

Undergraduate Education in Japan: Observations from student and faculty surveys

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Abstract. This paper reports findings from a large-scale student survey on their learning behaviors, and a faculty survey on their practices and beliefs in teaching, both in Japan. It was found that the Japanese students' time spent on learning fell substantially short of the required time prescribed by the Standards for the Establishment of Universities¹. It was also found that a significant proportion of Japanese students have problems in motivation to learn, and the universities were unsuccessful in transforming them. However, some teaching practices were effective in affecting students' learning behavior. Meanwhile, these results were found to be related to the orientation of pedagogy that Japanese professoriate have traditionally had. These observations suggest possible future changes in undergraduate education.

Keywords: Undergraduate education, Learning, Student survey

Introduction

Qualitative improvement of higher education has been a major issue in Japanese society as elsewhere in industrial countries. This rise in attention to quality is partly a consequence of the advent of the universalization of higher education, which has brought about a significant shift of the student body with respect to motivation and academic readiness (Trow & Burrage 2010). At the same time, the wave of globalization and international competition has created even greater demands for a high quality labor force. It should be also noted that career-paths and occupational structures have been shifting constantly, which has necessitated a redefinition of the relevance of a college education to work. These factors collaborated to create strong social and political claims on the qualitative level of undergraduate education (Kaneko, 2004, 2013).

Responding to this challenge, there have been various attempts to examine the current status of college education through surveys on the behavior and opinions of students. With funding from the

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¹ Ordinance of the Ministry of Education, Science and Culture, Japan No. 28 of October 22, 1956

Japanese Ministry of Education, Science and Culture, a group, including the present author, conducted a large-scale student survey and some other related surveys.²

The purpose of these surveys was to build an adequate empirical base to examine the problems and future directions of higher education in Japan. Specifically, they aimed at 1) assessing the intensity and structure of learning by measuring the time spent for learning 2) evaluating factors determining learning behavior, especially the students' motivation on the one hand and the curriculum and teaching practices on the other, and 3) assessing the consequences of learning behaviors for the learning outcome. The paper focuses on a few results from the surveys, and discusses their implications.

Learning is the first focus, measured in terms of the time spent on different forms of learning (Section 1). It is influenced by the motivation of students, which will be discussed in Section 2. Next teaching, particularly examining the patterns of teaching practices and their effect on the time spent on learning (Section 3). Finally, underlying values of faculty members in the light of pedagogy of higher education in historical and comparative perspectives are discussed (Section 4).

1. Time spent on learning

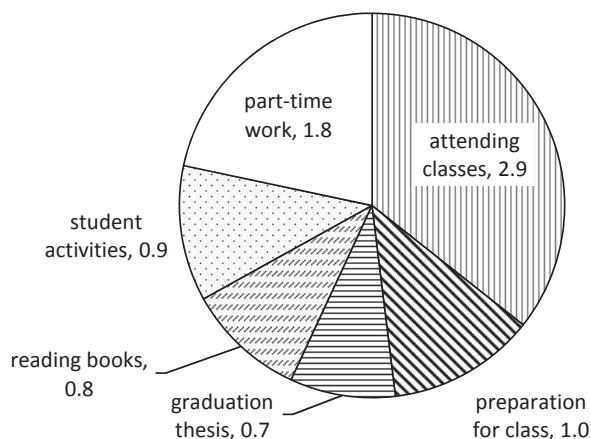
In many countries, the quality of a college education has become a major issue in recent years. Moreover, the focus of the discussion has shifted from the idea and design of curriculum to the outcome, or what students have actually learned through their study.

This focus prompted various attempts to measure the outcome through standardized tests (Nusche, 2008). However, those tests still raise various methodological and theoretical questions. Moreover, they tend to be very expensive to deliver. It will be some time before such measures become practical to assess the performance of students with a large sample.

From this perspective, observable learning behaviors of students, particularly the time spent by students for learning can be a useful indicator to analyze the impact of a college education. Students will not be able to gain significant outcomes without spending sufficient time on learning. It is for this reason that large-scale surveys on student behavior have been undertaken in the United States since the beginning of the 2000s.³ Moreover, the credit-hour system that serves as the basis of the academic degree regime in Japan assumes a certain amount of time that students are expected to spend for learning.

² The surveys include: 1) Student Survey (conducted 2006 through 2008, with total 48,233 students at 127 institutions; 2) High School Graduates Tracer Survey (conducted since 2005-, initially with 4,000 high school seniors; 3) College Faculty Survey (2010, total 5,311 faculty members responding); 4) College Graduates Survey (2009, with 25,177 graduates responding); 5) Human Resources Personnel Survey (2009, with 9,354 responses); 6) College Administrator Survey (2010, with 5,909 responses). Because of the survey method, the exact rate of response cannot be calculated. The outline of these surveys can be found at the following website: <http://ump.p.u-tokyo.ac.jp/crump/>

³ The largest in scale among them is the National Survey of Student Engagement (NSSE) located at Indiana University.



Source: Tabulated from the Student Survey Data
N=46,457

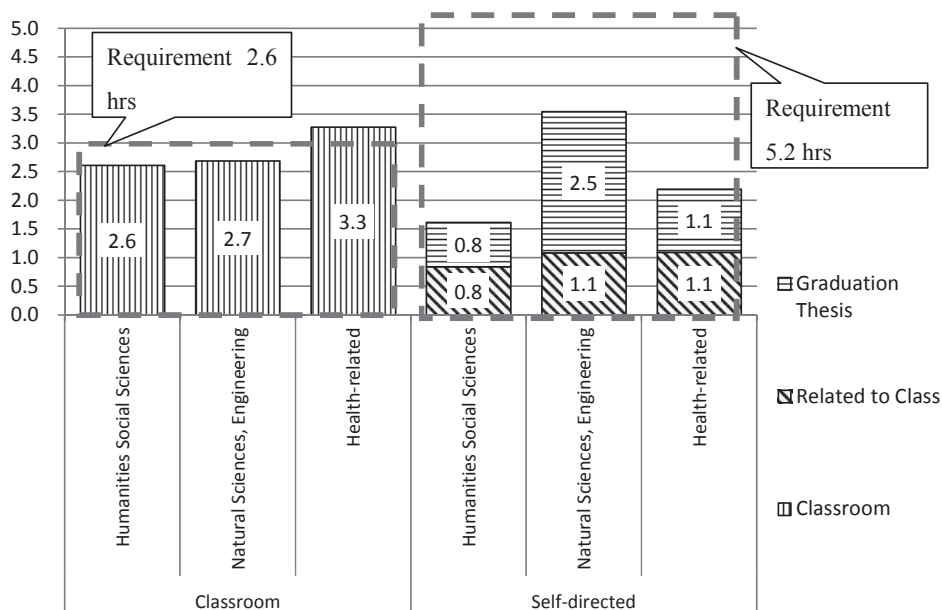
Figure 1. Distribution of students' time by activity

The student survey asked how much time students spent on different categories of activities. The average distribution of the hours per day during the academic term is indicated in Figure 1. The figure provides a rather sobering picture of Japanese students; they devote only about five hours a day in activities for learning either in class or out-of class, and the time spent for self-directed study outside the classroom is limited to one hour. In addition, they spend less than one hour in reading books or studying subjects not directly related to classes. On the other hand, they use almost two hours for part-time work and extra-curricular activities.

The Standards for the Establishment of Universities stipulate that a bachelor' degree requires 124 academic units for completion; each academic unit should involve 1 hour in class or in the laboratory and 2 hours for self-directed study either in the form of preparation or other learning activities required for the class. These requirements roughly translate into 2.6 hours in class and 5.2 hours in self-directed study per day. Figure 2 contrasts the students' time with those requirements.

The figure demonstrates that, while Japanese students were satisfying the requirement with respect to class attendance, they fell far short as to the time to be spent on self-directed study. Even though the shortfall was somewhat recovered with the time spent for preparing the graduation thesis and other research projects, it still remains that the time of self-directed studies falls far short of requirements.

This is the most striking fact revealed by the student survey. Japanese society has been critical of the Japanese university for not inducing students to learn sufficiently. It has not raised significant concerns, partly because of the impression that many graduates spend a lot of time on the graduation thesis, thus leaving the impression that they did some work. But the survey results show that if the time spent for the graduation thesis is averaged over four years, it does not compensate for the short-fall of regular self-directed studies required in regular class-room.



Source: Tabulated from the Student Survey Data
N=46,457

Figure 2. Studying time by category

2. The students

The shortfall of self-directed study can be attributed to lack of student motivation. One of the fundamental shifts brought about by universalization of higher education has been the considerable degree of diversity of students in readiness and motivation for learning. From this perspective, it will be useful to consider the structure of students' motivation to learn from the personal maturity and the relevance of a college education to the student. A scheme of analysis is presented in Figure 3 below.

The horizontal axis in this figure represents the degree of maturity of the student, *i.e.*, the degree to which he/she is confident of his/her effectiveness, and holds a certain image for the future role in the society. While at the "elite stage" of higher education development students were assumed to have clear goals to enter higher education institutions, at the "universal stage" many of the students are ambiguous about their objective, still groping for their self-confidence and for the future. Hence students on the left side are increasing in number. The vertical axis represents the institutional or program target and range of education. The students on the upper side of the space consider that the target is relevant to them. The permutation of the two axes yields four ideal types of students.

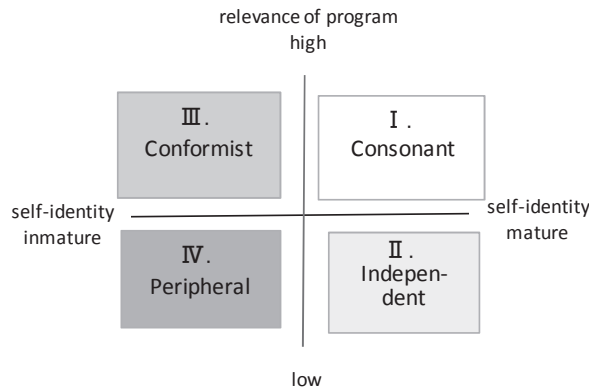


Figure 3. Typology of student

The first type can be called the *Consonant* Type. Students belonging to this type are confident of their ability, and have a clear image of the future. Also their goal for the future fits into the institutional target. A typical student would be one aspiring for an academic career in the research university. Another example would a student determined to become a pharmacist and enrolling in the curriculum designed for that purpose.

The second is the *Independent* Type. They are similar to the first type with respect to maturity, but they are unsure about the relevance of the educational program for their future, except for a diploma. Many students in the social sciences think that they are going to be white-collar workers, but they are not convinced that they will use the knowledge they are expected to absorb.

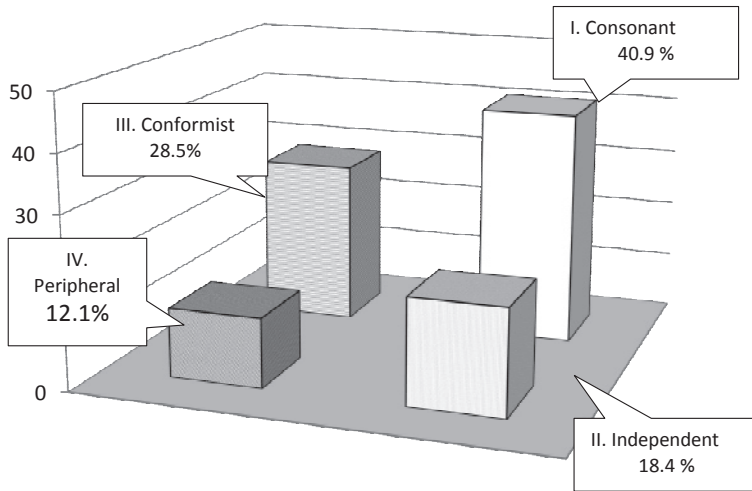
The third and fourth types are characterized by an unstable perception of the self or future career. The third, or the *Conformist* Type, still feels that the education they receive in the university is relevant to them, in the sense that education would provide something useful whatever destination to which they are headed, or the education help them find their goal.

The fourth, or the *Peripheral* Type, does not believe that the content of higher education is relevant for them. They remain in college either because they are expected to earn a diploma, or they keep exploring its relevance.

It should be noted that the typology is a logical contrast, but not induced from empirical studies. Moreover, the breaking points between the two poles along the two axes can not be defined objectively. Nonetheless, it will be useful to undertake a tentative estimation of the proportion of Japanese students that belong to each of the four categories.⁴

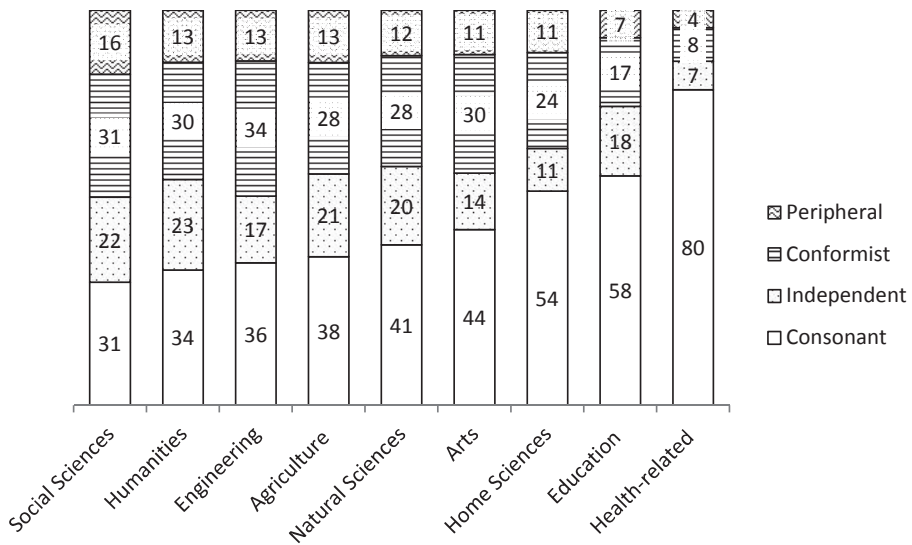
⁴ The estimates were constructed based on three questions from the student survey following the definition below.

I know what I want to do after graduation	Agree/Agree strongly	The contents of the courses are relevant to my future	Agree/Agree strongly	Consonant
			Disagree/Disagree strongly	Independent
	Disagree/Disagree strongly	I want to find what to do through courses	Agree/Agree strongly	Conformist
			Disagree/Disagree strongly	Peripheral



Source: Student Survey Data.
B=47,592

Figure 4. Estimated distribution of students by four types



Data: Student Survey
N=47,592

Figure 5. Distribution of students by major (%)

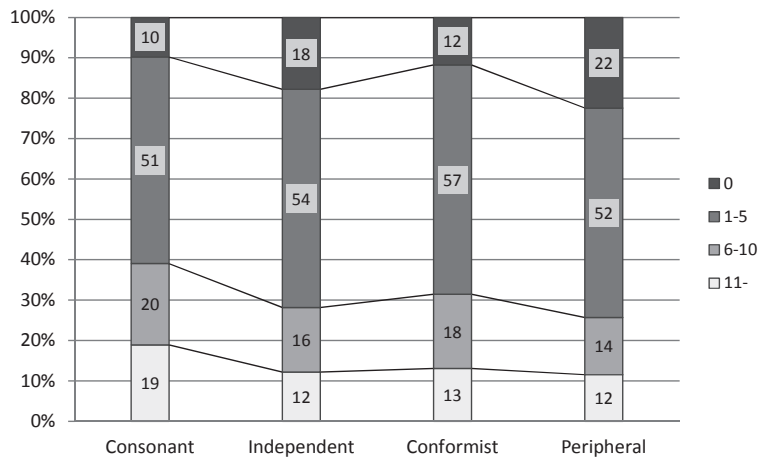
The results are presented in Figure 4. In this estimate, the Consonant type constitutes 41 percent of the total student population, the Independent 18 percent, the Conformist 29 percent, and the Peripheral the remaining 12 percent. At least this estimate implies that less than half of the students fit in the first type, which many academics would presume when they design their curriculum. Also, it shows that about one-third of the student population believe college education is irrelevant to their need.

The distribution over the motivational pattern varied substantially by the field of specialization (Figure 5). In the health-related programs, the Consonant type constituted a much higher percentage than others. Obviously, students enrolling in these programs have a definite image for their future career. Nonetheless, the composition in the other academic areas do not present much difference from the overall pattern. Despite our expectations, there are significant numbers of students belonging to the Independent, Conformist and Peripheral types in the STEM programs.

It is noteworthy that, despite general expectation, the composition of students does not vary significantly across institutions with different levels of selectivity. Even though more selective institutions present a slightly higher percentage of the Consonant type, they still have a substantial number of student belonging to the other types.

The type of the students with respect to motivation indeed affected the time devoted to self-directed study. Figure 6 shows the time spent for self-directed study per week of the different types of students; it demonstrates that the students' types are clearly related to time allocation.

Nonetheless, it is also obvious from Figure 6 below that even the Consonant students do not necessarily spend much time on study. In fact about 60 percent of these students spend 5 or less hours for selected-study per week. This fact indicates that there are structural problems that are not encouraging students towards self-study irrespective of motivational type.

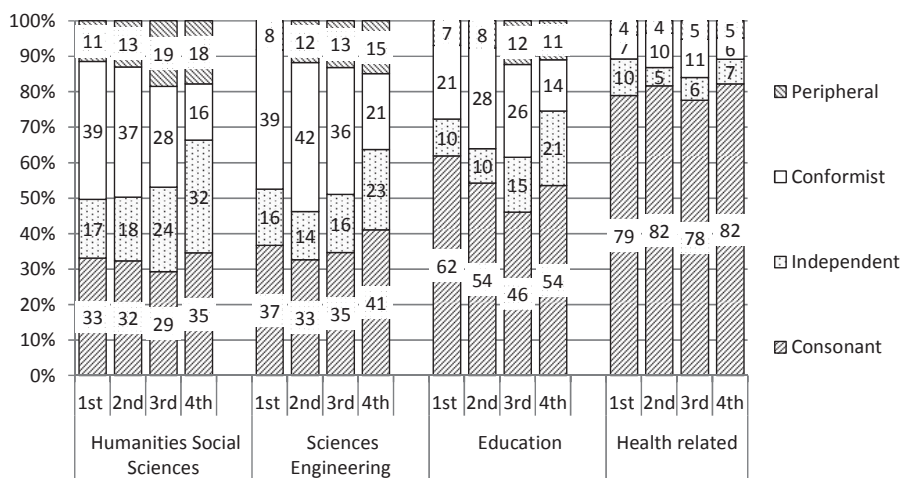


Data: Student Survey
 N=47,592

Figure 6. Distribution by self-directed study hours by student type

Another important perspective is how the distribution by motivation changes over time while the students are in college. Even though the data do not provide the change of a single cohort over time, comparison of the distributions from freshman to the senior years would provide a rough proxy (Figure 7). One observation from the figure is that the shares of the Consonant type do not change during the four year period. This is a rather bleak finding, for it implies that the students on average

do not stratify either their self-identity or the identity through college education. The share even declines in Education and in the Performing Arts.



Data: Student Survey
N=47,592

Figure 7. Changes in student distribution

More important is the changes in the Conformist type. These students expected that they develop self-identity through college education. In the third and fourth year at college, they went through transformation, but not towards the Consonant type as one might expect. Rather many of them shifted to the Independent type, who have self-identity without feeling a strong affiliation with their academic program.

Even more disturbing are the increases in the share of the Peripheral type towards graduation. This is most pronounced with the students in the Humanities and Social Sciences, which constitute over 40 percent of the student body. A similar trend can be found with the Natural Sciences and Engineering.

The results show that the Japanese universities and colleges are not very successful in leading the students to *grow* personally through their academic programs. Lower motivation leads to shorter hours directed to self-study, and that in turn leads to the failure in actively affecting the students' motivation. Then, what is missing?

3. Teaching

Obviously, another significant factor is teaching. The traditional discussions about college education have focused mainly on the formal curricula. But if we focus on how and how much students learn, equally or even greater attention should be paid to how they are taught in their actual classes. In fact,

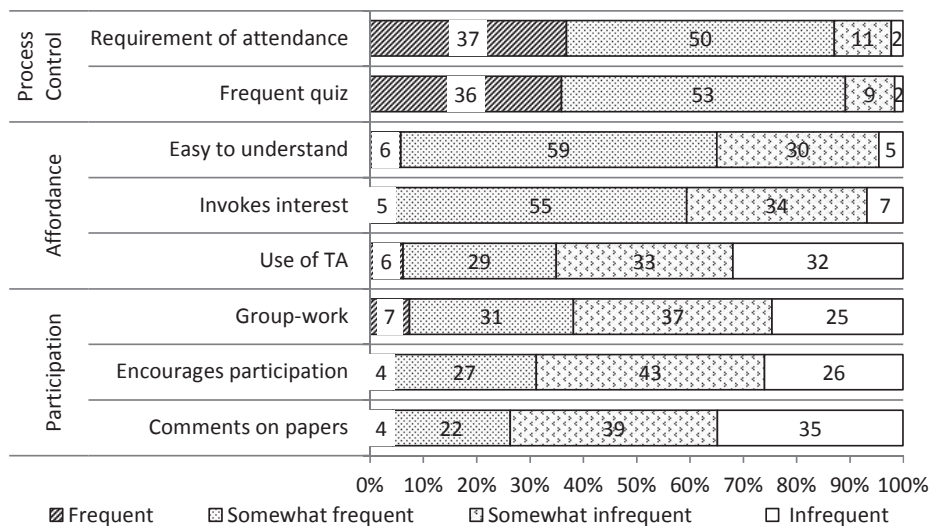
recently there have been increasing efforts to improve teaching practices. They can be classified into three types with respect to their orientation.

First are those that may be call *Process Control* orientation. These aim at enhancing learning by directly controlling the learning process, through strict requirement on class attendance, frequent quizzes and other means.

The second direction is to make the teaching more supportive of student learning. It implies teaching that facilitates students’ understanding rather than academic rigor. Also it includes the efforts to raise curiosity about the subject. Out-of-class tutorials employing teaching assistants may be included in this category. These practices can be categorized as those of *Affordance* orientation.

The third type of teaching practices can be designated as *Participation* orientated. It includes classes that require group-work. Also, the teacher may ask individual students in the class questions. The teacher may add comments on the papers and examinations when they are returned to students.

The Student Survey asked students how frequently they experienced each of these teaching practices. The results of the tabulation (Figure 8) indicate that first, the practices of control-orientation were very frequent. About 90 percent of the students responded that these practices are either rather frequent, or very frequent. It is also shown that many teachers were indeed making efforts either to make the classes easy for the students to understand and to induce interest and curiosity. On the other hand, about 40 percent of the students responded that such practices are not frequent. It should be also noticed at the same time, that the use of teaching assistants (TAs) is not widely spread.



Source: Student Survey
N=47,625

Figure 8. Frequency of teaching styles that students experienced

More alarming is the fact that the practices to encourage participatory teaching were not common. Only 7 percent of the students said that group-work was frequent. The corresponding figure was 4 percent with encouragement of student participation, and comments on papers and examinations. Even including those that responded “somewhat frequent,” the proportions were about one-third. With the case of comments on paper, it was only 24 percent.

One of our important findings is that the different modes of teaching and learning induce different effects on students, and the effects are also different by the motivational type of students. Table 1 shows the estimated gains in the time (expressed in hours per week) spent on studying at home by experiencing different types of teaching practice⁵. The results clearly show that different types of teaching practice in fact result in different outcomes, although all the teaching practices listed are supposed to have positive impacts on students’ learning.

One of the prominent findings from this table is that the practice of *Control* orientation is negatively related with students’ time devoted to self-directed study. The negative relation is particularly pronounced with the Consonant and Conformist types, *i.e.*, the students who have high motivation to learn from the class. One may argue that a too coercive attitude would discourage motivated students from spending time related to the class.

Table 1. Estimated effects on teaching styles on hours of self-directed study by teaching practice and student type

Mode of Teaching/Learning	Student Type			
	Consonant	Independent	Conformist	Peripheral
Strict Control on Learning				
Required Attendance Strictly	-1.9	-	-1.1	-
Required Mid-term exam/paper	-	-	-	-
Supportive Teaching				
Tried to Induce Curiosity	1.6	1.0	1.5	1.0
Tried to Help Understand	1.0	1.0	-	-
Out-of-Class Assistance	1.9	-	1.6	1.5
Participation in Class				
Required Group-Work	1.7	1.3	1.7	2.6
Asked Response from Students	2.2	2.4	1.9	2.1
Comments on Papers	2.9	2.2	1.8	3.0

Source: Estimated from Student Survey Data.

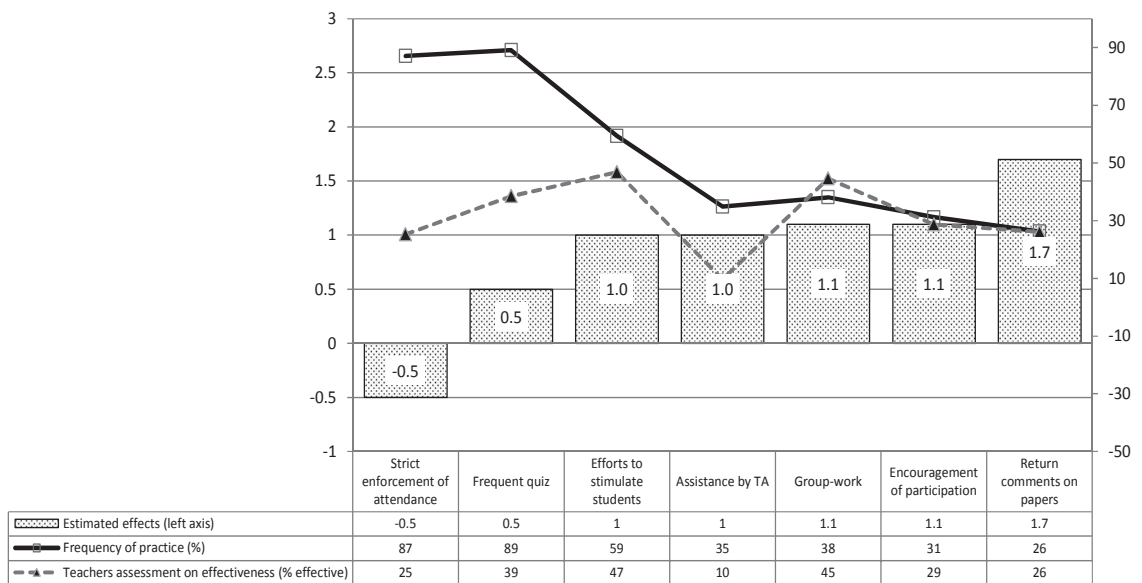
Note: All figures indicated are statistically significant at 5% level.

⁵ The figures were derived as estimated values of multiple regression coefficients attached with dummy variables, each of which indicating that the student experienced such teaching practice. Only the values with significance at 5% level are presented.

The other types of practices, in general, are positively related with self-directed study related to the class. The teaching practices of *Affordance* orientation in general have significant relations with self-directed study. More striking is the effect of the practices of *Participatory* orientation. The students who experienced classes of this type either frequently or somewhat frequently spend from 1 to 3 hours weekly or more for self-directed study than those who have not.

It is important to note that these effects are different by type of students. Overall, the Consonant type responds to the teaching practices more than the other types, including the negative response to strict control on learning. The Conformist type tends to respond to the Affordance orientation, while the Independent type responds to the interaction/participation approach. Most striking in this respect, however, is the very strong response of the Peripheral type to the Interaction/Participation approaches. Especially, group-works and comments on papers create substantial effects on this type of students.

These observations suggest that there are significant gaps among the practiced teaching style, teachers' concept of good teaching, and the actual effectiveness of teaching styles (measured by the induced length of hours of self-directed study). Figure 9 summarizes the related statistics from the Student Survey and Teachers Survey.



Sources: Estimated from the Student Survey and Teachers Survey

Figure 9. Teaching styles – frequency of practice, teachers' evaluation of the effects, and estimated actual effects

It is demonstrated that while the teaching practices of the Control orientation are most prevalent and regarded as effective by teachers, they are not effective in inducing students to engage in self-directed study. Supportive teaching is less prevalent, but teachers regard it as effective. They

are in fact effective. Participatory teaching is less common, but effective. Comments on Papers is not common, and the teachers' assessment is not particularly high, but its actual effect is most pronounced.

These results show that in fact, student surveys can reveal a few facts about students learning that have been overlooked by teachers. The observed gap has significant implications for the improvement of teaching. But this leads to another question. What are the teachers' views of effective teaching, and how have they been formed?

4. Underlying beliefs of the professoriate

Since the teachers actually control the process of teaching, they should have a particular set of ideas of what constitutes good teaching, or in other words a latent pedagogy. Most likely these ideas are shared by the professoriate as a kind of culture.

Our Teachers Survey asked, among others, what they think are important ways to improve teaching and learning, and to what degree they practice them in their daily life in college Figure 10 summarizes the results.

The most striking observation is: the most frequently cited factor by the Japanese professoriate to improve education is to "Increase personal contacts with students in the class rooms and seminars." Almost 60 percent agree with this statement. Also, in fact, they are actually practicing it. There was little gap in the response between desirability and actual practices.

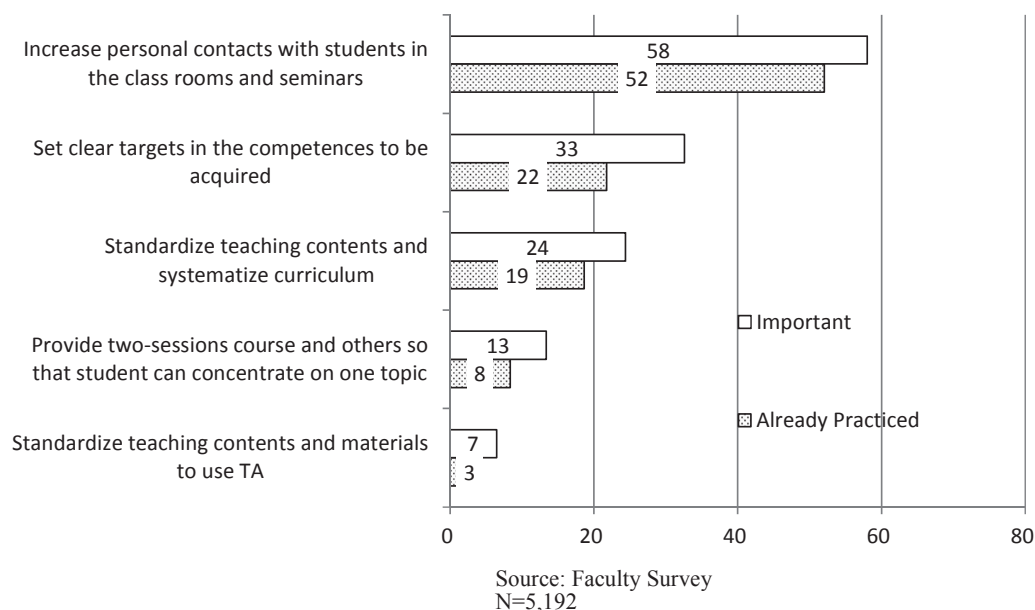


Figure 10. Ways to improve teaching – conceived importance and actual practice

On the other hand, the options that involve *standardization* of teaching were not favored. Practices such as to “Standardize teaching contents and systematize curriculum” or “Standardize teaching contents and materials to use TA” were not considered to be important, and in fact practiced rarely.

To “set clear targets in the competences to be acquired through class” was considered somewhat important, but not frequently practiced. Also, they do not consider it necessary to set two classes a week for a single course in order to be effective.

These observations indicate that the Japanese professoriate tend to share a particular set of values and pedagogy, which are likely to be at significant variance from those in other countries.

While there has been a significant accumulation of academic literature on the international comparison of the academic profession (Cummings & Finkelstein, 2012), most of the studies have not dealt with the practices of teaching, or the beliefs underlying them. One may have to go back to the history of higher education to speculate about the basic patterns of pedagogy at university level. It can be argued that there are three basic tradition from that perspective.

The first is a Higher Professional Education model. Historically speaking, the medieval “universities” functioned as an institution to train in the fields of the three most prestigious professions, *i.e.*, Medicine, Law and Divinity. In the late 18th century this tradition was relayed to the model of higher professional schools after the French Revolution. The Polytechnic was one of the representative cases in this tradition. Under this tradition, the emphasis was laid on *mastering* the body of knowledge in a particular profession or academic field. Classes and examination are particularly important educational tools in this type.

The second is a Process Control model. Liberal arts education developed in the British ancient universities, and later transferred to the United States falls into this category. Particularly in the American version, control of the process of learning was associated with various tools, including a written syllabus, reading requirements, quiz, and the use of TAs.

The third is the Academic Inquiry model, which is often called the Humboldtian idea after the establishment of Berlin University of 1810. This idea emphasizes the importance of research even in learning. The Students themselves are inquirers. The process of exploration of the unknown is in itself a significant education.

Table 2. Typology of Pedagogy

	A. Higher Professional Education	B. Process Control	C. Academic Inquiry
Knowledge	Professional requirement	Academic knowledge	Inquiry of unknown
Control of learning	Strict examination	Class requirements	Examination of thesis
Motivation of learning	Future occupation	Course grade	Academic curiosity

It would not be too far-fetched to argue that these three traditions still remain alive in modern teaching practices. The relative strength of each may depend on the particular academic field. For example, the Higher Professional Education model may be most prominent in Medicine and related professional education. It also depends on the particular historical backgrounds. In the continental tradition, the Academic Inquiry model is dominant, while the Process Control model is strong in the American system. Set in this context, how can the belief among the Japanese Professoriate be characterized?

While each of the three traditions had significant impacts on Japanese higher education, one can argue that the Academic Inquiry model established the prevailing beliefs among Japanese academics in the period when Japan developed the modern university. At the same time, the Japanese university developed a unique organizational structure: the Seminar or Laboratory supervised by a Professor. Originally this emulated the Seminar or Institute, but subsequently it was transformed to be a unit to which the students belonged. This is in that sense a membership organization. These Seminars or Laboratories functioned as the place of informal exchanges among the teachers, undergraduate students, and graduate students. They also provided an environment to support students preparing their graduation thesis.

It is under this historical background that the Japanese Professoriate consider the personal contact in small units as a critical means for undergraduate education. Teachers believe that personal contacts exert the most effective educational influences on students. One might call it a Membership model of undergraduate education.

Even though the American academic unit system was introduced to Japan in postwar reforms, this basic belief seems to have not changed much. Regular classes tend to be oriented towards the research topic in which the teacher is interested. The teachers are therefore reluctant to standardize classes. Under these circumstances, students do not spend much time on the study related to each class. Also, the teachers do not tend to spend much time preparing for the participatory class or commenting on papers.

It is true that this pattern of teaching and learning has a few significant merits. Academically mature students are allowed to enter advanced studies. Students can learn from experiencing exploration of the unknown without much support from the faculty member. The informal personal relations in the membership group provide strong mental support. At the same time, the skills in individual communications and cooperation are useful in the workplaces after graduation.

Nonetheless, it can be argued that it has significant disadvantages. Through the student survey it was demonstrated that the total amount of self-directed study fall short of the prescribed requirements. In the increasingly diversified and continuously changing world, the ability to examine and to explore things independently will be particularly valuable. Independent work on the graduation thesis has been believed to serve the need, but the belief has proved to be dubious. The entire learning process including regular classes should be redirected to that direction.

Concluding remarks

The analyses presented above are but a small part of our on-going analysis. Obviously, the many facets of teaching and learning are complicated as preceding studies have shown. Moreover, space limitations here preclude demonstrating how they are related to what is found in the labor market.

Nonetheless, I believe that the examples above are sufficient to demonstrate that large scale data on students' reaction to teaching, perceived attainment, and learning behaviors can indeed provide a quite fertile ground to help design a teaching environment that produces enhanced levels of learning.

It is also important to note that the results from student surveys should be analyzed in the context of how teachers believe and teach. Teachers are ultimately the people that deliver the classes, and they tend to be influenced by the culture of the academia that has been formed in the long tradition. Comparison of the differences in teaching practices and the underlying beliefs across countries appears to be a promising means to improve an understanding of the very practical issue of student learning.

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