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# University Teachers' Needs of Support for Designing and Preparation of Courses: A Focus on Differences by Academic Discipline and Rank

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**Abstract:** In order to clarify the specific support needs of university teachers for the design and preparation of courses, and to incorporate these fundamental data into developing effective and practical programs or ICT tools for Professional Development, this paper analyses differences according to the academic ranks and disciplines of survey respondents. The authors conducted a university-wide survey in 2012 targeting faculty members at Tohoku University. Results show that the need for orientation sessions, seminars, and counseling is higher among teachers in their early career phases, such as for Lecturers and Assistant Professors. On the other hand, teachers regardless of their academic rank or discipline have certain needs such as "Digitization of teaching materials" and "Classroom observations of other teachers' lessons (by video)". Although the percentage is not high, the need for "Reflection or reviewing of own teaching" is considered common across all academic ranks and disciplines. In contrast, a need for "Classroom observations of other teachers' lesson (by video)" is less needed by Professors. It is expected that Professors might already have enough experience in teaching and prefer learning from their own practice rather than from others in seminars or teaching observations. These differences are considered to have a relation to a teacher's approach to course design. It is necessary to consider these differences and commonalities among teachers when we develop practical support systems or programs for university teachers.

**Keywords:** professional development, faculty development, teacher needs, teacher support

## 1. Introduction

Under pressure from policy makers and society, universities are engaged in coordinated efforts for improving the quality of teaching, which is better known as Professional Development (or Faculty Development). Usually, a Professional Development program is offered by a centralized teaching and learning center, or by individual departments in universities. However, it has been indicated that priorities among coordinators of such development programs focus more on meeting individual faculty needs rather than responding to the critical needs of the institution (Sorcinelli *et al*., 2006). Solving this problem, Gillespie *et al*. (2010) noted the importance of incorporating institutional research and data on teaching and learning. In order to develop and offer effective and practical programs or ICT tools for Professional Development, it is important to know how university teachers design their courses as well as their actual needs for support on teaching improvement.

To obtain fundamental data about the above points, the authors conducted a university-wide survey in 2012 targeting faculty members at Tohoku University, Japan. In the previous preliminary report (Konno *et al.* 2013), the overall trend and situation of teachers' approaches were reported. Also, the report indicated that the teachers' approaches and support needs might vary between academic disciplines.

Several studies have indicated that there are differences between disciplines which impact on research activities (for example, Sparks, 2005). Despite the acknowledged importance of teaching, and the large body of research on teaching, the role of disciplines in shaping teaching is a relatively new focus (Neumann, 2001). The issue of whether, and how, teaching varies across the various disciplines has received limited attention (Hativa *et al*, 1995, Neumann 2001). Smeby (1996) conducted a survey

which targeted Norwegian universities and clarified that there are significant field differences in the time spent on teaching and preparation and in the distribution of time between different types of teaching and learning levels.

In order to clarify the details of university teachers' support needs in designing and preparing courses, and to incorporate this fundamental data into the program development process, this paper analyzed the data from the Tohoku University survey from the perspective of the respondents' academic rank (academic appointment) and discipline.

## 2. Method

### *2.1 Survey Administration*

The authors conducted a university-wide anonymous survey in March 2012. A questionnaire was distributed via inter-university mail to all full-time teachers at Tohoku University, excluding sessional or part-time teachers. Twenty-four questions regarding course design were asked.

### *2.2 Survey Analysis*

In this paper, we focus on answers to one question from the survey: "*What kind of support would you like to use for your course design and class preparation?"*

When answering the above question, we asked the teachers to choose and answer about one course which they taught during the 2011 academic year at Tohoku University. Multiple answers were allowed. The answers were analyzed using chi-square ($\chi^2$) tests, in terms of differences among different academic rank and discipline.

## 3. Findings

### *3.1 Survey Respondents.*

The survey response rate was 47.4% (N=1290). 153 teachers out of 1290 declined to answer the survey because they had never taught in the University. Therefore a valid response rate for this survey was 41.8% (N=1137) (Center for the Advancement of Higher Education, Tohoku University, 2014).

Table 1 provides the academic rank of the respondents. According to the official records of Tohoku University as of May 1st 2011, the proportions of faculty academic ranks were: Professor (30.1%), Associate Professor (25.0%), Lecturer (5.4%), and Assistant Professor (39.5%) (Tohoku University, 2011). Hence, the proportion of the respondents' academic rank of this survey has approximate correspondence to the actual proportions of Tohoku University's personnel.

Table 1: Respondents' academic ranks.

| Academic Rank | Number | % |
|---|---|---|
| Professor | 369 | 32.5 |
| Associate Professor | 310 | 27.3 |
| Lecturer | 85 | 7.5 |
| Assistant Professor | 362 | 31.8 |
| Other | 11 | 1.0 |
| Total | 1137 | 100.0 |

Table 2: Respondents' academic disciplines.

| Disciplines | Number | % |
|---|---|---|
| Humanities | 65 | 5.7% |
| Social Sciences | 77 | 6.8% |
| Agriculture | 61 | 5.4% |
| Sciences | 333 | 29.3% |
| Engineering | 215 | 18.9% |
| MDP | 372 | 32.7% |
| Other/No response | 14 | 1.2% |
| Total | 1137 | 100.00 |

Table 3: Respondents' academic ranks and disciplines.

| | Professor | | Associate Professor | | Lecturer | | Assistant Professor | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Humanities | 26 | 7.1% | 24 | 7.9% | 5 | 6.0% | 10 | 2.8% | 65 | 5.8% |
| Social Sciences | 36 | 9.8% | 28 | 9.2% | 2 | 2.4% | 10 | 2.8% | 77 | 6.8% |
| Agriculture | 21 | 5.7% | 18 | 5.9% | 0 | 0.0% | 21 | 5.8% | 61 | 5.4% |
| Sciences | 67 | 18.3% | 66 | 21.8% | 9 | 10.8% | 68 | 18.9% | 215 | 18.9% |
| Engineering | 126 | 34.3% | 106 | 35.0% | 7 | 8.4% | 94 | 26.1% | 333 | 29.9% |
| MDP | 91 | 24.8% | 61 | 20.1% | 60 | 72.3% | 157 | 43.6% | 371 | 33.2% |
| Total | 367 | 100.0% | 303 | 100.0% | 83 | 100.0% | 360 | 100.0% | 1122 | 100.0% |

Table 2 provides the academic disciplines of the respondents. An approximate estimate of the proportion of each discipline in Tohoku University based on the published numbers of each faculty (eliminating inter-disciplinary fields and institutions) for 2011 was: Humanities (6.4%), Social Sciences (10.4%), Agriculture (7.8%), Sciences (18.2%), Engineering (24.3%), and Medicine, Dentistry and Pharmacology (24.3%) (Tohoku University, 2011). In this survey, we have more respondents from Sciences and Medicine, Dentistry and Pharmacology (MDP) compared to actual proportions of faculty members in Tohoku University.

Table 3 shows a breakdown of respondents' disciplines according to their academic rank. 72.3% of Lecturer respondents were from MDP. It is necessary to note this ratio when we look into the results of the analysis by respondents' academic ranks.

### *3.2 Overall Trend of the Support Needs for University Teachers*

Figure 1 shows responses to the question: "What kind of support would you like to use for your course design and lesson preparation?"

Although 23% of teachers answered that they need nothing in particular, more than 20% of teachers responded that they would like to access supports such as "11. Classroom observations of other teachers' lesson (by video)" (25.4%); "4. Digitization of teaching materials" (24.8%); and "1. Orientation session by university or department about teaching" (23.6%) (Konno *et al*. 2013).

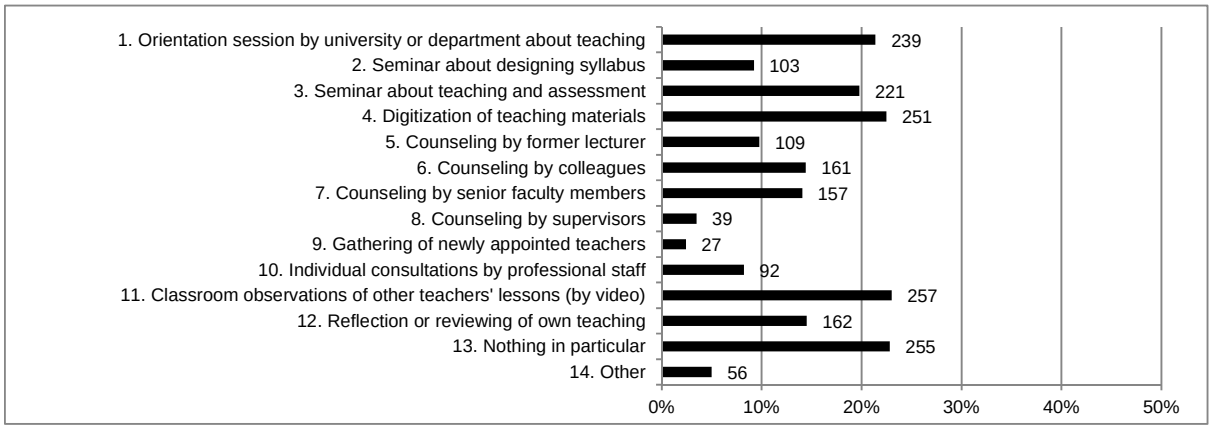



Figure 1. What kind of support would you like to use for your course design or lesson preparation? (All respondents, N=1117) (Konno *et al*. 2013).

### *3.3 Differences between Academic Ranks*

Figure 2 provides the results as organized by the teachers' academic ranks.

More Professors (31.7%) answered that they needed "13. Nothing in particular" for any support, compared to 15.4% of Lecturers ($\chi^2(3)=15.348$, significant at $p<.01$). On the other hand, more Professors (7.8%) selected "14. Other" and described concrete ideas of support as other options

($\chi^2(3)=14.648$, $p<.05$). "1. Orientation session by university or department about teaching" is more needed by early career teachers ($\chi^2(3)=19.681$, $p<.001$). "2. Seminar about designing syllabus" is higher among Lecturers (26.9%), while less needed among Professors (3.9%) ($\chi^2(3)=44.069$, $p<.001$). Also, the need for "3. Seminar about teaching and assessment" is higher among Lecturers (34.6%) ($\chi^2(3)=15.877$, $p<.01$).

The needs for counseling, such as "5. Counseling by former lecturer" ($\chi^2(3)=67.703$, $p<.001$), "7. Counseling by senior faculty members" ($\chi^2(3)=42.743$, $p<.001$), and "8. Counseling by supervisors" ($\chi^2(3)=25.929$, $p<.001$), as well as a need for "9. Gathering of newly appointed teachers" ($\chi^2(3)=16.947$, $p<.01$) are more needed by early career academics. Regarding the need for "6. Counseling by colleagues", however, there was no significant difference between teachers' academic ranks ($\chi^2(3)=5.595$).

A need for "10. Individual consultations by professional staff" is higher among Lecturers ($\chi^2(3)=9.973$, $p<.05$); while "11. Classroom observations of other teachers' lesson (by video)" is more needed by early career academics ($\chi^2(3)=10.451$, $p<.05$). Although there were significant differences between academic rank regarding needs of support on 11 options out of 14, the needs for "4. Digitization of teaching materials ($\chi^2(3)=2.368$)", "6. Counseling by colleagues ($\chi^2(3)=5.595$)" and "12. Reflection or reviewing of own teaching ($\chi^2(3)=2.890$)" had no significant differences. Especially, "4. Digitization of teaching materials" had a relatively high need among teachers: Professor (26.9%), Associate Professor (23.6%), Lecturer (19.2%), and Assistant Professor (24.4%). In other words, support for digitization of teaching materials is needed regardless of teachers' academic ranks.

### *3.4 Differences between Academic Disciplines*

Figure 3 provides the results as organized by disciplines.

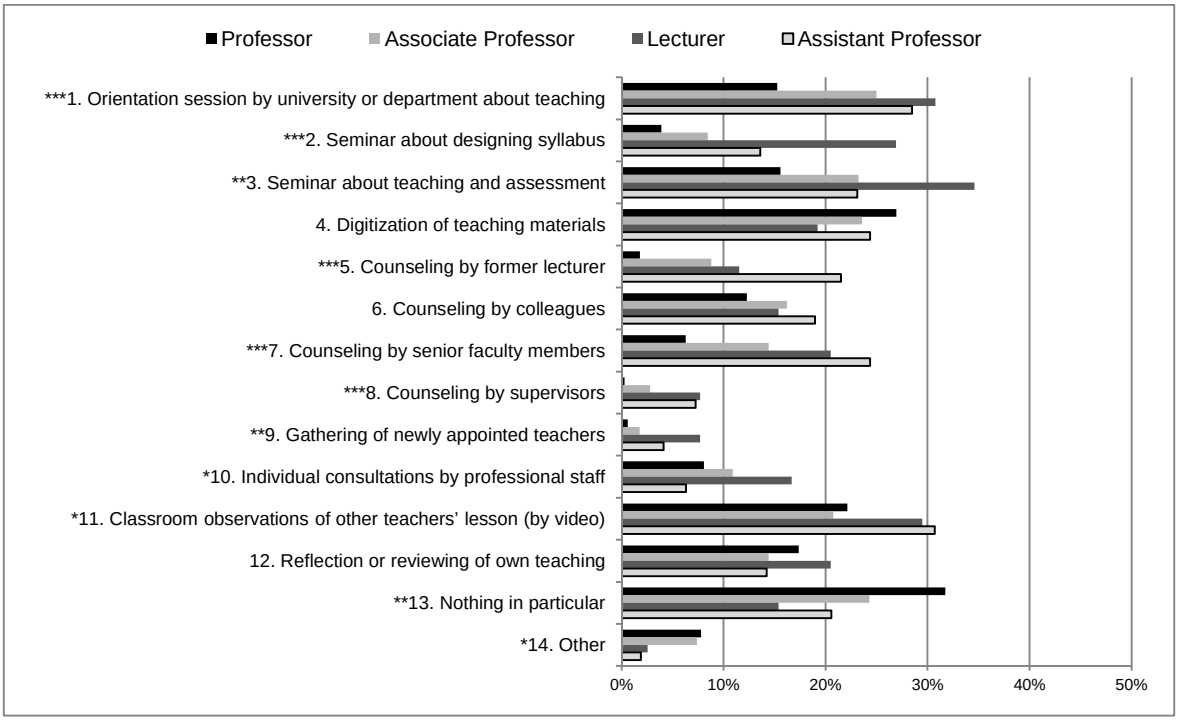
The need for "2. Seminar about designing syllabus" is higher in Medicine, Dentistry and Pharmacology. (16.1%) ($\chi^2(5)=26.014$, $p<.001$), and low in Sciences (4.1%). "5. Counseling by former lecturer" is more needed by Sciences (14.5%) and Engineering (12.8%), compared to Humanities (3.4%) and Social Sciences (4.1%) ($\chi^2(5)=11.766$, $p<.05$). Also a need for "6. Counseling by colleagues" is higher in Engineering (19.7%) and Humanities (23.7%), and low in Agriculture (5.3%) and Medicine, Dentistry and Pharmacology (10.2%) ($\chi^2(5)=20.070$, $p<.01$). A need for "8. Counseling by supervisors" is higher in Medicine, Dentistry and Pharmacology (7.4%) ($\chi^2(5)=18.865$, $p<.01$). "11. Classroom observation of other teachers' lesson (by video)" is more needed in Medicine, Dentistry and Pharmacology (30.7%), Humanities (32.2%), and Agriculture (31.6%), compared to Sciences (19.7%) ($\chi^2(5)=14.164$, $p<.05$).

There were no significant differences by disciplines on a need for "1. Orientation session by university or department about teaching" ($\chi^2(5)=10.661$), "3. Seminar about teaching and assessment" ($\chi^2(5)=0.464$), "4. Digitization of teaching materials" ($\chi^2(5)=2.072$), "7. Counseling by senior faculty members" ($\chi^2(5)=6.657$), "9. Gathering of newly appointed teachers" ($\chi^2(5)=7.689$), "10. Individual consultations by professional staff" ($\chi^2(5)=6.589$), and "12. Reflection or reviewing of own teaching ($\chi^2(5)=7.702$).

## 4. Discussion

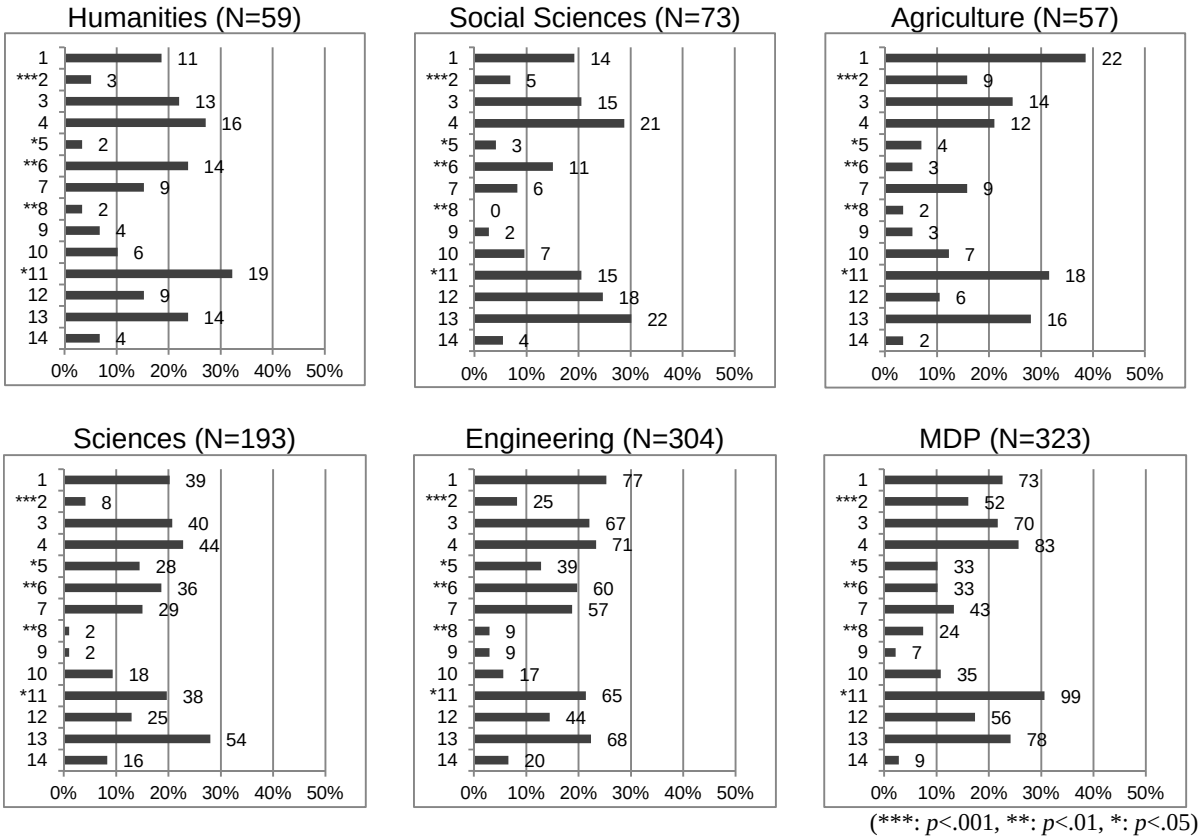
The results show the differences and commonalities of support needs according to academic rank and disciplines. Relatively popular support needs were: "11. Classroom observations of other teachers' lesson (by video)" (25.4%); "4. Digitization of teaching materials" (24.8%); "1. Orientation session by university or department about teaching" (23.6%); and "3. Seminar about teaching and assessment" (21.8%).

First of all, overall trends of support needs show that early career faculty express more needs compared to Professors. However, a need for "6. Counseling by colleagues" (in total: 15.9%, Professor: 12.3%) has no significant difference in academic ranks. Thus, opportunities for sharing their own issues and situation about teaching with colleagues have a common demand regardless of academic rank. From the point of view of academic disciplines, counseling by colleagues is more needed in Engineering, Agriculture, and Humanities.




(***: $p$<.001, **: $p$<.01, *: $p$<.05)

Figure 2. Teachers' support needs by academic rank.




(***: $p$<.001, **: $p$<.01, *: $p$<.05)

Figure 3. Teachers' support needs by academic disciplines.

A need for "Reflection or reviewing of own teaching" showed no significant difference in academic ranks (in total: 16.0%, Professor: 17.4%) or disciplines. Although the percentage is not high, it is considered that the need for "Reflection or reviewing of own teaching" commonly exists regardless of academic ranks and disciplines. On the other hand, a need for "Classroom observations of other

teachers' lesson (by video)" is less needed by Professors. It is expected that Professors might recognize they already have enough experience in teaching; and therefore prefer learning from their own practice rather than from others in seminars or teaching observations.

A need for "Digitization of teaching materials" also has no significant difference among academic ranks (in total: 24.8%, Professor: 26.9%) or disciplines. This means that "Digitization of teaching materials" is commonly needed by teachers, regardless of academic rank or discipline. As for the specific content of the digitization of teaching materials, the following are expected: creating PowerPoint slides, creating audio-visual materials, or changing analog materials into computer friendly materials, etc. To clarify the details of teachers' demands, an additional survey or interview is needed.

## 5. Conclusion

In order to clarify the details of university teachers' needs of support for designing and preparation of courses, and to incorporate this fundamental data into developing effective and practical programs or ICT tools for Professional Development, this paper analyzed differences by academic disciplines and rank of respondents. From the results of the analysis, we found that the support needs of university teachers for designing courses are different according to academic rank and discipline.

Especially, there are certain needs of "Digitization of teaching materials" and "Classroom observations of other teachers' lessons (by video)" regardless of teachers' academic rank or disciplines. It would be useful to consider the differences and commonalities when developing support systems or training programs for those teachers.

As a future work, we need to undertake a more detailed analysis of the results including other scopes of statistical data analysis, such as the respondents' age groups and the types of courses teachers answered about. In addition, in order to clarify the reason and background for the differences in their support needs, we are planning to undertake an interview process.

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