A Graduate Teaching Program Learning Environment that Features Coordinated e-Portfolios and an Assessment Guidebook: A Descriptive Study

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This research aims to describe the concept behind the design of the learning environment at a graduate school, which was established as a "Professional Graduate School" in April 2008. It has made some efforts for ensuring the quality of educational activities, such as coordinated use of "Electronic Portfolios" and "Assessment Guidebooks." Results and issues arisen within the first two years, were identified and the following six points became apparent: 1) The clarification of Assessment Guidebook targets has been useful in encouraging the students and in establishing trust between the school and its students. 2) The design of coursework, based on the curriculum framework, allows teaching personnel to clarify more fully their responsibilities in each subject. 3) By reviewing student and staff comments in the e-portfolio, teaching personnel can see how and where graduate students are supplementing their studies at other lectures. 4) The establishment of a graduate student room and allowing access to e-portfolios through the wireless LAN allows students to review classes in terms of comments. 5) The Assessment Guidebook and e-portfolio allow both teachers and students to review what they should have learned from the course. 6) Continual interaction with and guidance from teaching personnel encourage graduate students to use an e-portfolio effectively.

Keywords: e-Portfolio, assessment, learning environment, professional graduate school

Introduction

Teacher education in Japan has long involved efforts to improve the sense of expertise amongst its graduates, clarify personnel roles within each educational program, and assess developments in these two areas. Accordingly, more educational institutions have addressed the issue of accountability in recent years, and some have even moved to report accountability outcomes.

In order to present the results of such ongoing efforts, it has been suggested that achievable targets be clarified and assessment standards established. In other words, there is now a move under way to establish essential, minimum, and universally agreed-upon standards vis-à-vis the qualifications and abilities required to become a teacher, or to be trained as a teacher.

Professional graduate schools that specialize in teacher education and the training of highly

specialized professionals were established in Japan in 2008; naturally, these schools have been affected by such trends. These efforts have been witnessed among these institutions, to some degree, since "day one," and matters pertaining to standards that help ensure the quality of educational activities have become topics of debate.

In Japan, 19 professional graduate schools for teacher education (i.e., 15 national universities [571 students] and 4 private universities [135 students]) were established in April 2008, involving 706 graduate students. Five more professional graduate schools for teacher education (three national universities [60 students] and two private universities [60 students]) were established in April 2009, catering to an additional 120 students. Thus, to date, 24 professional graduate schools for teacher education—with a collective study body of approximately 800—have been established across Japan.

The standard period to complete a course at a teaching graduate school is two years; during this period, a student must complete 45 or more academic units, and 10 or more of those units must relate to practice in schools. However, "short-term courses (for example, one year) and long-term courses (for example, three years) may be established according to the decisions and plans of each graduate school and taking into account the courses completed by in-service teachers."

The professional graduate schools for teacher education in Japan (hereafter referred to as "teaching graduate schools") produced their first cohort of graduates in March 2010. These teaching graduate schools differ from existing masters-level courses in Japan, in that the former require teaching practice as part of the course content. Accordingly, how the level of practice in Japan's teaching graduate schools differs from that of other graduate schools and what areas of teaching should be focused on have been questioned from the very start.

Objectives, Methods and Significance of this Research

This research focuses on the learning environment at Nara University of Education, one of the teaching graduate schools opened in April 2008. The focus, in particular, is on the school's coordinated use of an Assessment Guidebook and electronic portfolios (e-portfolios). This study was undertaken to examine what ideas and policies could be applied to the environmental settings and operational methods of Japan's teaching graduate schools, so as to enable them to fulfill academic objectives and make effective improvements to the practice of graduate students—and subsequently achieve greater student satisfaction. This study also sought to understand how these changes could be facilitated by improvements in organized educational skills, as brought about by the effective and coordinated teaching efforts of full- and part-time teaching personnel (Ueno, Matsukawa and Oyanagi 2005; Yoshimura and Oyanagi 2006).

This study is the first to address these issues. As only three years have passed since these teaching graduate schools were established, discussion here will focus on how the learning environment has been designed to coincide with the start of the curriculum, and how the learning environment impacts coursework design. The next step will be to outline the results of these program and coursework designs, the current state and circumstances of teaching graduate

schools in Japan, and the effects and improvements that have been witnessed to date (Oyanagi 2009).

To start, this study will initially describe the objectives, environment, and tools available at Nara University of Education, as well as whether its functions have been fulfilled as part of a move to willfully design its learning environment. In due course, this study will refer to perspectives on the learning environment as outlined in How People Learn by the National Research Council (1999). Next, this study will offer case studies that illustrate the results to date of certain program and coursework designs, what improvements are required, and the feedback that has been received since the start of the course.

It is important to outline the results of and issues concerning this program, while it is still in its nascent stage. This research will contribute by initiating inquiries into the establishment of effective methods that will structure the learning environment at teaching graduate schools. This study also provides comparative information pertaining to other teaching graduate schools that began at around the same time as Japan's. Taken altogether, this study provides valuable information that can be applied to the creation of future graduate schools.

Design of Learning Environments at Teaching Graduate Schools

The National Research Council (1999) has proposed perspectives for learning environments, thus creating a model for what an effective learning environment should look like. Such an environment is supported by four cornerstones: it is "knowledge-centered," "learner-centered," "assessment-centered," and "community centered." Figure 1 illustrates this model; the numbers therein have been added to help illustrate the design of the learning environment at Nara University of Education. This figure, as such, helps fulfill the first objective of this research—namely, to ascertain how the learning environment has been designed to coincide with the start of this teaching graduate school.



Figure 1. Design Concept

Defining four teacher profiles and clarifying targets vis-à-vis graduate student qualifications and abilities

As a first step, teaching graduate schools must clarify the targets vis-à-vis the qualifications and abilities that their graduate students should seek to attain. Such targets not only allow students to set goals for themselves; they also serve as benchmarks to assess student readiness to accept the responsibilities that come with teaching. Those targets also serve as a proverbial checklist of the skills that graduate students need to have and should acquire (see Figure 2).

Defining the four teacher profiles and clarifying targets vis-à-vis student qualifications and abilities is about focusing on the "knowledge-centered" cornerstone outlined in area (1) of Figure 1. In providing this outline of the teaching system, it is hoped that the skills that are required to work as a teacher can be fully clarified.

Each graduate student should specify which of the four profiles for which he or she is aiming, upon entering the course; this decision should be derived through extensive consultation with

1 Teacher as a planner and	2 Teacher with a high level	3 Teacher as a	4 Teacher as a leader
classroom supervisor	of expertise in the subject	counselor	and coordinator
 1.1. Believe in the ideas that should be aimed for, and focus on these using words to express it effectively. 1.2. Able to create various educational (class) plans to achieve these objectives. 1.3. Have a good understanding of various methods (in particular student teaching focusing on group work) of student understanding, student academic assessments and student teaching, and is able to incorporate this into class practice. 1.4. Have a good understanding of diverse classroom methods (including effective use of IT), and able to deliver results by improving the performance of students. 1.5. Clear assessment methods for planning (able to verbalize these), and able to show model classes. 1.6. Able to explain clearly to students, guardians and colleagues their own teaching policies and methods. 	 2.1. Have expertise in at least one subject, and know of techniques to constantly obtain the most recent content and teaching methods (recognition of information), sources and methods to gather information), and able to apply these to the classroom. 2.2. Able to develop high-quality, easy-to-use teaching materials. Development methods can be verbalized, and explained, introduced to colleagues. 2.3. Able to create model curriculum for subjects, fields and special activities extending over the nine-year compulsory education period. 2.4. Able to conduct research classes on teaching subjects, fields and special activities, and able to provide mentoring for teaching subjects within the school and outside. 	 3.1. Understands methods to interact with class children and students from a counseling approach, and techniques to conduct individual discussions, and able to incorporate these systematically in class management and class practice. 3.2. Understands methods to resolve various issues that may arise when teaching students through discussions with guardians when required, and understands methods to these in a systematic manner. 3.3. Able to act as a mentor teacher to practice teachers and newly appointed teachers. 3.4. Able to act as a mentor towards colleagues. 	 4.1. Able to organize objectives and issues in relation to the structure of the curriculum, understand what results and issues these efforts have in a practical sense, and incorporate them into the structure of the curriculum. 4.2. Able to lead creation of the personal network or learning, within the school and outside. 4.3. Able to plan programs, provide advice and organize in-service training within the school and we as regional Board of Educations. 4.4. Able to collect information on practices that delivering results and research at results, and send this information throughout the school and outside.

Figure 2. Four teacher profiles and target of qualifications and abilities

teaching personnel and by referring to the objective standards for each teacher profile. In this way, students will acquire an understanding of the skills expected of each of these profiles (see Figure 3). Each graduate student should then take an inventory of his or her current skills and select the level (i.e., standard, advanced, or expert) that he or she wishes to achieve by the end of the course.

2. Teachers with a high level of expertise in the subjects				
Standards	2.1. Have expertise in at least one subject, and know of techniques to constantly obtain the most recent content and teaching methods (recognition of information sources and methods to gather information), and able to apply these to the classroom.	2.2. Able to develop high-quality, easy-to-use teaching materials. Development methods can be verbalized, and explained, introduced to colleagues.	2.3. Able to create model curriculum for subjects, fields and special activities extending over the nine-year compulsory education period.	2.4. Able to conduct research classes on teaching subjects, fields and special activities, and able to provide mentoring for teaching subjects within the school and outside.
Basic	- Understands the ideas, objectives, content and assessment standards, as well as the most recent practical and academic expertise of the subjects they are experts at, and able to propose and explain practice classes to bring these about.	- Understands the requirements for high level quality and easy-to-use educational materials for the subject they are experts at. Also understands methods to collect and procedures to develop these materials.	- Able to explain the objectives and content of teaching and learning guidelines for elementary school, as well as system of nine-year compulsory education in the subjects, fields and special activities they are experts at.	- Understands the significance of mentoring, and able to conduct research classes that include issues being raised within the school and outside.
Standard	- Able to put into practice their proposed classes, observe them from a theoretical and objective perspective, and specify policies for making improvements. Also able to point out areas of improvement in class is implemented by other people.	- Able to actually develop high level quality and easy-to-use educational materials while obtaining the latest information in subjects they are experts at, and conduct classes that make use of these materials.	- Understands the methods and design of curriculums extending over the nine-year compulsory education in subjects, fields and special activities they are experts at.	- Understands mentoring methods for colleagues for advancing research.
Advanced	- Understands the relationship between subjects they are experts at and the originality of other subjects, and able to apply that to practical research within the school.	- Able to use and instruct the teachers on information on educational materials and development methods through workshops and other activities. Able to conduct practical research with the theme of educational development.	- Able to apply the curriculum model extending for nine years to their own practices, implement these, and explain their significance and expectations based on the results of practice.	- Able to mentor other colleagues in research on classes within the school.
Expert	- Able to explain ongoing improvements to the entire curriculum through practical research to teacher training within the school and the region, while showing examples of subjects they are experts at.	- Able to conduct research while coordinating within the school and with subject committees under the theme of development of educational materials.	- Able to explain the curriculum and its design that extends for nine years in the school they are working out, and create that curriculum model.	 Able to provide mentoring in research on classes outside of the school.

Figure 3. The four levels

The area shown at the top of Figure 3 pertains only to the basic level; however, the content of the curriculum and teaching system has been designed to ensure that all students achieve the standard level, or higher, by the time they complete the course.

Establishing new course subjects and creating a syllabus based on the curriculum framework

For the following new course subjects, we have adopted the idea of using names that describe the course content in a way that would pique the interest of graduate students entering the course; we feel that this is more effective than using subject names derived from academic phrases (see Figure 4). Each subject has been set by the class teacher, along with the three objectives (i.e., based on the guaranteed standard level) required of a teaching position; reference is made to the targets vis-à-vis qualifications and abilities, listed above (see Figure 5).

As such, courses have been designed to deliver academic results and ensure that graduate students obtain the three sets of target qualifications and abilities, by undertaking specific learning activities; such course designs make use of topics and examples in which graduate students would have an interest. Courses have been designed from a perspective equivalent to the (2) Learning environment, as seen with respect to the learners in Figure 1.

Common	Course Items	Course Subject	
items	Curriculum	 (1) Curriculum types (2)Assessment and improvements to curriculums (3) Curriculum and special activities 	
	structure, Areas		
	regarding		
	implementation	(4) Development of special curriculums	2
	Areas regarding	(1) Assessments with portfolios and links to learning	2
	practical teaching	(2) Ideas for teaching methods and types of learning (including use IT)	2
	methods for	(3) Development of educational materials and using more educational	2
	subjects	materials	2
		(4) Class design and assessment	
	Areas regarding	(1) Peer support practice theories	2
	student teaching	(2) Student teaching, school educational trials	2
	and educational	(3) Creating classes and creating groups	2
	consulting	(4) Career educational practice theories	2
	Areas regarding	(1) Class and school management practice theories	2
	class management	(2) School organization and accountability	2
	and school	(3) Role of middle leaders and mentoring methods	2
	management	(4) School assessments and in-school training for organization	2
	Areas regarding	(1) Study guidance and the role of teachers	2
	school education	(2) Schools designed by the community	2
	and teacher style	(3) Progress of education and current educational policies	2
		(4) School risk management theories	2
Practice	Field-based	(1) Action research	1
items	practice items	(2) Portfolio	1
		(3) Case studies	1
		(4) Class reflections	1
Items for		(1) Development of educational materials and tools	2
further		(2) Children understanding and education	2
development		(3) Guidance counselor practice theories	2
		(4) Special needs education practice theories	2
		(5) Communication abilities to seize the attention of children and their	2
		guardians	2
		(6) Development and assessment of teachers	2
		(7) English at elementary schools and associated coordination	2
		(8) Class practice for developing emotions	

Figure 4. Names of course subject



Figure 5. Curriculum framework (excerpt from a section of teacher profile 1)

Creation of the Assessment Guidebook

Based on the framework outlined in Figure 6, a scale was then created for each subject, allowing individual graduate students to assess precisely what he or she learned in each course, practice session, or training course. Ideas have been incorporated into this scale, to ensure that graduate students understand what knowledge or skills are required of them, prior to the start of each course (i.e., the starting point has been clarified) (Ogawa and Katahira 2005; Oki 2005).

The goals set and the content covered are established in consideration of class characteristics, such as the number of in-service graduate students, or whether there are many regular graduate students (The goals and content are provided in a rubric, so that graduate students can visualize

not only the skills targeted at the start of a course but also the ideals to be obtained.). The Assessment Guidebook was compiled to fill this need and thus provide a rubric for each subject (see Figure 5). In the course, teaching personnel explain the significance of the activities in each subject and the content needed to attain the ideal image provided in the rubric; when making assessments, the teaching personnel confirm whether that image has been achieved. To prove that they have achieved that predefined image, graduate students must complete each topic and demonstrate to university teachers and other graduate students an achievement of evidence-based value that is then evaluated. This is an innovative way of integrating instruction and assessment; it is also a resourceful method that allows the school to provide graduate students with active learning.

Thus, teaching personnel and graduate students mutually confirm the skills attained in each lecture/practical class while referring to the aforementioned Assessment Guidebook—a document that provides guideposts in moving ahead with one's education.

Whether the listed starting points bear any significance is assessed in the course of the program; problems are posed to graduate students by course teachers, and the resulting student performance is assessed. This serves as the first step in initiating a new course. If performance is substandard, the teacher is responsible for providing additional tasks to each individual, so as to ensure that all graduate students start off at approximately the same level. Furthermore, conditions require that graduate students invest the effort needed to stay at least at the starting level; this system was put in place to ensure that students obtain skills that surpass those found at the targeted standard level. If, for example, two weeks have passed since the start of the course (i.e., the time when corrections can be made to registrations) and the teaching personnel find that a student may not reach the standard skill-set level by the end of the course, they can discuss this with the student and bar him or her from attending the course (This process was not, however, in place for the 2008 and 2009 fiscal years.).

Next, the scale is designed in such a way that graduate students are always aware of why teaching personnel made them, or is making them, and perform a certain activity at a certain time; it also outlines the course requirements for the graduate students, so that they can discuss with teachers the skills they have obtained in the course of the program. These scales have been designed based on the assessments shown in Figure 1 (3).

Creating a graduate student room and providing the opportunity for exchange

Nara University of Education has made available in its newly constructed building a graduate student room (capacity: 50 students), where each graduate student is allotted a desk and laptop computer at the start of the course. This facility provides students with a private learning space, as well as an environment in which they can study, or work in groups. A "training camp" program takes place when students start the course, and all graduate students and teachers are given the opportunity to take lunch together every Wednesday. Such arrangements allow for the exchange of various types of information and contact with others, on an ongoing basis; they also relate to the design of a cooperative learning environment, as shown in Figure 1 (4). Indeed, these initiatives and facilities are thought to promote cooperative learning.

Outline of cou	rse			
Objective of c	ourse			
Assessment ite obtain through 1.4 000 3.3 000 4 2 000	m: 3 skills you are a this subject	iming to Outl teac	ine which objectives her profiles provided	isted under the four on figure 2
<first skill=""></first>	(Outline of the for	ur teacher profiles this	s is related to
(Teacher profi	les)		Outlined each objectiv under item 1.4 (for e equivalent to "Standard"	ve standard visited example, objectives level in 1.4
Standard (S): S1: S2: S3:		Explain above	briefly the "Standard n more detail	d" level objective
Standard	0	Performan	ce (study): criteria	
	Start	Close	Achieved	Exceeded
S1. S2: S3: S3:	O as ((st th ca of e)	utline of the crite sessments of level 1) Start : Outline of t art taking the course e objectives, (3) A an be assessed), (4) "good," "very good cplain detailed criteri	eria (approach to le of achievement for "Sta he type of knowledge e, (2) Close : A level th chieved : A level of ac Exceeded : Superior le d, "excellent"). The co a related to Exceeded	earning) for individual andard" level objectives. and abilities required to hat has almost achieved thievement (a level that evel (assessment levels burse teaching staff will assessments in class)

Figure 6. Framework for creating the scale

Establishment of e-portfolios

Finally, Nara University of Education has established an e-portfolio system that allows graduate students to reflect on individual or group performance in each class or practice or training session (Yatsuka and Higashibara 2004). E-portfolios are used to summarize learning points during the learning process, and to review learning outcomes.

There are two e-portfolio types. The first is a class-specific e-portfolio (i.e., for each subject); it is an e-portfolio that has a formative recap/evaluative function (see Figure 7), as it recounts and describes after each class what had been studied. To deliver instruction even more effectively in this learning process, all teachers at Nara University of Education provide graduate students with feedback on their writings; this also further promotes the integration of instruction and evaluation. The second type of e-portfolio is for covers an entire term (i.e., an e-portfolio that encourages periodic, general reflection and has an evaluative function; see Figure 8). This

e-portfolio aims to facilitate a comprehensive review of the skills acquired in each lecture/practical class/exercise, in accordance with the evaluation standards determined by outlines of the four teacher profiles. A student reviews his or her e-portfolio with instructors at the end of each term.

In line with the four established teacher profiles, the reference evaluation indicators created for the aforementioned Assessment Guidebook act as guideposts that a student uses in proceeding with his or her education. Teaching personnel and graduate students alike reference this document as they mutually confirm the skills acquired in each lecture/practical class. E-portfolios play a role in summarizing learning points, both during the learning process and in terms of learning outcomes. In addition, it is expected that (1) all teaching personnel will return comments as required to graduate students, vis-à-vis their writings, to promote instruction in the learning process and further advance the integration of instruction and assessment and (2) at the end of each term, students together with faculty members will comprehensively review the skills attained in each lecture/practical class/exercise, in accordance with the evaluation standards determined by the four teacher profiles.

Also, this formative e-portfolio is expected to provide support in creating a working e-portfolio (see Figure 7). Teachers can monitor the ways in which a graduate student learns from this e-portfolio, conduct formative assessments, and provide academic support to that student—actions that can all result in improvements in subsequent classes. This process relates to Figure 1 (5), in that ideas have been incorporated to allow graduate students—the learners, in this case—to reflect on every topic they have learned while referring to the target qualifications and abilities or the Assessment Guidebook scale, while also providing students the opportunity to review the knowledge they have acquired and the skills they have obtained. Areas in the e-portfolio in which the students write include (1) an outline (i.e., an individual summary of what is being conducted in the course or practice or training session) to which the student can attach photos, pictures, or other files, (2) what the students thought about (i.e., a summary of what they thought about in the class or practice or training sessions), (3) the areas in which they want to develop themselves (e.g., areas associated with their own research subject or theme, or related to research methodologies), (4) comments (i.e., the student's recognition of the direction of classes, practice, and training), and (5) teacher comments and score results (i.e., figures that are available only to individual graduate students and groups of teachers). A column is available for teachers to provide responses to graduate student comments or questions, and scores can also be viewed there.

Results and Issues that are Becoming Apparent

These initiatives are currently under way within the learning environment described above. A variety of results and issues are becoming apparent in the course of the coordinated use of the Assessment Guidebook and e-portfolio, and they can be summarized in terms of the six points given below.

奈良教職7 ポートフォリオ	大学院	٩
メインメニュー		詳細
・ホーム	日付	2008-06-06 Name of Cubicot
・ディスカッションボード	名前	Name of Subject
 請義·演習·実習記録 登録 	請義·演習·実習名	特色あるカリキュラムの開発
・お知らせ	実習校	Chosen tardet
・スケジュール ・プログ	フレームワー ク	1.1 目指すべき理念を持ち、それを集点化して言葉で効果的に表現できる
* FAQ	フレームワー ク(オブション)	tal
 ユーザメニュー ・アカウント情報 ・アカウント編集 	祝要	本日の予定 のボートフォリオについて(フィードバック) のガチュラム開発シミュレーション
 イベント通知機能 ・ログアウト ・受信箱 	-	Oボートフォリオについて(フィード)・クロ ベノボネジンドアジアからの抗特希のととも少し調べていきたい。 ○ カリキュラム開発シミュレージョン ・ フ月19日に観察探索若行3,日気として7月11日までに指導薬をまとめる。 <警備「学杯会議報告> 茶見のいいとごを発信できる子供を置てる。 1. 小学校では光会的以完整の時間を小型語・多言語活動の時間に当て中学校では社会和の時間に当てる。 1. 小学校では完良との間候が深い誘続着市の言語を学習する。中学校では読録都市と完良との関係をより深めるために気 林や歴史などの地のい語分を学ぶ。
	自分が考えた こと	2. 中学校と小学校と梵語い遺産を巡る合同は違足。 東大寺・興福寺・春日大社・元興寺など。 理由:中学校では姉妹都市はちちん自分の住む奈良についても学習する。コミュニケーション能力そしてつながりを来めるた め小学校でと中学校と連携して奈良の遺産を巡る道足を計画している。兄弟学校をつくり、学校そして地域のつながりを強める。
		 ・小学校2・4年13年見市を中心に学ぶ。 ・小学校2・4年13年見市を建築やいに学ぶ。 ・小学校2・4年13年見市を建築やいに学ぶ。 ・小学校2・4年13年見市を中心に学ぶ。 ・中学校では世界の都市について学ぶ。 ・中学校では世界について学ぶ。 ・中学校では世界について学ぶ。 ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・
	自分が発展さ せたいこと	保護者からはちぃと子どちのことを見て言いしたの要望がでている。担任一人でクラス全員の子どもを見ることは難しい。学校全 体で協力し、兄弟仲良し学城をつくり子供とのつながりを強め保護者の要望にこたえたい。 り社会科と協力した小国語活動を考えている。しかし、課題は多く残っている。5年生からの外国語活動についてもう一度検討 していきたい。 〇 中学校では支配陣中心の学習を予定している。どの数科書にするかもまた考えたい。
	コイル	

Figure 7. Formative Portfolio



Figure 8. Summative Portfolio

The clarification of Assessment Guidebook targets has been useful in encouraging the students and in establishing trust between the school and its students

The first point pertains to the research results that have become available.

The clarification of target qualifications and abilities, as listed in the Assessment Guidebook, is meant to provide new graduate students with a certain outlook when entering the course, while also informing them of what they will be studying and clarifying for them the teaching system that will be used. This has been successful in encouraging students and has bestowed upon the graduate school a certain level of student trust.

Indicator: Opinions from graduate students entering the course, following orientation: "While it is difficult to narrow it down to one teacher figure, I have been able to better envision what I am thinking"; "Course models are available when selecting subjects for each type of teacher figure, giving me a better insight."

Opinions from a graduate student, during a lecture listed in his e-portfolio: "I was not aware that this graduate school taught so comprehensively"; "I could feel the enthusiasm displayed by the graduate school teachers, and while there is a certain level of pressure, I have the highest expectations."

The design of coursework, based on the curriculum framework (as per the Assessment Guidebook), allows teaching personnel to clarify more fully their responsibilities in each subject

The second point also relates to results. The skills that are meant to be obtained in each subject—in terms of the curriculum framework—can be reviewed throughout the duration of the course. Teaching graduate school meetings are also held each week; these allow students to discuss course conditions while addressing comments written in their e-portfolios as examples. These activities also allow class teachers to clarify more fully their responsibilities in each subject—an act that was cited by students as one that led to an increase in systematic educational ability.

The regular teaching graduate school meeting (normally conducted by eight full-time staff members [i.e., five researchers and three practitioners]) is held every Wednesday morning, from 09:00 to 12:00. Every second Wednesday of the month, 14 full-time staff members and personnel from other departments—as well as the deputy section chief in charge of the educational affairs section, and senior staff members—also participate.

Indicator: Opinions of teaching personnel who participate in the meetings: "We should conduct lectures in each subject while constantly checking the comments written by graduate students in each Assessment Guidebook"; "We can see how effectively we are conducting our lectures, given the comments written by the graduate students in their e-portfolios. This allows us to make adjustments to any issues that are repeatedly raised"; "We should make adjustments, as it seems we have given the students too many challenges, and they are suffering."

By reviewing student and staff comments written in the e-portfolio, teaching personnel can see how and where graduate students are supplementing their studies at other lectures

The third point also relates to results. By looking through comments written in students' e-portfolios, teaching personnel can see how and where graduate students are supplementing their studies in other lectures. This promotes among the teachers conscious associations of how the students are approaching their subjects, leading to more accurate verifications in terms of the curriculum framework.

Indicator: While this activity takes place for other courses, the example given below relates to an opinion on the "Development of educational materials and using more educational materials" course, as seen in the e-portfolio for the "Ideas for teaching methods and types of learning" course.

Opinion of graduate student (in-service): "I am analyzing the records of the class conducted by Kihaku Saito in the 'Development of educational materials and using more educational materials' course, and I would like to see what perspectives can be used to study in Mr. Saito's class."

The establishment of a graduate student room and allowing access to e-portfolios through the wireless LAN allows students to review classes in terms of comments, even when they are not in other classes

The fourth point relates to both results and challenges. The establishment of the graduate student room and allowing access to e-portfolios through the wireless local area network (LAN) allows students to review classes in terms of comments, even when they are not in other classes; these facilities also provide students with opportunities to gather and discuss in greater detail the issues raised in a class. This not only allows graduate students to acquire a greater sense of "belonging" at the graduate school but also gives both the school and its students the time needed to interact and work on the resolution of issues as a group. This is considered foundational work for learning how to resolve issues as a team, and students will carry these teamwork skills into their present or future workplaces.

Indicator: Opinions of teaching personnel: "We often witness in-service graduate students and pure graduate students discussing class content or other topics in the graduate student room, and we observe teachers also heading to the graduate student room to communicate together"; "Yet, concerns have been raised, suggesting that students are finding it difficult to study alone when all the students (M1: 21 persons; M2: 23 persons) are in the same room."

The Assessment Guidebook and e-portfolio allow both teachers and students to review what they should have learned from the course

The fifth point, like the fourth, relates to both results and challenges. Teachers conduct assessments in August, using the target qualifications and abilities listed in the Assessment Guidebook and the approach to learning listed in the scale. The assessment method is explained

at the start of each class, with reference made to the Assessment Guidebook. All of this information is conveyed to the graduate students; they refer to comments they have written in their e-portfolios in an effort to demonstrate to teaching personnel what they have learned. The Assessment Guidebook and e-portfolio allow both teachers and students to refer to what they should have learned from the course and, based on their initial skills level, understand in what areas they have improved.

Indicator: Opinions of teaching personnel: "The target qualifications and abilities listed in the Assessment Guidebook and approach to learning listed in the scale have led to numerous opinions that suggest concern over assessments, due to variations and misunderstandings when conducting lectures with graduate students as the course progresses. We have found that as the first year comes to an end, corrections are required to the target qualifications and abilities listed in the Assessment Guidebook, as well as to the approach to learning listed in the scale. To further improve courses, just how the Assessment Guidebook and e-portfolios are to be used, and their relation to each other, will be considered and investigated in detail."

Continual interaction with and guidance from teaching personnel encourage graduate students to use an e-portfolio effectively

Finally, the sixth point relates to challenges. Until students grow accustomed to e-portfolios, it is not easy for them to use these resources effectively. Guidance in the form of continuous encouragement from teaching personnel is needed until the graduate student understands why the e-portfolios are used, as well as the sense of accomplishment that they can document. Further modifications must be made to the interface design and the communication system, to facilitate deeper discussions among graduate students and between teachers and graduate students; such modifications will also allow students to record their learning progress and exchange information with other students.

Indicator: Opinions of graduate students: "I found writing in the e-portfolio troublesome, until I grew accustomed"; "It is very good to be able to read the writings in each others' e-portfolios"; "Commenting on someone's writing creates in me the feeling of a burden"; "If the teaching staff gives me comments, my motivation to write is increased greatly."

Future Issues

This descriptive study examined the background of and issues relating to various efforts conducted at Nara University of Education, which has been in operation for three years. Of special focus was its coordinated use of e-portfolios and the Assessment Guidebook.

Finally, we wanted to examine the efforts required to execute operations more effectively in teaching graduate schools; on the basis of data gathered in the course of such investigations, we would like to make three further proposals.

First, if quality assurance standards are to be developed, the development of more clearly integrated standards vis-à-vis the educational levels and skills structure that students experience

and acquire at teaching graduate schools is required. Such standards are in addition to those pertaining to the qualifications and skills required to complete the course, practice standards that relate to the development of classroom skills, and standards for research issues that relate to the development of leadership skills in contributing to school research, chiefly to direct positive results toward children and schools.

Second, to ensure that these standards function properly, attempts to improve and enhance existing teaching practice systems are required, all while learning from the efforts made at professional development schools in the United States and referring to management systems that have been created.

Finally, e-mentoring and e-tutoring handbooks for university personnel are being developed to ensure a more effective and coordinated use of e-portfolios and the Assessment Guidebook.

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