Table 1. Participants for each country and kind of institution

	University	vocational college	Total	
USA	**170**	**181**	351	Ohio State
	48.4%	51.6%	100.0%	Community College
Germany	114	0	114	Kaiserlautern
	100.0%	0.0%	100.0%	Duisburg-Essen
Japan	**206***	**213****	419	Nagoya Uni. Tokyo Private College
	49.2%	50.8%	100.0%	Kansai Uni..
Korea	210	150	360	KoreaUni
	58.3%	41.7%	100.0%	Taejyon Vocational College
Total	700	544	1244	

Notice * Ramdom sampling from 616 by 33%

Notice** Ramdom sampling from 349 by 60%

Table 2. Q2-1 Career wish after graduation

country	institution	graduate school	Employment	others	not decided	total	χ2tests
USA	university	45	91	3	29	168	
		26.8%	54.2%	1.8%	17.3%	100.0%	
	college	31	81	12	13	137	
		22.6%	59.1%	8.8%	9.5%	100.0%	
	total	76	172	15	42	305	*n.s*
Japan	university	23	155	8	19	205	
		11.2%	75.6%	3.9%	9.3%	100.0%	
	college	2	205	3	3	213	
	total	25	360	11	22	418	n.s
Korea	university	54	82	13	61	210	
		25.7%	39.0%	6.2%	29.0%	100.0%	
	college	7	131	6	5	149	
		4.7%	87.9%	4.0%	3.4%	100.0%	
	total	61	213	19	66	359	*n.s*
Total	university	**122**	**328**	24	**109**	583	
		20.9%	56.3%	4.1%	18.7%	100.0%	
	total	**40**	**417**	21	**21**	499	
		8.0%	83.6%	4.2%	4.2%	100.0%	
	total	162	745	45	130	1082	χ 2(3)=106.025 , *p*<.001

Notice1 : χ 2tests

Notice 2: Gothic means te significant difference by analysis of residuals at 5 % level

notice3 : Germany is omitted from tha analysisi of compariosn between kind of institution because samples are only university students.

Table 3. Q2-4-2 Parcentiles od specialized cources amang total study credits

Country		averages	S.D	N	multiple comparison
USA	university	39.17	31.408	149	
	college	61.47	29.306	156	
	total	50.57	32.291	305	>Korea
Japan	university	51.03	22.232	170	
	college	50.83	19.241	139	
	total	50.94	20.907	309	>Korea
Korea	university	24.65	24.109	207	
	college	77.36	14.544	132	
	total	45.17	33.146	339	
Total	university	37.29	28.114	526	
	college	62.92	24.707	427	
	total	48.77	29.524	953	*

Notice1 : Germany is omitted because they don't take liberal arts at universitie.

Notice 2 : Interactive function $F(2, 947)=93.60(p<.001)$ and main effect is significant between both institutions $F(1, 947)=244.606(p<.001)$

Notice 3 : Multi-compariosn among countries are shown as > in the case of significance at 5 % level of Tukey method

Notice 4 : Simple mai effect is shown as " *" if it's significant at % % level by Bonferroni method.

Table 4. Q2-7 Effectiveness of spesialized courses on career decision

country		averages	S>D	N	Multi-comparison
USA	university	3.69	.610	167	
	college	3.74	.542	181	
	total	3.72	.575	348	＞Korea＞Japan
Japan	university	2.99	.696	205	
	college	3.36	.588	212	
	total	3.18	.670	417	
Korea	univesity	3.31	.723	196	＞Japan
	college	3.83	.471	149	
	total	3.54	.677	345	
Total	university	3.30	.737	568	
	college	3.62	.580	542	
	total	3.46	.683	1110	＊

Notice1：Germany is omitted because they don't provide liberal arts courses at university.

Notice 2：Interactive function is $F(2, 1104)=13.125(p<.001)$ and main effect of country is significant by $F(2, 1104)=79.523)$, the same significant effect of institution$F(1, 1104)=71.899$で両方有意

Notice 3：Multi-comparison of countries is significant at % % level by Tukey method and shown as ＞.

Notice 4：Simple main effect is significant at 5 % level by Bonferroni method and shown as"＊".

Table 5. Q2-8 Percentile of students' experiences for part-time job

	now doing	have done	haven't	total
USA	169	**84**	**57**	310
	54.5%	27.1%	18.4%	100.0%
Germany	**32**	23	**59**	114
	28.1%	20.2%	51.8%	100.0%
Japan	**317**	**44**	**57**	418
	75.8%	10.5%	13.6%	100.0%
Korea	**123**	**117**	**119**	359
	34.3%	32.6%	33.1%	100.0%
Total	641	268	292	1201

Notice1：$\chi 2(6)=195.179$、$p<.001$

Notice 2：Gothic means significant difference by the rediual analysis at 5 % level

Table 6. Q2-11 Career effectiveness of part-time job's experience on the decision of wishing vocation

Country	Averages	S.D	N	Multi-comparison
USA	2.61	1.149	282	＞Germany, Korea
Germany	1.89	1.031	55	
Japan	2.82	.870	359	＞Germany, Korea
Korea	2.31	1.660	239	
Total	2.57	1.233	935	

Notice: Analysis of variance; $F(3,931)=14.598$, $p<.001$

Notice2：Multi-comparison by Tukey method at 5% level+L24

Table 7. Q2-17 Experiences of volunteer activities

coutry	now doing	have done	haven't	total
USA	**104**	56	**191**	351
	29.6%	16.0%	54.4%	100.0%
Germany	30	**8**	75	113
	26.5%	7.1%	66.4%	100.0%
Japan	**27**	**49**	**342**	418
	6.5%	11.7%	81.8%	100.0%
Korea	**90**	**100**	**166**	356
	25.3%	28.1%	46.6%	100.0%
Total	251	213	774	1238

Notice1：$\chi 2(6)=143.200$, significant at p<.001 level

Notice 2:Analysis od desiduals at 5% leve

Table 8. Experiences of internship

Country		I have	I haven't	Total
USA	N	42	303	345
	%	12.2%	87.8%	100.0%
Germany	N	**34**	**76**	110
	%	30.9%	69.1%	100.0%
Japan	N	34	366	400
	%	8.5%	91.5%	100.0%
Korea	N	**22**	**336**	358
	%	6.1%	93.9%	100.0%
Total	N	132	1081	1213

Notice1 : χ 2(3)=56,710, significant at $p<.001$ level

Notice2: Analysis od residuals at 5% level

Table 9: Tab.2. Result of factor analysis into 30 items of vocational skills (N=1123, all data in four countries)

I can	F1	F2	F3	F4	F5	F6	Commu	M	SD
Q3-4-4 To grasp my job responsibility	**.871**	-.045	-.047	-.093	-.027	.038	.611	3.23	.746
Q3-4-5 To solve problem	**.792**	.029	-.012	-.171	-.018	.112	.532	3.28	.777
Q3-4-6 To sythesesize information	**.767**	.020	.096	-.003	-.029	-.128	.584	2.92	.833
Q3-4-2 To work with group	**.646**	-.054	-.045	.042	.016	.055	.456	3.19	.767
Q3-4-3 To tackle challenging	**.635**	-.042	-.024	-.059	.077	.087	.435	3.15	.731
Q3-4-7 To communicate well	**.628**	.060	-.026	.148	-.015	-.024	.532	3.05	.844
Q3-4-1 To wark independently	**.626**	.021	-.070	-.030	.035	.136	.449	3.43	.675
Q3-4-13 To create WORD document	**.609**	.041	.025	.231	-.038	-.176	.544	2.98	.918
Q3-4-10 To understand my work role	**.476**	-.014	-.001	-.006	-.045	**.444**	.543	3.47	.623
Q3-4-8 To ask questions for clarification	**.462**	-.005	-.015	.188	-.036	.146	.422	3.26	.720
Q3-4-12 To relieve work-related stress	**.449**	-.125	.073	-.047	.087	-.015	.233	2.79	.866
Q3-4-20 To speak foreign language	.037	**.934**	-.017	-.072	-.018	-.020	.834	2.37	1.102
Q3-4-19 To read foreign language	-.197	**.891**	.002	.014	-.033	.106	.734	2.76	1.065
Q3-4-21 To speak a second foreign language	.067	**.600**	.057	-.101	.012	-.170	.378	1.81	1.048
Q3-4-15 To have usual culture	.157	**.360**	-.006	.164	.057	.065	.348	3.20	.764
Q3-4-26 To operate mashinery and tools	-.065	.010	**.952**	-.032	-.019	.098	.831	2.43	1.023
Q3-4-25 To hand tool skills	-.035	-.068	**.796**	.029	.024	.091	.643	2.68	1.032
Q3-4-27 To compose parts of electric device	.005	.090	**.696**	-.016	.029	-.100	.532	2.02	.990
Q3-4-23 To have customer service skill	-.080	-.090	-.026	**.826**	.001	.011	.552	3.32	.719
Q3-4-24 To interact with my superiors	.057	-.137	.047	**.723**	-.027	.045	.561	3.30	.754
Q3-4-22 To have good speaking skills	.008	.249	-.120	**.493**	.080	.005	.405	3.26	.853
Q3-4-28 To have basic physical ability	-.058	-.012	-.005	.015	**.870**	.008	.709	3.09	.886
Q3-4-30 To play one sport	.037	.000	.070	-.021	**.606**	-.001	.426	3.17	.955
Q3-4-29 To have physical ability for a longtime	.161	-.006	-.020	.007	**.591**	-.012	.467	3.05	1.093
Q3-4-11 To follow work rules	.196	-.001	.040	-.031	.002	**.530**	.389	3.66	.558
Q3-4-9 To relate to other peple's opinion	.116	-.052	.017	.112	.025	**.445**	.322	3.47	.639
Q3-4-14 To have good mathmatical skills	.232	.272	.065	.015	.068	.097	.271	3.24	.873
Q3-4-16 To utilize EXCEL	.214	.073	.189	.235	-.034	-.093	.262	2.88	.958
Q3-4-17 To use SPSS	.254	-.006	.226	.006	.010	-.329	.211	1.66	.825
Q3-4-18 To have internet search skills	-.006	.055	.082	**.303**	-.017	.234	.229	3.65	.587
F1 Work management skills	1.000	.302	.440	.676	.566	.383	*.897*		
F2 Language/Culture skills	.302	1.000	.162	.355	.277	.086	*.782*		
F3 Technical skills	.440	.162	1.000	.377	.462	.022	*.845*		
F4 Communication skills	.676	.355	.377	1.000	.454	.349	*.705*		
F5 Physical skills	.566	.277	.462	.454	1.000	.249	*.755*		
F6 Adaptive skills to organization	.383	.086	.022	.349	.249	1.000	*.509*		

Notice1 : By principal and *Promax* rotation methods

Notice 2: The left side of factors' six lines are co-relation coefficients, the right side are α coefficients

Table 10: Tab. 3. Result of factor analysis into 27 items of vocational values (N=1209)

I want a job that	F1	F2	F3	F4	F5	Commur	M	SD
Q4-6 allow my character	**.736**	-.023	-.089	-.096	.103	.535	3.31	.783
Q4-4 contributes to fulfilling life	**.647**	-.204	.206	.017	-.018	.325	3.48	.682
Q4-12 allow me to pursue my dream	**.644**	.073	-.154	.031	.003	.524	3.36	.813
Q4-5 allow me to have a prosperous family	**.577**	-.036	.245	.111	-.176	.384	3.09	.928
Q4-11 is safe and secure	**.504**	.151	.282	-.064	-.097	.381	3.37	.790
Q4-25 is conductive to familylife	**.394**	-.108	**.390**	-.142	.173	.309	3.56	.651
Q4-16 make use of my specialized knowledge	**.391**	.238	-.093	.139	-.071	.411	3.30	.811
Q4-26 is challenging	**.381**	.276	-.217	.086	.115	.547	2.86	.891
Q4-13 can work independently	**.366**	-.144	.049	.276	.177	.328	2.83	.955
Q4-23 tests my abilities	**.334**	.291	-.106	-.025	.189	.464	3.22	.788
Q4-30 where I produce new products	**.308**	.146	-.150	.083	.249	.411	2.85	.954
Q4-18 work as one member of an organization	-.174	**.767**	.101	-.151	.006	.375	3.20	.740
Q4-21 contributes to development of my state	.025	**.662**	.013	.071	-.085	.472	2.81	.943
Q4-19 contributes organization's development	.094	**.635**	.096	.084	-.062	.549	3.05	.874
Q4-17 respected by society	.001	**.425**	.095	.282	-.031	.395	3.17	.863
Q4-27 requires me to communicate with other	.229	**.302**	.010	-.016	.150	.332	3.08	.883
Q4-9 in stable enterprise	-.036	.136	**.741**	.045	-.026	.585	3.53	.696
Q4-8 will have security	.055	.047	**.700**	.124	-.074	.551	3.39	.756
Q4-24 contributes to a stable life	.054	.128	**.689**	-.078	.053	.508	3.63	.585
Q4-22 is conveinient to get to with traffic	-.305	.064	**.400**	.143	**.392**	.337	3.14	.850
Q4-10 has opportunities for a job advancement	.125	-.012	.091	**.729**	-.024	.657	3.07	.891
Q4-15 where I will be in a leadership position	.149	.195	-.088	**.576**	-.040	.609	2.86	.933
Q4-2 will have a high salary	-.120	-.137	.304	**.559**	.104	.378	3.41	.679
Q4-28 where I can worl at my own speed (pace)	.089	-.163	.128	.053	**.643**	.437	3.24	.756
Q4-29 requires my full commitment	.049	.182	-.017	-.054	**.545**	.438	3.34	.729
Q4-3 will have good bebifits (time-off etc.)	.035	-.108	.259	.124	.036	.093	3.68	1.008
Q4-14 where I can worl with colleagues	.132	.293	.235	-.151	.152	.248	3.55	.622
F1 Self-realization orientation	1.000	.710	.053	.542	.499	*.844*		
F2 Society/Contribution orientation	.710	1.000	.063	.522	.455	*.727*		
F3 Life/Stable orientation	.053	.063	1.000	.181	.103	*.743*		
F4 Leader/Rich-man orientation	.542	.522	.181	1.000	.220	*.708*		
F5 independent craftman orientation	.499	.455	.103	.220	1.000	*.595*		

Notice 1, 2 are same as Table 2

Table 11:

Tab. 4 Comparison of score of each factor and each coutry's group

		N	M	SD	Level of significances Multi-comparison by *Tukey,* p<.05
Ability F1 Management skill	22.00	141	-.3022383	.66859570	
	32.00	160	.9494458	.51612901	
	178.00	101	-.8307020	.73045596	F(2,399)=283.825, p<.001
	total	402	.0631712	.97793533	32>22＞178
Ability F2. Language/culture skill	22.00	141	-.4280902	.62224023	
	32.00	160	-.2614955	.96219125	
	178.00	101	-.8827459	.65689457	F(2,399)=19.900, p<.001
	total	402	-.4760133	.81897086	32>178、 2 2 ＞178
Ability F3. Technical skill	22.00	141	-.0786759	.87913852	
	32.00	160	.6100477	.90293988	
	178.00	101	-.4004598	.89374546	F(2,399)=44.793, p<.001
	total	402	.1145967	.98498798	32>22>178
Ability F4 Communication skill	22.00	141	-.4074104	.76141661	
	32.00	160	.6174085	.63430941	
	178.00	101	-.5963952	.90504869	F(2, 399)=104.939, p<.001
	total	402	-.0470035	.92953917	32>22,178
Ability F5 Physical skill	22.00	141	-.2534366	.76019846	
	32.00	160	.4240683	.76471604	
	178.00	101	-.5561316	.99177161	F(2, 399)=49.557, p<.001
	total	402	-.0598332	.92063794	32>22>178
Value F1 Self-realization	22.00	146	-.1032228	.86982589	
	32.00	171	.8007284	.58190282	
	178.00	102	-.6703272	.92192030	F(2, 416)=123.430, p<.001
	total	419	.1276388	.98227765	32>22>178
Value F2 Society-contribution	22.00	146	.0749447	.87491838	
	32.00	171	.4831199	.72631315	
	178.00	102	-.5159756	.98190059	F(2, 416)=44.587, p<.001
	total	419	.0976752	.93053273	32>22>178
Value F3 Life-stability	22.00	146	.1230672	.72745828	
	32.00	171	.3463259	.65107146	
	178.00	102	.2453283	.83000999	F(2, 416)=3.739, p<.05
	total	419	.2439452	.72926157	32>22
Value F4 Leader-rich man	22.00	146	.1607555	.70596554	
	32.00	171	.7881963	.58982456	
	178.00	102	-.4391522	.79495814	F(2, 416)=105.425, p<.001
	total	419	.2707836	.83893248	32>22>178