

## 2016 Report

### **Globally-Required Abilities: Towards Achieving the University Education Required by Society**

#### **EXECUTIVE SUMMARY**

This report presents summary results of a survey entitled “Globally-Required Abilities: Towards Achieving the University Education Required by Society,” conducted in Japan in the 2016 academic year. The survey aims to ascertain levels of recognition of two types of competencies: subject-specific competencies (in the fields of economics and business) and generic competencies that Japanese university graduates are expected to acquire before entering the job market. Specifically, it investigates the degree to which various university stakeholders recognize the importance and level of acquisition of these competencies. University stakeholders include students, academics, graduates, and those who work in major Japanese companies (hereafter referred to as employers). The field of study of the university stakeholders was either economics or business. Ten universities participated in the survey, which was conducted over a three-month period from December 2016 to March 2017. The number of valid responses was 3,168 (2,074 for economics, 1,094 for business). The main results are as follows.

#### **ECONOMICS**

*Employers recognized the importance and acquisition of subject-specific competencies to a lesser degree than students, academics and graduates. Recognition of competencies varied between universities, especially that of English reading competence.*

#### **Importance and level of acquisition of competencies**

1. Among 24 subject-specific competencies in the field of economics, both the importance and level of acquisition of some competencies were highly rated by all participants – those relating to basic understanding and economic statistics – namely, competencies 6-8 and 17. The levels of acquisition of some competencies were recognized to a lesser degree – those relating to skills of research or presentation in a foreign language – namely, competencies 21 and 23-24. (For details of the various competencies, please refer to Figure 1.)

#### **Recognition of competencies among stakeholders**

2. Employers recognized both the importance and level of acquisition of competencies to a

lesser degree than others (students, academics, and graduates).

3. In all universities, students differed most from employers in their recognition of the importance of various competencies compared to academics and graduates. However, the degree of difference varied among universities (the difference was especially large in two particular universities (Univ3 and Univ9) and smaller in one university (Univ1)).

#### **Recognition of competencies among universities**

4. Students' recognition of competencies showed a high degree of correlation between almost all university pairs (this applies to graduates). For academics, however, some specific pairs, for instance Univ1 and Univ3, showed only low or medium levels of correlation.
5. Recognition of competencies varied between universities, particularly on the question of English reading competence. (For a scatter plot of each university's recognition of this particular competency, please refer to Figure 2.) This was common among students, academics, and graduates. Differences were also seen between some university pairs in terms of students' level of acquisition of statistics, graduates' level of acquisition of econometrics, and academics' recognition of the importance of classics.

#### **The relationship of competency recognition to understanding of and satisfaction with subject-specific education, and career choice**

6. There was a positive relationship between students' and graduates' acquisition of statistic/econometric competencies and the understanding of and satisfaction with subject-specific education. Also, students who rated more highly the importance of applied-economics competencies were more willing to get a job related to their field of study. Graduates who recognized the acquisition of applied-economics competencies more highly were also likely to get a job related to their field of study.

#### **Competency structures**

7. There were positive correlations between all pairs of subject-specific competencies in terms of both importance and level of acquisition (some pairs showed strong correlation). Therefore, we conducted a factor analysis to investigate the structural relationships among the competencies. The results showed that competencies can be categorized into four factors in terms of perceived importance: "Applied economics," "Foreign language/Research," "Theory/Basics," and "Statistics/Econometrics;" similarly, the level of acquisition of the various competencies can be grouped under four headings: "Applied economics/Research," "Statistics/Econometrics," "Foreign language," and "History/Thoughts." (For the

composition of each factor, please refer to Figure 1.)

Figure 1. Mean and factor number of the importance and level of acquisition of subject-specific competencies (Economics).

№	Competences	All stakeholders			
		Importance		Acquisition	
		Mean	Factor №	Mean	Factor №
1	Understands economic models and can explain them using mathematical formulae and diagrams.	2.79	③	2.38	②
2	Understands mathematical solution methods used in economics (such as Lagrange multiplier method).	2.37	③	2.13	②
3	Understands the historical processes by which economic systems have been formed.	2.68	③	2.32	④
4	Can engage in discussions with reference to classic texts by Smith, Marx, Keynes, and other writers.	2.38	③	2.04	④
5	Understands the thought background to fundamental economic concepts.	2.66	③	2.26	④
6	Can explain economic theory in an understandable way to someone with no background in the field.	3.09	③	2.42	④
7	Understands economic statistics and can interpret them appropriately.	3.32	④	2.50	②
8	Can collect relevant data suited to the intended analysis and process the data into charts and diagrams.	3.35	④	2.50	②
9	Can carry out economic analysis (such as panel data analysis) using the basic methods of econometrics.	2.86	④	2.07	②
10	Using economic theory can understand and take part in empirical discussion of fiscal issues.	3.02	①	2.19	①
11	Using economic theory can understand and take part in empirical discussion on financial markets.	3.08	①	2.23	①
12	Using economic theory can understand and take part in empirical discussion on labor markets.	3.00	①	2.24	①
13	Using economic theory can understand and take part in empirical discussion on international trade.	2.93	①	2.10	①
14	Using economic theory can understand and take part in empirical discussion on developing economies.	2.81	①	2.02	①
15	Using normative criteria of welfare economics can carry out empirical analysis to evaluate economic policy.	2.72	①	2.00	①
16	Can discuss economic policy based on an accurate understanding of statutes, jurisdictions, and procedures of legal systems.	2.78	①	1.94	①
17	Can understand economic articles in newspapers and magazines accurately and discuss them critically.	3.42	①	2.70	①
18	Can apply the knowledge and methods of economics to take part in interdisciplinary collaborative research.	2.64	②	1.96	①
19	Can read and accurately understand economic articles in English-language newspapers and magazines.	2.91	②	2.05	③
20	Can accurately understand economics literature written in English.	2.62	②	1.91	③
21	Can accurately understand economics literature written in a foreign language other than English.	2.13	②	1.47	③
22	Can write an academic paper in Japanese in a logical and lucid manner in the field of economics.	2.78	②	2.12	①
23	Can write an academic paper in English in a logical and lucid manner in the field of economics.	2.36	②	1.53	③
24	Can give presentations and engage in discussions in English at economics seminars and similar settings.	2.39	②	1.50	③

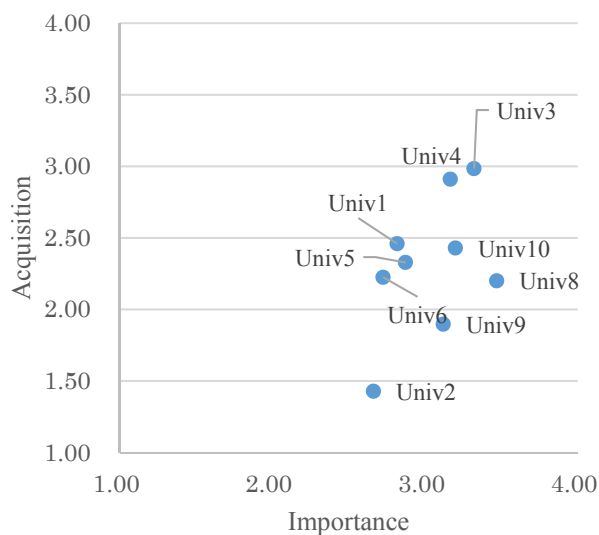
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Based on the results of factor analysis, each competence is given a number of a factor, to which the competence belongs. For both importance and acquisition factors, ①, ②, ③, and ④ refer, respectively, to Factor №1, Factor №2, Factor №3, and Factor №4. Factor interpretations are mainly based on the cases where factor loadings are no less than 0.4.

Importance factor: ①「Applied economics」, ②「Foreign language/Research」, ③「Theory/Basics」, ④「Statistics/Econometrics」

Acquisition factor: ①「Applied economics/Research」, ②「Statistics/Econometrics」, ③「Foreign language」, ④「History/Thoughts」

Figure 2. Scatterplot of the importance and level of acquisition of competency 19 (“Can read and accurately understand economic articles in English-language newspapers and magazines”) as reported by universities.



## BUSINESS

*Graduates and employers recognized the importance and level of acquisition of subject-specific competencies to a lesser degree than students and academics. Recognition of competencies varied between universities, especially that of competence in English reading and understanding.*

### Importance and acquisition of competencies

1. Among 31 subject-specific competencies in the field of business, both the importance and acquisition of some competencies were highly rated by all participants – those relating to day-to-day work performance and basic understanding: the ability to organize a work plan (10), the ability to collect appropriate data and present them in graphs or charts (5), and the ability to understand specialized economic newspapers and articles (8). (For a description of the competency items, please refer to Figure 3.)

### Recognition of competencies among stakeholders

2. Graduates and employers recognized both the importance and level of acquisition of competencies to a lesser extent than students and academics.
3. Recognition correlations were weak between academics in some universities and employers, a phenomenon particularly evident in the importance attributed to the competencies of being

able to understand field-specific books, including books written in English, the ability to examine business behavior based on a basic framework for corporate strategy, and the ability to examine actual marketing phenomena using basic concepts of marketing.

#### **Recognition of competencies among universities**

4. Students' recognition of competencies showed medium or high levels of correlation between all pairs of universities (this applies to graduates). However, academics demonstrated only medium levels of correlation in most cases. Some specific university pairs, such as pairs involving Univ3, showed low levels of correlation.
5. Recognition of competencies varied between universities; this was especially evident regarding the importance attached to competence in English reading and understanding, which is particularly remarkable for students and academics. Differences were also seen in the perceived importance of being able to explain basic business terms, and the acquisition of two competencies (the ability to examine business behavior based on a basic framework for corporate strategy, and the ability to examine actual marketing phenomena using basic concepts of marketing). (For a scatter plot of universities' recognition of two of these competencies, please refer to Figure 4 and Figure 5.)

#### **The relationship of competency recognition with understanding of and satisfaction with subject-specific education, and career choice**

6. There was a positive correlation between the understanding of subject-specific education and either (1) students' acquisition of competencies relating to the basics of business subjects, or (2) graduates' acquisition of competencies relating to accounting and finance. Also, students who rated more highly the importance of the competencies related to theoretical considerations or who recognized the acquisition of the basics of business more highly were more willing to get a job related to their field of study. Graduates who ranked competencies relating to accounting and basic business subjects higher in terms of importance were also likely to get a job related to their field of study.

#### **Competency structures**

7. There were positive correlations between almost all pairs of subject-specific competencies in terms of both importance and level of acquisition (some pairs showed strong correlation). Therefore, we conducted a factor analysis to investigate the structural relationships among the competencies. The results showed that competencies can be categorized into four factors in terms of perceived importance: "Theoretical considerations," "Proposition/Problem solving," "English/Professional understanding," and "Accounting/Business basics;" the

acquisition of competencies similarly can be grouped into four factors: “Management,” “Basics of specialized subjects,” “English,” and “Accounting/Finance.” (For the composition of each factor, please refer to Figure 3.)

Figure 3. Mean and factor number of the importance and level of acquisition of subject-specific competencies (Business).

№	Competences	All stakeholders			
		Importance		Acquisition	
		Mean	Factor №	Mean	Factor №
1	Ability to explain the meaning of basic macroeconomic indexes (such as real GDP growth rate) closely related to business decision making.	2.85	④	2.30	②
2	Ability to explain the meaning of basic financial ratios (such as ROE and total assets turnover rate) related to business.	3.16	④	2.43	④
3	Ability to explain basic business terms (such as KPI and PDCA).	3.06	④	2.52	②
4	Ability to understand and explain exactly recent events and trends related to business.	3.45	④	2.51	②
5	Ability to collect appropriate data that suit the objectives of the analysis required and to present them in graphs or charts.	3.42	②	2.67	②
6	Ability to put social phenomena related to business into a box-and-arrow diagram.	3.21	②	2.45	②
7	Ability to understand the content of academic material in business administration and economics exactly.	2.69	③	2.39	④
8	Ability to understand specialized economic newspapers (such as FT and WSJ), the economics pages of general newspapers (such as The Times and The New York Times), or information on the Web equivalent to the contents of those newspapers.	3.42	④	2.88	②
9	Ability to notice problems existed in the conventional ways of thinking and working in business, and to come up with and suggest new ideas and new procedures in order to improve conditions in business.	3.55	②	2.52	②
10	Ability to organize a work plan by considering future events.	3.59	②	2.70	①
11	Ability to understand the content of specialized English books or journal articles in business and economics exactly.	2.43	③	1.98	③
12	Ability to understand the English content of online information in business.	2.75	③	2.11	③
13	Ability to discuss business issues in English.	3.17	③	2.00	③
14	Possession of the basic skills to conduct social research (such as how to design questionnaires) and the ability to apply those skills to business surveys.	2.70	③	2.11	①
15	Ability to conduct appropriate statistical analysis (such as regression analysis) in a business context with actual data.	2.62	①	2.00	③
16	Ability to analyze a company’s accounting statements (such as a balance sheet and profit-and-loss statement) and to point out the financial characteristics and problems of the company.	3.25	④	2.42	④
17	Ability to examine business activity based on the basic theory for evaluating a company’s investments or corporate value (such as the DCF method).	2.65	①	1.90	④
18	Ability to examine business behavior based on a basic framework for business and corporate strategy (such as Michael Porter’s Five Forces Model).	2.75	①	2.36	①
19	Ability to examine actual marketing phenomena using basic concepts of marketing (such as the 4P’s and the segmentation-targeting-positioning approach).	2.85	①	2.46	①
20	Ability to examine actual human behavior in companies relying on basic concepts of human behavior and group dynamics (such as motivation and leadership).	3.21	①	2.65	①
21	Ability to examine a business’ organization using the basic theories of organizational structure.	2.79	①	2.28	①
22	Ability to analyze actual human resource policy and practices of a company using basic human resource management theories.	2.68	①	2.07	①
23	Ability to use the basic theories of production management to examine real business activity.	2.70	①	2.01	①
24	Ability to examine the functions of companies in society from a broad perspective that includes multiple stakeholders.	3.24	②	2.50	①
25	Ability to use international management theory (such as an impact of cultural differences among countries on management) to examine real business activity.	3.06	②	2.23	①
26	Ability to analyze and structure a problem of an enterprise and design a solution (i.e. entering a new market).	3.42	②	2.38	①
27	Audit an organization and design consultancy plans (i.e. tax law, investment, case studies, and project work).	2.86	①	1.97	①
28	Identify related issues such as culture and ethics and understand their impact on business organizations.	2.91	②	2.23	①
29	Identify the functional areas of an organization and their relations (i.e. purchasing, production, logistics, marketing, finance, human resource).	3.27	②	2.57	①
30	Identify the impact of macro- and microeconomic elements on business organizations (i.e. financial and monetary systems, internal markets).	3.02	②	2.21	②
31	Understand existent and new technology and its impact for new / future markets.	3.17	②	2.27	①

\* Based on the results of factor analysis, each competence is given number of a factor, to which the competence belongs. For both importance and acquisition factors, ①, ②, ③, and ④ refer, respectively, to Factor №1, Factor №2, Factor №3, and Factor №4. Factor interpretations are mainly based on the cases where factor loadings are no less than 0.4. Importance factor: ①「Theoretical considerations」, ②「Proposition/Problem solving」, ③「English/Professional understanding」, ④「Accounting/Business basics」, Acquisition factors: ①「Management」, ②「Basics of specialized subjects」, ③「English」, ④「Accounting/Finance」

Figure 4. Scatterplot of the importance and level of acquisition of competency 11 (“Ability to understand the content of specialized English books or journal articles in business and economics”) as reported by universities.

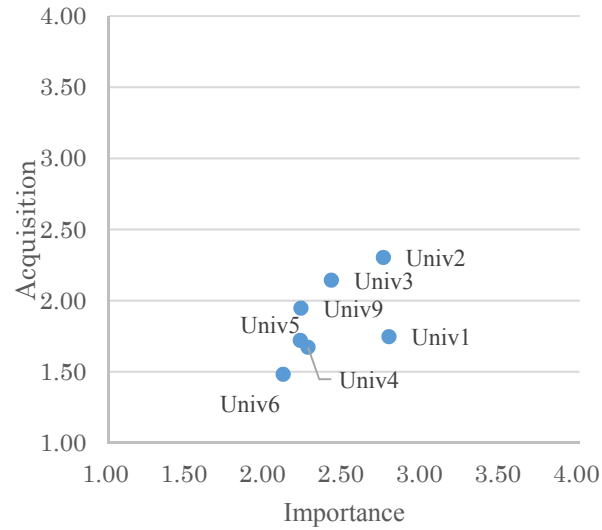
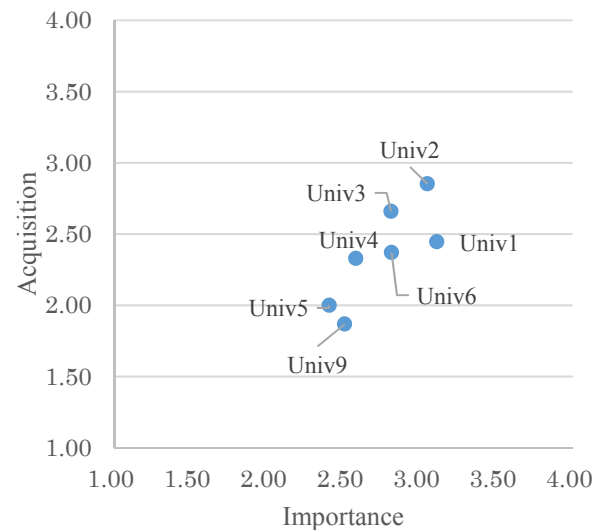


Figure 5. Scatterplot of the importance and level of acquisition of competency 18 (“Ability to examine business behavior based on a basic framework for business and corporate strategy (such as Michael Porter’s Five Forces Model)”) as reported by universities.



## **GENERIC**

*All four types of stakeholders recognized the levels of acquisition of generic competencies relating to research, creativity, and internationality to a lesser degree.*

### **Importance and level of acquisition of competencies**

1. Among 31 generic competencies, the following were recognized as particularly important for students, graduates, and employers: “Ability to communicate both orally and through the written word in native language” (5), “Ability to plan and manage time” (3), “Interpersonal and interaction skills” (17), “Ability to work in a team” (16), and “Ability to make reasoned decisions” (15). Academics rated highly the importance of competencies closely related to academic practice (2, 9-11). Common to all stakeholders, the levels of acquisition of some competencies were recognized to a lesser degree – those relating to research, creativity, and internationality (6, 8, 13, 21, 25). (For a list of the various competencies, see Figure 6.)

### **Recognition of competencies among different stakeholders**

2. Recognition of the importance of the various competencies differed from that of the level of acquisition. Regarding perceived importance, no large difference was seen among stakeholder pairs, with the differences in recognition generally lying between 10 and 15 competency items for all pairs of stakeholders. By contrast, there were many competencies for which large differences were found between employers’ and students’ recognition of the levels of acquisition, with employers generally reporting lower levels of acquisition than students. There was little difference between employers and academics regarding competency acquisition.

### **Competency structures**

1. For both importance and level of acquisition, there were only low/medium levels of correlation among almost all pairs of generic competencies (no pair showed strong correlation in terms of importance). Therefore, we conducted a factor analysis to determine the structural relationships among the various competencies. From the results, recognition of both the importance and level of acquisition of the various competencies can be categorized into the following four factors: “Cooperation/Accomplishment of duties,” “Practical application/Analysis,” “Internationality/Creativity,” and “Social ethics/Responsibility”. (For the composition of each factor, please refer to Figure 6.)



Figure 6. Mean and factor number of the importance and level of acquisition of generic competencies.

№	Competences	All stakeholders			
		Importance		Acquisition	
		Mean	Factor №	Mean	Factor №
1	Ability for abstract thinking, analysis and synthesis.	3.33	②	2.70	①
2	Ability to apply knowledge in practical situations.	3.51	②	2.69	①
3	Ability to plan and manage time.	3.70	①	2.86	①
4	Knowledge and understanding of the subject area and understanding of the profession.	3.13	②	2.48	①
5	Ability to communicate both orally and through the written word in native language.	3.72	②	3.36	①
6	Ability to communicate in a second language.	3.14	③	2.20	④
7	Skills in the use of information and communication technologies.	3.40	②	2.72	①
8	Ability to undertake research at an appropriate level.	2.97	③	2.39	①
9	Capacity to learn and stay up-to-date with learning.	3.59	②	2.92	①
10	Ability to search for, process and analyze information from a variety of sources.	3.59	②	2.89	①
11	Ability to be critical and self-critical.	3.43	②	2.82	①
12	Ability to adapt to and act in new situations.	3.63	①	2.89	②
13	Capacity to generate new ideas (creativity).	3.31	③	2.34	④
14	Ability to identify, pose and resolve problems.	3.55	②	2.77	①
15	Ability to make reasoned decisions.	3.65	①	2.97	①
16	Ability to work in a team.	3.66	①	3.23	②
17	Interpersonal and interaction skills.	3.68	①	3.14	②
18	Ability to motivate people and move toward common goals.	3.41	①	2.60	②
19	Ability to communicate with non-experts of one's field.	3.37	①	2.67	②
20	Appreciation and respect for diversity.	3.59	①	3.19	③
21	Ability to work in an international context.	3.09	③	2.19	④
22	Ability to work autonomously.	3.57	①	2.92	①
23	Ability to design and manage projects.	3.23	③	2.42	①
24	Commitment to safety.	3.48	④	3.08	③
25	Spirit of enterprise, ability to take initiative.	2.92	③	2.21	④
26	Ability to act on the basis of ethical reasoning.	3.43	④	3.07	③
27	Ability to evaluate and maintain quality of work produced.	3.38	①	2.65	①
28	Determination and perseverance in the tasks given and responsibilities taken.	3.60	①	3.07	②
29	Commitment to the conservation of the environment.	2.89	④	2.50	③
30	Ability to act with social responsibility and civic awareness.	3.30	④	2.85	③
31	Ability to show awareness of equal opportunities and gender issues.	3.14	④	2.81	③

\*

Based on the results of factor analysis, each competence is given number of a factor, to which the competence belongs. For both importance and acquisition factors, ①, ②, ③, and ④ refer, respectively, to Factor №1, Factor №2, Factor №3, and Factor №4. Factor interpretations are mainly based on the cases where factor loadings are no less than 0.4.

Importance factor: ①「Cooperation/Accomplishment of duties」, ②「Practical application/Analysis」, ③「Internationality/Creativity」, ④「Social ethics/Responsibility」, Acquisition factors: ①「Practical application/Analysis」, ②「Cooperation/Accomplishment of duties」, ③「Social ethics/Responsibility」, ④「Internationality/Creativity」

## DISCUSSION

The results of our survey show that, in the fields of both economics and business, students and academics recognize the importance and level of acquisition of subject-specific competencies more than employers. Utilizing the findings of this survey, we suggest the necessity of consensus building through dialogue between university stakeholders and employers as to what kind of competencies should be fostered through university education.

All stakeholders recognized the importance and acquisition of basic understanding and skills. In the case of students, those who have higher levels of acquisition of basic understanding and skills tend to have a deeper understanding of specialized education. These findings suggest that university stakeholders should encourage more students to acquire higher levels of basic understanding and skills in field-specific competencies through the enhancement of the content and methods of education. Moreover, attention should be paid to the limited recognition among all stakeholders of competencies relating to foreign language ability, internationality, and creativity, and their place in specialized education.

The recognition of different competencies varies between universities, particularly on the question of the acquisition of English reading competence. Three university policies (diploma/curriculum/admission) could have an influence on these levels of recognition, because the differences among universities are formed through these policies and implementations. Although these results stem only from analysis of stakeholders' self-recognition of their perceptions of the various competencies, it would nevertheless be meaningful for university stakeholders to reflect on their own university results.

Constraints of generalization lie particularly in the representativeness of academics' respondents, since the validity of the result is limited by their representativeness. As for further analysis, from the perspective of both subject-specific and generic competencies, we have observed the emergence of some themes that may merit further investigation; other avenues of research could involve clarifying the causes of inter-university differences, or of differences between specific competencies, or investigating how competency recognition potentially affects students' achievement or professional career path.