An Empirical Analysis for the Determinants of Learning Basic Accounting for First-Year Students[1, 2]

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Abstract

Prior studies show the significance of accounting education, which must continue to change and follow along the transition of the society. In particular, accounting education acts as a bridge in an introductory course to enhance first-year students' understanding and expertise and retains their interest or curiosity in accounting. As accounting expertise becomes more sophisticated, most first-year students in the economics and commerce faculties face difficulty in learning accounting. Some are often struggling with vast volume of terminology, and others lose their motivation for accounting. Engaged in accounting education, we can help students for fostering more practical ability of accounting and then adapting it in the modern society. This paper is based on the questionnaire survey for the first-year students at private universities in Japan. The main implications are as follows; (1) the influence of the students' accounting learning experience on their curiosity for learning accounting, (2) the influence of "subject characteristics", "explanation by teacher", and "teaching behavior" on the extent of difficulty for students to learn accounting, and (3) the determinants of the extent of the difficulty, "journal entry", "posting" and "preparation of financial statements".

Keywords: *Accounting education, Basic accounting, First-year students, Terminology*

1. Introduction

Historically, accounting responsibility functions well when accounting is viewed as part of society and culture, not merely as part of commercial transactions (Soll, 2014: 18). Accounting is a language in business (Anthony and Breitner, 2012: 6), and as such, it has not only formed basis of knowledge in studying business and commercial sciences but also fulfilled its social requirements to provide expertise indispensable to society. In the practical setting of Japan's accounting education, basic subjects of *double-entry bookkeeping* are

positioned as, more or less, core subjects of the first-year accounting class. As accounting expertise becomes more sophisticated, most of the first-year students in the economics and commerce faculties study accounting. However, in doing so, they must face a vast volume of terminology. As they had not been familiar with economic transactions before entering universities, they tend not to go beyond *get accustomed to, or memorize*, rather than *understand*, the new terminology that come up each time the class progresses (Shiba, 2007: 82). If such situation continues, the students will quickly lose their learning motivation before getting interested in the essence and importance of accounting (Hasegawa, 2018: 22). It has caused *away from accounting* and is one of the reasons that the number of students wishing to specialize in accounting has decreased (Komiyama 2014; Kawai and Saito 2019, 2020; Tan and Saito 2020).

To begin with, accounting has a role to measure, communicate and explain broadly various economic activities (Fujinaga, 2004: 11). Business people require a basic knowledge of accounting. Accounting education can be broadly interpreted as an act that communicates accounting knowledge and skill, basic ways of thinking and ethics, etc. that are necessary for economic decision making, and foster human resources who create and use accounting information (Mashiko, 2006: 116). Realistically, it is often that the contents of accounting education go from an introductory stage to a well-advanced application stage within one year (Kojima, 2002: 189). From the perspective of university education, two aspects coexist in the background of accounting education, one is mass education at a university level and the other is professional education whose contents are getting very complicated and sophisticated (Komiyama, 2014: 198). And this makes the enhancement of accounting education difficult.

The progress of globalization has made economic activities more complicated, and the birth of the international financial reporting standards (IFRS) structured on principle basis is the result which reflects the fact that simple application of relevant provisions of rule basis can no longer fully describe economic activities. The ability of practical use that is formed based on expertise, rather than mere cursory expertise dependent on memorization[3], is now required. However, there is also an opinion that since accounting curriculum is geared so much toward shareholders, accounting education has failed in ethically motivating the students or in fostering critical minds (Ferguson et al, 2006: 247). This study aims to clarify the factors that affect the first year education of accounting by empirical analysis using questionnaire to first-year students of economics and business faculties of Japanese universities. We aim to recognize the issues that emerge from its conclusion and to search the way to solve such issues toward the enhancement of accounting education.

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3   Nonaka and Takeuchi (2011) express this ability as practical wisdom.

2. Previous studies
2.1 Adverse effects of accounting education

As previous studies have shown, the learning process of accounting education that goes from *double-entry bookkeeping* to *accounting*, a unique one to Japan, has brought up several adverse effects in our modern society. For example, Shiba (2007: 82) pointed out that since the basic subjects of *double-entry bookkeeping* are prone to be tied with repetitive exercise, they become nothing but subjects to be memorized unless they are accompanied by sufficient explanation of accounting theory. Further, Hasegawa (2018: 22) demonstrated that the order of learning is set so that *double-entry bookkeeping* is to be learned before *accounting*, and the students who have difficulty in understanding the subjects unless they can be interpreted logically are likely to be antipathetic toward bookkeeping. In the past, being well informed about accounting standards warranted an appropriate accounting treatment by simply applying them in accordance with relevant rules (Uehara, 2014: 65). As such, there were times when students having good memory could take regularly scheduled exams by memorizing the procedures and terminology only superficially.

There is also a movement for the learners to equip themselves with "accounting literacy" with which they can take advantage of accounting knowledge in their daily lives and understand the role that accounting plays. The Japanese Institute of Certified Public Accountants (JICPA) has been actively promoting basic accounting education from the junior high school stage, the announcement of *Basic Policy on the Promotion of Basic Accounting Education* being one of them[4]. Although proliferation of accounting education is progressing in the Japanese society, generally speaking, "distance from bookkeeping" and "away from accounting" as exemplified by the reduction of willingness of the students to study accounting or the decrease of the number of students who major in accounting are on the rise in recent years. It is feared that this phenomenon may continue into the future resulting in the decrease of accounting population (Hasegawa, 2018; Kawai and Saito, 2020; Komiyama, 2014; Mashiko, 2006; Shiba, 2019). Fujinaga (2004: 10-13) listed the following five points as desired models of universities in the twenty-first century and accounting education reforms. This paper starts with these five points and conduct the analysis of the questionnaire survey keeping in mind in particular, (1) the clarification of the purpose of accounting education, and establishment of curriculum and educational methods oriented to the students, and (5) the research of teaching methods.

(1) Clarification of the purpose of accounting education, and establishment of curriculum

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4 Please refer to JICPA https://jicpa.or.jp/news/information/2017/20170810waf.html (accessed on August 2, 2020).

and educational methods oriented toward the students

(2) Establishment of accounting educational system giving consideration to liberal arts education, basic professional education and education of related subjects

(3) Establishment of accounting education that is applicable in many parts of the world contributing to their respective regions

(4) Establishment of parallel educational system covering both theory and practice

(5) Clarification of contents and achievement criteria of accounting education, research of teaching methods.

2.2 Factor analysis of the effects of learning

There exist various empirical studies that analyze the factors affecting the learning effects of the undergraduate students who study accounting, and those trying to clarify its relationship with academic performance are considered as mainstream studies in Europe and the U.S. (Seow and Pan, 2014: 361-362). However, analyses looking into the teaching contents and the tendency of the study by the students in the accounting education are the mainstream in Japan. Incidentally, the names of the subjects in the research investigation below vary depending on universities and on faculties, but they are all basic subjects of accounting held for the education of first-year students and include the subjects like *basic accounting*, *introductory bookkeeping* and *bookkeeping*.

For example, Shoji, Inoue and Kakeya (2020) made the investigation of undergraduate students. The students covered were those studying *bookkeeping I* and *bookkeeping II* with 185 students in 2017 fiscal year and 191 students in 2018 fiscal year, and it verified the impacts of class composition based on the learning levels of accounting on their academic performances. According to its results, it clarified that class composition based on the learning levels had a positive effect on the improvement of the overall academic performance of the students and on the reduction of scholastic disparity.

Yamane (2018) analyzed the relationship between scholastic indices and scholastic achievement levels of the beginners in accounting covering 156 first-year university students in the fiscal years 2013 through 2016, and confirmed that Grade Point Average (GPA) was a scholastic index that had a strong positive effect (statistically significant at $p < 0.01$) on the three factors of scholastic achievement degree, namely *comprehension level of class contents*, *performance in term-end exams* and *pass/no pass in the official business skill test in bookkeeping 3rd grade*.

Aihara (2018) conducted a questionnaire survey of 70 students who attended extracurricular course of accounting in 2017 to examine the effect of previous accounting experience at high schools on the accounting studies at universities and on obtaining accounting certificates. He found that while the graduates of commercial course of the high school with rich

experiences of accounting studies tended to develop certain patterns when solving problems showing that they may not have sufficient understanding of accounting theory. In contrast, he found that the graduates of the general course of the high school took more time in solving problems but they tended to understand each problem more accurately in their progress of study.

In the first half of 2019, Teshima and Kanagawa (2020) made an empirical analysis, with respect to 128 first-year students at two universities, of the latent factors that affect academic performance and disparity between those universities. Their results showed that learning method in case of University A and concentration power in case of University B, respectively, gave positive effects on their deviation scores.

Kawai and Saito (2020) conducted an investigation and analysis in 2018 about 538 students at four universities who took the basic subjects of *accounting* for the beginners. The results suggested, interestingly, that (1) those students who are proactive toward accounting studies are more likely to enjoy studying them, and (2) those students who are proactive toward accounting studies and those who have clear objectives of their study such as certificate examinations are less likely to feel awkward vis-à-vis the subject of "accounting" itself.

Their research, however, has its limitation in that its analysis covered all the students of the universities from the first year to the fourth year and those who took the course were not necessarily beginners in accounting. In this study, therefore, we will extract the sample data of first- year students only as beginners in accounting, and will focus on the research items, among variables adopted in the works such as Koh and Koh (1999), Eskew and Faley (1988), and Gammie, Jones and Robertson-Millar (2003), particularly focusing on the items like *previous accounting experience* and *purpose of accounting study* of the students which are not much seen in the previous studies. We will then examine the factor analyses and tendencies from the viewpoint of enhancing first-year education.

3. Research design
3.1 Sample data

The sample data of this study were obtained from a questionnaire survey (Kawai and Saito, 2020) on learning accounting by undergraduate students at three private universities. The subjects of the analysis were a total of 330 samples of first-year students who fit the requirement of first year education, less 2 missing values with a net total of 328 samples (155 University A students, 4 University B students, 171 University C students). In terms of gender ratio, 75% were male students and 25% female students (Table 1). Now, the term learning accounting in this paper is defined as a study at the undergraduate level made through classes that teaches the basics of accounting and it includes the study of bookkeeping.

This is because, in Japan, bookkeeping is generally considered to form the basis of accounting, and prioritized as a subject for beginners in accounting. In particular, *accounting* and *bookkeeping* are not treated as separate subjects. As stated earlier, the traditional study process that is unique to Japan to start with *double-entry bookkeeping* and proceed to *accounting* is the mainstream of undergraduate education even today. Although the names of the subjects differ from university to university as *accounting*, *introduction to business accounting* and *basic bookkeeping* respectively, they all are the classes for the beginners in accounting.

3.2 Explanation of samples

Table 1 shows the classification in accordance with previous accounting experience and previous accounting certificate, and it tells us that 46 students (14%) had accounting experience before entering universities with remaining 282 students (86%) having no previous accounting experience. Of those students who had pre-university accounting experience, 24 students (52%) had the experience of more than two years, 9 students (20%) had the experience of more than one year but less than two years, and 13 students (28%) had less than one year of experience.

Next, with regard to whether or not the students had previous accounting certificate before coming to universities, those who responded that they had previous accounting certificate were 11% while 89% responded that they had no such certificates. The breakdown of the 37 students who had certificate was that 24 students (approximately 65%) said they had the certificates of Zensho official examination in bookkeeping (hereafter, Zensho), 4 students (11%) had the license of Zenkei official examination in book-keeping (hereafter, Zenkei), and 11 students (29%) had the license of Nissho official business skill test in bookkeeping (hereafter, Nissho). These figures include those who had more than one certificate. From the information above that 86% of the students had no previous accounting experience and 89% had no previous accounting certificates, we confirmed that nearly 90% of the subject samples are the beginners in accounting eligible to be included in our research.

Table 1. Previous Accounting Experience and Accounting Certification

Sample	Previous Accounting Experience		Previous Accounting Certification		Gender	
	yes	no	yes	no	male	female
Number	46	282	37	291	245	83
Ratio	14%	86%	11%	89%	75%	25%

3.3 Purpose in Learning Accounting

Figure 1 shows the survey results about the purpose of learning accounting. Of the motives of having started the learning accounting, *recommendation by family members or friends* ranked the highest followed by *interest or curiosity*. In contrast, those students who simply responded *to get the credit units* were substantially smaller. Figure 2 shows the survey results of the expected effects gained by learning accounting. The largest group of students had its influence on the society or on the job search activities in mind. It was also found that a certain number of students who had fraud prevention or understanding of business/management in mind.

Figures 1 and 2 show that many students had the strong willingness to proactively engage in learning accounting as at the time of starting it with the recommendation of family members or of friends, or by way of their own interest or curiosity. This fact seems to tell us that an education that brings home the significance and role of accounting in the modern society to the students is, particularly, as important as teaching the structural part of techniques and mechanism of accounting. In other words, having the students understand the essence of accounting at the early stage of learning accounting that leaning accounting will bring out good effects to the social life in their future would become a strong incentive for learning accounting.
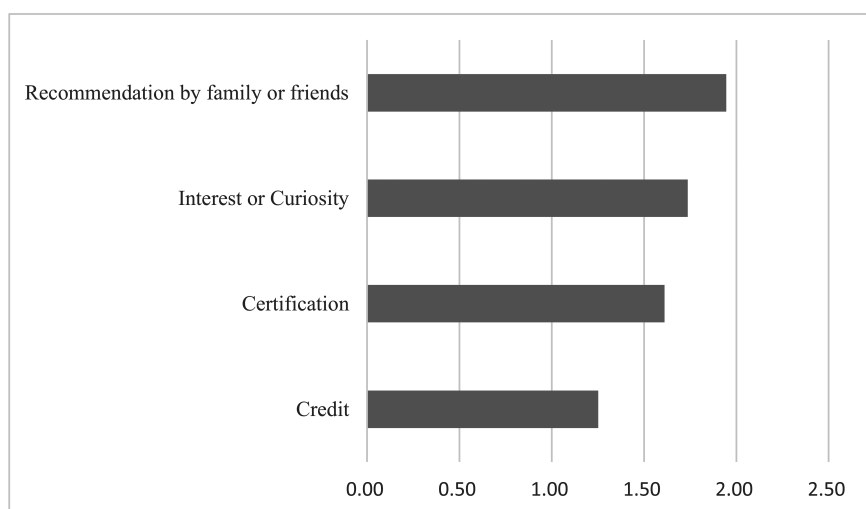
Figure 1. Purpose of Learning Accounting

Figure 2. Expected Effect of Learning Accounting

3.4 Self-consciousness for learning accounting

We have included in the items of survey a question asking the students to evaluate themselves about their self-consciousness for learning accounting. The evaluation uses a 5-point scale ranging from *very enjoyable*, *enjoyable*, *neutral*, *boring* to *very boring* with 5 points, 4 points, 3 points, 2 points and 1 point respectively.

The upper part of Table 2 shows the survey results according to the classification of pre-university previous accounting experience. First, according to the classification of pre-university previous accounting experience, the students that positively evaluate learning accounting account for more than 26% *very enjoyable or enjoyable* of all the students regardless of their previous experience. As for the students who had no previous accounting experience, those responding *very boring* about learning accounting was 10.28% of the total while whose responding *boring* accounted for 13.48%.

In contrast, among the students who had some pre-university previous accounting experience, those who responded *very boring* and *boring* were 4.35% and 15.22% of the total respectively. We should recognize here that the group with no previous accounting experience formed the majority of the students who chose a strong negative evaluation toward learning accounting with a "*very boring*" response. This result supported the study of Aihara (2018: 254) that the graduates of general course of the high school without pre-university previous accounting experience tend to be more concerned about learning accounting as compared with the graduates of the commercial course of the high school having previous accounting experience. In addition, it can be interpreted that once a student feels that he/she cannot be good at accounting in the learning process, he/she will become more

likely to negatively evaluate leaning accounting.

The bottom part of Table 2 shows the result of classification according to the previous accounting certificate acquired before entering universities. In the classification according to accounting certificates, approximately 32.43% of the students who responded as having some certificates positively evaluate the learning accounting as *very enjoyable* or *enjoyable*. In contrast, in case of students who responded as not having any certificate, the ratio of those who positively evaluate the learning accounting was approximately 7% lower (25.77%). However, even in the group of students having some certificates, those who chose a strong negative evaluation of *very boring* was as high as 5.41%. This result also supported the study of Aihara (2018: 252) that those students who started accounting studies at an early stage of high school and who ended up thinking that they are not good at accounting tend to be negatively affected in their willingness to study.

Table 2. Classification by Students' Self-Consciousness for Learning Accounting

Classification		Very Enjoyable	Enjoyable	Neutral	Boring	Very Boring	Total
Previous Accounting Experience	yes	10.87%	15.22%	54.35%	15.22%	4.35%	46
	no	5.32%	21.28%	49.65%	13.48%	10.28%	282
Previous Accounting Certification	yes	8.11%	24.32%	48.65%	13.51%	5.41%	37
	no	5.84%	19.93%	50.52%	13.75%	9.97%	291

4. Empirical analysis (1)
4.1 Structuring a multiple regression analysis linear model

This study classified the factors that affect the self-consciousness of the first-year university students most of whom are beginners in accounting into three elements of "subject characteristics", "teaching behavior" and "others". By further breaking down, the category of "subject characteristics" was classified into four sub-factors of "extent of difficulty", "number of questions", "volume of vocabulary", and "volume of calculation"[5], and the category of "teaching behavior" was classified into three sub-factors of "explanation by teacher", "attitude of teacher", and "speed of class"[6], and the "other" category was classified into two sub-factors of "number of students" and "willingness".

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5 Conversion into points is as follows: "extent of difficulty": "easy" 1 point, "average" 2 points, "difficult" 3 points; "number of questions": "few" 1 point, "average" 2 points, "many" 3 points; "volume of vocabulary": few" 1 point, "average" 2 points, "many" 3 points; "volume of calculation: "little" 1 point, "average" 2 points, "much" 3 points.
6 Conversion into points is as follows: "explanation by teacher": "easy to understand" 1 point, "average" 2 points, "difficult to understand" 3 points; "attitude of teacher": "kind" 1 point, "average" 2 points, "not kind" 3 points; "speed of class": "slow" 1 point, "average" 2 points, "fast" 3 points.

Next, with the self-consciousness for learning accounting as explained variable, a multiple regression analysis was conducted by using a model whose explanatory variables are 3 categories with 9 sub-factors, namely, "subject characteristics", "teaching behavior" and "others"[7].

Model 1:

$self - consciousness\ for\ learning\ accounting_i$
$= \alpha_0 + \alpha_1 extent\ of\ difficulty_i$
$\quad + \alpha_2 number\ of\ questions_i + \alpha_3 volume\ of\ vocabulary_i$
$\quad + \alpha_4 volume\ of\ calculation_i + \alpha_5 explanation\ of\ teacher_i$
$\quad + \alpha_6 attitude\ of\ teacher_i + \alpha_7 speed\ of\ class_i$
$\quad + \alpha_8 number\ of\ students_i + \alpha_9 willingness_i + \alpha_{10} dummy\ GENDER_i$
$\quad + \alpha_{11} dummy\ EXPER_i + \alpha_{12} dummy\ CERTIF_i + \varepsilon_i\quad \cdots\cdots(1)$

Variables:

Self-consciousness for learning accounting (*SELFCON*)
                        … way one feels toward learning accounting
Extent of difficulty (*DIFFICULTY*)
                        … extent one feels that learning accounting is difficult
Number of questions (*QUESTION*) … number of accounting questions handled
Volume of vocabulary (*VOCABULARY*) … volume of vocabulary handled
Volume of calculation (*CALCULATION*) … volume of calculations handled
Explanation by teacher (*EXPLANATION*) … teaching method or contents of teaching staff
Attitude of Teacher (*ATTITUDE*) … explaining attitude of teaching staff
Speed of class (*SPEED*) … progress speed of class
Number of students (*STUDENT*) … number of students in the classroom
Willingness (*WILLINGNESS*) … willingness or motives for learning accounting
Gender dummy (*dummy GENDER*) --- male student 1; female student 0
Accounting Experience dummy (*dummy EXPER*) --- pre-university experience yes 1; no 0
Certificate dummy (*dummy CERTIF*) --- pre-university certificate yes 1, no 0

4.2 Descriptive statistics

Table 3 shows the descriptive statistics of the factors affecting students' self-consciousness for learning accounting. The one with the highest average of each factor was the "volume of vocabulary" (average = 2.660). The factor with the second highest average was the "extent

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7 Conversion into points is as follows: "number of students": "small" 1 point, "average" 2 points, "large" 3 points; "willingness": "yes" 1 point, "neutral" 2 points, "no" 3 points.

of difficulty" with 2.560. This suggested that the factor affecting the self-consciousness for learning accounting of the first-year students of universities the most was "subject characteristics". In the past, subject characteristics of accounting education were the large volumes of vocabulary and calculations handled, and it was common that the scope of study of basic accounting subjects was structured with the levels of certificate examinations in mind. To say the least, the "subject characteristics" tended to make the learning accounting appear more difficult for the students.

Table 4 presents the correlation matrix among the variables. All the values of Pearson correlation coefficients are below the value that anticipate a serious multicollinearity

Table 3. Desprictive Statistics

Factor Category	Factor Subcategory	Degree	Min.	Max.	Ave.	Std.Dev.
Factor 1: Subject Characteristics	*DIFFICULTY*	249	1	3	2.560	0.639
	QUESTION	142	1	3	2.170	0.641
	VOCABULARY	181	1	3	2.660	0.499
	CALCULATION	138	1	3	2.310	0.577
Factor 2: Teaching Behavior	*EXPLANATION*	154	1	3	2.080	0.704
	ATTITUDE	128	1	3	1.950	0.587
	SPEED	150	1	3	2.300	0.565
Factor 3: Others	*STUDENT*	120	1	3	2.130	0.501
	WILLINGNESS	191	1	3	1.190	0.716

Table 4. Correlation (1)

	SELFCON	DIFFICULTY	QUESTION	VOCABULARY	CALCULATION	EXPLANATION	ATTITUDE	SPEED	STUDENT	WILLINGNESS
SELFCON	1	-0.424***	-0.250***	-0.196***	-0.240***	-0.478***	-0.205**	-0.204**	-0.025	-0.583***
DIFFICULTY	-0.394***	1	0.370***	0.519***	0.476***	0.383***	0.145	0.346***	0.296***	0.349***
QUESTION	-0.233***	0.348***	1	0.453***	0.440***	0.190**	0.198**	0.224**	0.266***	0.298***
VOCABULARY	-0.212***	0.534***	0.436***	1	0.464***	0.237***	0.063	0.219**	0.290***	0.232***
CALCULATION	-0.260***	0.455***	0.398***	0.401***	1	0.263***	0.175	0.278***	0.332***	0.278***
EXPLANATION	-0.464***	0.373***	0.178*	0.221**	0.261***	1	0.581***	0.463***	0.148	0.484***
ATTITUDE	-0.155*	0.139	0.208**	0.069	0.193**	0.588***	1	0.399***	0.149	0.324***
SPEED	-0.173**	0.338***	0.214**	0.208**	0.250***	0.431***	0.403***	1	0.236**	0.266***
STUDENT	-0.019	0.293***	0.253***	0.277***	0.314***	0.138	0.153	0.223**	1	0.362***
WILLINGNESS	-0.553***	0.341***	0.301***	0.248***	0.276***	0.490***	0.330***	0.265***	0.376***	1

***. Correlation is significant at the 0.01 level (2-tailed).
**. Correlation is significant at the 0.05 level (2-tailed).
*. Correlation is significant at the 0.10 level (2-tailed).
Below is the Pearson correlation coefficient, and above is the Spearman correlation coefficient.

problem (0.8) (Gujarati and Porter 2009: 338). The results of the analysis show that seven small classifications of the three factor large classifications of "subject-characteristics", "teaching behavior" and "others" with the exception of "number of students" have statistically significant negative correlation with the self-consciousness for learning accounting of the students at least at the 10% level. Approximately the same results were obtained in Spearman correlation coefficients, as in Pearson correlation coefficients. Then we will conduct a multiple regression analysis to clarify the effects each variable has on the self-consciousness for learning accounting of the students by controlling certain conditions.

4.3 Interpretation of empirical results

Table 5 shows the results of the empirical analysis using model (1). The four factors recognized to be statistically significant are "extent of difficulty" in the "subject characteristics" category, "explanation by teacher" in the "teaching behavior" category, "number of students" and "willingness" both in the "others" category.

α_1 (extent of difficulty) is a negative value (coefficient = -0.377; t value = -1.901) that is statistically significant at 10% level. α_5 (explanation by teacher) is a negative value (coefficient = -0.553; t value = -2.919) that is statistically significant at 1% level. α_8 (number of students) is a positive value (coefficient = 0.352; t value = 1.732) that is statistically significant at 10% level. And α_9 (willingness) is a negative value (coefficient = -0.341; t value = -2.018) that is statistically significant at 5% level. These results show that high degree of extent of difficulty, difficulty to understand explanation by teacher, and low willingness for study affect the self-consciousness for learning accounting of the first-year university students provided that effect of all other factors remain constant. In other words, the results show that they tend to lead to negative evaluation of learning accounting.

On the other hand, there was a tendency that the higher the number of students, the more the self-consciousness of the students is improved. What we can surmise from this result is that the large size of the number of students will derive from positive learning effects. It is considered that in the backdrop of this, collaboration and sympathy, and expression of competitive spirit and aspiration arising therefrom, are emerging to a certain degree.

By confirming the degree of impact of each factor in the same model on the cognitive formation of leaning accounting from the results of the standardizing coefficients in Table 5, we find that the factor that affects the most was the "explanation by teacher" (standardizing coefficient = -0.343; t value = -2.919). The second effect factor following it was the "extent of difficulty" (standardizing coefficient = -0.218; t value = -1.901). The "willingness" (standardizing coefficient = -0.209; t value = -2.018) was the third factor. The "number of students" (standardizing coefficient = 0.169; t value = 1.732) had the least impact.

One of the reasons that the students find the "explanation by teacher" difficult to

understand was the result showing a positive correlation at 1% level between the "explanation by teacher" and the "extent of difficulty" in Table 4 "correlation" (1) (Pearson correlation coefficient 0.373; Spearman correlation coefficient 0.383). From this, we can interpret that the students' recognition of difficulty generates negative effect on the "explanation by teacher" which, as a result, lowers the self-consciousness for learning accounting. Further, given positive correlations between "willingness" of the students and "extent of difficulty", and between "willingness" of the students and "explanation by teacher" which were both statistically significant at 1% level, we can tell that "extent of difficulty" and the "explanation by teacher" are the factors affecting the "willingness" of the students.

The analysis results as above show that the "subject characteristics" and "teaching behavior" are important factors that affect learning accounting in the first-year education. Then, what portion of the "subject characteristics" do students find the "extent of difficulty" high? What are the items that the students find difficult in learning accounting?

Table 5. Regression Result of Model 1

Dependent Variable Self-Consciousness for Learning Accounting	Coefficient	Std. Coefficient	t-value	p-value
Constant	4.646		7.386***	0.000
DIFFICULTY	-0.377	-0.218	-1.901*	0.060
QUESTION	-0.175	-0.104	-1.020	0.310
VOCABULARY	0.089	0.046	0.422	0.674
CALCULATION	-0.041	-0.022	-0.205	0.838
EXPLANATION	-0.553	-0.343	-2.919***	0.004
ATTITUDE	0.229	0.127	1.180	0.241
SPEED	-0.026	-0.013	-0.133	0.895
STUDENT	0.352	0.169	1.732*	0.086
WILLINGESS	-0.341	-0.209	-2.018**	0.046
dummy GENDER		yes		
dummy EXPER		yes		
dummy CERTIF		yes		
$Adj.R^2$		0.211		

5. Empirical analysis (2)
5.1 Structuring of an analysis model for the "extent of difficulty"

In this study, we picked up ten items that we consider important knowledge in the

learning accounting of the first-year education which are "journal entry", "preparation of financial statements", "closing of ledger", "preparation of worksheet", "accounting title", "preparation of trial balance", "income statement (I/S)", "ledger entry", "posting" and "balance sheet (B/S)". Then, for each item, we set the averages of selection frequencies (multiple choice possible) by the students as the "extent of difficulty of learning accounting"[8].

Next, we used model (2) to look into the impacts of the ten items on the extent of difficulty of learning accounting in the first-year education by controlling certain conditions. The correlation coefficients of "balance sheet (B/S)" and "income statement (I/S)" exceed the values that makes us suspect a serious problem of multicollinearity (0.8) (Gujarati and Porter 2009:338). In response to this, we decided not to include these two variables in model (2), so the factors affecting the "extent of difficulty of learning accounting" were reduced to eight items.

Table 6 shows the difficult items in the learning accounting which students select or so-called "difficult items". Table 6 shows that the item students find most difficult in their learning accounting is "journal entry". "Preparation of financial statements" comes as the second, and "closing of ledger" and "preparation of worksheet" come in the third place. These tell us that the fundamental reason students find "preparation of financial statements", "closing of ledger" and "preparation of worksheet" difficult comes from "journal entry". And Table 7 shows the correlation between "difficult items" in the ten items and "extent of difficulty" of learning accounting. Both Pearson correlation coefficient and Spearman correlation coefficient indicate that nine items have a statistically significant positive correlation with the "extent of difficulty of learning accounting" at least at 1% level.

Model 2:
extent of difficulty of learning accounting$_i$

$= \beta_0 + \beta_1 journal\ entry_i + \beta_2 posting_i + \beta_3 accounting\ title_i$
$\quad + \beta_4 ledger\ entry_i + \beta_5 closing_i + \beta_6 preparation\ of\ work\ sheet_i$
$\quad + \beta_7 preparation\ of\ trial\ balance_i$
$\quad + \beta_8 preparation\ of\ financial\ statements_i$
$\quad + \beta_9 dummy\ GENDER_i + \beta_{10} dummy\ EXPER_i$
$\quad + \beta_{11} dummy\ CERTIF_i + \varepsilon_i \quad \cdots\cdots (2)$

Variables:
  Extent of difficulty (*DIFFICULTY*)

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8 Extent of difficulty is evaluated by the average of the selection frequency for each item by the students.

…… extent that students find learning accounting difficult
Journal entry (*JOURNAL*) … recording of transactions
Posting (POSTING) … transferring of journal entry to the ledger
Accounting title (*TITLE*) … names of accounts used in recording transactions
Ledger entry (*LEDGER*) … entry to general ledger
Closing of ledger (*CLOSING*) … closing of ledger, closing procedure
Worksheet (*WORK*) … tables for verifying accuracy of closing procedure

Table 6. Items of Difficulty in Learning Accounting

Items	Score yes:1, no:0 (multiple answers)	Rank
JOURNAL	0.520	1
F/S	0.470	2
CLOSING	0.410	3
WORK	0.410	4
TITLE	0.400	5
TRIAL	0.370	6
I/S	0.360	7
LEDGER	0.340	8
POSTING	0.340	9
B/S	0.340	10

Table 7. Correlation (2)

	DIFFICULTY	JOURNAL	LEDGER	POSTING	TITLE	CLOSING	WORK	TRIAL	I/S	B/S	F/S
DIFFICULTY	1	0.389***	0.345***	0.373***	0.251***	0.157**	0.250***	0.312***	0.288***	0.314***	0.287***
JOURNAL	0.390***	1	0.394***	0.381***	0.345***	0.119**	0.089	0.170***	0.420***	0.474***	0.223***
LEDGER	0.323***	0.394***	1	0.580***	0.502***	0.391***	0.448***	0.481***	0.484***	0.455***	0.422***
POSTING	0.364***	0.381***	0.580***	1	0.463***	0.378***	0.474***	0.494***	0.430***	0.455***	0.371***
TITLE	0.238***	0.345***	0.502***	0.463***	1	0.279***	0.310***	0.440***	0.445***	0.423***	0.398***
CLOSING	0.122*	0.119**	0.391***	0.378***	0.279***	1	0.439***	0.445***	0.386***	0.390***	0.348***
WORK	0.242***	0.089	0.448***	0.474***	0.310***	0.439***	1	0.695***	0.339***	0.329***	0.329***
TRIAL	0.282***	0.170***	0.481***	0.494***	0.440***	0.445***	0.695***	1	0.399***	0.399***	0.406***
I/S	0.264***	0.420***	0.484***	0.430***	0.445***	0.386***	0.339***	0.399***	1	0.833***	0.477***
B/S	0.305***	0.474***	0.455***	0.455***	0.423***	0.390***	0.329***	0.399***	0.833***	1	0.540***
F/S	0.269***	0.223***	0.422***	0.371***	0.398***	0.348***	0.329***	0.406***	0.477***	0.540***	1

***. Correlation is significant at the 0.01 level (2-tailed).
**. Correlation is significant at the 0.05 level (2-tailed).
*. Correlation is significant at the 0.10 level (2-tailed).
Below is the Pearson correlation coefficient, and above is the Spearman correlation coefficient.

Trial balance (*TRIAL*) … tables for confirming the agreement of credits and debits of each account balance

Financial statements (*F/S*) … closing financial statements for external reporting

Gender dummy (*dummy GENDER*) --- male student 1; female student 0

Accounting Experience dummy (*dummy EXPER*) --- pre-university experience yes 1; no 0

Certificate dummy (*dummy CERTIF*) --- pre-university certificate yes 1, no 0

5.2 Reporting and interpretation of empirical results

Table 8 presents the results of analysis of the multiple regression analysis (2) which investigated which items in the "difficult items" of learning accounting make the students feel the learning accounting difficult. In the results of analysis, the items that are statistically significant are the three items of "journal entry", "posting" and "preparation of financial statements". β_1 (journal entry) (coefficient = 0.317; t value = 3.847) shows a statistically positive value at 1% level. β_2 (posting) (coefficient = 0.187; t value = 1.892) shows a statistically positive value at 10% level. β_8 (preparation of financial statements) (coefficient = 0.207; t value = 2.451) shows a statistically positive value at 5% level. These results clarified that "journal entry", "posting" and "preparation of financial statements" were the items that students find most difficult.

Table 8. Regression Result of Model 2

Dependent Variable Difficulty in Learning Accounting	Coefficient	Std.Coefficient	t-value	p-value
Constant	2.311		26.065***	0.000
JOURNAL	0.317	0.245	3.847***	0.000
POSTING	0.187	0.143	1.892*	0.060
TITLE	-0.082	-0.063	-0.892	0.373
LEDGER	0.083	0.063	0.824	0.411
CLOSING	-0.051	-0.040	-0.592	0.554
WORK	0.021	0.016	0.186	0.853
TRIAL	0.105	0.081	0.889	0.375
F/S	0.207	0.162	2.451**	0.015
dummy GENDER		yes		
dummy EXPER		yes		
dummy CERTIF		yes		
Adj.R^2		0.249		

Furthermore, by looking into the standardizing coefficients of these three items, we can confirm that the degree of their impact on the cognitive formation of the extent of difficulty of learning accounting by the students were in the order of "journal entry" (standardizing coefficient = 0.245), "preparation of financial statements" (standardizing coefficient = 0.162) and "posting" (standardizing coefficient = 0.143). In learning accounting, while "journal entry" and "posting" are introductory study items in the learning accounting, "preparation of financial statements" is a study item that sums it up. The results showing that many students find the introductory part and the conclusive part of learning accounting rather difficult tell us that, for the sake of improving motives for learning accounting, it may be necessary, for example, to rearrange the orders of curriculum items described in the syllabus of basic accounting subjects for the first-year students, or to review the overall curriculum.

6. Conclusion
6.1 Findings
Prior studies suggest that accounting education must keep changing with the needs of the time and of the society. In particular, accounting education for the first-year students is very important for many students as an introductory course to deepen their understanding and to obtain sufficient expertise without losing interest or curiosity in accounting. In what way can we, who are engaged in accounting education, contribute to the development of students in their gaining more practical ability to use accounting in today's modern society without falling into "away from accounting"? This study made the analysis based on the questionnaire survey of the first-year students at private universities in Japan, which generated following implications.

First, the students' purpose of learning accounting is influenced more by the interest and curiosity of the students themselves toward accounting with the recommendations of their family or friends than by their wish to obtain scholastic credit units. In addition, there are many students who have the image that learning accounting will have positive effects on the social activities and job-search activities in the future.

Secondly, among the students who responded that learning accounting is *boring* or *very boring*, the group without "previous accounting experience" surpass those with such experience by 4%. In categorization of "previous accounting certificate", the students having such certificates are less likely to find learning accounting *boring* or *very boring* than those who do not have such certificates.

Thirdly, in the analysis of factors that affect the self-consciousness for learning accounting of the students, four items, namely, (1) "extent of difficulty" in the "subject characteristics" category, (2) "explanation by teacher" in the "teaching behavior" category and (3) "number of students" and "willingness" in the "others" category, are the sub-factors that are statistically

significant.

Fourthly, in the analysis of the "extent of difficulty", three items of "journal entry", "posting" and "preparation of financial statements" were the "difficult items" that affect the self-consciousness for learning accounting of the students.

The analysis shed light on the factors and effects of accounting education for the first-year students at higher education institutions in Japan. We would like to make the following two proposals in line with the results of analysis presented here and the solving-problem suggestions for accounting education (1) and (5) advocated by Fujinaga (2004, 10-13). One of them is that teaching staff should clearly stipulate the objectives and significance of the accounting education to the students in class. This is because of the inclination in class for the first-year undergraduate students to put emphasis on accounting procedure or mechanism or on the technical aspect like the structure of financial statements. Such inclination seems to be in the backdrop of the lack of awareness on the part of the students about the objectives and significance of accounting education.

The current approach may have aspects that help the teachers to come up with the tasks and questions to measure the level of understanding of the students. However, if you look at only technical aspects, students will lose sight of the essence and significance of accounting such as what accounting is for in the first place, and what kind of role it plays. Unless the students truly understand that accounting is a business language and that basic knowledge of accounting, a social science, has a very important meaning in economic activities, those beginners in accounting will think of accounting class as just one of the courses offered, and they become nothing but a "calculating machine". And they will graduate without having real interest or curiosity in accounting. Teaching staff should play a role of bridging the essence of accounting and the students who are beginners in accounting.

The other point that we would like to propose is a new challenge of developing teaching method. We have shown that "extent of difficulty" and "explanation by teacher" are the effect factors in the self-consciousness for learning accounting of the students. This means that review of the composition and contents of the educational materials considering the students as receivers of class sessions as well as challenging ingenuity and efforts to improve the study environment for the students are required of teachers and universities. Teachers are expected to have eagerness to continually develop supplemental educational materials and educational tools that help enhance the understanding of the students. To communicate the essence of accounting step-by-step and to create an environment in which student can face such essence is one way to dissolve the "away from accounting" problem of recent years.

6.2 Limitations

The limitations of this study are as follows. First, the number of samples used. Although 330 first-year students from three different universities assisted in our study, there were only four samples from one of those universities. To make a comparative study of different universities, roughly equivalent number of samples must be collected. In addition, we have not excluded approximately 10% of the sample total who had previous accounting experience at high school level. In order to provide sufficient evidence to offer various methods and approaches for improving the accounting education that assumes beginners in accounting, we should envisage a survey that only covers first-year university students who do not have any previous accounting experiences.

Second, the learning environment of students. It is important to keep in mind that faculties of management and commercial science are diverse in their curricula for first year classes and their learning environments are not necessarily the same. This study was conducted with regard to the classes for students who learn basics of accounting including bookkeeping. However, the course titles and textbooks used differ, and course system and prerequisites also differ, in addition, there are situations unique to particular educational settings. Therefore, the evidence set forth by this study only shows a certain tendency as to how first year students who study basic accounting subjects recognize learning accounting. Having said that, though, we cannot exclude the possibility that differences in learning environments among universities impact, one way or the other, the responses by the students.

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