

The Recognition of Professional Competencies:

focusing on managers of workplaces and faculties of training institutions

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The purpose of this study is to analyze how stakeholders of the profession system in Japan evaluate professional competencies. The training stage of professions and the conflicts of interest within the professions were examined using quantitative data. We distributed a questionnaire to the managers of workplaces within the following six professions: nurses, registered dietitians, social workers, clinical psychologists, pharmacists, and nursery teachers.

As a result of the analysis, the following findings were made. The faculties of professional training institutions, such as universities and colleges, recognize most components of professional competencies as significantly more important than the managers of workplaces. The managers of workplaces recognize that the most important stage for practitioners to acquire competencies is during their professional careers, whereas faculties of training institutions recognize that it is during training courses.

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1. Introduction

In recent years, “quality assurance” of professional competencies has become a particular concern. The

competencies, defined as Knowledge, Skills, and Attitude, are supposed to be taught through professional education programs of higher education and practical training at actual workplaces. The stakeholders of professional education and training, such as professional associations, central/local governments, and clients of the professions have become more concerned about professional competencies. Moreover, their interests are intricately intertwined. We attempted to discover how each stakeholder recognizes professional competencies, to examine their differences, and finally to consider what kind of measures should be taken in order to fill the gaps.

We organized a research project to investigate this research agenda and conducted a questionnaire survey with the six professions: nurses, registered dietitians, social workers, clinical psychologists, pharmacists, and nursery teachers. The first survey was conducted in March 2014 and the second one was in November 2014. In the first survey we focused on the leaders of universities or special schools (e.g. deans of each training program), mainly asking about the recognition structure of professional competencies. The second survey was similarly conducted focusing on the directors or managers of actual workplaces (e.g. head nurses of the nursing divisions in hospitals) and also of each of the six professional associations. This paper compares

the important results of the two surveys.

2. Study purpose and hypothesis

First, we began to overview the purpose and the assumptions of our research. In our study, we assumed the following hypotheses.

Hypothesis 1: In terms of the recognition of professional competencies, there is a large range of opinion among the stakeholders. As mentioned above, the competencies are supposed to be trained not only at educational institutions, but also as part of one's professional career. However, the stakeholders, such as managers of actual workplaces, recognize differently what competency is the most important for the profession and what stage of professional training processes is the most important for acquiring those professional competencies. There is a large range of opinion of how professional competencies are recognized. By analyzing this diversity, it might be possible for us to find measures to create common understanding and ways of effective education and training for these professions.

Hypothesis 2: Although professional competencies are supposed to be trained throughout professional careers, higher education plays the most important role. Therefore managers' expectations to the education system are very high. So we investigated workplace managers' expectations of higher education.

Hypothesis 3: We assumed that some specific professional competencies are restricted to only some professions and other competencies are common to all of the professions. We extracted the common competencies from all of the professions through the questionnaire surveys.

In order to clarify those three hypotheses, we conducted a large-scale questionnaire survey nationwide. We selected six professions to focus on (nurses, registered dietitians, social workers, clinical psychologists, pharmacists, and nursery teachers) and asked them common questions based on the questionnaires by O-NET (the occupational information network for the Department of Labor of the U.S.). Namely, we asked them about the importance of three competencies: Knowledge, Skills, and Attitude ("work

style" in O-NET) and at what stage professionals can acquire those competencies.

3. Method

(1) Outline of the second questionnaire survey

In the questionnaire surveys we selected 500 directors or managers of workplaces at random from the institutions of the six professions such as hospitals, nursery schools, and so on. We also obtained responses from national professional associations. The time period for tallying results of the questionnaire survey was November 2014 to February 2015.

The total distribution number was 3354 (directors or managers: 3066, associations: 288) and the valid response rate was 33.9% (directors or managers: 33.7%, associations: 36.1%). Please note: this report does not include the professional associations in the following analyses.

The method for selecting the target persons for the questionnaire was as follows:

Nurses, registered dietitians, and pharmacists: 500 directors or managers from each profession selected at random from 2582 hospitals with more than 200 beds.

Social workers: 500 directors or managers selected at random from 4533 community general support centers.

Clinical psychologists: 566 directors or managers of all the mental hospitals with more than 200 beds.

Nursery teachers: 500 directors or managers selected at random from 8340 nursery schools who are members of the Japan Private Nursery School Association.

Associations of the six professions: directors or managers of the 1 national association and 46 prefectural associations.

As we mentioned above, we referred to the O-NET questionnaire for the question items. Question items are: 1) how is importance of the three competencies recognized? 2) At what stage is it most important to acquire the competencies: from the start of higher education to training period, professional career of one to three years, three to 10 years, or over 10 years? 3) What competency is the most important for the profession and what is the most difficult aspect of professional training?

(Koichi Hashimoto)

Table 1. The classification of subscales

	Subscales	Components
Knowledge	Japanese Language	Japanese Language
	Interpersonal Relations Knowledge	Therapy and Counseling, Customer and Personal Service, Education and Training
	Subject Knowledge	Psychology, Sociology and Anthropology, Medicine and Dentistry
Skills	Negotiation and Coordination Skills	Negotiation, Persuasion, Instructing, Coordination
	Judgment and Problem Solving Skills	Social Perceptiveness, Judgment and Decision Making, Monitoring, Complex Problem Solving, Critical Thinking
	Comprehension and Learning Skills	Reading Comprehension, Writing, Active Learning, Learning Strategies, Time Management
	Communication Skills	Service Orientation, Active Listening, Speaking
Attitude	Cooperative Attitude	Cooperation, Stress Tolerance, Adaptability/Flexibility, Attention to Detail, Initiative, Social Orientation
	Self Control Attitude	Self-Control, Independence, Analytical Thinking, Achievement/Effort, Persistence
	Leadership Attitude	Innovation, Leadership
	Integrity and Normative Attitude	Integrity, Dependability, Concern for Others

(2) The composition of the subscales of each competency

In the following chapter, we analyze the recognition of the importance of Knowledge, Skills, and Attitude required to work as a professional and the most important stage for acquiring these competencies. This workplace survey follows the same framework as the first survey to training institutions (Maeda et al. 2015). Knowledge competencies are composed of 7 question items, Skills competencies are composed of 17, and Attitude competencies are composed of 16. We contract those variables to subscales and use those subscales in the following analysis. The classification of subscales follows the first survey (Maeda et al. 2015). The classification is shown in Table 1¹⁾.

In the following analysis, “managers” represent directors or managers of workplaces and “faculties” represent faculties of training institutions.

4. Recognition of the importance of the competencies

In this chapter, we compare the mean values of subscale scores between six professions and between the managers of workplaces and the faculties of training institutions²⁾. In the following figures, the left-hand side values are the means of subscale scores of the importance of the competency as answered by managers of workplaces in this survey. The right-hand side values are the responses

by faculties of training institutions in the first survey. The value ($p=...$) shown directly under the words “managers” and “faculties” are p values calculated in ANOVA of the means of subscale scores among professions. The values under each profession in the center of the figures are values that are calculated by subtracting the mean scores of faculties of training institutions (right-hand side value) from the mean scores of managers of workplaces (left-hand side values). The asterisks shown to the right of the subtractions are degrees of significance calculated in t tests of the mean differences (*: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$)³⁾. Since we considered the scores of the right-hand sides, which are the faculties of training institutions, in the first survey (Maeda et al. 2015), in this paper, we consider the scores of the left-hand sides, which are the managers of workplaces, and the score differences between the managers and the faculties.

The subscale scores reflect the recognition of the importance of the competencies of managers of workplaces and faculties of training institutions who responded to our surveys. Therefore, the scores do not directly reflect the importance of these competencies to work within these professions. In addition, it should be noticed that the ANOVA, which we conducted here, only shows results of significance tests of differences among the six professions that were targeted in our survey.

(Masataka Sakata)

(1) Knowledge

First, we compare Knowledge subscales, which are Japanese Language, Interpersonal Relations Knowledge, and Subject Knowledge (Cronbach's α s of the last two subscales are 0.478 and 0.505 for the managers, respectively, and 0.557 and 0.595 for the faculties, respectively). As a result of ANOVA assessing significance of mean differences among professions within the managers, all Knowledge subscale differences are significant at a level of 0.1%. In addition, since the importance score differences of Japanese Language and Subject Knowledge subscales of all professions between managers and faculties are negatively significant, it is assumed that the faculties recognize those two Knowledge competencies as more important than the managers.

(a) Japanese Language

The mean of importance scores for Japanese Language of each profession is shown in Figure 1.

Since score differences of nurses, registered dietitians, and nursery teachers are significant negative values, the faculties of these three professions recognize Japanese Language as more important than the managers.

(b) Interpersonal Relations Knowledge

The mean of importance scores for Interpersonal Relations Knowledge of each profession is shown in Figure 2. Since score differences of clinical psychologists and nursery teachers are significant negative values, the faculties of these two professions recognize Interpersonal Relations Knowledge as more important than the managers.

(c) Subject Knowledge

The mean of importance scores for Subject Knowledge of each profession is shown in Figure 3. Since score difference of nurses is a significant negative value, the faculties of nurses recognize Subject Knowledge as more important than the managers.

It is noticeable that the Subject Knowledge subscale scores are lower than other Knowledge subscale scores. The reason for this appears to be that the Subject Knowledge subscale is the sum of importance scores of Psychology, Medicine and Dentistry, and Sociology and Anthropology. While Psychology and Medicine and Dentistry are related to natural science, Sociology and Anthropology is related to humanity and social science. There is no profession that values all three sorts of Knowledge as equally highly

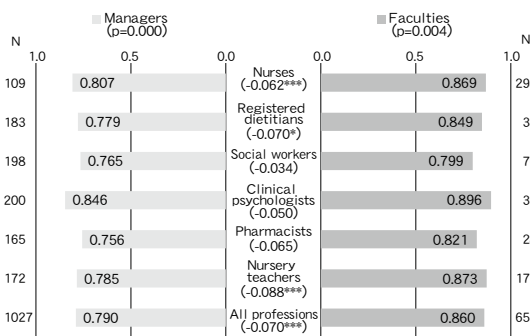


Figure 1. The mean of importance score for Japanese Language

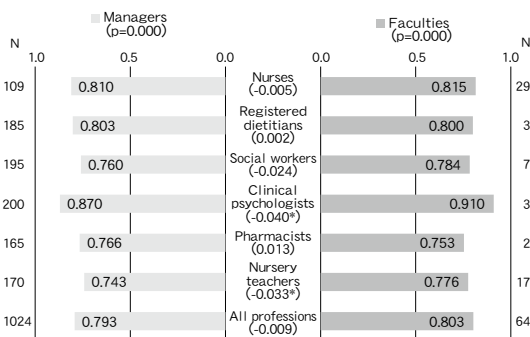


Figure 2. The mean of importance score for Interpersonal Relations Knowledge

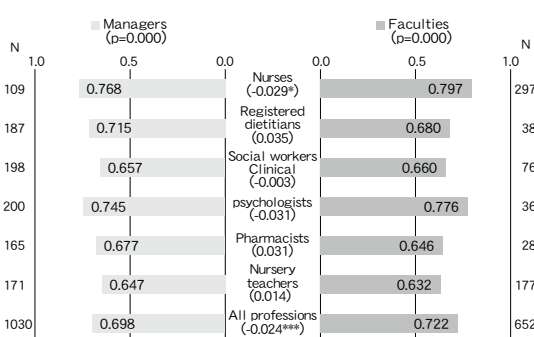


Figure 3. The mean of importance score for Subject Knowledge

important. For example, clinical psychologists value the importance of Psychology highly (the mean of managers is 0.883), but they do not value the importance of Sociology and Anthropology as much (the mean of managers is 0.623). In this way, since the Subject Knowledge subscale is the sum of relatively important Knowledge and relatively less important Knowledge for each profession, it appears that the subscale score is relatively low compared to that of other Knowledge as a whole.

(2) Skills

Second, we compare Skills subscales, which are Negotiation and Coordination Skills, Judgment and Problem Solving Skills, Comprehension and Learning Skills, and Communication Skills (Cronbach's α s are 0.784, 0.749, 0.768, and 0.491 for the managers, respectively, and 0.799, 0.789, 0.796, and 0.480 for the

faculties, respectively). As a result of ANOVA assessing significance of mean differences between professions within the managers, subscale differences of Negotiation and Coordination Skills, Judgment and Problem Solving Skills, and Comprehension and Learning Skills are significant at a level of 0.1%. Subscale differences of Communication Skills are significant at a level of 1%. In addition, since importance score differences of all Skills subscales of all professions between managers and faculties are negatively significant, it is assumed that the faculties recognize Skills as more important than the managers.

(a) Negotiation and Coordination Skills

The mean of importance scores of Negotiation and Coordination Skills of each profession is shown in Figure 4. Since score differences of social workers, clinical psychologists, and nursery teachers are significant negative values, the faculties of these three professions recognize Negotiation and Coordination Skills as more important than the managers.

(b) Judgment and Problem Solving Skills

The mean of importance scores of Judgment and Problem Solving Skills of each profession is shown in Figure 5. Since score differences of nurses, social workers, clinical psychologists, pharmacists, and nursery teachers are significant negative values, the faculties of these five professions recognize Judgment and Problem Solving Skills as more important than the managers.

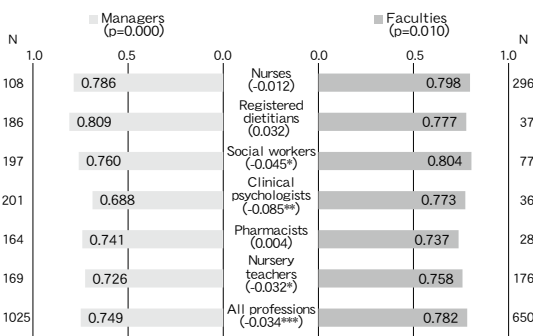


Figure 4. The mean of importance score for Negotiation and Coordination Skills

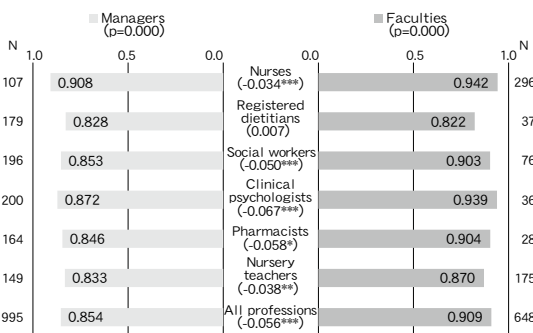


Figure 5. The mean of importance score for Judgment and Problem Solving Skills

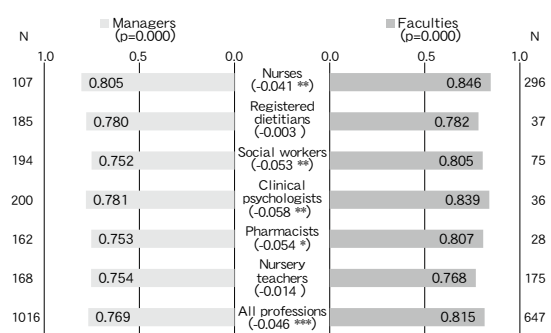


Figure 6. The mean of importance score for Comprehension and Learning Skills

(c) Comprehension and Learning Skills

The mean of importance scores of Comprehension and Learning Skills of each profession is shown in Figure 6. Since score differences of nurses, social workers, clinical psychologists, and pharmacists are significant negative values, the faculties of these four professions recognize Comprehension and Learning Skills as more important than the managers.

(d) Communication Skills

The mean of importance scores of Communication Skills of each profession is shown in Figure 7. Since score differences of nurses, social workers, clinical psychologists, pharmacists, and nursery teachers are significant negative values, the faculties of these five professions recognize Communication Skills as more important than the managers.

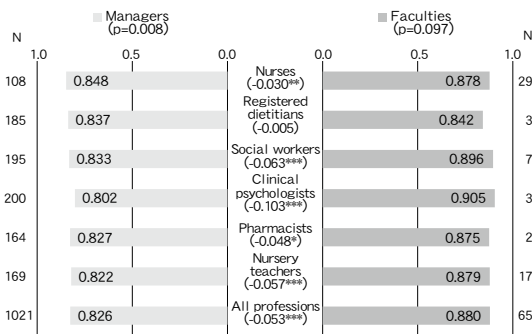


Figure 7. The mean of importance score for Communication Skills

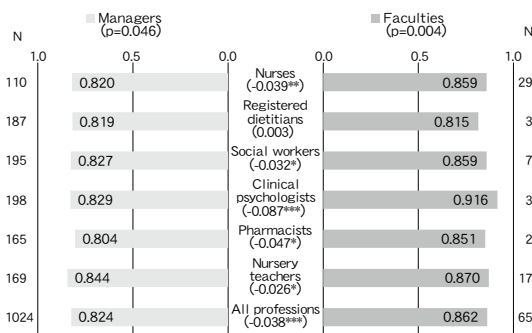


Figure 8. The mean of importance score for Cooperative Attitude

(3) Attitude

Third, we compare Attitude subscales, which are Cooperative Attitude, Self Control Attitude, Leadership Attitude, and Integrity and Normative Attitude (Cronbach's α s are 0.805, 0.799, 0.760, and 0.630 for the managers, respectively, and 0.857, 0.827, 0.761, and 0.629 for the faculties, respectively). As a result of ANOVA assessing the significance of mean differences between professions within the managers, subscale difference of Cooperative Attitude is significant at a level of 5%, subscale differences of Self Control Attitude, and Integrity and Normative Attitude are significant at a level of 1% and subscale difference of Leadership Attitude is significant at a level of 0.1%. In addition, since importance score differences of all Attitude subscales of all professions between managers and faculties are negatively significant, it is assumed that the faculties recognize Attitude as more important than the managers.

(a) Cooperative Attitude

The mean of importance scores of Cooperative Attitude of each profession is shown in Figure 8. Since score differences of nurses, social workers, clinical psychologists, pharmacists, and nursery teachers are significant negative values, the faculties of these five professions recognize Cooperative Attitude as more important than the managers.

(b) Self Control Attitude

The mean of importance scores of Self Control Attitude of each profession is shown in Figure 9. Since score differences of nurses, social workers, clinical psychologists, pharmacists, and nursery teachers are significant negative

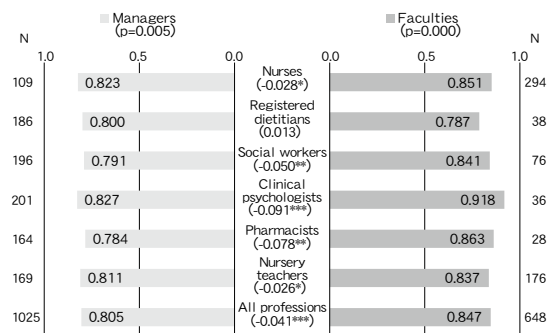


Figure 9. The mean of importance score for Self Control Attitude

values, the faculties of these five professions recognize Self Control Attitude as more important than the managers.

(c) Leadership Attitude

The mean of importance scores of Leadership Attitude of each profession is shown in Figure 10. Since score differences of social workers and clinical psychologists are significant negative values, the faculties of these two professions recognize Leadership Attitude as more important than the managers.

It is noticeable that the mean of the subscale score of the managers of clinical psychologists is lower than other professions. As concerns the scores of two competencies composing Leadership Attitude of clinical psychologists, both are relatively low, that is, the mean of Innovation score is 0.595 and the mean of Leadership score is 0.612.

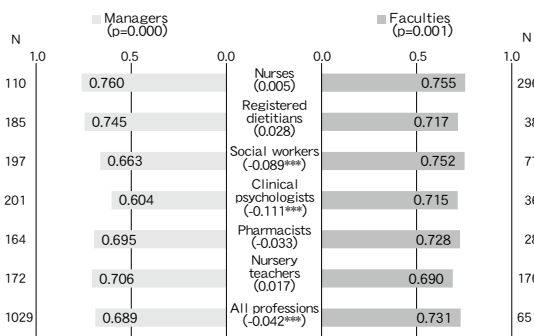


Figure 10. The mean of importance score for Leadership Attitude

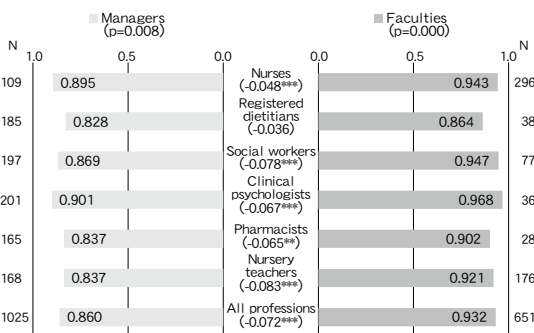


Figure 11. The mean of importance score for Integrity and Normative Attitude

(d) Integrity and Normative Attitude

The mean of importance scores of Integrity and Normative Attitude of each profession is shown in Figure 11. Since score differences of nurses, social workers, clinical psychologists, pharmacists, and nursery teachers are significant negative values, the faculties of these five professions recognize Integrity and Normative Attitude as more important than the managers.

(Masataka Sakata)

5. Recognition of the most important stage for acquiring the competencies

In this chapter, we analyze the most important stage for acquiring the competencies. We are concerned with two questions. (1) Which stage do managers recognize as the most important for practitioners to acquire Knowledge, Skills, and Attitude? (2) What are the recognition gaps between managers and faculties regarding the most important stage for acquiring the competencies?

Respondents were asked to report, for each of the 40 competency items, which stage was the most important to acquire the competency. The acquisition stages in the questionnaire and combined stages for analysis are shown in Table 2. In the analysis, we use three combined stages (Prior To Admission, Training Course, Professional Career) and No Necessity (the competency is not necessary to acquire).

For each profession, the distribution of the acquisition stage of the subscales shown in Table 1 was computed. The calculation method is as follows. Firstly, the number of replies of the item, which constitutes a subscale, was totaled for each acquisition stage (A). Next, the number of replies of all the acquisition stages of the item, which constitutes a subscale, was totaled (B). Then A was divided by B for each

Table 2. The acquisition stages

Stages in the questionnaire	Combined stages for analysis
prior to admission	Prior To Admission (PTA)
lectures	Training Course (TC)
exercises	
practices	
other activities	Professional Career (PC)
new-employee training	
1 to 3 years	
3 to 10 years	
over 10 years	No Necessity
no necessity	

acquisition stage. The result shows the rate of managers and faculties who recognized each stage as the most important.

In the following figures, the left-hand graphs show the managers' recognitions of competencies acquisition, while the right-hand ones show the faculties' recognitions, which were investigated in the first survey. PTA means Prior To Admission. TC means Training Course. PC means Professional Career. The numerical value in the parenthesis beside each stage shows the percentage difference calculated by subtracting the rate of faculties who recognize that stage as the most important for acquiring the competency from that of managers. In this paper, we call this numerical value the Point Gap. If the value is positive, managers recognize that the competency is more likely to be acquired during that stage than faculties. If the value is negative, faculties recognize that the competency is more likely to be acquired during that stage than managers. Moreover, No Necessity was excluded from figures since the rate of managers and faculties who evaluated the competencies as not being

necessary was very small. For this reason, the sum total of the rate in a figure may not add up to 100%.

(1) Knowledge

(a) Japanese Language

The results of Japanese Language are shown in Figure 12.

As for the managers' recognition in each profession, the rate of competency acquisition of Prior To Admission is the highest. The managers seem to think that Japanese Language should be acquired by the end of high schools.

As for the recognition gap between managers and faculties, both of them recognize the most important stage of competency acquisition is Prior To Admission. With regard to the Point Gap, the differences for a Training Course are negative values, while those for Professional Career are positive, except for pharmacists.

(b) Interpersonal Relations Knowledge

The results of Interpersonal Relations Knowledge

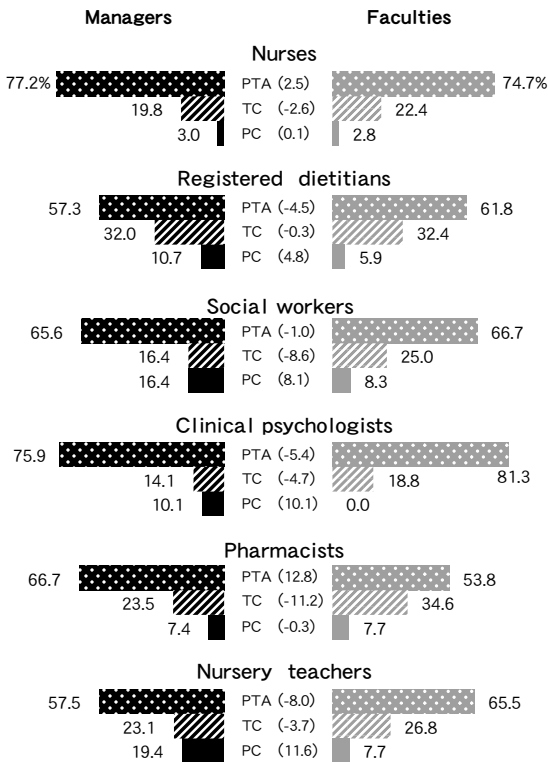


Figure 12. The most important stage for acquiring Japanese Language

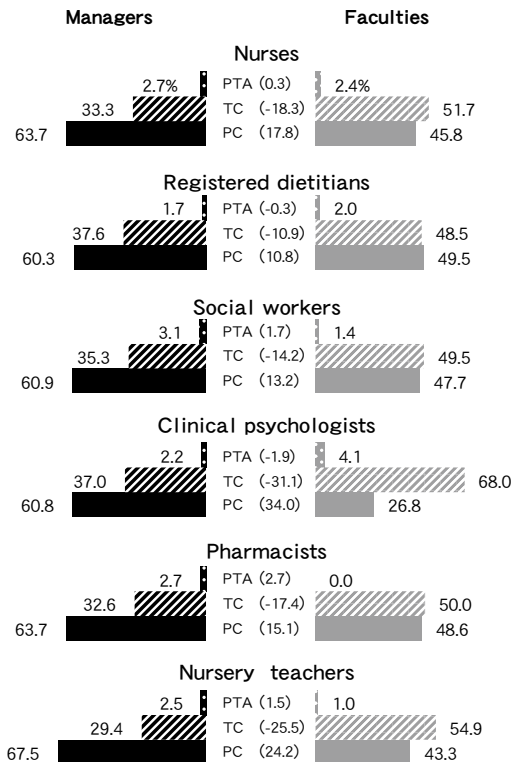


Figure 13. The most important stage for acquiring Interpersonal Relations Knowledge

are shown in Figure 13. Cronbach's α is 0.572 for the managers and 0.657 for the faculties.

As for the managers' recognition in each profession, the rate of competency acquisition during one's Professional Career is the highest, that of a Training Course is the second, and that of Prior To Admission is the lowest. Comparing the six professions, the profession where the rate of competency acquisition during a Training Course is low and the rate of competency acquisition during one's Professional Career is high is nursery teachers. The profession where the rate of competency acquisition during a Training Course is high and the rate of competency acquisition during one's Professional Career is low is registered dietitians.

As for the recognition gap between managers and faculties, managers recognize that the most important stage is during one's Professional Career, whereas faculties recognize a Training Course as equally important as, or more important than, competency acquisition during

one's Professional Career. With regard to the Point Gap, the differences of a Training Course are negative values, while those for Professional Career are positive in each profession. Comparing the six professions, clinical psychologists have relatively large gaps between the managers' and faculties' evaluation of the stage at which competencies are acquired.

(c) Subject Knowledge

The results of Subject Knowledge are shown in Figure 14. Cronbach's α is 0.608 for the managers and 0.606 for the faculties.

As for the managers' recognition, in each profession, the rate of competency acquisition during a Training Course is the highest, that of Professional Career is the second, and that of Prior To Admission is the lowest. Comparing the six professions, the rate of competency acquisition during a Training Course is the highest in registered dietitians, whereas the lowest in nursery teachers. As for nursery teachers, the rate of competency acquisition during one's Professional Career is highest among the six professions.

As for the recognition gap between managers and faculties, both of them recognize the most important stage is during a Training Course. With regard to the Point Gap, the differences for Prior To Admission and Professional Career are positive values except for clinical psychologists' PTA point. The value differences for a Training Course are negative except for clinical psychologists. Clinical psychologists have a relatively large gap for Prior To Admission. Clinical psychologists are trained in a graduate course. Thus, the faculties recognize that Subject Knowledge such as psychology should be acquired in undergraduate courses, while the managers who do not accurately recognize the difference between undergraduate and graduate courses simply recognize this knowledge as acquired during a Training Course. It is likely that this is the reason for the large gap. The professions that have large gaps for the Training Course and the Professional Career are pharmacists and nursery teachers.

(2) Skills

(a) Negotiation and Coordination Skills

The results of Negotiation and Coordination Skills are shown in Figure 15. Cronbach's α is 0.828 for the managers and 0.896 for the faculties.

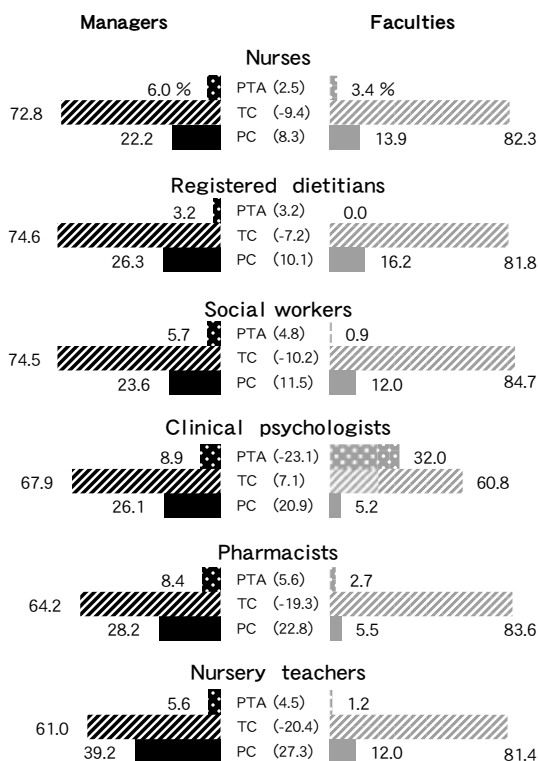


Figure 14. The most important stage for acquiring Subject Knowledge

As for the managers' recognition in each profession, the rate of competency acquisition during one's Professional Career is the highest.

As for the recognition gap between managers and faculties, both of them recognize the most important stage for competency acquisition as during one's Professional Career. With regard to the Point Gap, the differences of a Training Course are negative values, whereas those for Professional Career are positive for each profession. Comparing the six professions, nurses and registered dietitians have relatively large gaps between the managers' and faculties' evaluation of the stage at which competencies are acquired.

(b) Judgment and Problem Solving Skills

The results of Judgment and Problem Solving Skills are shown in Figure 16. Cronbach's α is 0.834 for the managers and 0.855 for the faculties.

As for the managers' recognition, in each profession, the

rate of competency acquisition during one's Professional Career is the highest, that of Training Course is the second, and that of Prior To Admission is the lowest. Comparing the six professions, the profession that has the highest rate of competency acquisition during one's Professional Career is social workers. The profession that has the highest rate competency acquisition during a Training Course is pharmacists.

As for the recognition gap between managers and faculties, managers recognize that the most important stage is during one's Professional Career, whereas faculties recognize it is as during a Training Course. With regard to the Point Gap, the differences of a Training Course are negative values, while those for Professional Career are positive in each profession. Comparing the six professions, social workers and pharmacists have relatively large gaps between the managers' and faculties' evaluation of the stage at which competencies are acquired.

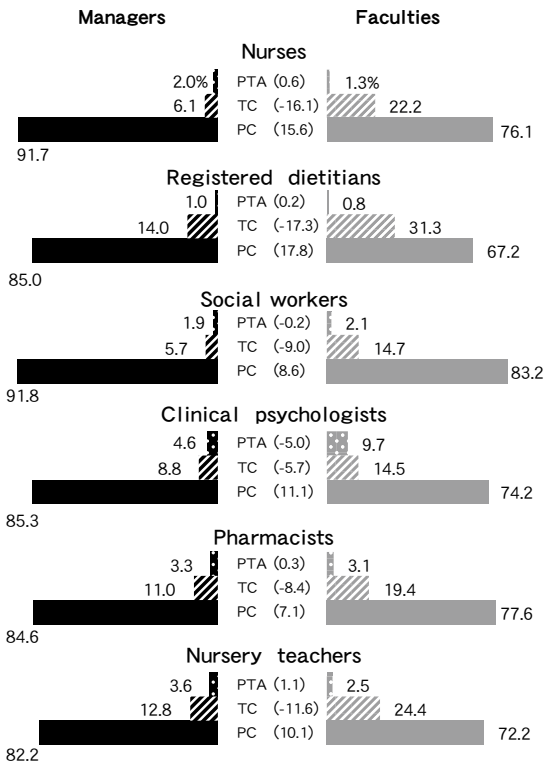


Figure 15. The most important stage for acquiring Negotiation and Coordination Skills

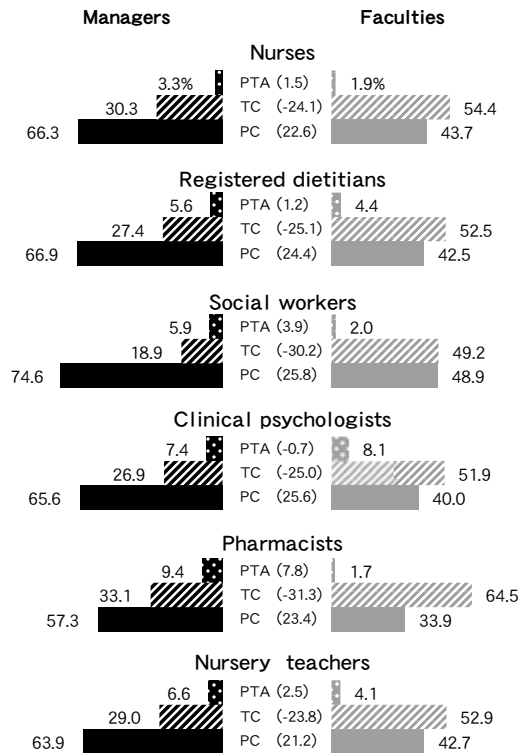


Figure 16. The most important stage for acquiring Judgment and Problem Solving Skills

(c) Comprehension and Learning Skills

The results of Comprehension and Learning Skills are shown in Figure 17. Cronbach's α is 0.768 for the managers and 0.793 for the faculties.

As for the managers' recognition, in each profession, the rate of competency acquisition during one's Professional Career is the highest. Comparing the six professions, the profession that has the highest rate of competency acquisition during one's Professional Career is social workers. The profession that has the highest rate of competency acquisition during a Training Course is registered dietitians. The profession that has the highest rate of competency acquisition Prior To Admission is nurses.

As for the recognition gap between managers and faculties, managers recognize that the most important stage is during one's Professional Career, whereas faculties recognize it is as during a Training Course. With regard to the Point Gap, the differences of a Training Course are negative values, while those for Professional Career are

positive in each profession. Comparing the six professions, clinical psychologists and pharmacists have relatively large gaps between the managers' and faculties' evaluation of the stage at which competencies are acquired. As for clinical psychologists, the faculties' rating of competency acquisition during one's Professional Career is relatively low. As for pharmacists, the faculties' rating of competency acquisition during a Training Course is relatively high. It seems that these differences enlarge the gaps.

(d) Communication Skills

The results of Communication Skills are shown in Figure 18. Cronbach's α is 0.691 for the managers and 0.646 for the faculties.

As for the managers' recognition, the managers of nurses and clinical psychologists recognize the most important stage of competency acquisition is during a Training Course. The managers of registered dietitians, social workers, pharmacists, and nursery teachers recognize it as

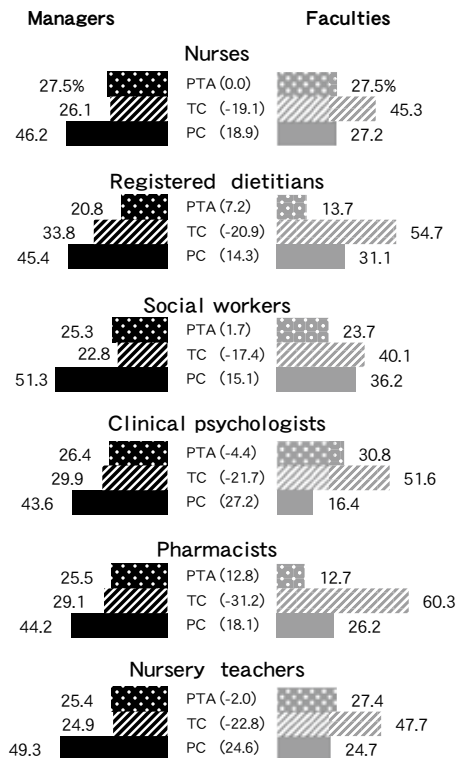


Figure 17. The most important stage for acquiring Comprehension and Learning Skills

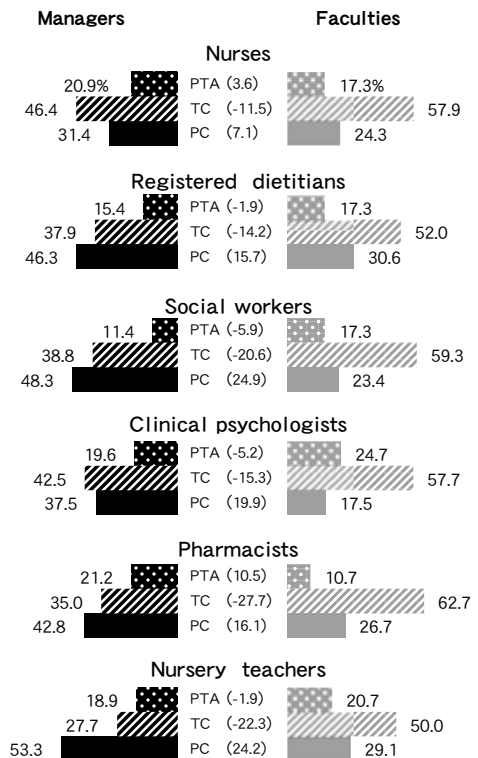


Figure 18. The most important stage for acquiring Communication Skills

being during one's Professional Career.

With regard to the Point Gap, the differences of a Training Course are negative values, while those for Professional Career are positive in each profession. Comparing the six professions, pharmacists have relatively large gaps between the managers' and faculties' evaluation of the Prior To Admission stage and the Training Course stage at which competencies are acquired. Social workers and nursery teachers have large gaps in managers' and faculties' evaluation during the Professional Career stage.

(3) Attitude

(a) Cooperative Attitude

The results of Cooperative Attitude are shown in Figure 19. Cronbach's α is 0.884 for the managers and 0.876 for the faculties.

As for the managers' recognition, the rate of competency acquisition during one's Professional Career is the highest. Comparing the six professions, the profession that has the

highest rate of competency acquisition Prior To Admission is clinical psychologists. The profession that has the highest rate of competency acquisition during a Training Course is nurses. The profession that has the highest rate of competency acquisition during one's Professional Career is social workers.

As for the recognition gap between managers and faculties, managers recognize the most important stage of competency acquisition as being during one's Professional Career, whereas faculties recognize it as during a Training Course. With regard to the Point Gap, the differences of a Training Course are negative values, while those for Professional Career are positive in each profession. Comparing the six professions, pharmacists have a relatively large gap between the managers' and faculties' evaluation of the Prior To Admission stage and the Training Course stage at which competencies are acquired. Nursery teachers have a relatively large gap in managers' and faculties' evaluation during the Professional Career stage.

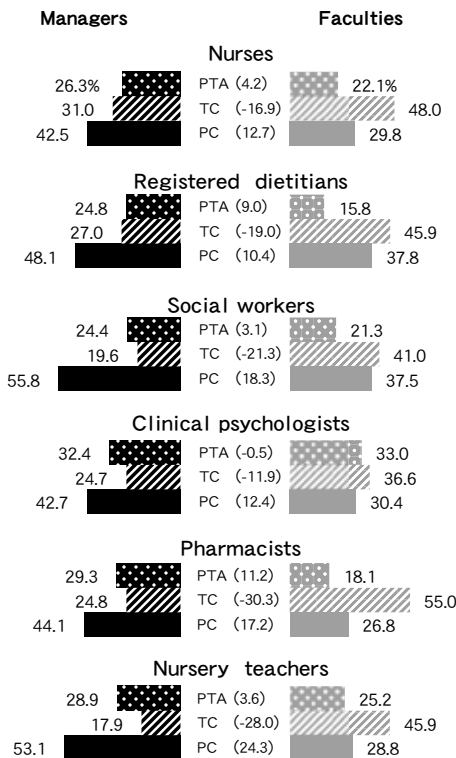


Figure 19. The most important stage for acquiring Cooperative Attitude

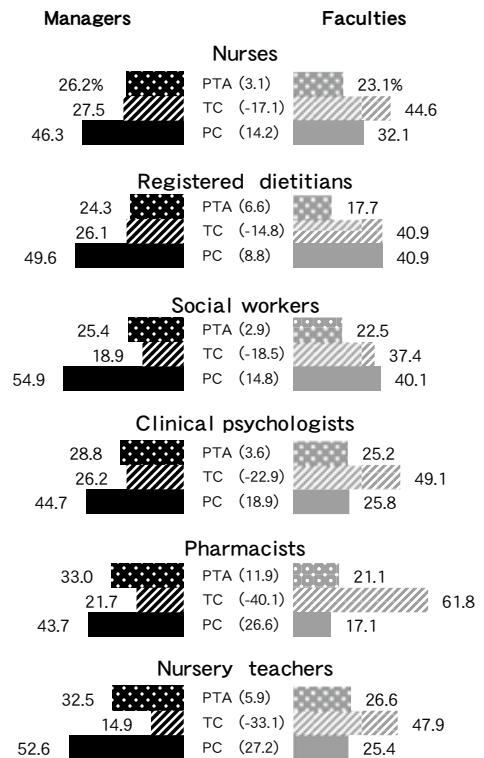


Figure 20. The most important stage for acquiring Self Control Attitude

(b) Self Control Attitude

The results of Self Control Attitude are shown in Figure 20. Cronbach's α is 0.843 for the managers and 0.831 for the faculties.

As for the managers' recognition, in each profession, the rate of competency acquisition during one's Professional Career is the highest. Comparing the six professions, the profession that has the highest rate of competency acquisition Prior To Admission is pharmacists. The profession that has the highest rate of competency acquisition during a Training Course is nurses. The profession that has the highest rate of competency acquisition during one's Professional Career is social workers.

As for the recognition gap between managers and faculties, managers recognize the most important stage of competency acquisition as being during one's Professional Career, whereas faculties recognize it as during a Training Course except for registered dietitians and social workers. With regard to the Point Gap, the differences of Prior To

Admission and Professional Career are positive values, while those for a Training Course are negative in each profession. Comparing the six professions, pharmacists have a relatively large gap between the managers' and faculties' evaluation of the Prior To Admission stage and the Training Course stage at which competencies are acquired. Nursery teachers have a relatively large gap in managers' and faculties' evaluation during the Professional Career stage.

(c) Leadership Attitude

The results of Leadership Attitude are shown in Figure 21. Cronbach's α is 0.748 for the managers and 0.776 for the faculties.

As for the managers' recognition, in each profession, the rate of competency acquisition during one's Professional Career is extremely high. Comparing the six professions, the profession that has the highest rate of competency acquisition during one's Professional Career is nurses. The profession that has the highest rate of competency acquisition Prior To

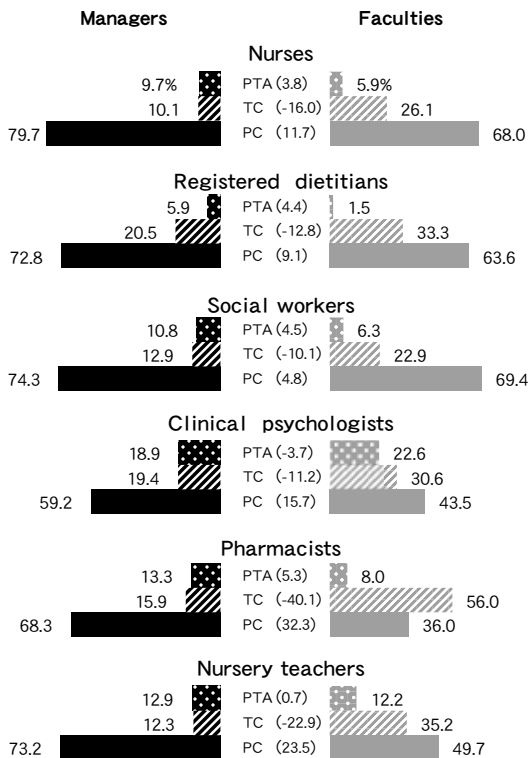


Figure 21. The most important stage for acquiring Leadership Attitude

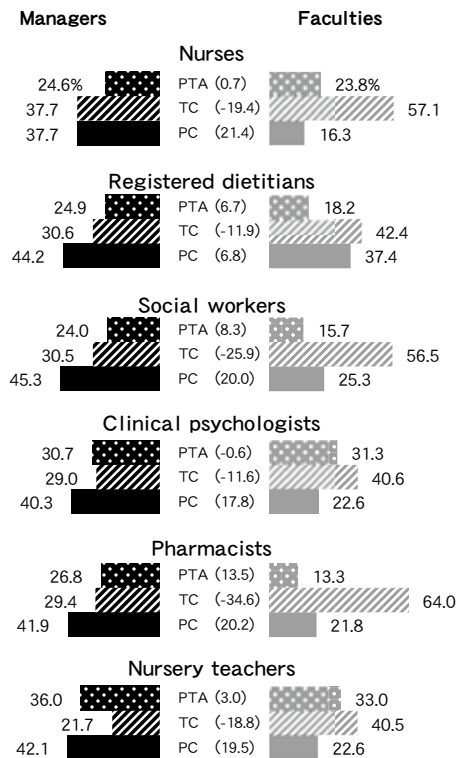


Figure 22. The most important stage for acquiring Integrity and Normative Attitude

Admission is clinical psychologists. The profession that has the highest rate of competency acquisition during a Training Course is registered dietitians.

As for the recognition gap between managers and faculties, both of them recognize the most important stage for competency acquisition is during one's Professional Career except for pharmacists. With regard to the Point Gap, for most professions at the Prior To Admission stage and the Professional Career stage the differences are positive values, whereas those of Training Course are negative. Pharmacists have the largest gap between managers' and faculties' evaluation of the stages at which competencies are acquired among the six professions.

(d) Integrity and Normative Attitude

The results of Integrity and Normative Attitude are shown in Figure 22. Cronbach's α is 0.725 for the managers and 0.727 for the faculties.

As for the managers' recognition, the rate of competency acquisition during one's Professional Career is high. But compared with other competencies, the difference between acquisition stages is small. Comparing the six professions, the profession that has the highest rate of competency acquisition Prior To Admission is nursery teachers. The profession that has the highest rate of competency acquisition during a Training Course is nurses. The profession that has the highest rate of competency acquisition during one's Professional Career is social workers.

As for the recognition gap between managers and faculties, managers recognize the most important stage of competency acquisition as being during one's Professional Career, whereas faculties recognize it is during a Training Course. With regard to the Point Gap, for most professions at the Prior To Admission stage and the Professional Career stage the differences are positive values, whereas those of Training Course are negative. Pharmacists have the largest gap between managers' and faculties' evaluation of the stages at which competencies are acquired among the six professions.

(Akie Kobaru)

6. Conclusion

(1) Recognition of the importance of the competencies

The result of all statistical tests that we analyzed in this

paper is shown in Table 3. Below, we will describe the three findings suggested by this analysis.

The first finding is that, upon considering the result of ANOVAs as a whole, all competencies except Communication Skills of faculties have a significant difference among the six professions both for the managers of workplaces and the faculties of training institutions. In other words, the managers and faculties of each profession recognize differently how important each competency is.

The second finding is that, considering the t tests, all significant differences of competency importance scores are negative values. The t tests that we analyzed in this paper were the tests of mean differences, which were calculated by subtraction of scores of the faculties of training institutions from scores of the managers of workplaces. Therefore, faculties recognize all competencies that had a significant difference as more important than managers.

The third finding is that, in regards to the recognition of competencies' importance, the six professions were divided into those who had a disagreement between the managers of workplaces and the faculties of training institutions and those who did not. Out of 11 subscales of competencies, 8 for nurses, 8 for social workers, 9 for clinical psychologists, 6 for pharmacists and 8 for nursery teachers are significantly different between the managers and the faculties. No subscale of competencies, except for Japanese Language, is significantly different in registered dietitians⁴⁾. From here, it is possible to conclude that there is a consensus between the managers and the faculties about what competencies are important in order to work as a registered dietitian. On the other hand, since the faculties of other professions tend to recognize many competencies as more important than the managers, it is possible to conclude that the faculties of training institutions estimate competencies to work in the professions in certain workplaces to be more important than they actually are. However, it is also possible to explain that this disagreement shows that faculties try to train competencies to a higher extent than to the extent that is actually required. Therefore, it is assumed that professional training institutions of the five professions intend to provide higher quality education than to the extent required by the managers.

Table 3. The result of statistical tests about all competencies

Subscales	ANOVA (test of score difference among six professions) *1		t test (test of score difference between managers and faculties) *2							
	Managers	Faculties	Nurses	Registered dietitians	Social workers	Clinical psychologists	Pharmacists	Nursery teachers	All professions	
Knowledge	Japanese Language	***	**	***	*				***	***
	Interpersonal Relations Knowledge	***	***				*		*	
	Subject Knowledge	***	***	*						***
Skills	Negotiation and Coordination Skills	***	*			*	**		*	***
	Judgment and Problem Solving Skills	***	***	***		***	***	*	**	***
	Comprehension and Learning Skills	***	***	**		**	**	*		***
	Communication Skills	**		**		***	***	*	***	***
Attitude	Cooperative Attitude	*	**	**		*	***	*	*	***
	Self Control Attitude	**	***	*		**	***	**	*	***
	Leadership Attitude	***	**			***	***			***
	Integrity and Normative Attitude	**	***	***		***	***	**	***	***

*. $p < 0.05$, **. $p < 0.01$, ***. $p < 0.001$

*1 ANOVA that we conducted in this paper is a test that assesses whether the means of importance scores of each competency subscale are significantly different among six professions. The left column of ANOVA is a test that assesses whether score differences are significant among six professions within the managers of workplaces and, similarly, the right column is within the faculties of training institutions.

*2 The t test that we conducted in this paper is a test that assesses the means of importance scores of each competency subscale to determine if they are significantly different between the managers and the faculties.

(2) Recognition of the most important stage for acquiring the competencies

We analyzed the most important stage at which to acquire the competencies concerning two questions. (1) Which stage do managers recognize as the most important for practitioners to acquire Knowledge, Skills, and Attitude? (2) What are the recognition gaps between managers and faculties regarding the acquisition stage?

The first finding is that the managers recognize the most important stage for acquiring the competencies is during one's Professional Career. The rate of the managers who recognize the most important stage for acquiring

competencies in the three acquisition stages as being during one's Professional Career is the highest for 8 out of the 11 subscales: Interpersonal Relations Knowledge, Negotiation and Coordination Skills, Judgment and Problem Solving Skills, Comprehension and Learning Skills, Cooperative Attitude, Self Control Attitude, Leadership Attitude, and Integrity and Normative Attitude.

The second finding is that the managers of the six professions recognize differently which stage is the most important for acquiring the competencies. The managers of social workers showed the highest rate of competency acquisition during one's Professional Career among the

six professions for 5 out of 11 subscales. The managers of nursery teachers showed that for 4 out of 11 subscales. Therefore, the managers of social workers and nursery teachers recognize the Professional Career stage for acquiring competencies as more important than other professions. The managers of registered dietitians and nurses showed the highest rate of competency acquisition during a Training Course among the six professions for 5 out of 11 subscales. Therefore, the managers of registered dietitians and nurses recognize the Training Course stage for acquiring competencies as more important than other professions. The managers of pharmacists showed the highest rate of competency acquisition Prior To Admission among the six professions for 4 out of 11 subscales. The managers of clinical psychologists showed that for 3 out of 11 subscales. Therefore, the managers of pharmacists and clinical psychologists recognize the Prior To Admission stage for acquiring competencies as more important than other professions.

The third finding is that there are recognition gaps between the managers and the faculties. The competencies for which the most important stage for acquiring the competency for the managers is during one's Professional Career, whereas that for the faculties is a Training Course are as follows: Judgment and Problem Solving Skills for all of the six professions, Comprehension and Learning Skills for all of the six professions, Cooperative Attitude for all of the six professions, Integrity and Normative Attitude for all of the six professions, Interpersonal Relations Knowledge for five of the professions (it does not apply to registered dietitians), Self Control Attitude for five of the professions (it does not apply to social workers), Communication Skills for four of the professions (it does not apply to nurses and clinical psychologists), and Leadership Attitude for pharmacists. On the other hand, the competencies for which there is an agreement about the most important stage for acquiring competencies between the managers and the faculties are as follows: Japanese Language (the most important stage is Prior To Admission), Subject Knowledge (Training Course), Negotiation and Coordination Skills (Professional Career), Communication Skills for nurses and clinical psychologists (Training Course), and Leadership Attitude for five of the professions (it does not apply to pharmacists) (Professional Career). The result suggests that the managers recognize the most important stage for practitioners to acquire

competencies as being during one's Professional Career. On the other hand, the faculties recognize the importance of acquiring competencies during a Training Course more so than the managers.

The last finding is that the recognition gap between managers and faculties is large in pharmacists and nursery teachers, whereas small in registered dietitians. The faculties of pharmacists recognize the most important stage as being during a Training Course for many competencies, whereas the managers do not make the same recognition. The managers of nursery teachers recognize that the most important stage for acquiring competencies is during one's Professional Career, whereas the faculties do not make the same recognition.

(3) Future issues

Finally, we recognize two problems within this research that remain unsolved.

First, in this analysis, there was a problem of various factors of every profession which are not controlled within the tests that were conducted, especially that of educational levels. Clinical psychologists and pharmacists have master's degrees or the equivalent. On the other hand, registered dietitians, nurses, social workers, and nursery teachers are trained at high schools, vocational schools, colleges, and universities. Since clinical psychologists, especially, are trained for two years during graduate schools, the extent of competencies that students should achieve is estimated to be high. It is supposed that, as a result, the importance of competencies receive high scores. In addition, it will also be necessary to examine factors such as the location of training institutions and workplaces and the number of students at training institutions.

Second, there was a problem resulting from the survey design, which asks about the importance of 40 competencies, which are contracted to 11 subscales during the analysis. For example, we explained in the Subject Knowledge section of Chapter 4 that since the Subject Knowledge subscale consists of Psychology, Sociology and Anthropology, and Medicine and Dentistry and Cronbach's α is very small at 0.505, it is not necessarily a reliable subscale. The reason for it is that we composed subscales based on questions about acquisition stages of each competency in the first training institutions survey.⁵⁾

Because of limited space for this paper, we expect to examine these two problems in another paper,

characteristics of each profession and contents of each competency subscale. In addition, what causes the difference of competency recognition between the managers of workplaces and the faculties of training institutions remain to be solved.

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Notes

- 1) As shown in the next chapter, Cronbach's α s of most subscales are slightly low in the dataset of this survey. As also stated in this chapter, since the subscales are based on the classification by reference to the frequency distribution and the factor analysis of the first training institutions survey, the composition of subscales is not necessarily suitable for this workplaces survey data. However, in considering the survey design, we determined that we needed to follow the same classification in this paper.
- 2) Each variable shown in "Components" in Table 1 was asked as a four-point scale. The scales were named "not important," "important," "quite important," and "very important," and were assigned scores of 1, 2, 3 and 4, respectively. Each subscale score of the importance was calculated by dividing the sum of scores of variables composing the subscale by the maximum score the sum could reach. For example, since Interpersonal Relations Knowledge subscale is composed of three variables, the maximum of the subscale is 12 ($=4 \times 3$). Then, the score of this subscale is calculated by dividing the sum of the scores of each respondent by 12. Therefore, each subscale score ranges from 0.0 to 1.0. In addition, since the variables about the acquisition stages of competencies, which we analyze in Chapter 5, are not order variables, we do not calculate subscale scores. For details, see Chapter 5.
- 3) T tests of the difference of means is calculated based on a procedure where we first calculated Levene's equality of variances test between scores of the manager and scores of the faculty. If the hypothesis of equality of variances was not rejected, we used Student's t test, and if the hypothesis was rejected, we used Welch's t test.
- 4) We performed t tests of all the 40 competencies before contracting them into subscales (the procedure of t tests is the same as that of the note 3). The results demonstrated that 22 competencies were negatively significant in nurses, 2 competencies were positively significant and 2 competencies were negatively significant in registered dietitians, 1 competency was positively significant and 27 competencies were negatively significant in social workers, 31 competencies were negatively significant in clinical psychologists, 3 competencies were positively significant and 18 competencies were negatively significant in pharmacists, 3 competencies were positively significant and 19 competencies were negatively significant in nursery teachers, and 1 competency was positively significant and 21 competencies were negatively significant in all professions. If the result of the t test is positively significant, the managers recognize that the competency is more important than the faculties, and if negatively significant, the faculties recognize it as more important than the managers. In

consideration of the results, although the managers recognize some competencies as more important, they are a minority of all of the significant competencies. Therefore, the faculties recognize most competencies as more important than the managers.

- 5) Adding further explanation, whatever the contents of the Subject Knowledge subscale, it might be assumed that the competency should be learned in training institutions. Therefore, the reliability of Subject Knowledge calculated by questions of training stages analyzed in Chapter 5 is relatively high (α of the manager is 0.608). However, since this subscale is the sum of important competency scores and unimportant competency scores for each profession, the reliability calculated by questions of the importance of competencies analyzed in Chapter 4 is relatively low (α of the manager is 0.505).

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