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**How to Support Students' First-Year
Experience at University with ICT**

**Manabu Murakami, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan**

**Ken Takeuchi, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan**

Hiroataka Honda, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan

Ki-ichiro Sato, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan

Athens Institute for Education and Research
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece
Tel: + 30 210 3634210 Fax: + 30 210 3634209
Email: info@atiner.gr URL: www.atiner.gr
URL Conference Papers Series: www.atiner.gr/papers.htm

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An Introduction to ATINER's Conference Paper Series

ATINER started to publish this conference papers series in 2012. It includes only the papers submitted for publication after they were presented at one of the conferences organized by our Institute every year. The papers published in the series have not been refereed and are published as they were submitted by the author. The series serves two purposes. First, we want to disseminate the information as fast as possible. Second, by doing so, the authors can receive comments useful to revise their papers before they are considered for publication in one of ATINER's books, following our standard procedures of a blind review.

Dr. Gregory T. Papanikos
President
Athens Institute for Education and Research

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How to Support Students' First-Year Experience at University with ICT

Manabu Murakami, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan

Ken Takeuchi, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan

Hiroataka Honda, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan

Ki-ichiro Sato, PhD
Tokyo University of Science
Faculty of Industrial Science and Technology
Japan

Abstract

Students making the transition from high school to college (university) often experience difficulty in adjusting to both academic and social life demands.

It is clear that many of these students lack basic studying skills, possess little or no incentive for learning, and in addition, seem unsure as to even why they are attending university. In Japan, many universities are attempting to address this situation.

This study proposes a method of support for these students through the use of information and communication technology (ICT) in conjunction with other pedagogic systems.

We discussed and compared about two educational means for freshmen; one is setting a certain class, the First-Year Experience class, the second is that distributing educational elements among many classes, the Total Education.

At Tokyo University of Science (TUS), Oshamambe campus the entire student body resides in on-campus dormitories. This unique environment provides an excellent setting for extracurricular support. Assistance in studying methods can be achieved with students' use of the ICT system.

This paper will focus on two methods. First is the ICT system for composition. Second, via ICT which records the data of in-class and

extracurricular activity. It is called 'learning portfolio' and includes quizzes, submission of papers, grades, and experiences in extracurricular activities.

Especially, from the point of view of student's motivation, it is obvious that the the Total Education is better than the First-Year Experience class. Additionally, it should be emphasized again that the method of the Total Education can be realized without ICT.

Keywords:

Corresponding Author:

Purpose

This study proposes a method of support for students through the use of information and communication technology (ICT) in conjunction with other pedagogical systems. Because, the nature of the students' difficulties varies widely, this assistance encompasses both in-class and extracurricular activities.

A Problem about Students in Japan

Students making the transition from high school to university often experience difficulty in adjusting to both academic and social life demands.

Regrettably, many students never manage to overcome those difficulties, and as a result, some end up withdrawing from university.

Generally in Japan, that reason why students are having those difficulties increase are explained the following way:

Twenty years ago, the percentage of 18 years-olds going to university was 40%. But now in 2013, over 50% of 18 years-olds will attend university¹. Additionally, In 1980 and 1992, the Japanese educational contents changed. The major change focused on scholastic abilities in elementary school, junior high school and high school. During this time, students had not gone to school every Saturday by this revolution. Student and school had some free time and as a result decided what they should learn, according to the national guidance². But generally learning time was less than in the past. This was called 'YUTORI education'³.

Most Japanese educational critics say, many students who lack any scholastic abilities attend university. If no educational revolution were in place, many students who could not pass the entrance examination before would apply to university.

It is clear that many of these students lack basic studying skills, possess little or no incentive for learning, and in addition, seem unsure as to even why they themselves are attending university. In Japan, many universities are attempting to address this situation.

¹http://www.mext.go.jp/component/b_menu/shingi/toushin/_icsFiles/afieldfile/2011/01/21/1301671_018.pdf

²This educational revolution stopped in 2010(and 2014 finally). After this, the educational contents in every school increased again.

³YUTORI (ゆとり) means 'room', 'space' and 'time enough' in English. In school, but, this is explained that an education that aims at development of individual talent rather than learning by rote. In short, it is not a one-way from of education, not rote learning. (see above)

A Special Class for Freshmen

First-Year Experience Class

Most universities with the exception of a few prestigious universities have developed a special class for freshmen as a powerful solution to solve this problem. This class is taught throughout the year and teaches basic studying skills, for example, how to use the library, how to take notes in each class, how to communicate with friends, etc.¹. This class and its contents of teaching is called “First-Year Experience”. This class has had some positive effects. We know by statistical records that students who have a good first year in university improve grades, develop better social skills, and participate in more extracurricular activities².

So, over 90% universities have introduced this new class with a lot of positive results³. However, there are some problem with this class. We will discuss the three biggest problems.

Problems of the First-Year Experience Class

First, students don't choose this class, as a required subject. Also, for some of them it is too easy, for example, many students know how to use the library, write a report using MS-Word, word processor or personal computer, and how to make friends. Maybe this class is boring for them. Is this the right curriculum for higher education?

The second problem relate to the credit-system at the university. The way of giving the credit of this class may not be proper to university.

A credit should be given to a student only if their knowledge or skills are enhanced. But, in the class First-Year Experience usually, students are able to get the credit, only if they will stay in the classroom every time. Because, no one has any idea how to evaluate appropriately whether students have the first year's “experience” or not. They will surely use the library, take notes, and have friend(s) through the learning of the class. Is it true? What is the evidence that they improve by taking this class? How do you give an examination about “experiences” ,and evaluate over hundred persons, is it possible?

If students can get credit by only staying in the classroom every time, the credit-system isn't going to work well. The problem is we don't know where we can establish the standard as to whether students have enough experience and get enough abilities or not.

Although we have not found the proper way of evaluation, this class will give (all) students the credit.

The third problem is the most important point in relation to the first and second points.

As teachers, we must attempt to bolster a student's motivation to learn. When students study something voluntarily, the students usually find

¹cf. Japan Associate of First-Year Experience (ed.) (2013). First-Year Experience: Current Status and Future Prospects , Sekaishiso-sha [In Japanese]

²Ibid.

³Ibid

something new, or look at familiar things more differently. In such the cases, the effect of education becomes better.

And, the aim of the class, First-Year Experience, is to allow students to adjust to both academic and social life at university. So, what does it mean that they adjust to both lives? One possible answer is that they live autonomically, and know and can choose and learn by themselves what they need to study, and really gain knowledge and skills. But if they don't learn 'by themselves' and someone forces them to learn, is the Experience a success? As teachers, we want to develop students as a person who can study by him/herself. If so, these students must have their own motivation to learn.

However, the First-Year Experience class prevents students' motivation, because some students become bored and are not given any incentives. For students, the incentive of the class is only getting the credit by being present at the class, not by will or a desire to learn.

We need to put students under a 'certain condition' which differs from the condition in the First-Year Experience class.

We need to have several solutions in place to assist students who lack basic knowledge and skills. It is simply not enough for us to create a special class, like First-Year Experience, to teach basic skills.

A New Idea and Methods

An Idea

A new idea to the solution is very simple, but it needs to be realized and agreed upon by many teachers. (it is different from a class First-Year Experience. It needs only a few staff members.) The ICT has played an important and necessary role in this idea.

The idea is the following:

First, making a list of what the problems are and the needs of the freshmen. After that apportioning these elements among the classes.

The student will decide their own timetable of classes by selecting among these classes according to the list. If a student gets a credit for the class, he/she also had learned the element in the list. These elements are what is included in the contents of the class.

All students and teachers can use , for example, checking and reviewing about the curriculum, from the list on the Web.

Social Elements on the List

The list can be divide into two groups, social elements and educational elements. One will focus on social life, the other will focus on educational life. Both will depend on each other.

The list on social life includes communication with other students or teachers, time management and learning about extracurricular activities.

It is difficult for these elements to be evaluated by an exam., but various students experienced improvement. We can not evaluate it by an exam, but we

can research whether each experience has an effect for each students or not, by using a questionnaire¹.

The social life of a student varies, depending on which university he/she attending.

For example, at Tokyo University of Science (TUS), Oshamambe campus the entire student body resides in on-campus dormitories. This unique environment provides an excellent setting for extracurricular support.

The students live in a four person bedroom in the dormitory. Each floor has four bedrooms, so sixteen students live in a “cluster”.

This environment creates some elements on the list, e.g. communication skills with friends, basic school-life skills and giving information about different classes.

Naturally, even if students live in such an ideal environment, not all students will learn from these experience, but they will be provided the opportunities to have good experiences by which they could learn about social matters. The more sincerely teachers suggest to them its meaning and importance early in the school year, the better and more effective students will learn something important from these experiences².

The “group-discussion” in the dormitory allows teachers to let students discuss with each other by giving homework, making them prepare for classes. this is also a good experience for students. At this time, they will also use social networking³.

In this way, each student can use a checklist and check off different social elements off the list.

Educational Elements

Recently, assistance in study methods can be achieved with students’ use of the ICT system which includes e-Learning, in or out of the classroom. Most universities provide their students with some E-learning systems and content. As a result, there is a lot of free information for studying on the Web, students can naturally study, whenever they want to do so.

Generally, most educational elements on the list have been regarded as possible to achieve. That was the aim for “First-Year Experience”. However, as we pointed out, these plans have not been successful.

We are trying to make sure that our new idea get the same or better effects as the class “First- Year Experience”.

¹Hajime Nozawa, Hirohito Honda & Manabu Murakami(2006). ‘Understanding What Effective Boarding School Education Means on the Oshamambe Campus: A Survey of the Eighteenth year Entering Students to the Faculty of Industrial Science and Technology’, *Studies in Liberal Arts and Science* (38), 357-377. Tokyo University of Science [In Japanese]

²Recently in Japan, universities having their own dormitories have increased. These dormitories are utilized in ways for education. For example, some of them combine international students with Japanese students in an effort to let students communicate with foreigners, to cultivate a “global village” and “global sense”.

³Our university arranges some system on the LAN for student’s discussions. It is easier and better for them to communicate this way. Some examples are E-mail, social network, e.g. “Line”, “Twitter”, as a communication tool.

It seems on the conception of the educational elements that there is not much difference between treating all in one special class and providing divided elements in each class about basic knowledge or skills for a speciality. But someone may consider that teaching these elements as a series in the same class is better than teaching in pieces in the different classes. One of the reasons why they think so is because some students need help with learning some basic knowledge or skills. The past way of teaching in each special class did not succeed in teaching some basic knowledge and skills, so, the class, First-Year Experience, would be required.

Comparatively, counting the elements of what students should learn their first year in university is a new idea. Also, the class of freshmen need to count the elements. Then, in the class First-Year Experience, teacher(s) construct a curriculum according to the counted elements.

Each class also must include the elements fitting itself to the content. In addition, the , teacher of each class must teach some elements on the list in her/his class, and evaluate the class. These elements are basic knowledge or skills for the speciality of what that class aims to do. If a student passes the examination, this should be evidence that he/she also gained several basic knowledge or skills required to be a freshman.

In addition, if we are able to evaluate whether a student acquired an element or not, we can at the very least expect the Total Education of the provided classes to have the same appropriate educational effect as the First-Year Experience class. Moreover, the Total Education for freshmen has some of it's own merits which the First-Year Experience class does not have.

One of these advantages is a sequence of lessons, i.e. between basic knowledge/skill and these application. Simply, in the same class, students learn some basic matters and these applications. Here, 'application' means 'speciality'. For example. we will count 'calculation' as basic knowledge/skill of science, i.e. mathematic, physic, chemistry and contemporary biology etc.

The First-Year Experience class covers all elements horizontally, but students will use these elements as applications after their sophomore year, or ,even if in the first year, they use it in the other classes. On the other hand, the Total Education teaches both the speciality and basic elements related to it in the sequence of lessons vertically.

If you think about what students should acquire with basic knowledge/skills, you quickly become aware which educational system has more advantages.

There is one more advantage of Total Education. This system doesn't prevent teachers from teaching the same element in two or more classes. So, students may learn the same element two or more times in other classes. It may have a certain effect depending on the subject.

Some Weak Points in the Total Education

On the contrary, there may be some weak points in the Total Education comparing the First-Year Experience class.

One of them is the idea that the Total Education could cover all the elements on the list. That is, some elements on the list will be incomplete.

The other problem is that some lessons will progress for students who don't understand a certain topic. However, according to one of the aims of First-Year Experience, it is the need that all students acquire most educational elements which we deemed necessary. If they don't understand, the university should help them as much as possible.

A few possible solutions to these problems are as follows:

First, we can change this problem. That is, we must recognize that there are many elements which have not been distributed among classes. Then, we can focus on those that we can teach in university. This change is called FD(faculty development) in Japan. Making a list of our own educational contents and applying the curriculum leads us to an improved educational system. Depending on the changing times, we must also reconsider, and, if necessary change our curriculum, so we need to review often.

The others are elements in which student have accomplished more success by experience rather than being taught in class. Some of these include the social elements, which we have already discussed. The others are related to guidance. For example, during guidance for freshmen, we can let students know how to use the library or the gymnasium (yes, we must guide students to these places). Or, for students who study hard, it is important to have their own plan of what they will be or what job they will engage in. In the First-Year Experience class at some universities, students have certain chances to listen to men or women who have experience in research, or certain careers, and then they can think about their own career after graduation.

In japan, many universities offer the "career-vision seminar". This seminar is designed to help students construct her/his future, by which they listen to an explanation about how to get a job, what sort of jobs people who graduated from university work at, and their experiences in them. The First-Year Experience class sometimes includes such a seminar just one time. In others, it is a one time seminar, so, we have not found any problem, even if such a chance for students were set as the one time seminar, out of any regular curriculum.

Using this technique, we can cover all or most of the elements on the list.

How is the support for those students who lack understanding in a certain topic? Sometimes, most of those kinds of students don't reflect that they themselves have not understood, or are not even aware of it.

Maybe, the First-Year Experience class can help such students.

Such a support now is very important for some students in Japan, but there are other students who don't need this support because it is easy for them to do or master by themselves, student might think such support is boring and that they have nothing to learn. As a result, their motivation will decrease in the class.

Sometimes, a school will divide classes and decide where each student belongs by their rank or achievement. All students learn at a different pace, so

a slow pace makes a speedy student become bored and a fast pace makes a slower student more confused.

Dividing students according to speed of understanding is one good idea, but we know that the difference between quick learning and delayed learning occurs always in a class¹.

Now, we should return to the review of what is the general aim of the university's education. That is, enhancing a student's learning level. If one has enhanced their learning level, the teacher can give him/her the credit.

If so, we should not prevent students from studying more and be forced to wait for the others to catch up to the same way of understanding. However, we must create an educational plan to fit each student.

Using ICT

The First-Year Experience, using ICT has made enough of an effect to realize both enhancing quick learning students and adjusting to some students who are slower in learning.

ICT is used now among students as an important communication tool. Also, most universities have improved their educational system already.

This paper will focus on two methods. The first is the ICT system for composition. The second is ICT, which records the data of in-class and extracurricular activities. It is called a 'learning portfolio' and it includes quizzes, a submission of papers, grades, and experiences in extracurricular activities.

One thing that freshmen will be introduced to for the first time is 'composition', i.e. summary of text, report of experiments. The examination in university forces students to write long and logically, so logical thinking, writing skills, research skills and planning skills will all be necessary for the completion of the composition.

Many students who believe they are good in science recognize also that they may not be strong in composition skills. At TUS Oshamambe, all freshmen have a chance to practice writing a report in an experiment class.

One of the lectures explains about how to write a scientific report. After students do an experiment they write a short paper about the experiment. Most of their reports are handed in via LAN, as a PDF file. The teacher(s) return the PDF corrected to each student later. If the report was not satisfactory, the student would rewrite and submit it again.

By using ICT, it is easy for us to exchange and record (we discuss later) papers as data.

Only a few students write a poor paper sometimes. Teachers don't understand the meaning of a lot of sentences on their paper, about what the paragraph is trying to explain, or if evidence is critical or not.

For these students, composition class will be open during the first semester just as the First-Year Experiment class. However in this composition class,

¹One solution against this problem is that quicker-understanding students teach their colleagues in the same class.

student will practice writing, step by step like a beginner, similar to a foreigner, throughout the semester.

Every week the writing will be hard for these students. One reason is that they are really not good at writing. In order to keep up their motivation, we give them encouragement so they feel like that they have improved.

As a sample, a teacher chose one composition from the participants. This composition was written on a computer and was contained in a PDF. All participants in the class can watch these compositions on a TV monitor, which connect with the computer. All the participants discuss together about that composition becoming better and then they correct it. Using this approach allows someone to recognize what is good for making a composition, and what is bad. Someone may understand if a composition is easy to read or not, rhetoric, constitute, etc.

Additionally, better works are the ‘competency’ for them.

Most composition are written by participants in the class and are recorded by the teacher, because they are handed in as PDF file. Students can read any composition not only in class, but also on the Web when they like. Some nicely written compositions play a role in competency for students who want to improve his/her writing-skills. As a result, the student would aim to improve their writing compositions. It is important for motivation that students have their own aim.

As a result, the composition class will be included in the Total Education for freshmen who will have more effect on improving their writing skills than the First-Year Experience students, whose menu to practice writing is several times only, and together with many students.

The first method is designed to help students improve their writing skills. A lot depends on whether students have adjusted to academic life. This will enable students to communicate clearly in written format what he/she has learned in the class.

Recording student’s activities as learning portfolio

The idea of the Total Education is separate among elements. This idea suggests that students should learn in his/her first year.

The Next step of the Total Education is to gather data on a certain web-server like ‘learning portfolio’.

The second method provides students with the means to manage their knowledge, plan and prepare their curriculum, future, i.e. job. Additionally, students will have the opportunity to write reports, by referring to learning portfolios detailing their experiences of student life, in addition to, preparing them for the Japanese job hunting system.

By using this method, each student may be able to compare his/her own experience to the table of educational elements and recognize what he/she has learned. Such students will select a subject that he/she thinks they should learn in the next semester using the review and learning portfolios.

Total Education

Motivation

Lastly, we should look at ‘certain condition’ as said above.

Our problem remains in a student’s motivation. Choosing the right device is important, but there still might be poor results from students who lack motivation. The ‘certain condition’ means of course that students get their own motivation to learn continuously.

Most of the studies about motivation in the past have focused on ‘incentive’ that is required when a person does something. For example, to get money as an incentive will let a person do their job.

However, some studies that are called behavioral economics now reject most of the incentive theories.

According to a theory of the behavioral economics¹, it states that the incentive theory is effective to routine or simple work, but an extrinsic motivation brought about by incentives prevents a person from their motivation to do something. Additionally, such an incentive deprives a person of fun or doing something like concentration. Really, we know that many students who have paid attention to their getting a credit dislike learning itself and want to start learning by themselves.

If you let someone perform voluntarily or creatively, it is for a person to get three elements, i.e. autonomy, his/her own purpose in the future and skill as means to the purpose (called ‘mastery’ by Pink(2009)). Depending on the theory, when a person is under the condition that they have all three, autonomy, purpose and mastery, he/she easily become to possess intrinsic motivation to do something.

Most of the contents which students learn at university are neither routine nor simple, but complex and creative at most . If this study about motivation is true, it is obvious which is better, the way of the First-Year Experience class or the Total Education. In the Total Education with ICT, a student decides what he/she will learn when referring to the list, without concerning themselves with incentives, for example getting credit by being present in class every time. Also, according to his/her own ability at that time, students may be supported by selecting a learning in a basic class or free learning with ICT. In addition, students who are considering their own future are facing a one time seminar with an aim to design a career.

If freshman will have autonomy and motivation, they may be able to plan, and handle all of the situations that come with life, by themselves, in their future. This will help them when they become independent workers, researchers, or engineers, and so on.

One of the most important conditions for our education is to let students learn voluntarily. We are able to realize such a situation just only with ICT and the cooperation of teachers.

¹Daniel H. Pink(2009), Drive, The Surprising Truth about What Motivates Us, Riverhead Hardcover, [K. Omae(trans.) (2010) In Japanese] , Dan Ariely(2009), Predictably Irrational, Revised and Expanded Edition, The Hidden Forces That Shape Our Decisions, [J. KumagaiIn(trans.) (2010) In Japanese]

Conclusion

We discussed and compared about two educational means for freshmen; one is setting a certain class, the First-Year Experience class, the second is that distributing educational elements among many classes, the Total Education. Especially, from the point of view of student's motivation, it obvious that the latter idea is better than the first.

Additionally, it should be emphasized again that the method of the Total Education can be realized without ICT.

Is there still a problem? Yes, it's important.

If its an idea it is called 'total' education. Total Education should improve students on a human level. However, does it mean liberal arts? We have not yet discussed about the relation between liberal arts and Total Education (or the First-Year Experience). It will be the remaining theme after this paper.