements	
	Two-Sided Selection Method Hypothetical Scenario (short	195 questions	-		Identifying Problems	
Questions	answer)	50 questions		Basic Problem-	Planning	
	Hypothetical Scenario (long answer)	6 questions	Overall	Oriented Skills	Practical Ability	
	Total:	251 questions	Competency	Basic	Affinity	
Time allowed	40 minutes			Interpersonal Skills	Cooperation	
	Basic Problem-C (Identifying Problems/Plann				Leadership	
Areas	Ability) Basic Interperso	-	-	Basic Self-	Emotional Control	
measured	(Affinity/Coopera Basic Self-Mana	ation/Leadership) gement Skills	-	Management Skills	Creative Confidence	
	(Emotional Contr Confidence/Pers	severance)			Perseverance	
•	n Kawaijuku Educ c.co.jp/prog_hp/)	ational Institution (h	ittp://www.kawa	i-juku.ac.jp/prog/)	and RIASEC Inc. (http:	

Literacy										
	1	2	3	4		5		Level at	6	7
Overall Evaluation	Level at which the acquisition of the basic literacy expected of a university student is required.	Level at which the basic literacy expected of a university student has been acquired to some degree.	Level at which the basic literacy expected of a university student can b acquired wit a little more effort.	a expected of university be student has	a	Level at which the basic literacy expected of a member of the workforce has been acquired to some degree. Understands		the basic literacy expected of a member of the workforce can be acquired with a little more effort.		Level at which the basic literacy expected of a member of the workforce has been acquired.
4 Skills Processing Skills	Has the basic ability to solve simple problems.	Understands basic problem- solving skills to some degree.	Understands basic problem- solving skill	problem- solving skil	ls,					
Competency	1	2	3	4		5		6		7
Overall Evaluation 3 Skills	Level at which a student is not now able to exercise an ability, but is very likely to grow significantly with the right impetus.	23Level at which a student can achieve things in his or her own way, but does not meet societal expectations.Level that meets societal expectation to some degree.		Level that meets societal expectations.	whi stuc exc soci exp as a	rel at ch the lent can eed ietal ectations	whi stud insp the as a earn soc	rel at ich the dent bires team a leader ning ietal roval.	which th inspire t	ve level at e student can hose around him change their
Constituent Elements of Each Competency	a student is not now able to exercise an ability, but is very likely to	which the student can	Level that meets societal expectations.	Level at which the student can exceed societal expectations.	leve the s can thos him chan	ovative el at which student inspire se around or her to nge their umstances.				

 Table 3. Total comprehensive academic achievement exam (CAAE) scores and mean GPA for year 1.

	Total CAAE Scores	Year 1 GPA
Mean	287.1	3.1
SD	61.84	0.53

Table 4. Mean scores for subjects offered in year 1.

	Basic Mathematics	General Mathematics	Basic Science/ Physics	Basic Physics	Basic Science/ Chemistry	Basic Chemistry	Basic Science/ Biology	Cell Biology	Cell Chemistry	Medical Engineering	Introduction to Anatomy
Mean	82.4	79.2	81.3	67.2	82.9	71.8	82.3	73.7	66.3	79.8	65.1
SD	14.17	12.07	11.08	12.81	15.18	13.62	11.96	12.68	13.50	14.61	12.97
	Scientific English I	Practical English I	Scientific English II	Practical English 	Modern Civilization	Long-Term Care Facility/Brushing Experience	Introduction to Medicine/Oral Medicine	Basic Operation Exercise	Data Processing Exercise I	Data Processing Exercise II	Debate Exercise
Mean	81.5	75.6	72.4	76.5	91.5	85.2	80.8	95.2	98.4	97.1	72.0
SD	13.25	11.78	14.82	11.49	9.65	5.01	7.08	5.77	4.55	7.08	6.17

						Litera	ЭСУ						
						4 SI	kills				Pro	cessing Skil	IS
	Totals	Data C	ual Ability	Verbal	al Non-verbal								
Mean	5.1		3.4		3.7		4	l.1		4.3	3.6	4	.4
SD	1.4		1.33		1.20		1	.11	().85	1.12	0.	75
						Compe	tency						
									9 Elements				
			3 Skills		Basi	c Interpersonal	Skills	Basic	Self-Manageme	ent Skills	Basic Problem-Oriented Skills		
	Totals	Basic Interpersonal Skills	Basic Self- Management Skills	Basic Problem- Oriented Skills	Affinity	Cooperation	Leadership	Emotional Control	Creative Confidence	Perseverance	ldentifying Problems	Planning	Practical Ability
Mean	3.3	3.7	3.3	3.7	4.3	3.8	3.1	3.2	3.3	3.5	3.8	3.7	3.6
SD	1.60	1.72	1.56	1.59	1.85	1.78	1.70	1.62	1.70	1.62	1.76	1.73	1.43

Table 5. Mean scores for PROG test measurement items.

Correlations among overall CAAE Scores, Year 1 GPA, and PROG Test Measurement Items (Table 6).

 Table 6. Correlations among total CAAE scores, year 1 GPA and PROG test measurement items.

	Total CA	AE Scores	Year	1 GPA
	Correlation	Probability of	Correlation	Probability of
	Coefficient	Significance	Coefficient	Significance
Literacy Totals	0.303**	0.003	0.351**	0.000
Competency Totals	-0.145	0.163	-0.041	0.695
**Correlat *Corre	ion coefficient elation coeffici	is significant at ent is significan	the 1% level t at the 5% lev	(both sides) /el (both sides)
	Total CA	AE Scores	Year	1 GPA
	Correlation	Probability of	Correlation	Probability of
Literacy	Coefficient	Significance	Coefficient	Significance
Data Collection	0.199	0.050	0.187	0.067
Data Analysis	0.300**	0.003	0.247*	0.015
Identifying Problems	0.245*	0.016	0.400**	0.000
Conceptual Ability	0.098	0.341	0.191	0.061
Verbal Processing Skills	0.202*	0.047	0.112	0.277
Non-verbal Processing Skills	0.147	0.151	0.062	0.545
		is significant at		
*Correlation	coefficient is	significant at th	e 5% level (bo	oth sides)
		AE Scores		1 GPA
	Correlation	Probability of	Correlation	Probability of
Competency	Coefficient	Significance	Coefficient	Significance
Basic Interpersonal Skills	-0.197	0.058	-0.045	0.664
Basic Self-Management Skills	0.030	0.776	0.087	0.405
Basic Problem-Oriented Skills	-0.034	0.744	-0.041	0.693
		nt is significant ent is significant		

Correlations between scores for subjects offered in year 1 and PROG test evaluation items (Tables 7-9).

C	Basic Mathematics Probability		General N	lathematics	Basic Scie	nce/Physics	Basic	Physics	Basic Scien	ce/Chemistry	Basic Ch	nemistry	Basic Scie	nce/Biology	Cell E	Biology
	Correlation	Probability of	Correlation	Probability of	Correlation	Probability of	Correlation	Probability of	Correlation	Probability of	Correlation	Probability of	Correlation	Probability of	Correlation	Probability of
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significanc
Literacy Totals (0.300**	0.003	0.328**	0.001	0.262*	0.038	0.331**	0.001	0.386**	0.002	0.373**	0.000	0.430**	0.000	0.326**	0.001
Competency Totals	-0.087	0.407	0.016	0.882	0.123	0.347	-0.054	0.608	-0.222	0.081	-0.093	0.373	-0.229	0.074	-0.034	0.748
I		1		1				11						cient is significa		
													elation coefficie	ent is significant	at the 5% level	l (both sides)
	Basic Ma	thematics	General N	lathematics	Basic Scie	nce/Physics	Basic	Physics	Basic Science	ce/ Chemistry	Basic Ch	nemistry	Basic Scie	nce/Biology	Cell E	Biology
		Probability		Probability		Probability		Probability				Probability		Probability		Probability
•	Correlation Coefficient	of Significance	Correlation Coefficient	of Significance	Correlation Coefficient	of Significance	Correlation Coefficient	of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	of Significance	Correlation Coefficient	of Significance	Correlation Coefficient	of Significance
Data Collection	0.209*	0.041	0.199	0.052	-0.060	0.643	0.119	0.250	0.287*	0.020	0.161	0.117	0.316*	0.011	0.253*	0.013
	0.250*	0.014	0.223*	0.029	0.156	0.222	0.225*	0.027	0.344**	0.005	0.265**	0.009	0.190	0.133	0.135	0.189
	0.276**	0.007	0.466**	0.000	0.144	0.259	0.365**	0.000	0.409**	0.001	0.422**	0.000	0.361**	0.003	0.451**	0.000
	0.194	0.058	0.106	0.302	0.302*	0.016	0.191	0.062	0.183	0.144	0.174	0.090	0.108	0.396	0.208*	0.042
	0.130	0.208	0.085	0.412	-0.172	0.177	0.090	0.385	0.290*	0.019	0.170	0.098	0.294*	0.018	0.139	0.178
	0.362**	0.000	0.108	0.295	0.195	0.126	0.176	0.087	0.096	0.446	0.162	0.116	0.108	0.396	0.041	0.690
												* Correl	ation coefficien	ent is significant t is significant a	t the 5% level (both sides)
	Basic Ma	thematics	General N	lathematics	Basic Scie	nce/Physics	Basic	Physics	Basic Scien	ce/Chemistry	Basic Ch		Basic Scie	nce/Biology	Cell E	Biology
	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance	Correlation Coefficient	Probability of Significance
Interpersonal Skills	-0.134	0.199	0.023	0.824	0.064	0.627	-0.049	0.644	-0.185	0.147	-0.104	0.321	-0.236	0.065	-0.056	0.594
	0.002	0.983	0.092	0.379	0.284*	0.027	0.074	0.481	-0.082	0.525	0.016	0.879	-0.201	0.117	0.060	0.569
Management Skills Basic Problem-					0.342**		-0.077	0.465	-0.024	0.851	-0.032	0.758	-0.035	0.786	-0.023	0.823

Relationships between grades in subjects offered in year 1 and PROG test measurement items competency elements (3 Skills): Among the 22 subjects offered in Year 1, correlations were found with the 3 subjects of "Basic Science and Physics," "Practical English II," and "Debate Exercise"; significant positive correlations in Basic Science and Physics were observed with regard to the two skill sets of Basic Self-Management Skills (ps=0.284, p<0.05) and Basic Problem-Oriented Skills (ps=0.342, p<0.01), in Practical English II with regard to the skill set of Basic Self-Management Skills (ps=0.222, p<0.05), and in Debate Exercise with regard to the two skill sets of Basic Interpersonal Skills (ps=0.214, p<0.05) and Basic Self-Management Skills (ps=0.286, p<0.01). The relationship between grades for these 3 subjects and the 9 constituent competency elements of these 3 skill sets is shown in **Table 10**. Significant positive correlations in Basic Science and Physics were observed with the two elements of emotional control (ps=0.361, p<0.01) and the ability to identify problems (ps=0.381, p<0.01), in Practical English II with the three elements of Leadership (ps=0.207, p<0.05), creative confidence (ps=0.244, p<0.05), and perseverance (ps=0.215, p<0.05) and in Debate Exercise with the four elements of leadership (ps=0.270, p<0.01), creative confidence (ps=0.305, p<0.01), ability to identify problems (ps=0.215, p<0.05), and practical ability (ps=0.256, p<0.05).

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Table 8. Correlations between scores for subjects offered in year 1 and PROG test evaluation items.

	Cell C	hemistry		ingineering	Introductio	n to Anatomy	Scientif	ic English I	Practical	English I	Scienti	fic English II	Practical	l English II		n Civilization
	Osmolation	Probabilit		Probability	Correlation	Probability	Correlation	Probability	Osmalation	Probability	Correlation	Probability	Osmolation	Probabili		Probabili
	Correlation Coefficient		Correlation ce Coefficient	of Significance	Correlation Coefficient	of Significance	Correlation Coefficient		Correlation Coefficient	of Significance	Correlation Coefficient		Correlation Coefficient	of Significar	Correlation ce Coefficient	
	0.349	0.000	0.328**	0.001	0.237*	0.020	0.311	0.002	0.261	0.010	0.306	0.002	0.430**	0.000	0.281	0.006
iteracy Totals	0.549	0.000	0.520	0.001	0.257	0.020	0.511	0.002	0.201	0.010	0.500	0.002	0.450	0.000	0.201	0.000
Competency	0.029	0.782	-0.001	0.992	0.012	0.907	-0.061	0.562	0.082	0.434	-0.065	0.534	0.135	0.196	0.086	0.41
Totals																
															he 1% level (both he 5% level (both	
	Coll C	hemistry	Medical E	ingineering	Introductio	n to Anatomy	Scientif	ic English I	Dractical	English I	Scienti	fic English II		l English II		n Civilization
-	UCIIU	Probabilit		Probability	muouucuu	Probability	Jucitui	Probability	Fiduuda	Probability	Scientu	Probability	Flacuca	Probabili		Probab
	Correlation		Correlation	of	Correlation	of	Correlation		Correlation	of	Correlation		Correlation	of	Correlation	
Literacy	Coefficient	Significan	ce Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significar	ce Coefficient	Significa
	0.195	0.057	0.208	0.042	0.136	0.187	0.205	0.045	0.053	0.610	0.260	0.010	0.274	0.007	0.166	0.10
ata Collection	0.4.40	0.474		0.000	0.045	0.005	0.420	0.244	0.407	0.054	0.426	0.000		0.004	0.467	0.40
Data Analysis	0.140	0.174	0.277	0.006	0.045	0.665	0.129	0.211	0.197	0.054	0.126	0.222	0.334	0.001	0.167	0.10
Identifying	0.486**	0.000	0.356**	0.000	0.286**	0.005	0.302**	0.003	0.227*	0.026	0.327**	0.001	0.283**	0.005	0.211*	0.03
Problems									-							
Conceptual	0.192	0.062	0.216	0.035	0.086	0.407	0.158	0.124	0.233*	0.023	0.138	0.181	0.369	0.000	0.283	0.005
Ability																
Verbal rocessing Skills	0.065	0.527	0.241	0.018	-0.021	0.836	0.075	0.467	0.118	0.254	0.020	0.845	0.199	0.052	0.109	0.292
Non-Verbal	-0.055	0.597	0.126	0.222	-0.004	0.972	0.086	0.402	0.176	0.087	0.147	0.153	0.172	0.093	0.030	0.770
ocessing Skills	-0.055	0.337	0.120	0.222	-0.004	0.372	0.000	0.402	0.170	0.007	0.147	0.135	0.172	0.095	0.030	0.770
		1						1 1				**Correla	tion coefficien	t is signific:	ant at the 1% lev	el (hoth side
															nt at the 5% level	
	0.00	No miloto /	Modical E	adinggrind	المغيم بالمعادم	n to Anotomy	Colontif	ic English I	Drastical	Endlich I	Colonti	fic English II		I English II		n Civilization
	Cell C	hemistry Probabilit		ngineering Probability	Introductio	n to Anatomy Probability	Scienui	Probability	Pracuca	Probability	Scienu	Probability	Pracuca	Probabili		Civilization
	Correlation	of	Correlation	of	Correlation	of	Correlation		Correlation	of	Correlation		Correlation	of	Correlation	Probabili
Competency	Coefficient	Significan	ce Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance	Coefficient	Significar	ice Coefficient	Significa
Basic	0.004	0.971	-0.013	0.905	0.015	0.888	-0.109	0.299	0.038	0.715	-0.136	0.192	0.084	0.426	0.022	0.831
Interpersonal Skills																
Basic Self-	0.053	0.616	0.114	0.276	0.157	0.132	0.110	0.292	0.058	0.578	0.061	0.558	0.222*	0.032	0.167	0.110
Management	0.035	0.010	0.114	0.270	0.157	0.152	0.110	0.292	0.056	0.576	0.001	0.336	0.222	0.052	0.107	0.110
Skills																
		0.070	-0.176	0.091	-0.029	0.779	0.041	0.696	-0.009	0.932	-0.066	0.532	0.007	0.945	0.168	0.106
	-0.004	0.973	-0.170			01775										
	-0.004	Tabl	e 9. Corre	elations b	etweer		for subj	ects offere	ed in yea	ar 1 and	*Co	Correlation coefficient coeffi	ent is significa	nt at the 59		
	-0.004	Tabl	e 9. Corre			n scores	for subj	ects offere	ed in yea	ar 1 and	*Co	rrelation coefficie	ent is significa ation ite	nt at the 59		
	-0.004	Tabl	e 9. Corre rm Care Brushing ience	Intro	oduction to /Oral Me	n scores o dicine		ition Exercise		rocessing E	*Co PROG 1 xercise I	rrelation coefficie	ation ite ssing Exerc	nt at the 59 Ims. Ise		kercise
		Tabl Long-Ter Facility/E Exper	e 9. Corre rm Care Brushing ience Probability	Intro Medicine	oduction to Oral Me	n SCORES o dicine la ability	Basic Opera	tion Exercise Probability	Data Pr	rocessing E	*Co PROG 1 xercise I bability	rrelation coefficie test evalue Data Proces	ation ite ssing Exerce II Probabi	nt at the 59 In S.	6 level (both side	kercise Probabili
	Corr	Tabl Long-Ter Facility/E	e 9. Corre rm Care Brushing ience	Intro	oduction to Oral Me	n scores dicine I ability of C		ition Exercise	Data Pr	rocessing E Pro	*Co PROG 1 xercise I	rrelation coefficie	ation ite ssing Exerc	nt at the 59 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Debate E	kercise Probabili of
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Table 10. Correlations between competency elements (9 Elements) and scores for 3 subjects found to have a significant positive correlation with competency elements (3 Skills).

		Basic Science	e/Physics	Practical	English II	Debate	Exercise
Competency	У		Probability		Probability		Probability
		Correlation Coefficient	of Significance	Correlation Coefficient	of Significance	Correlation Coefficient	of Significance
	Affinity	0.040	0.763	0.066	0.533	0.132	0.210
Basic Interpersonal Skills	Cooperation	0.055	0.676	-0.020	0.864	0.155	0.140
	Leadership	0.066	0.614	0.207*	0.048	0.270**	0.009
Basic Self-Management	Emotional Control	0.361**	0.005	0.144	0.171	0.202	0.053
Skills	Creative Confidence	0.222	0.088	0.244*	0.019	0.305**	0.003
	Perseverance	0.145	0.268	0.215*	0.039	0.182	0.082
Basic Problem-Oriented	Identifying Problems	0.381**	0.003	0.071	0.500	0.215*	0.039
Skills	Planning	0.193	0.140	-0.070	0.495	-0.000	0.988
	Practical Ability	0.193	0.139	0.099	0.347	0.256*	0.014
	·			**	Corelation coefficient is	s significantlevel at th	e 1% level (both side
				*C	prelation coefficient is s	significantlevel at the	1% level (both sides)

DISCUSSION AND CONCLUSION

The PROG report used in this investigation is an assessment program, jointly developed by the Kawaijuku Educational Institution and RIASEC Inc., that supports the growth of general-purpose proficiencies, attitudes, and inclinations (generic skills) required by society. The PROG Test is an assessment test that objectively measures the skills required by society in terms of the two aspects of literacy and competency ^[7-10]. It has been used in various universities to measure learning outcomes with a view of educational improvement, as well as of encouraging student growth and subjective learning. Since its release in April, 2012, the PROG Test has already been administered at approximately 290 universities across Japan and taken by more than a quarter of a million students ^[11]. With the PROG Test, it is possible to objectively grasp the current status of individual students with measurements from the two standpoints of literacy and competency.

Using the items shown in **Table 1**, with regard to literacy, we check the skills to solve challenges by using knowledge of new problems and problems that have not previously been experienced, and with regard to competency, the behavioral styles and decision-making characteristics acquired to better cope with contextual circumstances ^[9,10]. Evaluation scores and level setting are shown in **Table 2**. For the evaluation of overall literacy, Stages 1 to 4 are set at the level achieved in the first year of study, with Stage 7 set at the level of someone who has completed an undergraduate program. For the evaluation of overall competency, Stages 1 to 4 are set at the level of someone who has completed an undergraduate program, while Stages 5 and 6 are set at the level expected for graduates who have been in the workforce for up to three years, and Stage 7 is set at the level of someone playing a leading role as a young worker ^[11].

Narita has pointed out that while a clear positive correlation is apparent in the relationship between PROG Test results and the Standard Deviation (SD) value for entrance examinations, in the sense that higher entrance examination SD values are associated with higher literacy scores, the relationship with regard to competency does not appear to be as strong as that with literacy; in terms of overall competency, very little difference was found among the High-SD Group (SD \geq 55), Medium-SD Group (SD \geq 45<55), and Low-SD Group (SD value< 45)^[12]. Also, Yamamoto and Matsumoto state that basic academic ability up to high school is a necessary condition for literacy ^[13]. In the PROG Test results for first-year Fukuoka Dental College students in 2016 as well, while a significant positive correlation with overall literacy was found with respect to overall competency. Looking at the specific literacy elements with which correlations were found, we find that significant positive correlations were observed with respect to data analysis, the ability to identify problems, and verbal processing ability.

Yamamoto discussed the relationship between PROG Test results and GPA scores, reporting that test results do not necessarily correlate with GPA ^[14,15]. However, we found a correlation with GPA in the PROG Test results for first-year Fukuoka Dental College students in 2016. In the measurement items, while a significant positive correlation was found with respect to overall literacy, no significant correlation was found with respect to overall competency. Looking at the specific literacy elements with which correlations were found, we find that significant positive correlations were observed with respect to data analysis and the ability to identify problems. In terms of the correlation with GPA, given that the subjects offered in Year 1 at our school promote the development of basic academic ability and include several remedial education subjects in mathematics and science for advancing students to the next stage, it seems possible that this correlation may be due to the fact that basic academic ability at the time of admission is reflected in Year 1 GPA scores.

This study identified that by administering the PROG Test soon after the time of admission, it was possible to measure generic skills at the time of admission, within which the overall literacy results were related to academic ability at the time of admission and the Year 1 GPA scores after the first year of study. In addition, there is a possibility that this may also be related to subsequent academic performance, suggesting its usefulness for the instruction of individual students. In terms of the competency aspect of generic skills, no significant correlations were observed among PROG Test results, CAAE scores, and Year 1 GPA. However, the ability to respond well to contextual circumstances by taking advantage of the behavioural styles and decision-making characteristics

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acquired measured from this competency standpoint also represent an indispensable capability for engaging in dentistry. Yamamoto states that while university education does foster competency, its evaluation has been lacking such that the assessment of required subjects and their results while being cognizant of generic skills training remains a challenge ^[13]. Among the subjects offered in Year 1 at our school, there were some subjects in which a significant positive correlation was found between grade scores and competency-related measurement items. These subjects included observational evaluation such as interpersonal dialog and group work performance, and while this seems to be due to consistency between evaluation items and competencyrelated measurement items, this needs to be studied further in the future. Also, as reported by Sasakawa ^[16,17] and Saga et al. ^[18]. It appeared that it would also be possible to evaluate the growth of students' generic skills by administering the PROG Test again after a period of several years and comparing the results.

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