

第4章 Pedagogy and Andragogy in Higher Education (大学の学習者と学習モードの適合性に関する考察)

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Introduction

This article examines the kind of pedagogical approaches universities are offering young and mature students and how they are producing relevant outcomes for them in Germany, the UK and Japan. Andragogy is a concept of pedagogical approaches for adult learners in lifelong learning, but it should be empirically examined in higher education in relation to the assessment of the outcomes of education. This issue is gaining momentum in Japan, where universities must now provide opportunities for mature learners. In Germany, on the contrary, pedagogies which focus on young students should be developed because of the university reforms related to the Bologna Process. In the UK, mature students are studying more on a part-time basis in the new universities, separately from young full-time students in the traditional universities, so the relevance of higher education to working life may be different in these universities. Hence, in order to find political and theoretical implications for each country, we should compare the relevance of various kinds of pedagogical approaches for different student groups in these three countries.

In this article, we first consider policies and theories on the relationship between university education and transition in Germany, the UK and Japan. Then, we analyse the graduate survey data (CHEERS) for these three countries as follows: (1) student age profiles, (2) comparison of the relevance of higher education between different countries and student groups, (3) the regression analysis on the impact to the relevance of institutional pedagogical approaches and students' learning experiences and (4) a comparison of strengths and weaknesses of pedagogical approaches in these countries. Finally, we present some discussion points on the current situation and the further implication for pedagogy and andragogy in higher education, based on our findings.

The Conceptual Framework

The Global Knowledge Economy and the Expansion of Higher Education

Universities are facing common and stronger demands for accountability from society than ever before in Germany, the UK and Japan, as well as in other developed countries. One of the major sources of the demands is the global knowledge economy. There are many discussions on the transformation of economic structure and organisation. There is also an ongoing paradigm of

change in work organisation from bureaucratic to flexible (Halsey *et al.*, 1997). This means that work organisation is becoming flatter and that employees are required to work autonomously and more flexibly at an earlier stage. Furthermore, once employed, they are continually requested to update their knowledge and skills. Thus, not only those without degrees, but also those with degrees should access higher education learning more often than before.

On the other hand, because of massification and universalisation, the higher education system has been asked to be accountable for societal investment. Adult non-traditional students add to the diversity of learners and ask universities to innovate their pedagogy and learning system accordingly. Youngsters, in a stage of widening participation, present new challenges for higher education institutions, such as greater pedagogical attention to socialisation. These factors play a fundamental role of convergence in higher education policies in developed countries, including in those facilitated by the Bologna Process.

Policies on Higher Education and Transition

These demands are forcing many societies to move in the same direction. The approach of each country towards convergence may sometimes differ or even be opposed, since the starting point is not the same. This is why we chose to analyse three countries.

Among the three countries, the UK and Japan have similar systems of higher education: a two-stage bachelor and master, institutional hierarchy, generic and non-vocational focus of curriculum and pedagogy, and more young graduates.

Germany and the UK have predominantly public institutions which provide university education, compared with the more private providers in Japan. Educational costs are expected to be covered by parents in Japan and adult earners have to seriously consider the cost-benefit. Germany and Japan have less consideration for socio-cultural discriminations linked with education, such as those between the traditional elite and the non-traditional universities in the UK.

The European Union

In many continental European countries, single-tiered university study programmes prevailed and the duration of studies to obtain a degree was rather long. In the era of the global knowledge economy and massification, reforms of the higher education system have been required in almost all European countries.

Hence, the Bologna Declaration with the purpose of creating a 'European Higher Education Area' by 2010 was signed by the Ministers of Education of 29 European countries in 1999. One of its most drastic elements was the two-tiered model: Adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the

first cycle shall also be relevant to the European labour market as an appropriate level of qualification. (Bologna Declaration 1999)

The new bachelor degree is supposed not only to be well articulated with a master degree, but also to develop employability for the labour market. With the Bologna Process, new academic bachelors have been introduced in the university sector in many continental European countries, as well as a professional bachelor which already existed in the non-university sector. This means that younger graduates are expected to go out into the labour market after shorter studies. Yet the Bologna Declaration neither mentioned the occupational levels for which the new bachelor programmes will prepare, nor did it define the employability which bachelor graduates should acquire in order to meet the requirements of the labour market (Teichler, 2004).

New Two-tiered Model and Qualification in Germany

The Bologna Process has been influencing the reforms in different ways. In Germany, 26.3% of the higher education institutions started to offer bachelor and master programmes in the summer semester of 2005. 67,000 students were enrolled in these programmes, which corresponds to 3.5% of all students. However, there are still great tensions, particularly concerning the career prospects of new bachelors. Conflicts and tensions to develop a new two-tiered model that is relevant for the labour market are widely observed in Germany, as well as in other continental European countries (Kehm & Teichler, 2005).

As higher education degrees in Germany were always legally defined as ‘qualifying for a profession (*berufsqualifizierend*)’ by the HE Framework Act (Witte, 2006, p.161), new academic bachelor programmes may have to find an adequate occupational position: for example, common hiring policies for the public services, with university master level degrees as the higher ranks and professional bachelor level degrees of Fachhochschule as the middle rank. So space for academic bachelors should be found or a restructuring of the occupational structure will be required. Witte (2006) assessed the current situation in a stakeholders’ interview: ‘while the legal provision for a changed relationship between HE and the labour market was largely in place, mentalities and practices still needed to adjust, and the overall outcome was not yet clear in 2004’.

Employability and Work-based Learning in the UK

In the UK, young new graduates are more favoured in the labour market because higher education has been typically characterised as elite and sponsored. This is found in research that analyses the characteristics of ‘fresh’ graduates and their early career and training (Yoshimoto & Inenaga, 2006). Now, along with the expansion of higher education and the emerging global knowledge economy, employability links between higher education and the labour market are becoming one of the new agendas of higher education reforms at both the national and institutional

level in European countries. As Teichler (2004) commented, ‘employability’ of graduates may be misleading because those with degrees are more employable than those with a lower educational level. However, when considering UK graduates with general training, the concept seems more relevant in that country and even in continental Europe following the Bologna Process’. Brennan (2004) evaluated the present situation, stating that ‘we seem to have been successful in exporting the term [of employability], especially in the context of the Bologna Process and the creation of the “European Higher Education Area”’. As for the definition of employability, he cites Hillage and Pollard (1998):

Employability is the capability to move self-sufficiently within the labour market to realise potential through sustainable employment. For the individual, employability depends on the knowledge, skills and attitudes they possess, the way they use those assets and present them to employers and the context (e.g. personal circumstances and labour market environment) in which they work.

Although there are various approaches to enhancing students’ employability, work-based learning is currently given great attention in the UK. Little *et al.* (2006) described many types: sandwich courses, work experience modules, work placements, organised work experience external to a programme of study, or termtime jobs. Longer and intensive work experiences may foster more outcomes, but questions also concern the orientation of such experiences. To sum up, in the UK, there are long traditions of young elite education and enough experiences to accept adult learners for the needs of universal access, but it is a new challenge to enrich the employability for new groups of youngsters with the transformation of massification.

Internship and Youth Re-challenge in Japan

In Japan, Koike (1991) found ‘slow promotion’ of young white collar employees. The lack of a clear-cut functional hierarchy prevents the development of job demarcation and enables employees to address any given issue facing their organization in a rather flexible manner. In order to ensure such flexibility, Japanese companies have been investing greatly in on-the-job training.

Young graduates easily find a job just after graduation, based not on competence, but rather on ‘trainability’. However, the emerging global knowledge economy compels greater changes in the industrial structure itself, including various company mergers. Companies are starting to recruit those with professional competences externally or to introduce outsourcing. But a long recession, ‘the collapse of the bubble economy’, in the 1990s led to jobless graduates and ‘free-ter’ problems (Kosugi, 2003). Yoshimoto (2002a) observed that 25% of the current young cohort dropped out before graduation or remained jobless just after graduation at any level of compulsory education. Furthermore, jobless and ‘free-ter’ problems are followed by young adult problems of dependency on parents until their mid-30s.

The increase in graduate unemployment due to the long recession and employment practice

changes and the concern of youngsters' motivations because of massification have led to a new policy. Universities developed employment guidance and introduced internships as from the late 1990s (Ogata, de Weert & Yoshimoto, 2006). In 2004, 59% of universities offered these programmes to students as part of their course of study, whereas this figure was only 17.7% in 1996. Work experience is also introduced at school level as part of 'career education' although the duration of these experiences is shorter, the longest being about one week. This concept follows the development of the US career education movement, but is broader. It does not mean specific job-oriented skill formation, but rather attitude and awareness towards work. Certain aspects of the German dual-system have also been adopted by some education researchers and policymakers and so more vocationally-focused programmes called 'Japanese dual system' have been introduced at secondary, as well as higher education and further training levels. Currently, the new government is introducing a 're-challenge' policy which encourages young adults to take other opportunities for their career, including the use of university for lifelong learning. To sum up, although there are well-developed approaches for young graduates in a mass system, universal approaches for adult learners are new challenges in universities at a time of need for lifelong and just-in-time learning.

Theoretical Considerations on the Development of Higher Education and Students' Age Profile

Transition from Higher Education and its Relevance

When considering the expansion of higher education, we should rethink what is the appropriate mode of education. Universal access (Trow, 1972) in higher education has two meanings: the increase in the net enrolment ratio and the diversification of student age profiles. Higher education institutions must accept various entrants as students. They cannot respond to such different needs if they persist only in the traditional mode of education for elite youngsters.

Problems of transition in youth groups have developed close links with the expansion of the educational system. For example, *Higher Education and Employment* conducted by OECD in the early 1990s (OECD, 1993) developed a theoretical framework of economics of education in order to deal with oversupply and unemployment in the 70s, 80s and early 90s. On the other hand, the recent concerns about transition in the middle and late 1990s have been more diverse and developed from the perspective of the targeted generation (youths and young adults) and the education system as a whole. The disciplinary framework has been expanded to include sociological and pedagogical insights in addition to economic questions. 'Social inclusion vs. exclusion' related to citizenship and adult roles related with the expansion of the educational system as mentioned in the context of Japan, integration of academic and vocational learning to promote inclusion, flexibility and integration of initial education and lifelong learning are typical topics of discussion at OECD (2000).

With regard to higher education, there are two groups of concerns: young students and mature students. For non-traditional mature students, new nontraditional pedagogical approaches are required. But new approaches to employability and other immediately relevant competences may

be required even for traditional young students in a mass system.

Employability and Deferred Effects for Young Graduates

Younger graduates are within the traditional target of higher education, but the transition from an elite to a mass system attracted attention to these groups. Brennan, Kogan and Teichler (Eds, 1996) developed a conceptual framework for the relationship between higher education and work consisting of three new problematic domains, namely: 'dimensions of higher education relevant to work', 'linkages between higher education and work' and 'dimensions of work relevant to higher education'. They recommended combining these into a more complex approach.

One of most challenging areas concerns 'career effects'. It has been remarked that 'The result of studies on the transition from higher education to employment tend to be over-interpreted if no information is available on long-term career consequences of the career start' (Brennan, Kogan & Teichler, 1996, p.19).

In terms of career effect, this article proposes a related but new concept of 'deferred effect' as an extended concept of enduring effects in relation to graduates' career development. There are philosophical thoughts on education which have enduring effects (see Hymann, Wright & Reed, 1975) and practical wisdom on knowledge, namely that knowledge will become out-of-date more rapidly with the development of a knowledge-based society. Dr. Shigeru Nanbara, a past president of the University of Tokyo, said at a commencement in 1951: 'The value of university education is something remaining after graduates forget what has been taught'. This message is worth adapting to a hypothesis related to the comparisons dealt with in this article. The deferred effect here refers to the relevance of higher education to working life, which may be weak at the initial and entry level career stage, but becomes stronger in later, more senior career stages, despite the tendency of knowledge to become out-of-date (Yoshimoto, 2002b; Yoshimoto & Yamada, 2006).

Pedagogy vs. Andragogy for Mature Students

For the discussion on the mature group, we refer to the concept of 'andragogy', which is counter-posed to pedagogy in the area of adult education or lifelong learning (Knowles, 1970, 1984). Andragogy is learner-focused, compared with pedagogy, which is teacher-focused. The latter is related to the idea of teaching, and the former to the idea of learning support (Conner, 2005). However, the critical point is the readiness for learning in higher education and ongoing changes related to massification and universalisation. Traditional university education was basically tuned only for young and prospective elite students. However, universal access means that the clients are also older students with various careers. The relevance of curriculum and teaching methodology which higher education institutions offer varies for young students or for mature learners, and for the elite-mode and non-elite-mode.

In the pedagogy mode, typical clients are young and/or immature students and emphasis is on

socialisation rather than on knowledge acquisition. It is characterized as concessive training for students beyond secondary education and the role of teachers is teaching and taking care of them, whereas the andragogy mode assumes the older and/or mature learners as clients and emphasis is on relevant knowledge and skills. The role of the teaching staff is learning support rather than teaching. In other words, the pedagogy mode is like on-campus learning and the andragogy mode is like off-campus open learning.

This discussion leads us to the hypothesis that the relevance to curriculum and provision in higher education institutions is very different for young and older students, so that its efficiency for higher education outcome may be also different.

This issue is becoming very critical for Japan. Currently, most new entrants are young students who have just graduated from a high school and followed a four-year undergraduate study programme. Thus, it is crucial to develop the andragogy mode at a time of universalisation. In the UK, the new universities have already accepted many adult part-time, non-traditional learners. In Germany, the average age is relatively higher and many students have no kind of social experience except schooling.

To discuss andragogy as the education mode for mature students, five assumptions by Knowles must be considered:

- (1) Self-concept: As a person matures, his/her self-concept moves from one of being a dependent personality towards one of being a self-directed human being.
- (2) Experience: As a person matures, he/she accumulates a growing reservoir of experience that becomes a resource for learning.
- (3) Readiness to learn: As a person matures, his/her readiness to learn becomes oriented to the developmental tasks of his/her social roles.
- (4) Orientation to learn: As a person matures, his/her time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his/her orientation towards learning shifts from one of subject-centredness to one of problem-centredness.
- (5) Motivation to learn: As a person matures, the motivation to learn is internal (Knowles, 1984, p. 12).

To these five assumptions, we can add another assumption that is due to the current conditions in higher education:

- (6) Time Management: As a person matures, his/her time for learning is constrained by other social roles. His/her geographical location also may limit the opportunity to learn and lead to another time constraint.

Research Questions and Methodology

Analytical Questions

Based on the theoretical considerations and policy directions above, the following three

questions on pedagogy and andragogy for young and mature students are set here for the data analysis of graduates in the three countries:

- (1) Are there any advantages and disadvantages for mature graduates to obtain the relevant outcomes of higher education, compared with younger graduates?
- (2) What kind of institutional pedagogical approaches and students' learning experiences may influence graduates' outcomes for different student groups in different countries?
- (3) Which relevant pedagogical approaches and learning experiences are developed or undeveloped in different countries?

Data

Data from a graduate survey in Europe and Japan on higher education and work called CHEERS (Teichler (Ed.), 2000) are used for the analysis. The survey covers graduates in 1995, so the data do not reflect current policy changes, such as the two-tiered model, employability discussion, and re-challenge. However, a comparison of the three countries before such processes of convergence can point to clear structural figures and policy implications for the current situation in each country. Data are based on 10,241 graduates from Germany, the UK and Japan.

We use the information about institutional pedagogical approaches and graduates' earning experiences and their outcomes of it and examine the relationship between the two.

Analytical Model and Indicators

This article uses a regression analysis to distinguish relevant curricula for different student groups. Compared with the student age profile in the three countries as discussed later, here a distinction is made between younger and mature graduates with the cutting point of age as 25.

Three dimensions of indices on the relevance of their study (RE indicators; scales of answers from 1: 'to a high extent' to 5: 'not at all') are used here (in parentheses is the name of each indicator); finding a satisfactory job (RE1), longterm career prospects (RE2) and the development of their personality (RE3).

As process variables, students' learning experiences during degree studies consist of work experiences (WE: 5 variables, the duration of four types of activities and the degree of relationship between work experience and study, which go from 1: 'to a high extent' to 5: 'not at all'), and the time spent in study (TM: 5 variables, hours per week). We also use the information on institutional pedagogical approaches; emphasis of mode of teaching and learning (IO: 12 variables, scales of answer from 1: 'to a very high extent' to 5: 'not at all'), and evaluation of study provision and conditions (PR: 18 variables, scales of answer from 1: 'very good' to 5: 'very bad').

All variables of institutional pedagogical approaches and students' learning experiences are classified into pedagogy-mode (P-mode), andragogy-mode (Amode) and others (pa-mode). At first, we tried to classify these along with the six assumptions of adult learners discussed above. The

following final consensus of classification was reached:

[P-mode (pedagogy mode)]

- WE03-internship
- TM01-lectures during lecture period
- TM02-extra-activities during lecture period
- IO03-communicative skills
- IO05-class attendance
- IO06-teacher as informant
- IO09-work experience
- IO10-out-of-class communication
- PR09-teaching quality
- PR10-research projects
- PR12-work placements
- PR13-out-of-class contacts
- PR14-fellow students

[A-mode (andragogy mode)]

- IO04-independent learning
- IO07-freedom of choice
- IO08-problem-based learning
- PR03-course content
- PR04-course variety
- PR07-opportunity of choice
- PR08-practical emphasis
- PR16-library
- PR17-teaching material
- PR18-technical equipment

[pa-mode (pedagogy and andragogy mode)]

- WE01-not related
- WE05-degree of relationship
- TM03-employment (LP)
- IO01-facts and knowledge
- IO02-theories
- IO11-writing a thesis
- IO12-assessment system
- PR01-academic advice

PR02-assistance for final examination

PR05-degree program

PR11-research emphasis

PR15-commitment to policies

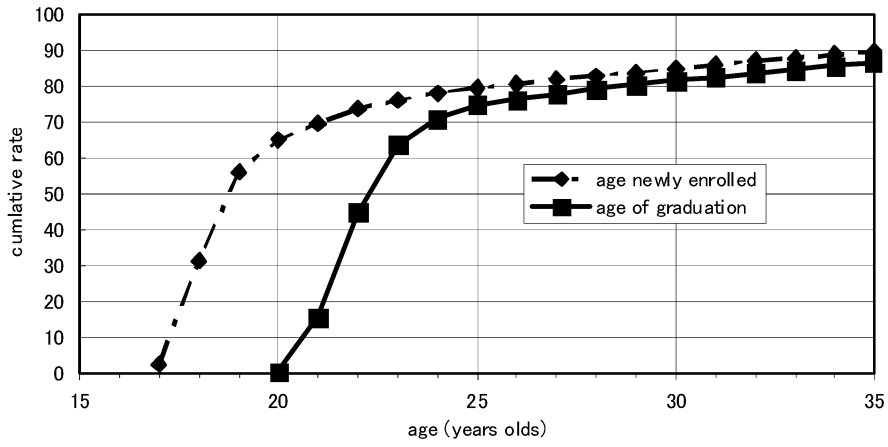
Other indicators used in a subsequent analysis are listed in the Appendix table, where both background variables, such as gender and fields of study, and occupational career variables are listed. Former variables are entered in regression models as a first step before examining the impacts of various pedagogical approaches, which are then entered stepwise, based on the degree of explanatory power (see Appendix of the list of variables we used).

Analysis

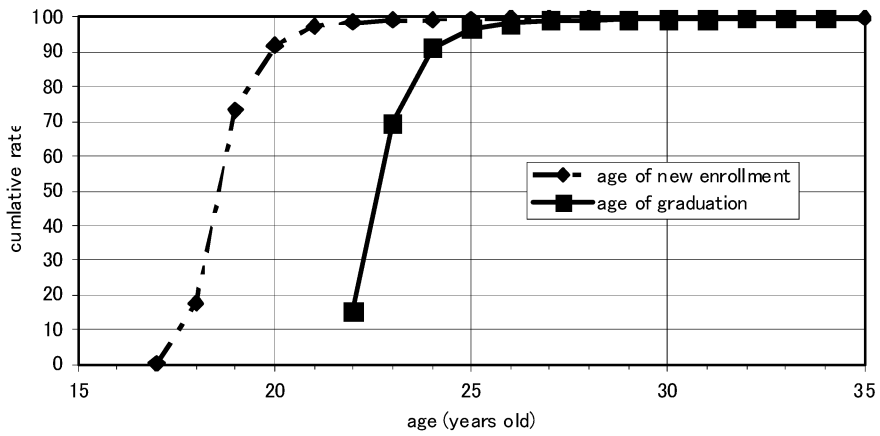
Student Age Profiles in the Three Countries

Student age profiles differ in the three countries, especially in Japan and Germany. Many German students start a university programme at an age when most Japanese students graduate. The UK and Japan supply largely younger graduates with shorter study periods than Germany. Furthermore, the UK also has a certain proportion of mature graduates. The average age of graduation is 23.4 in Japan, 26.3 in the UK and 27.3 in Germany. This is because the UK has more than 19.3% of graduates who are 30 years old or older at the time of graduation (see Fig. 1).

(1) age profile of UK students



(2) Age profile of JP Students



(3) Age profile of German students

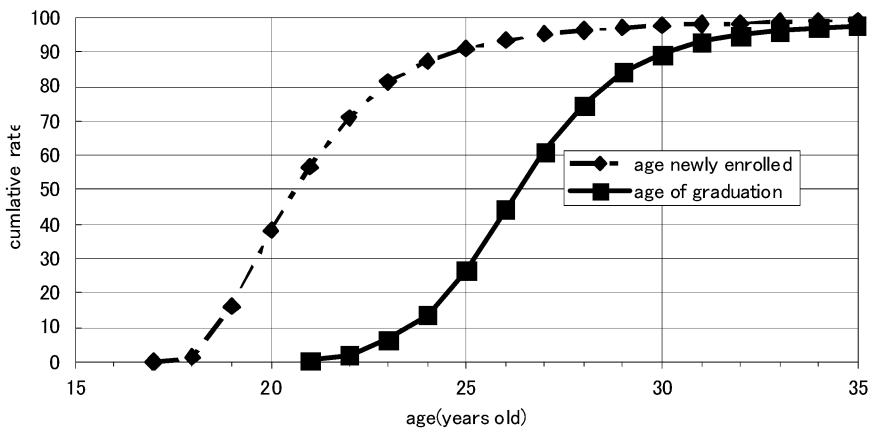


Figure 1 Age Profile of the UK, Japan and Germany

We chose a cutting point between younger and older graduates as age 25 for the analysis. This criterion is not necessarily based on certain theoretic considerations¹, but rather on data distribution, as typical mature students in Europe may be those studying at university in their late 20s and graduating at around 30.

According to this criterion, in Japan, 91.0% of graduates are 24 years old or younger at the time of graduation and in the UK the figure is 71.3%. This contrasts with Germany, where the corresponding figure is only 13.8%, which means that 86.2% of graduates are 25 or more.

The Differences in University Relevance for Young and Mature Graduates Based on the differences of student age profiles in the three countries, let us broach the first research question: who benefits more from higher education and in which domain? Compared with the degree of relevance (Table 1) for both young and mature graduates, university education is equally most relevant for ‘development of personality’ amongst the three dimensions. Then, concerning working life, ‘longer term career prospect’ is more highly appreciated than a shorter term of ‘finding employment’ in both the UK and Japan, whereas in Germany, higher education is more relevant for first employment than for long-term career.

Other analyses of the CHEERS data show that universities in the UK and Japan both tend to

table 1 the relevance of higher education to different aspects

		RE1: finding a satisfying job after finishing your studies	RE2 : for your long-term career prospects	RE3 for the development of your personality
Germany		**		*
Young	mean	2.2	2.6	2.2
	S.D.	1.03	1.06	0.95
	n	475	475	474
Old	mean	2.3	2.4	2.0
	S.D.	1.09	1.07	0.95
	n	2,980	2,968	2,980
UK		**		*
Young	mean	2.5	2.1	1.9
	S.D.	1.32	1.08	0.92
	n	2,332	2,339	2,333
Old	mean	2.8	2.3	1.9
	S.D.	1.53	1.25	0.96
	n	894	915	938
Japan		**		*
Young	mean	2.7	2.6	2.1
	S.D.	1.16	1.07	1.00
	n	3,069	3,063	3,063
Old	mean	2.6	2.4	2.2
	S.D.	1.25	1.17	1.17
	n	302	301	302
Total	mean	2.5	2.4	2.0
	S.D.	1.23	1.11	0.97
	n	10,052	10,061	10,090

note: 1) T-tests are used for differences for each country (Young and Old)

* 5% significant; ** 1% significant

prepare their young students for entry into the labour market by Figure 1 Age Profile of the UK, Japan and Germany developing generic skills and competencies which may have longer enduring

effects, in contrast with universities in Germany which tend to focus on subject-specific skills and professionally-articulated competencies that are closely linked to professional requirements (Brennan *et al.* , 2001; Inenaga, 2005).

Mature graduates in Germany and Japan appreciate higher education learning more than their younger counterparts. But in the UK, younger graduates appreciate learning more than mature graduates. According to assumptions of andragogy, mature students may choose their studies according to their self-concept and orientation so that they find a more adequate study programme than younger students. Therefore, the data on Germany and Japan follow the andragogy assumption and the UK does not.

Relevance of Pedagogical Approaches for Six Groups

The second research question is: what kind of pedagogical approaches and student experiences affect their outcome? Tables 2 to 4 show the results of the regression analysis for young and mature students on three dimensions of relevance in the three countries. They focus on the coefficients of process variables on the final models when significant variables amongst process and career variables were added stepwise after setting a base model with 8 background variables.

Our general hypothesis is that P-mode is relevant for the young and that A mode is relevant for mature graduates. For young graduates in Germany, ‘find a satisfactory job’ and ‘development of personality’ are affected by some P-mode variables, such as ‘teaching quality’ and ‘fellow students’. However, ‘career prospect’ for the young is explained by A-mode, such as ‘freedom of choice’ and ‘independent learning’. On the other hand, for mature graduates, there are more significant process variables of A-mode such as ‘independent learning’, ‘opportunity of choice’, ‘practical emphasis’ and ‘technical equipment’, as well as some negatively significant P-mode variables. The clearly opposite trend to our hypothesis is that ‘teaching quality’ for mature students is relevant for all of three explained variables. In other process variables of ‘pa-mode’, the ‘degree of relationship between work experience and study’ is relevant for ‘find a job’ and ‘career prospect’ for both groups. On the other hand, ‘theory’ is significant for both domains of relevance and for both age groups. Thus, in summing up, Table 2 generally follows our hypothesis.

Then, in Table 3, for the UK, the results do not always seem to follow our hypothesis, although many results, such as ‘library’, ‘career prospect’ and ‘independent learning’ and ‘development of personality’ do. In many cases, some variables that are significant for young students are also significant for mature students, including ‘fellow student’ and ‘work placement’ of P-mode and ‘course content’ of A-mode. Contrary to the hypothesis, only the ‘problem-based learning’ variable is significant for young students for three domains of relevance. In other process variables of the ‘pa-mode’, ‘degree of relationship between work experience and study’ are relevant for ‘find a job’ and ‘career prospect’ for both, and ‘development of personality’ for the mature students.

Lastly, in Table 4 in Japan, although more variables are significant for young students and less

so for mature students, many trends follow our hypothesis, i.e. that the variable of longer hours of attendance in 'lecture' as a P-mode is significant for every domain for the young but not for mature students. On the other hand, 'practical emphasis' as an A-mode is significant for both. In other pa-mode variables, 'the degree of relationship between work experience and study' is very positive for both groups, as is the same tendency in Germany and the UK.

Development of Relevant Pedagogical Approaches for Different Groups

Many results of the regression analysis support our hypothesis on P (pedagogy)- mode and A (andragogy)-mode, although some results conflict and are not consistent in the three countries. The next question is the development of the P-mode for young students and A-mode for mature students. An indicator of any mode with strong positive coefficient means a degree of strong impact, but it is another matter whether such a mode is enriched or not.

Then, the last question for our analysis is which of the relevant pedagogical approaches and learning experiences are developed or undeveloped in the different countries. The process indicators (student learning experiences and institutional pedagogical orientations and provisions) are characterised as P-mode, A-mode or pa-mode, and then their means are compared.

In Germany (Table 2), many P-mode variables for young students are relatively stronger than for mature students. On the other hand, three variables of A-mode, including the degree of freedom of choice, are significantly enriched for mature students. It suggests that each group of students has relevant experiences that correspond to their pedagogical mode assumptions.

In the UK (Table 3), many indicators on institutional pedagogical approach are almost the same for young and mature students. However, the mean of variables of student experience shows that young students devote more time to 'school' activities than mature students who study in parallel to their work. This suggests that there could be a problem of emphasis of pedagogical mode, although higher education institutions have already accepted many mature students.

In Japan (Table 4), our hypothesis about efficient pedagogical mode is almost supported. However, the mean of the variables of both student learning experiences and institutional pedagogical approach, including those which have differences in degree of efficiency, are the same for young and mature students. It means that the institutional pedagogical approach is the same for young and mature students, although the variables which are effective are not the same. It suggests that institutions should consider more often the pedagogical approaches which fit for different types of student because the stage of universal higher education will be coming soon.

table 2 the relevance and pedagogical modes in Germany

the relevance explained significant pedagogical mode	Regression coefficient						Mean score (explanatory)	
	Young			Old			Young	Old
	RE1	RE2	RE3	RE1	RE2	RE3		
P-mode	(beta) (sig.)			(beta) (sig.)				
WE03-intership							3.9	< 6.5
TM01-lectures(LP)							24.4	< 21.0
TM02-extra-activities(LP)							5.5	< 5.4
IO03-communicative skills			0.151 **	-0.060 **		0.074 **	3.5	< 3.7
IO05-class attendance					0.046 *	-0.056 **	2.3	< 3.0
IO06-teacher as informant	0.111 *			-0.051 **	-0.060 **		2.7	< 3.1
IO09-work experience					-0.065 **		3.4	< 4.0
IO10-out-of-class communication							3.6	< 3.9
PR09-teaching quality	0.241 **		0.179 **	0.074 **	0.052 *	0.106 **	2.6	< 2.8
PR10-research projects					0.069 **		4.2	> 3.7
PR12-work placements							2.9	< 3.4
PR13-out-of-class contacts					-0.075 **		3.5	< 3.7
PR14-fellow students	0.113 *		0.109 *				1.8	< 2.0
A-mode								
IO04-independent learning		0.143 **		0.064 **	0.046 *	0.050 *	2.4	> 2.3
IO07-freedom of choice		0.207 **	0.304 **			0.079 **	3.3	> 2.8
IO08-problem-based learning							3.4	< 3.4
PR03-course content					0.054 *	0.051 *	2.6	< 2.7
PR04-course variety						0.052 *	2.7	< 2.7
PR07-opportunity of choice					0.060 **	0.050 *	3.4	> 2.8
PR08-practical emphasis				0.135 **	0.077 **		3.3	< 3.6
PR16-library							2.7	< 2.7
PR17-teaching material							2.7	< 3.0
PR18-technical equipment		0.094 *		0.056 **	0.077 **		3.1	< 3.1
PA-mode								
WE01-not related				0.063 **	0.078 **		3.2	< 6.5
WE05-degree of relationship	0.147 **			0.101 **	0.067 **		2.7	< 3.0
TM03-employment (LP)					-0.046 *		2.8	< 6.1
IO01-facts and knowledge				0.039 *			2.0	< 2.1
IO02-theories	0.094 *	0.130 **		0.070 **	0.094 **		2.2	< 2.1
IO11-writing a thesis						0.086 **	3.1	> 2.6
IO12-assessment system				0.062 **	0.051 *		3.0	< 3.5
PR01-academic advice						0.051 *	3.0	< 3.2
PR02-assistance for final exam.				0.049 *			2.7	< 3.1
PR05-degree program				0.090 **	0.049 *		2.6	< 2.9
PR11-research emphasis							4.0	> 3.5
PR15-commitment to policies			0.125 *			0.046 *	3.7	> 3.5
adjusted R square by 8 variables (gender and fields of study)	0.089	0.101	-0.004	0.047	0.069	0.009		
adjusted R square by a final stepw	0.219	0.197	0.155	0.153	0.151	0.118		
number of added explanatory variables	5	4	5	13	17	11		

RE1: find a satisfactory job, RE2: long-term career prospects, RE3: development of personality

** 1% significant * 5% significant

'<' or '>' :5% significant of T-test.

table 3 relevance and pedagogical modes in the UK

the relevance explained significant pedagogical mode	Regression coefficient						Mean score (explanatory)	
	Young			Old			Young	Old
	RE1	RE2	RE3	RE1	RE2	RE3		
	(beta)	(sig.)		(beta)	(sig.)			
P-mode								
WE03-intership	0.073	**				0.088	*	2.2 < 7.2
TM01-lectures(LP)				-0.093	*			17.0 > 12.8
TM02-extra-activities(LP)				-0.085	*			6.6 > 2.3
IO03-communicative skills								2.9 > 2.8
IO05-class attendance	0.044							2.2 < 2.5
IO06-teacher as informant	0.048	*	-0.051	*				2.9 < 3.1
IO09-work experience					0.122	**		3.7 > 3.6
IO10-out-of-class communication								3.2 > 3.2
PR09-teaching quality	0.083	**				0.085	*	2.3 < 2.4
PR10-research projects			0.085	**				3.4 > 3.5
PR12-work placements	0.144	**		0.218	**			3.6 > 3.6
PR13-out-of-class contacts								3.1 < 3.2
PR14-fellow students	0.056	*	0.078	**	0.158	**	0.090	* 0.102 * 0.101 **
A-mode								
IO04-independent learning						0.163	**	2.2 > 2.0
IO07-freedom of choice			0.057	*				2.6 > 2.7
IO08-problem-based learning	0.072	**	0.085	**	0.058	*		2.5 > 2.5
PR03-course content			0.059	*	0.125	**	0.142	** 0.257 **
PR04-course variety								2.1 > 2.1
PR07-opportunity of choice								2.3 < 2.5
PR08-practical emphasis								2.5 < 2.6
PR08-practical emphasis								2.6 > 2.6
PR16-library						0.157	**	2.3 < 2.6
PR17-teaching material								2.7 > 2.7
PR18-technical equipment						-0.109	*	2.6 < 2.8
PA-mode								
WE01-not related								7.1 < 13.2
WE05-degree of relationship	0.110	**	0.103	**				4.0 > 3.3
TM03-employment (LP)			0.056	*	0.166	**	0.139	** 0.094 *
IO01-facts and knowledge			0.079	**	0.079	**	0.174	**
IO02-theories								3.7 < 11.5
IO11-writing a thesis			0.087	**	0.096	*	0.126	** 0.102 **
IO12-assessment system					-0.080	*		1.9 < 2.1
PR01-academic advice			0.104	**	0.086	**	0.149	**
PR02-assistance for final exam.	0.092	**						1.9 > 1.9
PR05-degree program	0.135	**	0.085	**				2.6 > 2.4
PR11-research emphasis								2.5 > 2.5
PR15-commitment to policies								2.5 < 2.6
adjusted R square by 8 variables (gender and fields of study)	0.048		0.015		0.020		0.019	0.038 0.077
adjusted R square by a final stepw	0.186		0.109		0.175		0.237	0.220 0.279
number of added explanatory variables	10		7		10		9	8 7

RE1: find a satisfactory job, RE2: long-term career prospects, RE3: development of personality

** 1% significant * 5% significant

'<' or '>' :5% significant of T-test.

table 4 relevance and pedagogical modes in Japan

the relevance explained significant pedagogical mode	Regression coefficient						Mean score (explanatory)	
	Young			Old			Young	Old
	RE1	RE2	RE3	RE1	RE2	RE3		
P-mode	(beta)	(sig.)		(beta)	(sig.)			
WE03-intership							0.0	0.2
TM01-lectures(LP)	-0.046 *	-0.060 **	-0.052 **				21.8	21.8
TM02-extra-activities(LP)	-0.035 *		-0.099 **				6.6	6.8
IO03-communicative skills			0.105 **	0.139 *		0.267 **	3.3	3.3
IO05-class attendance							2.3	2.3
IO06-teacher as informant							3.1	3.0
IO09-work experience	0.061 **						4.0	4.1
IO10-out-of-class communication			0.064 **				3.5	3.5
PR09-teaching quality							3.3	3.3
PR10-research projects							3.7	3.6
PR12-work placements		0.067 **				-0.124 *	3.5	3.6
PR13-out-of-class contacts	0.077 **	0.048 *	0.079 **				3.2	3.2
PR14-fellow students			0.058 **				2.6	2.7
A-mode								
IO04-independent learning		0.053 **	0.057 **				2.8	2.8
IO07-freedom of choice							2.4	< 2.7
IO08-problem-based learning		0.044 *					2.9	2.9
PR03-course content		0.046 *				0.236 **	2.3	2.3
PR04-course variety			0.085 **				2.8	2.9
PR07-opportunity of choice							2.6	< 2.9
PR08-practical emphasis	0.110 **	0.048 *		0.231 **			3.0	3.0
PR16-library							2.3	2.4
PR17-teaching material					0.168 **		2.8	2.8
PR18-technical equipment							3.0	2.9
PA-mode								
WE01-not related							0.1	< 1.2
WE05-degree of relationship	0.158 **	0.121 **	0.056 **	0.132 *	0.123 *		4.0	4.0
TM03-employment (LP)	0.056 **	0.046 *		0.142 *			11.6	12.1
IO01-facts and knowledge							2.5	2.4
IO02-theories	0.054 **	0.048 *	0.057 **		0.208 **		2.1	2.1
IO11-writing a thesis			0.075 **				2.1	< 2.4
IO12-assessment system							3.0	> 2.8
PR01-academic advice	0.059 **	0.075 **	0.103 **				2.6	2.6
PR02-assistance for final exam.	0.076 **	0.061 **					2.3	< 2.5
PR05-degree program	0.042 *				0.201 **		2.8	2.7
PR11-research emphasis	0.074 **	0.083 **		0.147 *			3.1	> 3.0
PR15-commitment to policies						0.156 **	3.6	3.7
adjusted R square by 8 variables (gender and fields of study)	0.035	0.026	0.018	0.035	0.065	0.064		
adjusted R square by a final stepwise model	0.184	0.162	0.174	0.191	0.251	0.224		
number of added explanatory variables	12	13	12	5	4	4		

RE1: find a satisfactory job, RE2: long-term career prospects, RE3: development of personality

** 1% significant * 5% significant

'<' or '>': 5% significant of T-test.

Conclusion

Pedagogy and Andragogy

One of the key conclusions which can be drawn from this analysis is that some pedagogical resources, provisions and orientations are more relevant for the outcome of mature students/graduates and that others are more so for the younger students. These are 'P-mode' and 'A-mode'. Mature students appreciate 'A-mode', i.e. more practical, free and independent learning with well-developed learning materials and other provisions, whereas young students appreciate 'P-mode', i.e. human contacts and communication with teachers, friends and fellow students, both in a disciplinary class setting and during out-of-class activities.

It has been assumed for a long time that the university is the centre of learning for those with scientific orientation, readiness, motivation, and self-concept, so that it must have been assumed as the world of andragogy. However, at a modern university, along with the expansion of university education, the university is perceived as the place of schooling education and socialization for young secondary school leavers, particularly in the UK and Japan.

It is indicated from other analyses of CHEERS data that universities in the UK and Japan both tend to prepare their young students for entry into the labour market by developing their generic skills and competences, in contrast with German universities which tend to focus on subject-specific skills and professionally- articulated competences that are closely linked to professional requirements (Brennan *et al.*, 2001; Inenaga 2005). This means that new young graduates in Japan and the UK are targets to be trained. Most universities in Japan and traditional universities in the UK concentrate on the P-mode and general contents, where the professional competences are the task of the next stage in the work place. In other words, this 'two-stage' model gives greater advantage to young graduates. In Japan, most universities provide this first stage opportunity for young students. In the UK, even though the new and non-traditional universities attract more mature students than Japan and Germany, the UK data show a clear advantage on relevance of higher education learning for young graduates compared with mature graduates.

The German approach is a kind of 'sandwich' model. The entry qualification for university contains some maturity concept in its name. Then, the first degree means 'qualified for a profession'. So the university is regarded as a place of andragogy with clear professional goals. Subsequently, rather longer university studies are required by the degree programme and are chosen by students.

During university study, they must prepare for their profession through the university's practicum or other work experiences. Because of the flexible nature of study programmes in German universities, young students are able to select more of P-mode, such as personal supervising and other communication, and mature students are able to choose A-mode elements of freedom and practical emphasis, in spite of no differentiations of institutions like those in the UK.

Thus, the system offers tastes of ‘sandwich’ courses between the entry and exit of university studies.

Work-based Learning

Another conclusion is a critical factor affecting various aspects of relevance for both young and mature graduates in all countries, i.e. work experience. One of the most significant variables is ‘the degree of relationship between work experiences and study (WE5)’ (see Yoshimoto, 2002b). We wondered whether many variables on work experiences, including that variable, could be classified as P-mode.

Finally after discussion, ‘WE3 internship and work placement’ ‘IO9 work experience’ and ‘PR12 work placement’ are set as P-mode. It is because these variables are supposed to be more adequate for young students according to the ‘experience’ assumption. However, we found ‘WE3’ for ‘RE3’, ‘IO9’ for ‘RE2’ and ‘PR12’ for ‘RE1’, to be significant coefficients for mature students in the UK.

On the key variable of ‘WE5’, the variable of ‘work experience’ which is related to current study or future career is very beneficial in many models, both for young and mature students in the three countries. These findings may be interpreted that the work-based learning can give ‘from learning to work experience’ to young students and mature students ‘from his/her work to learning experience’. Internship and/or work placement are rapidly becoming popular in the UK and Japan.

This type of work experience is P-mode, but work-based learning may be rather widely conceptualised as having both pedagogical and andragogical relevance. This area seems a new theoretical challenge and key to open higher quality and chances of lifelong learning in universities.

Note

1. As Yoshimoto and Inenaga (2006) show, some Japanese companies set upper age limits for new graduate recruitment application as 24 years or younger at the time of graduation. These employment practices regulate the learning behaviour of Japanese youngsters.

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Appendix : List of Variables Label

a) Outcome variables
 RE1 - RE3 : 5 point scale(1= To a very high extent to 5 = Not at all)

RE1	: Finding a satisfying job after finishing your studies
RE2	: For your long-term career prospects
RE3	: For the development of your personality

b) Background variables
 GE, FS : dummy(1 = Male or Yes, 0 = Female or No)

GE : Gender	: Male, Female
FS : Field of Study	: Arts & Hums, Social sc., Business, Law, Natural sc., Engineer, Health

c) Graduate's experience and pedagogical approaches variables

WE01 - WE05 : scale(month)

WE01-not related	: Employment/work not related to study or possible future work
WE02-related	: Employment/work related to study or possible future work
WE03-internship	: Work placement, internship (as part of your degree course)
WE04-unemployed	: Not employed, seeking employment
WE05-degree of relationship	: Relationship between work experiences and studies

TM01 - TM05 : scale(hour)

TM01-lectures(LP)	: Major subjects: attending lectures
TM02-extra-activities(LP)	: Extra-curricular activities (e.g. societies, drama, sport, student union)
TM03-employment (LP)	: Employment/work (excluding work placements/internships)
TM04-lectures (out LP)	: Attending lectures (e.g. summer school) and other study activities (inc. self-studies, etc.)
TM05-employment(out LP)	: Employment/work (excluding work placements/internships)

IO01 - IO12 : 5 point scale(1 = To a very high extent to 5 = Not at all)

IO01-facts and knowledge	: Facts and instrumental knowledge
IO02-theories	: Theories, concepts or paradigms
IO03-communicative skills	: Attitudes and socio-communicative skills
IO04-independent learning	: Independent learning
IO05-class attendance	: Regular class attendance
IO06-teacher as informant	: Teacher as the main source of information and understanding
IO07-freedom of choice	: Freedom to choose courses and areas of specialisation
IO08-problem-based learning	: Project and problem-based learning
IO09-work experience	: Direct acquisition of work experience
IO10-out-of-class communication	: Out-of-class communication between students and staff
IO11-writing a thesis	: Writing a thesis
IO12-assessment system	: Detailed regular assessment of academic progress

PR01 - PR18 : 5 point scale(1 = Very good to 5 = Very bad)

PR01-academic advice	: Academic advice offered in general
PR02-assistance for final exam.	: Assistance/advice for your final examination
PR03-course content	: Course content of major
PR04-course variety	: Variety of courses offered
PR05-degree program	: Design of degree program
PR06-testing system	: Testing/grading system
PR07-opportunity of choice	: Opportunity to choose courses and areas of specialisation
PR08-practical emphasis	: Practical emphasis of teaching and learning
PR09-teaching quality	: Teaching quality
PR10-research projects	: Chances to participate in research projects
PR11-research emphasis	: Research emphasis of teaching and learning
PR12-work placements	: Provision of work placements and other work experience
PR13-out-of-class contacts	: Opportunity of out-of-class contacts with teaching staff
PR14-fellow students	: Contacts with fellow students
PR15-commitment to policies	: Chance for students to have an impact on university policies
PR16-library	: Equipment and stocking of libraries
PR17-teaching material	: Supply of teaching material
PR18-technical equipment	: Quality of technical equipment (e.g. PC, measuring instruments, etc.)

d) career variables
 CA1 - CA2 : dummy(1 = Yes and 0 = No)

CA1	: Fulltime work
CA2	: non-Regular work
