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STUDENTS' REFLECTIONS USING VISUALIZED LEARNING OUTCOMES AND E-PORTFOLIOS

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ABSTRACT

How to guarantee graduate attributes has become an urgent challenge amid the increasing progress in scientific and technological development and the globalization of economic activity. In order to solve these problems, a system is required which can visualize learning outcomes in relation to attainment targets, and store and sample records of the learning process. It was on this basis that Niigata University commenced development of the Niigata University Bachelor Assessment System (NBAS). This study outlines the NBAS and discusses topics for future research.

KEYWORDS

Graduate attributes, Learning outcomes, e-portfolio, Assessment

1. BACKGROUND

How to guarantee graduate attributes has become an urgent challenge amid the increasing progress in scientific and technological development and the globalization of economic activity.

PDP (Personal Development Planning), recommended in the UK, is used as a reference in evaluating graduate attributes (QAA,2001). In PDP, students themselves reflect, and foster the ability to plan their own lifelong development, on the basis of transcripts of their results provided by the university and records of the learning process known as Personal Development Records (PDR), which they themselves have compiled. On the other hand, there have also been reports that PDP requires enormous effort and expense and that learning outcomes are hard to grasp.

In order to solve these problems, a system is required which can visualize learning outcomes in relation to attainment targets, and store and sample records of the learning process.It was on this basis that Niigata University commenced development of the Niigata University Bachelor Assessment System (NBAS). Using this system, the level of attainment of students' learning outcomes in four educational target domains: knowledge and understanding, domain specific skills, generic skills and attitude, are displayed on a radar chart and can be visualized. Furthermore, the system also has an e-portfolio function and by using this function students can organize and reflect on the record of their learning outcomes and plan their learning. The NBAS came into operation in 2013. This study outlines the NBAS and discusses topics for future research.

2. NBAS FUNCTION

2.1 Learning Outcome Visualization Function

The method of learning outcome visualization was also explained in Ikuta and Gotoh, 2011. First, the educational target domain is taken as domain-specific academic knowledge , domain-specific skills, generic skills and attitude(See Figure 1), and attainment targets are set at a low level for these educational targets. Next, a contribution ratio towards these attainment targets is set for each course in the program. For example, course A might contribute 50 percent to knowledge and understanding, 30 percent to domain-specific skills,

10 percent to generic skills and 10 percent to attitude. The learning outcome is the total score obtained by multiplying this contribution ratio by the number of credits. Hence, in knowledge and understanding, for a student with 80 points in course A, the score is 80 points x 0.5 (50 percent) x 2 credits = 80. The possibility of understanding learning outcomes displayed and visualized in this way is examined in Ikuta and Gotoh (2014).

The NBAS has a function which displays role models for comparison when individual students self-assess their own learning outcomes. By displaying these role models and their own learning outcomes simultaneously, students can be made aware of where they fall short(See Figure 2).

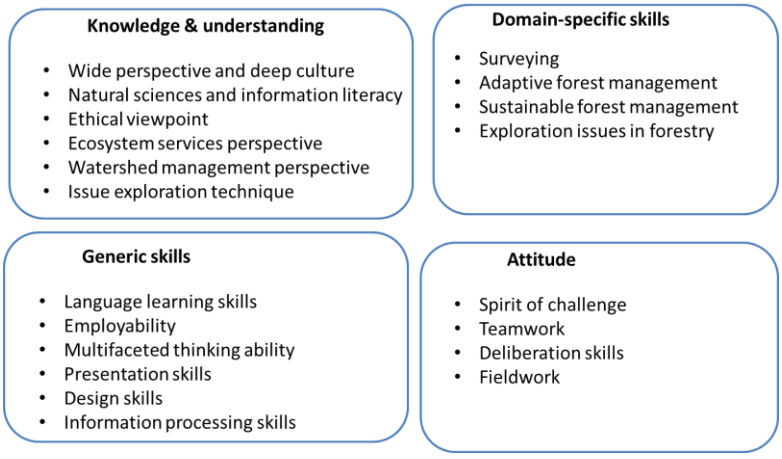

Figure 1. An Example of Graduate attributes

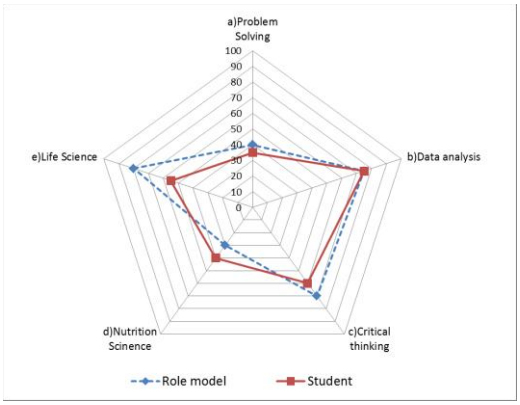

Figure 2. Visualization of Learning outcome

2.2 e-portfolio Function

The NBAS includes an e-portfolio function to enable students who have accumulated many development records in the learning process to organize these, making it easier for the students to reuse them or look back on which learning outcomes they personally feel are valuable.

Written reports in word files, excel spreadsheets showing assignments, distributed PDFs, and photographs of activities and work can be recorded in the e-portfolio. These can be recorded simply by dragging and dropping from individual students' computers. Materials distributed by teachers can also be stored in the e-portfolio.

Files can be organized in folders or by means of tags. They can also be sorted by chronological order or by category. The process of differentiating between necessary and unnecessary files in itself is an opportunity for students to reflect on which aspects of what they have learned have meaning for them. These files can also be quoted on sheets compiled for assessment purposes(See Figure 3).

Figure 3. e-portfolio

2.3 Compilation of Assessment Sheets

Students are regularly assigned the task of compiling assessment sheets. Assessment sheets consist of three elements: 1) visualized learning outcomes, 2) comments quoting files from the e-portfolio and 3) free space where students can freely develop the screen. On assessment sheets, students carry out self-assessment by quoting files in the e-portfolio relating to the meaning of university education and to aspects of learning which had value for them personally. Teachers return comments on the computer and advise students in interviews(See Figure 4).

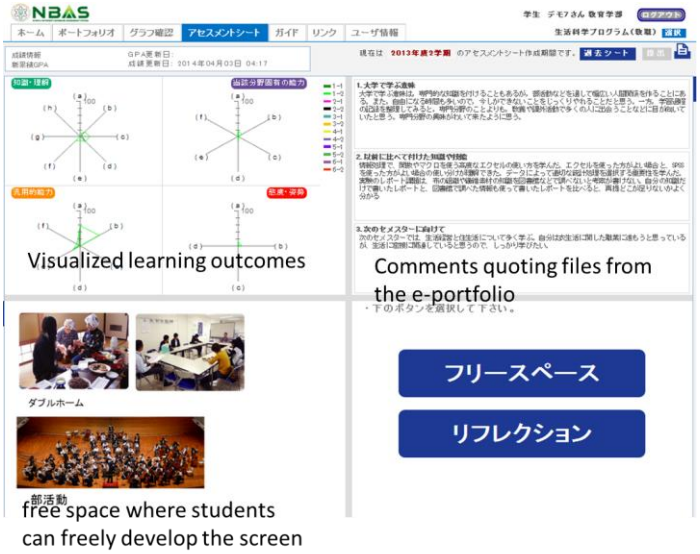

Figure 4. Assessment sheet

3. RESEARCH ISSUE

Research issues which appeared after the NBAS was put into practise are set out below.

Firstly, the possibility was mentioned of making use of the NBAS for improvements to the curriculum by the teaching body. In Ikuta and Gotoh, 2011, the authors suggested that “by revising the curriculum, sampling attainment targets, and examining evaluation methods and mark allocations for the program as a

whole, individual teachers will be able to examine, in a comprehensive way, programs for fostering human resources not only from the point of view of knowledge and understanding, but also from the point of view of generic skills and attitude, and this will be useful since it can be widely applied to quality assurance in higher education." Since the NBAS was put into practise, the authors are more convinced than ever of this aspect. That is because the teaching body will be able to perceive the nature of the program they offer when developing a role model. It is actually possible to use performance data about students enrolled at the university and to compile data by entering false results. However, in this process, it will be possible to obtain information about the balance of the curriculum overall, for example, where learning outcomes are insufficient because students have a busy schedule in a particular semester and have not prepared enough subjects to achieve their important attainment targets. In future, it is to be hoped that there will be more and more cases of curriculum improvement by the teaching body.

Secondly, students will be able to verify their development by means of self-assessment. Here, both synchronic and diachronic considerations are included. As far as synchronic considerations are concerned, the NBAS is gradually being extended to cover the whole university, and at present students who follow programs where the system is used, and students who do not, are mixed up together. Case reports show that, on the basis of learning outcome records, students who use the NBAS reflect more by themselves and have a higher awareness of the importance of trying to plan their own lifelong development than students who do not. For example, students who use the NBAS are concerned about a lack of orientation in their learning and want to be provided with specific knowledge and methods to help them to determine their orientation. Students who do not use the NBAS, on the other hand, are not particularly concerned, and have a poor awareness of the importance of trying to acquire specific knowledge and methods for determining their orientation.

In connection with diachronic considerations, the point at issue is how do students respond to the same question, and how does the quality of their response change. At present, students are asked to respond continuously to three questions: the meaning of university education, their current ideas about the future, and the understanding and skills they have obtained in comparison to before they entered university. It is likely that by graduation, thanks to careful consideration and on the basis of learning outcome records, students themselves will be able to reflect on how their response to these questions will change, and to clarify how much better they will be at planning their own lifelong development.

Clearly indicate advantages, limitations and possible applications.

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