Impacts of Training and Education for Information Technology(IT):Empirical Study in the Service Industry

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ABSTRACT

This research examines the importance of IT training/education, present situation and possible suggestion for the successful training/education. The research method adopts a comparative analytical approach based on questionnaire survey responses from three work groups - managers, employees, and union representatives - drawn from five sample Korean banks. The evidence indicates that all three groups agree that IT improves banking efficiency and reduces job repetitiveness, but their job satisfaction level with IT-based work is surprisingly very low. The main reasons are mainly lack of training/education and poor user manuals. Also the research shows that most respondents would like to get further training/education to more adequately fit them for their jobs. Those from banks which invested in continuing training/education revealed more positive work attitudes and higher job satisfaction.

1. Introduction

In today's fast changing society, the impact of IT on the performance of individuals, firms and the global economy has been repeatedly asserted and is now accepted. US vice-president Al Gore [21] argued in 1994 that global information systems would bring economic progress, strong democracies, better environmental management, improved healthcare and a greater sense of shared stewardship of the earth. It may not be too much to say that business, society and managers lacking an efficient system for the collection and organization of information, cannot survive in these fiercely competitive times. As Toffler [41] says, we are living in the information age and the impacts of information and IT on the decision-making process in all areas will be great.

The potential benefits of IT to organizations include improvement of efficiency, cost reduction, growth

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of overall productivity, offering of additional services to customers, and especially competitive advantages. In addition, it will bring satisfaction to management, shareholders, employees and customers, and attract potential customers. It has become increasingly important for firms or organizations to adopt IT to meet increased domestic and international competition. However, accompanying these benefits there is evidence of various manpower and industrial relations implications. One question which invariably arises is who would be involved in decision-making over technical change when the interests across workgroups differ significantly.

However, even if firms or organizations install expensive and the best equipment, without proper knowledge and the skills to handle it, such equipment is just expensive hardware. Thus training and education is essential in order to make the best use of equipment and to allocate surplus employment to new jobs created by expanding business as a result of IT. Moreover, although all incoming workers may be well prepared, retraining would be needed. The most obvious example is in fast-changing computer technology, where workers must either be "retrained often" or "risk rapid obsolescence". A higher level of technical skill is already necessary even in relatively "low-tech" and service-type jobs [19]. Training & education must be continued and planned as a short-term policy as well as in the long-term. Training & education should not be in the second place relative to the importance of the technology itself. From the very beginning of the planning stage, the importance of training & education should be emphasized to avoid the embarrassment of unexpected results, and to improve the efficiency and productivity of the organization.

The industry chosen for this research is banking in South Korea. The reason for choosing a single industry is to avoid confusing differences among firms in different industries. In addition, the banking industry has a global financial market and a large number of banks using a very high level of IT. Moreover, some of these banks are in the forefront with regard to introducing and developing IT.

The research is also partly an attempt to fill a gap in the literature on developing countries. Very little has been written on manpower implications of IT in developing countries. Thus it is hoped that the present study will contribute to this area. This may be the first systematic study that attempts to use data from members in the Korean banking industry.

2. Computerization of Banks in Korea

The first computerization in a Korean bank started only in 1972, providing simple financial services such as deposit, withdrawal and remittance facilities. The second one started in 1975, another three banks in 1976, and in 1977 the other three big commercial banks introduced their first computerization.

Table 1 describes the characteristics of retail banks in Korea and in three developed countries, USA, West Germany and Japan. The table shows many differences. Firstly, in the developed countries, the

Table 1. Comparison of Branch Management in Korea, USA, W.Germany and Japan

	Korea(1988)	USA(1984)	W.Germany(1984)	Japan(1985)
no, of branches /offices	3,086	56,866	44,698	44,078
branches/offices per 100,000	7.3	24	73	37
staff siza of br./office	40 - 50	approx. 10	approx. 10	big → small
CD/ATM*: purpose	lessen teller's work	use beyond business hours	use beyond business hours	lessen crowds in the office & teller's work
form	mainly CD	mainly ATM	mainly CD	CD→ATM
place	within the office	outside office	outside office	within the office
part-time staff	considering	mainly at small offices	a few from retired bankers	a few from retired bankers
layout of office	mostly two flows	one flow	one flow	mostly two flows
back office works	at the each office	at local head office	at the each office	at the center from several mini-office

source: KEB's long-term development plan, in Korean [33: p.115]
*cash dispenser/atomatic teller machine

branch size is small with approximately 10 staff, whereas Korean banks have around 40 to 50 staff though declining in size since the late 1980s. Secondly, the main aim behind the introduction of CD/ATMs in the USA and West Germany is to provide services beyond normal business hours, whilst in Japan and Korea the aim has been to lessen tellers' workload and reduce crowds in the office. Thirdly, part-time workers are generalized in the USA, but are used far less in West Germany and Japan [6]. In comparison, banks in Korea do not generally employ part-time workers because of a lack of experience, although a few banks have begun in the 1990's to employ some retired former staff at busy times such as the end of month and at closing dates of specific bills. Finally, in back office operations, banks can jointly make the best use of IT by grouping operations from geographically close offices, thereby saving costs and time. Banks in Korea still handle their work individually at each branch, which means that they are not using IT fully. Consequently Park [33] argues in the research about 'Korea Exchange Bank's long-term development plan' that the tendency towards many small branches with small numbers of staff will accelerate in the 1990s. To facilitate this trend banks need to develop information communication systems to connect small size offices to a local center, they must use CD/ATM more intensively, and applying the better models from developed countries to utilize IT fully.

As shown in Table 2, this compares with the mid-1970s levels of banking computerization in Japan

Table 2. Steps in the Development of Banking Computerization in Japan and Korea 1960--1990 and Projects to 2000.

	1960	1975	1980	1990	2000
era	Data Processing			Information Technology	
character-istics	specialist centralization transaction processing tactical			specialists and end-users centralization and down-sizing support decision-making, and telecommunication tactical and strategic	
Japan	The first online		The second online	The third online	The first SIS[a]
	improve productivity individual account online. ledger-posting computerization. individual bank's CD.		focus on marketing. whole accounts online. inter-bank transfer of funds. jointly use of CD/ATMs.	focus on profit. total online for indivisual's all accounts. OA. electronic banking (home banking, POS).	strategic information systems. networks. finance VAN. creation of value added.
Korea		The lst generation on-line individual account online. ledger-posting computerization		The 2nd generation on-line all accounts online. jointly use of CD/ATMs	The 3rd gen on-line

source: KEB's long-term development plan, in Korean. [33:p.118]

and also shows the steps of computerization of banks in Japan and Korea. Computerization in Japanese banks passed 'the first on-line' stage which aimed to improve productivity in the early 1970s, and 'the second on-line' stage which focused on marketing in the mid 1980s.

Now they are in 'the third on-line' stage which aims to achieve maximization of profit through electronic banking. Some have even started a strategic information system called 'the next on-line generation' to build up a comprehensive banking system to make the best use of IT and high telecommunications [33].

Bank employment has risen less rapidly in recent years, probably as a result of the expanded use of IT. Where staff reduction has been necessary, Korean banks have used the following policies:1) cut down new recruitment numbers to half of those in previous year; 2) reduce replacement of retiring staff; 3) encourage early retirement; 4) increase part-time workers; and 5) increase the installation of CD/ATMs [5].

3. Research Design and Methodology

In order to undertake the present investigation it was necessary to formulate hypotheses that would meet the objectives of the study. It was further necessary to determine criteria for sample selection and to establish the type and form of data needed to answer the research questions. Of the various survey methods available, a structured questionnaire-type survey was considered appropriate bearing in mind the need for quantifiable data. Since research for this area had not been previously undertaken in Korea, questions were developed mainly from the author's job experience combined with other related studies. Stacey [39: p.2] stresses that *"it is necessary for the researcher to relate his/her work to that of others and build on what they have done."* She further adds that *"it is most important that data should be collected in ways comparable with other data."* This played an important role in the design and analysis of the study.

3.1. Research Objectives

The objectives of this research are to assess the manpower implications of IT and try to pinpoint problem areas associated with IT use to indicate possible solutions. In addition, this study seeks to identify the main causes of dissatisfaction among staff members by asking detailed questions regarding training & education. Also, this research develops a guide for banking management on the adoption and implementation of an effective IT strategy. This will save time and cost, give greater competitive advantages in long term management and bring about greater satisfaction to all the people concerned, in particular, managers, employees and customers. This is a part of a research which was conducted to investigate overall information management, information technology in the Korean banking industry [22].

The specific objectives of this research are to provide answers to the following questions:

1) What are the attitudes of all the staff members towards IT?
2) Are they satisfied with the IT training and education received in the bank?
3) What kind of training and education relating to place, time and length do staff prefer?
4) What are the main hindrance to staff transfer between EDPS departments and general banking departments/branches if the need arises for transfer?

3.2. Research Questions and the Questionnaire

The literature survey indicated both positive and negative impacts of information technology on employment in developed countries. However, given the weakness of trade unions and lack of

employee participation in managerial decision-making in Korea, the main hypothesis guiding this study is that IT has a disproportionately negative effect on employment-related issues.

Many writers have emphasized the significance of the questionnaire technique as a potential research tool in social research. For example, Ary et al., [3] argue that, in comparison with personal interviews, the questionnaire is typically more efficient and practical and allows for the use of larger samples. The advantages of questionnaires are that standard instructions are given to all topics under study. The personal appearance, mood, or conduct of the investigator will not affect the results. A similar point was made by Clover and Balsley [15] who suggested that prospective respondents can be reached at relatively low cost through the use of a questionnaire. The great advantage of this is that *"it is simple to administer and easy to tabulate and analyze"* [13: p.319]. Also, Mason and Bramble [28] suggest that the questionnaire has the advantage of increasing the generalization of the data, and at the same time it gives respondents more freedom to express their points of view.

The forms and style of the questions were determined largely on the basis of the existing literature where one of the main works was done by Davies [17]. Other factors were the researcher's knowledge (having some working experience in one of the sample banks in Korea) and the pilot study undertaken before the administration of the final questionnaire. Moser and Kalton [29] have emphasized that choosing between acceptable forms of questions depends upon the common sense and the past experience of the researcher.

3.3. The Sample Banks

In order to properly explore IM, IT and their impact on the Korean banking industry, it was necessary that companies selected for the sample have different IT environments but similar functions and, so far as possible, similar organizational profiles. As indicated in Table 3, the five sample banks have very similar organizational profiles.

However, their performance differs as shown in Table 3. The Shinhan Bank (SHB) was top among its domestic peers for fiscal year 1992 and 1993 according to the report which was carried out by the Office of Bank Supervision (OBS) in Korea to assess the results of commercial banks' performance and financial status [11]. Although wage levels at the ShinHan bank are higher than average for a Korean bank, so is the level of employee productivity (Table 3). The profit-per-employee ratio at the ShinHan bank is four times the average for all Koran commercial banks [10].

Table 3. Characteristics of Five Banks Sampled

	K.E.B.	C.B.K.	C.H.B.	S.H.B.	C.N.B.
date of establishment	30-6-1967	30-1-1899	19-2-1897	7-7-1982	1-2-1963
no. of branches/offices:					
1992	301*a	294	323	133	424
(abroad)	(33)	(14)	(14)	(7)	(7)
1991	266	274	300	115	394
no. of staff : 1992	8,142*a	9,426	9,852	3,758	14,730
1991	8,416	9,502	9,984	3,595	14,159
first start of computerization	1972	1976	1977	1982	1976
total on-line introduction	1990	1986	1990	1989	1991
date of establishing subsidiary data processing company	n.app.	1989	1990	1991	1991
capital (US$m)(1992)	767	824	824	654	242
A-net income per worker (in million won)(1993)	33.67	26.95	35.58	68.89	n.a.
B-operating income per worker (in million won)(1993)	10.10	0.95	10.08	32.69	n.a.
C-cost per worker (in million won)(1993)	38.4	32.3	31.1	44.4	n.a.
D-business performance rating:*b					
1993	A	C	B	A	n.a.
1992	B	C	B	A	n.a.
E-financial status rating:*b					
1993	B	C	B	AA	n.a.
1992	C	C	B	AA	n.a.

a: 1993, b: AA - outstanding, A - good, B - average, C - bad, n.app.: not applicable, n.a.: not available

K.E.B.= Korea Exchange Bank, C.B.K.= Commercial Bank of Korea C.H.B.= ChoHung Bank, C.N.B.= Citizen National Bank S.H.B.= ShinHan Bank

source: rows (A, B, and C) are from [12], rows (D and E) are from [11] and others are from each bank's annual report.

3.4. Distribution and Collection of Questionnaire

The information to be presented is based on data collected at five Korean banks in Korea from April to July in 1992. It was necessary to telephone them regularly, and to make frequent personal visits to encourage and check the progress.

For the managerial survey, a total of 285 questionnaires were distributed, 158 being completed, all valid: a response rate of 55%. For the employees' sample, 380 questionnaires were distributed and 198 collected but four were not valid, the valid response rate being 51%. In relation to the trade union representatives' sample, 125 were distributed and 70 were collected, all valid: a response rate of 56%.

Table 4. Details of Questionnaire Response.

	KEB.*a response(%)	C.B.K.*a response(%)	C.H.B.*a response(%)	C.N.B.*a response(%)	S.H.B.*a response(%)	Total*b response(%)
Management	21(13)	39(25)	42(27)	26(16)	30(19)	158(55)
Employee	22(11)	53(27)	54(28)	28(14)	37(19)	194(51)
Union	6(8)	21(30)	18(26)	12(17)	13(19)	70(56)
Total*b	49(31)	113(71)	114(71)	66(41)	80(50)	422(53)

a. - numbers in a bracket at each bank represent % occupying among total responses.
b. - numbers in a bracket at 'Total' represent % of total responses among total distributed.

Overall the aggregate response rate is 53% (790 distributed and 422 valid responses). Details of response rates are shown in Table 4.

The methods of analysis used in the present study were facilitated through the use of computer programs available in SPSS (Statistical Package for the Social Sciences) for Windows Professional Statistics package [32].

4. Data Analysis

4.1. Attitudes Towards IT-based Work

In this section, participants of the five banks were asked to indicate the extent to which they are satisfied with IT-based work. Less than one-quarter (22%) of respondents indicated satisfaction with their IT-based work, which is opposite to the findings by Count et al. [16] who found that job satisfaction significantly increased after the introduction of technology in their research about job holders' attitudes to the computer and levels of motivation and satisfaction. Also, Rafaeli [35] and Kahn [27] found that, as usage of computers increased, positive attitudes were more likely.

One-way analysis of variance tests were conducted to investigate whether significant differences in satisfaction exist between different banks, different job levels, different age groups and different lengths of job tenure at the bank. Regarding different banks, a significant result was noted (F-Ratio= 6.01, DF= 4, $p<.001$), where respondents at CBK and at CHB perceived higher dissatisfaction than those at the other three banks. In particular, 84% and 90% of respondents at CBK and CHB respectively felt unhappy about IT-based work, whereas only 59% and 60% of respondents at KEB and at CNB respectively were dissatisfied. With regards to different job levels, union representatives were

Table 5. Perceived Main Reasons for Unhappiness To Do IT-based work (%)

	stongly agree	agree	disagree	strongly disagree	Mean	S.D.
1) lack of training	41	52	7	--	1.661	.607
2) poor user manuals	11	58	28	3	2.234	.690
3) too confused/complicated	4	29	54	13	2.762	.720
4) too simple/routine	1	18	67	14	2.928	.610
5) do not like	6	19	57	18	2.931	.644

significantly different from management, where the former felt higher levels of dissatisfaction (F-Ratio=8.75, DF=2, p<.001). Regarding respondent age, surprisingly the younger group (up to 30 years) were significantly less satisfied with IT work than the older group (over 40 years) (F-Ratio=4.53, DF=3, p<.001). Also, concerning the length of job tenure at the bank, those with shorter job tenure (up to 3 years) indicated significantly less satisfaction than those with longer job tenure (over 15 years) (F-Ratio=5.67, DF=4, p<.001). Overall, whilst significant differences exist in the satisfaction ratings between respondents, the majority of people were not satisfied with their IT-based work. T-tests conducted on different educational entrance qualification and different gender revealed no significant differences in satisfaction rating for these two independent variables.

To find out the main reasons for the level of dissatisfaction, a further five questions were asked. The responses to these questions are summarized in Table 5. Respondents were only asked these questions if they had indicated dissatisfaction with their IT-based work. The scale is as follows:

1 - strongly agree, 2 - agree,

3 - disagree and, 4 - strongly disagree

Table 5 arranges items according to the stronger level of agreement.

An examination of Table 5 shows that lack of training is the strongest reason for respondents to be dissatisfied with IT-based work; 93% agreed with this reason. The second is poor user manuals; more than two-thirds (69%) agreed with this reason. The remaining three issues gained agreement from just 19% to 33%.

The above results support the findings of a study of small business managers by Raymond [37], where computer education and training appeared to result in positive attitudes to their work. In addition, the results were in line with Igbaria and Chakrabarti [24], who found that training programs may increase individuals' knowledge about computers and systems operation, and they emphasize the importance of training programs in influencing computer anxiety.

In one-way analysis of variance tests, no significant differences were found between the five banks. However, the level of agreement with the "too confused/complicated" reason significantly differed with respect to different job levels, different age groups and the length of employment at the bank. Here, managers, older respondents and those who had worked for a longer period at the bank indicated greater dissatisfaction with working with IT due to confusion. Regarding the "too simple/routine" reason, respondents holding management positions differed significantly from employees, where the former group indicated greater disagreement. The results of t-tests indicated no significant differences between different educational entrance qualifications, or different gender. The results suggest that lack of training and poor user manuals were the main reasons for the fear of IT-based work while the other three issues were not considered important factors.

The above results are consistent with the findings by Staufer [40] in his study of technological change with older employees. Staufer [40] recommended that the likelihood of unfavorable appraisal would be minimized if improvements in the learning process focus on two aspects: first, relieving anxiety and creating a positive attitude towards work with IT and, second, tailoring methods to the different learning needs of older people. In both cases it is best to train older staff members at their familiar place of work. This is because, given the opportunity to learn in the environment they are accustomed to, feelings of anxiety amongst older employees will be less likely to arise.

4.2. Level of IT Knowledge and Training/Education

In this section, in order to find the level of respondents' computer knowledge, respondents were asked how familiar they were with computer concepts/terminology. A majority (68%) of respondents answered that they "understood" or were "well informed" about computer concepts, while less than one-third indicated "never learned" or "not know well".

In one-way analysis of variances tests, no significant differences were found between different banks or between different job levels. However, regarding different age groups, the middle age group (over 30 to 35) were more knowledgeable than the older age group (over 40) ($F\text{-Ratio}=4.15$, $DF=3$, $p<.005$). Also longer tenure workers (of 10-15 years, but not over 15 years) felt more knowledgeable about computers than shorter tenure workers (up to 3 years) ($F\text{-Ratio}=2.44$, $DF=4$, $p<.05$). Therefore, the results suggest that middle age workers and those employed at the bank for a long period indicate higher confidence in working with computers. A possible explanation of this may be continuous education/training at the place of work. In a t-test, male workers indicated higher knowledge about computer concepts than female workers ($t\text{-value}=2.63$, $p<.004$).

The above results support Anderson's [1] argument that enhanced knowledge transfer is obtained when the learning context and the work environment are similar. Also, the results are in line with the

contention that, if there is any effect at all, people with lengthy job experience will be more, rather than less, motivated (compared with those with less prior experience) after IT is introduced [27].

With respect to the question of whether participants need additional training/education to perform better in their jobs, a very large majority (98%) of participants felt that they required further training/education, while only 2% indicated no such requirements. Of those who required additional training/education, 36% felt that they needed quite a lot of training/education (i.e. beginning with the basic concepts). This response is in accordance with the perception of a lack of training for IT-based work.

In one-way analysis of variance tests, no significant differences were found between different banks, different job levels, different age groups and different job tenures, suggesting that all respondents shared similar opinions of requirements for additional training & education. However, the results of t-tests between different educational entrance qualifications and by gender revealed that, in both cases, significant differences were found. Specifically, those who had achieved high school entrance qualifications felt a greater requirement for training/education than those with degree entrance qualifications (means of 3.07 and 3.21, respectively; t-value=-1.75, $p<.05$). Regarding respondents' gender, male respondents (a mean of 3.20) felt a greater need for training/education than female respondents (a mean of 2.74; t-value=3.95, $p<.001$).

Concerning respondent experience with training/education for IT, nearly one-third (32%) of participants had received training/education before they entered the bank. However, just over half (52%) of respondents had received training/education for IT after starting their jobs in the bank. Low levels of training/education may cause a high degree of dissatisfaction in respondents' current IT work, given the results in Table 6. These results are in contrast to Attewell and Rule's [4] suggestion that, during the early phases of computer use in a job, there is likely to be a novelty effect, which will increase interest in computers and provide more positive attitudes.

An inspection of Table 6 shows that 20% of participants at KEB received training/education before entering the bank, compared to an average of 34% in the remaining four sample banks, whereas the rate increased to 63% after their entrance to KEB compared to an average of 53% in the remaining

Table 6. Training & Education Rate Received Before and In the Bank (%)

Time received training/education	Name of Banks				
	KEB	CBK	CHB	SHB	CNB
Before the bank	20	33	32	41	29
In the bank	63	49	43	65	53

four sample banks. Respondents at SHB received the highest training experience before entering the bank and also were above the average rate for the remaining four sample banks. The latter result is a possible explanation as to why respondents at SHB were more satisfied with their IT-based work in comparison with other banks, with the exception of CNB. Given that computer knowledge and experience have been found to be positively correlated to attitudes towards using computers [23, 38], these factors also may reduce or eliminate the fears that users may have. This is supported by the findings of Arndt et al. [2], Howard and Smith [23], Igbaria et al. [25] and Raub [36], where computer experience was found to be strongly negatively related to computer anxiety.

In the case of CNB, although the experience rating for training/education before entering the bank was lower than the average rate, the bank had the highest on-the-job training rating of all the banks. This is possibly why overall attitudes towards IT of respondents at CNB are the most positive among the five sample banks. This suggests that training in the company is very important, and that continuing training/education reduces the fear of IT and concerns about the transition into new environments, thus improving productivity. In particular, respondents both at SHB and at CNB indicated that they were more satisfied with their IT-based work compared with those at other banks.

Of those who received training/education after entering the bank, only 13% indicated that the training/education had provided them with enough knowledge/skills for their jobs, while the majority (73%) did not agree that the training/education received was sufficient, and 14% were uncertain. This result is consistent with the survey of 100 computer users in 200 large and medium corporations by Burn and Caldwell [9]. This survey shows that companies are simply not meeting the training needs of their staff. Burn and Caldwell point out that, in many firms, technology itself, rather than the training for its effective use, was given the highest priority.

Among those who received training/education at the bank, 78% attended internal bank courses to get training for IT, 22% attended courses which were organized by vendors, and 15% attended courses organized by external institutions. In a further analysis, Table 7 shows that 51% of those who received training/education by vendors thought it was enough or were uncertain, while only one-quarter of respondents who received the other two types responded in these categories.

Table 7. Perceived Satisfaction Rate according to Types of Training/Education (%)

Places	Satisfaction Level(%)				Total(%)
	Never	Not Enough	Uncertain	Enough	
In the bank	4	69	15	12	100
Institute	9	69	13	9	100
Vendor	--	49	20	31	100

Of the participants who attended external courses, including vendors courses and institute courses, 81% responded that the full cost was paid by the bank, 15% paid themselves and only 4% shared the cost with the bank. All respondents at KEB indicated that the full costs were provided by the bank, while 26% at CBK and 12% at CHB paid the full costs by themselves. In addition, 89% of respondents identified that the IT training took place in the normal working hours and they did not have to sacrifice their free time for training purposes.

Since most external training/education covers more general applications and takes place during normal working hours, a question was asked as to which obstacles kept respondents from taking advantage of external training opportunities. Six possible choices were provided: courses were not available at a convenient time, not available at convenient locations, good training programs were not available, respondents were too tired, respondents had money difficulties and no opportunities were available. However, as most internal training/education courses are specific to the job-tasks and last for only a short period, these were ignored for analysis purposes. The results (Table 8) were rearranged from the original questionnaire order to be in ascending order of the agreement mean value. Response alternatives were as follows:

1 - strongly agree, 2 - agree,
3 - disagree and, 4 - strongly disagree.

As shown in Table 8, the first three reasons - opportunities were not available, courses were not available at convenient time, and courses were not available at convenient locations - gained agreement from more than half of respondents (71%, 61% and 52%, respectively), indicating that these were thought to be the most crucial reasons for not receiving training/education. In contrast, the remaining three reasons - good programs were not available, respondents had money difficulties and respondents were too tired - received disagreement from about three-quarters of respondents (75%, 73% and 75%,

Table 8. Main Obstacles for External Training/Education

	strongly agree	agree	disagree	strongly disagree	Mean	S.D.
1) opportunities were not available	18	53	27	2	2.147	.727
2) courses were not available at convenient time	12	49	31	8	2.350	.791
3) courses were not available at convenient location	7	45	40	8	2.494	.734
4) good programs were not available	3	22	64	11	2.834	.642
5) money difficulty	3	24	56	17	2.871	.713
6) were too tired	2	23	55	20	2.946	.702

respectively), indicating that they were not considered important reasons to discourage external training & education.

A one-analysis of variance was used to investigate the differences of opinion among respondents at the five sample banks. However, no significant differences were found between the banks concerning obstacles for external training & education. Subsequently, t-tests were conducted on the 6-items to test if there were significant differences between scores attributed by those with different educational entrance qualification, and by gender. No significant difference was found between different educational qualification. For gender, one item revealed significantly different opinions: opportunities were not available. Here, female participants indicated higher agreement than their male counterparts (mean value=1.94 of female, 2.18 of male; t-value=2.41, $p<.02$). This suggests that female participants felt that less opportunities were available to take part in external training/education courses. This may be due to banking policy, where male workers are expected to stay until their retirement and to be promoted to management levels, whereas their female counterparts are not expected to do so, mainly due to cultural circumstances [6].

4.3. Attitudes Towards Further IT Training & Education

With respect to participants' attitudes towards further training/education to improve the efficiency of IT and aid the success of the new information systems, a question was asked as to whether participants would accept training/education in the future. The majority (88.5%) answered that they would like such opportunity in the future, followed by 10% who would consider it, while only 1.5% responded that they would absolutely refuse.

According to a one-way analysis of variance, respondents at KEB significantly differed from those at CBK, where the latter group perceived less willingness for training/education than the former group (F-Ratio=2.65, DF=4, $p<.03$). T-tests were conducted to discover if significant differences were apparent between respondents with different educational entrance qualifications and between sexes. No significant differences were found in either test. This suggests that most people in the bank tend to be positive about their IT-based work and seek further training/education in order to adapt to the new environment.

To discover the principal factors that affect the successful training/education for IT-based knowledge and skills, further questions were asked regarding location, time, and appropriate period. All these three questions were asked to only those who answered "consider" or "accept" training/education in the future at the previous question.

Firstly, regarding the location where respondents would like the training/education to take place, respondents choices were "at the bank itself", "external to the bank" and "a combination of at the

bank and at external locations": the majority (54%) of participants would prefer the final category, followed by 26% who would prefer it to take place externally, and just 20% who chose "at the bank itself". The results suggest that most trainees would like to be free from their work place during training periods, though as we saw earlier, older employees tend to prefer training at their workplaces. This is consistent with the findings of a case study by Mortimer and Stubbs [30] who found, that nearly three-quarters of trainees had to postpone at least one session because of work in the branch. All five banks shared the same opinions.

Secondly, with respect to the time that training/education should take place, almost half (51%) of respondents indicated that the training/education should take place during normal working hours. This was followed by the perception that training should take place in a combination of working hours and after work (as indicated by 29% of respondents), and finally, 20% of respondents felt that training/education should be undertaken after work hours only. According to a one-way analysis of variance, no significant differences were found between the different banks.

Lastly, concerning the most suitable duration of the training/education, five different periods were listed: less than a week, up to two weeks, up to a month, up to three months and up to six months. Respondents most favored the "up to three months" period (28% of respondents), whilst the least favored was the "less than a week" period (7%). The other three periods were not perceived as favorable durations, with responses of 19%, 22% and 24% received respectively. The results suggest that people desired at least two weeks for training/education in order to be confident with their IT skills and knowledge. The results also support the findings of Mortimer and Stubbs [30] UK case study of Barclays Bank Plc where, as far as IT training was concerned, it was far easier to send someone on a course for two days than to organize an one-hour training session each day until the course was completed.

4.4. Attitudes Towards Relocation To EDPS Departments

In general, banks in Korea have not directly recruited EDPS specialists at the outset, instead they generally relocate existing staff to fill the posts at EDPS departments. Staff are relocated based on the results of aptitude tests taken at the beginning of the individual's bank career. However, most staff do not expect to be transferred to such departments and, therefore, tend to resist relocation to EDPS departments because the nature of work at such departments is quite different from the characteristics of banking work that they are used to. Thus it seems prudent to find the main problems arising from relocation and to suggest ways in which conflicts between management and staff can be avoided in advance. With the above in mind, participants were first asked: "If you are asked to transfer to one of the EDPS departments, to what degree would you be happy?". Of the responses obtained, 71%

indicated that they would be unhappy or very unhappy to be relocated to an EDPS department, whereas only 29% answered that they would be happy or very happy to do so.

One-way analysis of variance tests were conducted to investigate differences between importance ratings attributed by different banks, job levels, age groups and workplaces. All four independent variables revealed significant differences. Regarding the different banks, respondents at CNB revealed more positive attitudes than did those at KEB, indicating that the former group was happier to be transferred to an EDPS department (F-Ratio=2.53, DF=4, p<.05). With respect to different job levels, employees were more positive than management (F-Ratio=2.93, DF=2, p<.05). Concerning different age groups, the older respondents were the more negative in their attitudes about relocation to an EDPS department (F-Ratio=3.01, DF=4, p<.02). Overall, the results suggest that people in lower level positions and younger members of staff were more positive towards relocation to an EDPS department than other staff members.

T-tests were conducted in order to discover if people rated this issue differently according to their educational entrance qualifications, or according to gender. Regarding different educational entrance qualifications, those who had high school qualifications were likely to be happier about such relocation than those with a degree qualification (mean values of 2.28 and 2.10 respectively; t-value = 2.47, p-value = .015). In terms of gender, female participants were likely to be happier about relocation (mean values = 2.55) than their male counterparts (mean value=2.14) (t-value = -3.67, p-value = .001).

In order to find out the main reasons for respondents' unhappiness about relocation, respondents were asked to state their level of agreement on 4-point scales with five possible reasons (see Table 9). Only respondents who indicated unhappiness in the previous question were required to respond to this section. The table arranges items according to the stronger agreement values.

As shown in Table 9, the majority (83%) agreed that the type of work at EDPS departments did not match their aptitude and capability. This reason was followed by the fear of being deprived of the

Table 9. Main Reasons to Resist the Relocation to EDPS Departments (%)

	strongly agree	agree	disagree	strongly disagree	Mean	S.D.
1) inappropriate aptitude	24	59	14	3	1.952	.704
2) deprivation of the banking characteristic job	24	53	20	3	2.032	.754
3) lack of computer background	13	54	26	7	2.271	.783
4) too confused/complicated	5	39	50	6	2.570	.690
5) too simple/routine	4	15	70	11	2.882	.645

characteristics of banking work (77%) and the perception of not enough computer experience (67%).

Regarding the remaining two reasons, the perception that the work was too confused/complicated gained agreement from 44% of respondents and the perception that the work was too simple/routine received agreement from only 19% of respondents. The results suggest that machine oriented problems, such as reflected by the latter two reasons, are not important factors causing reluctance to relocate, but that more personal reasons cause the resistance of job transfer. These results are in line with a manager's complaint in an interview "Once transferred to EDPS departments, we should finish our careers here regardless of our intention and aptitudes". This manager's complaint is very similar with others from most banks and most interviewees, including general banking workplaces and EDPS departments. This suggests that, unlike end-users at the front-office or back-office, as work in EDPS departments would heavily involve technical aspects, the present selection system for EDPS staff members should be reconsidered to minimize conflicts and improve productivity in EDPS departments.

One-way analysis of variance tests were conducted to examine if significant differences of opinion were apparent for four independent variables: banks, job levels, age groups, and workplaces. No significant differences were found between the five sample banks concerning the main reasons for resisting relocation to EDPS departments. Regarding the different workplaces, one item was found to be significantly different, namely the "too confused/complicated" reason. Here, employees within the lower three job levels were more likely to disagree with the latter reason than management (F-Ratio= 3.91, DF=2, $p<.05$). With respect to the different age groups, three reasons revealed significant differences, namely, "too confused/complicated", "the fear of being deprived from characteristics of banking work" and "lack of computer background". For the first and third reasons, the older groups (over 40 years) had higher agreement levels than the younger groups (up to 30 years) (F-Ratio =4.71, DF=4, $p<.005$). For the second item, the middle age group (over 30 to 40 years) indicated more agreement than the older age group (F-Ratio=2.73, DF=4, $p<.05$). Lastly, concerning the different workplaces, just one reason revealed significant differences: "too confused/complicated". Here, participants at branches or representative offices indicated less agreement than those at other departments at head office (F-Ratio=4.51, DF=2, $p<.01$).

T-tests were conducted on the five reasons in order to test if there were significant differences between scores attributed by those with different educational entrance qualifications, and by gender. Regarding different educational entrance qualifications, only one reason revealed significant differences: the perception of inappropriate aptitude. Surprisingly, those with a degree educational entrance qualification agreed more with this reason than those with a high school entrance qualification (mean value=1.8 and 2.04, respectively; t-value=2.00, $p<.05$). For gender, just one reason had significantly different agreement levels: the fear of being deprived of characteristics of banking work. Male respondents agreed more with this reason than their female counterparts (mean values of 2.00 and 2.38, respectively; t-value = -2.96, p-value = .01).

The results support the contention that individuals are more satisfied with job relocation that leads to career advancement, than transfers where relocation offers no such opportunities [8, 18, 20, 34] and that staff are more willing to move for promotional purposes than for lateral or lower level positions, despite a change of their job characteristics [31].

However, without effective selection and training, substantial long-term costs may result through the dependence on people who lack the necessary competence or motivation [14]. Such personnel deficiencies are undoubtedly expensive in the long term, due to poor performance and/or the need to replace or retrain unsatisfactory employees. Also, when staff members do not have sufficient skills to do the job properly, this often leads to demoralization, in addition to the obvious negative effects on productivity. Cleg et al. [14] also argue that one reason why the UK's economy is not strong enough to compete in the world market compared to Japan's is a lack of training/education. Cleg et al. [14] substantiate this contention by quoting an investigation by the UK Department of Trade and Industry for organization of offices which had installed computer-based equipment, which concluded that in Britain only 0.01% of sales revenue was spent on training; whilst the corresponding figure in Japan was found to be 5%.

5. Summary and Conclusion

Regarding training/education for IT-based work, there was a strong level of agreement in attitudes of respondents from the managerial, employees and union surveys. For attitudes towards IT-based work, a great majority were unhappy because of lack of training/education and poor user manuals, even though they perceived that IT had greatly improved bank efficiency. However, the more machine related problems were not regarded as the main obstacles for the effective undertaking of their work. Whilst a majority understand computer concepts/terminology, most people want additional training/education to improve their knowledge and skills, and to fit them to their work. Although their staff were short of training/education before their starting job compared to other organizations, banks which invested in continuing training/education, showed more positive attitudes towards IT work, resulting in high job satisfaction for their staff.

With respect to training/education received thus far, only a few (13%) were satisfied, whereas a great majority thought that the training/education was not enough to undertake their IT relevant job tasks. Regarding attitudes towards further training/education, people preferred a combination of internal bank and external places, and would rather participate in such programs during normal working hours. In order to obtain proper IT-based knowledge and skills, respondents felt that the most effective training period would be over one week in duration. Concerning transfer to one of the EDPS departments, more than two-thirds resisted the relocation because of inappropriate aptitude and the

deprivation of the perceived banking job characteristic rather than for technological difficulties. Overall, people in the younger and middle age groups were more positive to IT-based work. People with lower educational qualifications and female staff were less resistant to information technology.

6. Limitations and Suggestions for Further Research

First, since there is no empirical data in Korea on this area, it is almost impossible to set up clear hypotheses to test them. Stacey [39:p.6] states that in an unknown area it is impossible to set up sufficiently clear hypotheses for testing to form the basis of research. Therefore this study took as its starting point exploratory assertions resulting from a questionnaire rather than strictly formulated hypotheses. Further research could be well conducted by setting hypotheses based on the research findings of this study.

Second, due to the limitations of time and cost, comparisons could not be made between developed and developing countries in this study. Studies are needed to explore the similarities and differences between developing and developed countries regarding their experience with IT. These will give valuable information to industry managements, to government policy makers, academic researchers and students in these vital areas.

Third, in order to obtain proper IT-based knowledge and skills, respondents perceived that the most effective training/education could be achieved in a training period of at least a one-week duration. However, the author is sceptical that people can identify the optimal duration since this would be affected by several factors such as levels of knowledge/skills and levels of task achievement. Thus research should be conducted to identify the main factors that determine potential benefits of training/education for IT.

Lastly, this study found that people with a lower educational level were less resistant than higher educated people towards IT, even though the former are usually the groups most adversely affected by IT in developed countries. Some hypothetical reasons for this finding were suggested, but only further research can give an acceptable explanation.

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Appendix 1: Questionnaire

** INSTRUCTION: Please tick only one answer at each question except for particular instruction(s) or fill out the bracket with proper words. It would be very useful if you could comment on various issues relevant to this project.**

Ⅰ. General Information

1. What is the name of your Bank? :
2. What is your gender? : Male ( ) Female ( )
3. What is your age? : years
4. Your marital status : Single ( ) Married ( ) Other ( )
5. What is your position?: Manager ( ), Employee ( ), Union Employee ( )

* For the purposes of this study, "work place" means the place you are working at moment e.g. branch, department etc.

* H.O.= Head Office * H.Q.=Head Quarter

Ⅱ. Training and Education for Information Management and Information Technology.

1. Are you happy to do IT relevant job?

1)very happy( ) 2)happy ( ) 3)unhappy ( ) 4)very unhappy ( )

2. If your answer is **'3) unhappy'** or **'4) very unhappy'** at **'Q.1'**, what is the main reason?

3. How well do you know computer concepts/terminologies?

	storngly agree	Agree	Disagree	Strongly disagree
1) don't like				
2) too confused/complicated				
3) too simple/routine				
4) user's poor manual				
5) lack of training				

1) never learned ( ) 2) don't know well ( )

3) understand ( ) 4) well ( ) 5) Very well ( )

4. To what extent do you need additional training/education?

1) nothing ( ) 2) a little ( )

3) a lot ( ) 4) quite a lot(from the basic concepts) ( )

5. Did you have 'Training/Education' for IT before your job in the bank?

Yes ( ) No ( )

6. Did you get 'Training/Education' for IT after your job in the bank? :

Yes ( ) No ( ): Go to 'Q.9'.

7. Have they/it provided you with enough knowledge/skills for your job?

1) never ( ) 2) not enough ( )

3) uncertain ( ) 4) enough ( )

8. Which course(s) have you attended to get training for IT(tick each one taken)?

1) internal bank ( ) 2) institute courses ( )

3) vendor courses ( ) 4) others(specify):

9. Have you taken part in external training for IT?

Yes ( ) No ( ): Go to 'Q.12'.

10. Who paid the cost?

1) Bank ( ) 2) Yourself ( )

3) Shared with bank ( ) 4) Others(specify):

11. Did it /they take place in business time? : Yes ( ) No ( )

12. Which obstacles do you think kept you from taking advantage of external training opportunities?

	Strongly agree	Agree	Disagree	Strongly disagree
1) courses were not available at convenient time				
2) courses were not available at convenient places				
3) good programs were not available.				
4) have not the energy				
5) money difficulty				
6) opportunities weren't available				

13. When you will be given opportunities to get 'Training/Education for IT in the future, what will you do?

1) consider ( ) 2) accept ( )

3) absolutely refuse ( ) 4) other(specify):

If your answer is '3) absolutely refuse' at 'Q.13', go to 'Q.15'.

14. What kind of IT 'Training/Education' methods do you like?

1) Place: a)Internal bank ( ) b)External place ( )

c)Mixed with a) and b) ( )

2) Time : a)During working hours ( ) b) After working hour ( )
c)Mixed with a) and b) ( )

3) Appropriate period :
a) less than a week ( ) b) up to two weeks ( )
c) up to a month ( ) d) up to three months ( )
e) up to six months ( ) f) other(specify):

15. If you were asked to transfer to computer relevant departments, to what degree would you be happy?
(Those in computer relevant departments are required to tick the present condition).
1) very unhappy( ) 2)unhappy ( )
3) happy ( ) 4)very happy ( )

* Those who answered "3) happy" or "4) very happy", go to "Section. 5. Future".

16. If you answered "1) very unhappy" or "2) unhappy" at 'Q.15', how much do you agree to the following reasons?

	Strongly agree	Agree	Disagree	Strongly disagree
1)inappropriate aptitude				
2)too confused/complicated				
3)too simple/routine				
4)deprivation of the banking characteristic job				
5)lack of computer background				

* Training means including education.