Chapter 5
Summary and Conclusion

5.1 Prologue

Banking industry in the country had acquired an important place in the country's economic development and therefore the wage structure and a good scope for career attracted a large number of youth in the country. Selecting a right person was an important task and hence there was a need for introduction of a scientific method for selection of banking personnel. The present study was aimed at establishing the selection efficiency of the selection process. Objective type tests being an important tool in the selection process, the validity and reliability of the tests was established against the job-performance as well as the job-satisfaction of clerical cadre employees recruited in public sector banks.

5.2 Introduction

Banking industry has acquired an important place in the world as they contribute significantly to the economic development of a country. With expansion of Banking Industry in India, job opportunity in banks also increased manyfold. The attractive wage structure combined with job security resulted in large number of youth getting attracted towards bank jobs. With this, bank recruitment assumed an important place. Selection of right people with utmost objectivity became an important task. Till nationalisation of banks in 1969, each bank had its own selection strategy. Some banks used written test and interview as selection tools while some other banks did their selection only through interview. With nationalisation of banks, the need for objective selection using established uniform selection strategy became important.
In the year 1972, National Institute of Bank Management (NIBM) introduced the use of objective tests as a selection tool. With the use of objective tests which assessed various aptitudes objective selection of right personnel out of a large number of applicants for the banking industry became possible. For evolving the objective selection system, a task force was constituted comprising bankers and academicians. The task force identified the characteristics essential for the bank jobs and then recommended suitable tool/technique to measure these characteristics. A battery of objective tests comprising Test of Reasoning, Test of English, Test of Numerical Ability and the Test of Clerical Aptitude was used. These tests assess intelligence, facility with English language, facility with numbers and ability to work with speed and accuracy respectively. Weightages for these tests were decided depending upon the importance of the test.

In 1974, Deshpande et.al studied 'Relationship between Job Performance of Clerical Employees and Type of Selection Test Objective and Descriptive'. The results of the study indicated the strength of objective tests vis-à-vis descriptive papers in clerical selection. In 1977, Mankidy carried out a study - 'How appropriate was the Clerical Selection?'. The study confirmed that the selection strategy evolved at NIBM has been more effective in selection of clerks as compared to the traditional system of selection.
Handling activities related to selection of personnel in banking industry, became a major activity of NIBM after evolving the objective selection system in 1972. NIBM, therefore set-up a separate unit named 'Personnel Selection Services' (PSS) Unit. The PSS unit demonstrated the effective way of handling various operations involved in recruitment. With continuous expansion of banking industry and increasing activities related to selection, the PSS unit too expanded. In 1984, the PSS Unit of NIBM was converted into an autonomous institute under the name 'Institute of Banking Personnel Selection' (IBPS).

5.3 Need for the study

NIBM, after introducing a selection system involving use of objective type tests in 1972, carried out various studies to establish an improved and effective, objective selection system for the banking industry. These studies were carried out between 1970 to 1979. The banks were doing their own recruitment with the help of NIBM till the introduction of Banking Service Recruitment Boards (BSRBs) in 1978. In 1978, BSRBs were introduced and the recruitment for banking industry was done by the BSRBs following uniform system under guidelines from the Banking Division, Ministry of Finance, Government of India. Though the basic selection system with written examination comprising objective tests and a descriptive paper followed by personal interview as selection tools, remained the same. The structure of written examination was modified as decided in the periodical meetings of the Committee comprising members of
BSRBs and NIBM/IBPS. These decisions were taken on the basis of experience over the years supported by analysis of data in the respective area. However, no detailed study was undertaken in past twenty years between 1980 and 2000. The review of related literature and studies revealed that there was no validity study carried out against the performance of Bank Employees during past two decades.

Therefore, it became necessary to carry out a detailed empirical study to examine the relevance of present selection system being used for the banking industry by IBPS. The present study is an attempt to examine the present selection system thoroughly, considering various aspects involved in the selection system and suggest suitable modifications in the structure of objective type part of the written examination if necessary. Ultimate aim in the process, being job-performance of the selected personnel, emphasis was on the relationship between performance on objective type tests vis-à-vis job-performance and job-satisfaction. Thus the study was meant to establish the relationship between objective type tests as a selection tool and the job-performance and job satisfaction of the selected personnel.
5.4 Statement of the Problem

A critical study of the reliability and validity of the battery of selection tests with special reference to the relationship between job-performance and job-satisfaction of the banking personnel.

5.5 Objectives of the Study

The present study aimed at exploring the relationship between the objective tests used as a selection tool and the job performance and job satisfaction at clerical level in banks.

Following were the major objectives of the study:

1. To determine the empirical validity and reliability of the tests.
2. To study the relationship between the performance on battery of objective type tests used for selection of bank employees and their performance at job.
3. To study the relationship between the battery of objective type tests used for selection of bank employees and their job satisfaction.
4. To study the relationship between job-performance of the bank employees and their job-satisfaction.
5. To study the effect of change in position of items in a test on the candidates' performance.

6. To suggest ways and means to improve the construction and administration of the tests and processing of the results.

5.6 Definition of Terms

A brief explanation of various terms used in this study is given below.

1. **Battery of Tests** - is the battery of four objective type tests viz. Reasoning Ability, English Language, Numerical Ability and Clerical Aptitude. Each test consists of 50 items. The battery of tests was used as a selection tool for selection of clerical cadre employees in banks.

2. **Job-Performance** - is the performance of clerical cadre employees in banks as measured by a particular instrument.

3. **Job-Satisfaction** - is the satisfaction at job of clerical cadre employees by the task assigned to them in banks as measured by a particular instrument.

4. **Job Description Index** - is the Job Description Index, a tool constructed by Smith P.C., Kendall L M & Hulin Charles for measurement of job-satisfaction as described in Cranny et.al(1992, pp.56-59).
5. **Performance Rating Proforma** - is the proforma designed by the researcher for assessment of performance of the subjects in sample.

6. **Employee** - Here the term employee refers to the persons selected and recruited for job in banks at clerical level through Banking Service Recruitment Board, Mumbai on the basis of written examination conducted in June-1998.

7. **Supervisor** - the officer to whom the subjects in the sample were reporting; also referred to as "reporting authority".

5.7 **Significance of the Study**

Banks play an extremely important role in the economy of the country. In the era of competition with a large number of co-operative banks, private banks and foreign banks coming into the business it had become more important for the public sector banks to progress constantly and take the leading position in the race. The performance of employees at various levels viz. officers and clerical levels contribute significantly to the performance of the bank as an organization. The employees job-satisfaction was equally important since it had direct influence on the employees performance and ultimately the performance of the organization.

The present study intended to provide input for the Banking Industry for deciding their future selection strategy. Its relationship with the job-performance and the job-satisfaction of the candidates recruited
through these tests would strengthen the role of objective tests in the selection process. At the same time the study would also throw light on the scope for improvement in the tests. Further, though BSRBs had been abolished and Public Sector Banks were handling their own recruitment process, objective type tests continued to form an important part of the selection process being followed by all the public sector banks.

5.8 **Scope and Limitations of the Study**

Following were the scope and limitations of the study

5.8.1 **Scope of the Study**

The present study provided scope for -

(i) studying the relevance of objective type tests in relation to the performance and satisfaction of the selected employees at job.

(ii) Examining the structure of objective type tests being used as a selection tool.

(iii) Suggesting modifications in the structure of battery of objective tests.

5.8.2 **Limitations of the Study**

The present study had following limitations:

(i) The study was restricted to the State of Maharashtra,

(ii) The candidates who did not perform well on objective type tests and therefore were not recruited in banks but who might have performed well on the job could not be considered for the study.
(iii) Scores on descriptive paper could not be considered for comparison.

(iv) Performance in interview could not be considered for comparison.

(v) Majority of the subjects in sample were from Mumbai City as the response from other places was poor.

(vi) Study was restricted to the year 1998-1999.

(vii) Study was restricted to the Clerks employed in Public Sector Banks.

5.9 Design of the Study:
Design of the study was as follows:

5.9.1 Sample
Samples as described below were used for different stages of analysis

5.9.1.1 Sample for Item Analysis

Out of the total candidates appeared for the written examination, a sample of 25938 candidates was selected. This was distributed over eight forms. For the present study 3188 candidates for form no.111 and 3215 candidates for form no.555 were considered. Answersheets of these candidates were used for the analysis. While scanning the answersheets for a particular examination, answersheets are scanned in lots of approximately 20,000 answersheets. Basis for selecting the sample was nothing but the first lot of answersheets that were scanned. First lot was
considered since the analysis was used for finalising the right answer key. Candidates in the sample were from Mumbai and Thane centres.

5.9.1.2 Sample for Reliability of the tests

Out of the total candidates appeared for the written examination 26843 candidates belonging to 'General' category were considered ignoring the candidates belonging to SC, ST, OBC, Ex-Servicemen and Orthopeadically Handicapped candidates. 13527 candidates belonging to General category in the morning and 13316 candidates in the afternoon sessions were considered separately since the test-batteries for the two session were different. Means and standard deviations for each test for the two sessions on raw scores obtained by counting the right responses and giving no penalty for wrong responses were considered.

5.9.1.3 Sample for Validity of the tests

Banking Service Recruitment Board (BSRB), Mumbai released an advertisement in early 1998, calling for applications against 425 clerical cadre vacancies in various public sector banks for the branches located in the State of Maharashtra distributed over 7 zones viz. Mumbai, Pune, Nasik, Kolhapur, Aurangabad, Nagpur, Goa. The written examination was scheduled on 7.6.1998.

Sample comprised of the candidates who were put through the selection process for clerical cadre through BSRB Mumbai, written examination held on 7.6.1998 and were selected for posting in various banks. The candidates were posted in branches of different banks located


in different towns of Maharashtra State. BSRB had selected 377 candidates against 425 vacancies. However, a good number of candidates either did not accept the offer or resigned soon after joining. The candidates who joined and continued to work in the bank considered as subjects in the sample and were sent the questionnaire. However, response from candidates placed in rural and remote areas was very poor. The questionnaires duly filled up were received back from 92 candidates, which made up the sample for the study.

5.9.1.4 Sample for Multiple Regression Analysis

Those 92 candidates who were finally selected and posted in the banks through the selection process, continued to work in the banks and whose questionnaires were received back were considered as the sample for multiple regression analysis.

5.9.1.5 Sample for Effect of change in item position

Out of the total candidates appeared in the written examination those candidates who had secured between 60% and 74% marks at HSC and were not graduates were considered. This was done with the purpose of making the sample as homogeneous as possible. The 16 items considered for analysis were from the Test of Numerical Ability in the afternoon session data as regards responses to these 16 items of 3607 candidates who had secured between 60% and 74% marks at HSC, were not graduates and appeared in the afternoon session were considered.
5.9.2 Variables

1. Objective Type Tests comprising -
   (a) Test of Reasoning
   (b) Test of English Language
   (c) Test of Numerical Ability
   (d) Test of Clerical Aptitude
   (e) Total Weighted Score (TWS)

2. Job Performance - includes the measure of performance rated by the supervisors of the subjects.

3. Job Satisfaction - includes measure of satisfaction measured through JDI on following facets -
   (a) Work itself
   (b) Supervision
   (c) Coworkers (people)
   (d) Pay
   (e) Promotion

5.9.3 Tools Used

Following tools were used.

5.9.3.1 Data Gathering Tools

1. Battery of objective type tests used by IBPS for selection of clerical level employees in banks through BSRB - Mumbai in 1998 examination.

2. Performance Rating Scale, was a proforma specially designed and was a combination of descriptive rating scale and five point scale.
3. Job Description Index (JDI) is a scale developed by Smith et.al for measurement of job satisfaction. It identifies five facets viz. work, supervision, co-workers (people), pay and promotion.

5.9.3.2 Statistical Tools

1. Means, Standard Deviations were used for item analysis and for calculation of reliability coefficients.

2. Correlations
   (i) Point Biserial Correlation for calculation of discrimination index in item analysis.
   (ii) Internal Consistency by KR-21 formula for establishing reliability of the tests.

3. Decision Making Accuracy for calculation of validity indices.

4. Multiple Regression Analysis to establish the predictability of tests was used.

5. Item Characteristic Curve for the study of effect on change in position of item.

5.9.4 Data Collection and Methodology

Subjects in the sample were put through selection process comprising objective type tests, descriptive paper and interview. Scores on objective tests were considered as one of the major variables for the present study. Scoring of the objective tests and processing of results on objective tests was done by IBPS. Data as regards performance on objective tests was made available by the IBPS. Details of candidates finally selected after evaluation of
descriptive papers and interview and the banks to which the candidates were posted was made available by BSRB Mumbai. Further details as regards branch and place of posting was made available by the respective banks. Data as regards job-performance was obtained through the proforma specially designed for this purpose, based on the ratings given by the supervisors under whom the subjects were working. Data as regards job-satisfaction was obtained through the questionnaire viz. Job Description Index (JDI), which was filled up by the subjects themselves.

The performance rating proforma was designed by the researcher and its validity established. For this purpose the proforma was given to the experts viz. three senior faculty members from IBPS who were psychologists or educationists and two bankers for observations. The proforma was finalised taking into account the observations received from the five experts. Copies of this proforma were given to ten officers (supervisors) from Union Bank of India for filling up on trial basis, which was okayed by all of them.

For actual collection of data regarding job-performance and job-satisfaction the researcher personally visited some of the banks and personally met the candidates and their officers (supervisors) under whom they were working. The purpose and how to fill up the questionnaires was explained to them. Contact with some of the candidates and their supervisors was done over phone. Communication with those candidates who were posted outside Mumbai City was done through letters.

Before finalising the scores and results on objective tests by IBPS, item analysis was carried out to find out the discrimination index (D-Value) and the facility index (p-Value) of each item. This provided distribution of items in combination of ranges for D-Value and p-Value. Reliability of the tests was
established by the method of rational equivalence using KR-21 formula. Criterion related validity of objective tests was established against the criteria of job-performance and job-satisfaction. Here the validity of the tests was taken as the "extent of accuracy in decision making" and the validity index as the ratio of correct decisions to the total decisions. The candidates on each variable viz. each of the four objective tests TWS, job performance and job-satisfaction, were classified into two groups low-performers and high-performers. Those above average were considered as high performers while those below average were considered as low performers. Correlations for different combinations of variables were worked out on the basis of performance on respective variable. Cases with high performance on both the variables as well as low performance on both the variables were considered as correct decisions. As an attempt to make the estimate on job-performance and the job-satisfaction on the basis of performance on objective tests, multiple regression analysis was carried out. Effect of change in position of item in an objective test on the performance was also studied. The study was based on the percentage of candidates giving correct answer for an item when placed in different positions.

5.10 Analysis, Procedure and Findings

Procedure and Findings of the Analysis were as follows:

5.10.1 Analysis

Data was analysed in stages described below:

5.10.1.1 Item Analysis

Item Analysis was carried out in the form of Quintile Analysis through a program developed at IBPS. It highlighted the items for which there was an ambiguity about the accuracy of the right answerkey provided. It provided the
summary of each test viz. TR, EN, NA and CA for each of the sessions morning and afternoon which displayed the spread of items in the test in various ranges of p-values and D-values. The items which were highlighted due to doubtful right answer key, were also analysed. It was found that, right answer for some of the items was required to be changed, while some of the items were genuinely difficult and the candidates population responded in large number to a distractor due to higher difficulty level of the item and lack of knowledge. Overall the first three tests viz. Tests of Reasoning, English and Numerical Ability were having quite many difficult items and very few easy items and hence the tests came out to be difficult. The Test of Clerical Aptitude had quite many easy items and not a single item was difficult, hence this test was an easy test. Thus, overall the battery of objective tests was difficult and did not have a balance of easy and difficult items. However, since very few viz. 425 candidates were required to be selected out of about one lakh candidates, interest was focussed at only the superior candidates who could score well even on the difficult tests and therefore battery of objective tests being difficult was justifiable.

5.10.1.2 Reliability of the tests

The reliability coefficient for each test was calculated by the method of rational equivalence using formula KR-21. Reliability coefficients ranged between 0.73 and 0.95. For each session, reliability coefficients for TR were the lowest while those for CA were the highest. The reliability coefficients even for TR were reasonably high and all the tests were highly reliable and consistent.

5.10.1.3 Validity of the tests

Validity of the tests was established against job-performance and job-satisfaction. Since the purpose of the tests was selection of right candidates for
appointment in banks, decision making accuracy was considered of utmost importance. Therefore the validity indices were calculated in terms of decision making accuracy. Objective type tests TR, EN, NA, CA and TWS were the independent variables, while five JDI facets viz. work, supervision, people, pay, promotion; overall job satisfaction (JS) and Job-performance (JP) were the seven dependent variables. Job Satisfaction was measured by already established tool 'JDI' and job-performance was measured by a specially designed proforma. JS was the JDI total i.e. total of scores on five facets. Validity indices were calculated for the combinations of dependent and independent variables in terms of decision making accuracy. It was found that each of the objective tests as well as the Total Weighted Score (TWS) had a high level of selection efficiency. Therefore, in a selection made using the present selection procedure, about 90% of the selectees could be expected to be successful.

5.10.1.4 Multiple Regression Analysis

Multiple regression analysis was carried out to find out the predictive power of the tests. Four objective tests were considered as independent variables and JS & JP were the two dependent variables. It was found that 72% of the variance in job-satisfaction and 74% of the variance in job-performance could be accounted for by what is measured by four objective tests together. The Test of Clerical Aptitude followed by the Test of English had more predictive power as compared to the other two tests.

5.10.1.5 Effect on performance of candidates due to change in position of test items

Sixteen items in the Test of Numerical Ability were considered for this study. These items were at different positions in the multiple forms of the battery
of objective tests. Items were classified in three groups viz. L-Group of 7 difficult items, M-Group of 7 items with moderate level of difficulty and H-Group of 2 easy items. Graphs were plotted for each item when placed at different positions in the four (multiple) forms. Performance on objective tests was taken along the x-axis and the percentage of candidate population was taken along the y-axis. It was found that difficult items discriminate better for high performers while easy items discriminate better for low performers. Difference in performance on difficult items and also the items with moderate difficulty level, could not be attributed to the change in item position.

5.10.2 Findings of the Study

Findings of the study were as follows:

5.10.2.1 Findings of Item Analysis

1. Comparison of corresponding tables for each test in the morning and afternoon sessions revealed that distribution of items in various ranges of p-values and D-values for each test in the two sessions was comparable. This supported the fact that the tests in the batteries for morning and afternoon sessions were parallel.

2. In the Test of Reasoning little less than 50% items in morning and afternoon sessions had an acceptable level of D-values and p-values. TR was a difficult test.

3. In the Test of English for each session more than 50% items had an acceptable level of D-values and p-values. EN was a difficult test.
4. In the Test of Numerical Ability for each session more than 60% items were difficult items however, almost all the items had an acceptable level of discrimination index. NA was a difficult test.

5. In the Test of Clerical Aptitude for each session, almost all the items had good levels of p-values and D-values. This test had a good number of easy items (around 40% items were easy items). CA was an easy test.

6. Since the candidate population was large and only a few candidates viz. 425 were to be selected the tests of Reasoning, English and Numerical Ability being difficult was justifiable.

7. The test of Clerical Aptitude was easy. Since 70% of its items involved only matching name and address.

8. Quintile Analysis had taken care to avoid erroneous marking of right answer key for processing the answersheets.

5.10.2.2 Findings of Reliability of the tests

1. All the four tests for both the sessions were highly reliable and consistent.

2. The Test of Reasoning showed the lowest value of reliability coefficient while the Test of Clerical Aptitude showed the highest value of reliability coefficient.
3. Any test if re-administered probability of getting a score not differing by more than 6 would be .95. Thus, probability of getting a score of 30 in the range of 24 to 36 would be .95.

4. Any test if re-administered probability of getting a score not differing by more than 8 would be .99. Thus probability of getting a score of 30 in the range of 22 to 38 would be .99.

**5.10.2.3 Findings of Validity of the tests**

1. In a selection made using the present selection procedure, about 90% of the selectees could be expected to be successful.

2. Job Satisfaction had the highest value of validity index viz. 0.55 with CA (Test of Clerical Aptitude) followed by 0.53 with NA (Test of Numerical Ability), .52 with TWS (Total Weighted Score), 0.47 with TR (Test of Reasoning) and 0.40 with EN (Test of English).

3. Job Performance had the highest value of validity index viz. 0.57 with EN (Test of English) followed by 0.50 with CA (Test of Clerical Aptitude), 0.43 with TR (Test of Reasoning), .40 with TWS (Total Weighted Score) and 0.39 with NA (Test of Numerical Ability).

4. Job Performance and Job Satisfaction had a strong relationship.

**5.10.2.4 Findings of Multiple Regression Analysis**

1. Each of the four objective tests had significant positive correlations with job-satisfaction and job-performance.
2. Squared Multiple correlation for job-satisfaction as independent variable was 0.72. This indicated that 72% of the variance in job-satisfaction could be accounted for by what is measured by the four tests together.

3. Squared Multiple correlation for job-performance as dependent variable was 0.74. This indicated that 74% of the variance in job-performance could be accounted for by what is measured by the four tests together.

4. With JS as dependent variable, the test of Clerical Aptitude had the highest weight followed by the Test of English, Test of Numerical Ability and Test of Reasoning.

5. With JP as dependent variable, the Test of English had the highest weight followed by the test of Clerical Aptitude, Test of Reasoning and Test of Numerical Ability.

5.10.2.5 Findings of Effect on performance of candidates due to change in position of test-items.

1. ICC for each item was a rising curve from left to right on the x-axis.

2. Difficult items discriminate better for high performers than for low performers.

3. Easy items discriminate better for low performers than for high performers.
4. Items with moderate difficulty level had a good discrimination at all levels of performance.

5. For difficult items the difference in performance could not be attributed to the change in item position.

6. For items with moderate difficulty value, difference in performance for low performers was observed with change in position of items, while very little difference was observed in performance of high performers due to change in item position.

7. In case of easy items, difference in performance for the low performers was observed, while hardly any difference was observed for high performers due to change in item position.

5.11 Conclusion

1. All the four tests in the batteries for morning and afternoon sessions were designed to be parallel.

2. Test of Reasoning Ability, English and Numerical Ability were relatively difficult while the test of Clerical Aptitude was found to be easy.

3. Majority of the items in each test discriminated well.

4. All the tests were found to be highly consistent thus minimised error of measurement.
5. All the four objective tests as well as the Total Weighted Score (TWS) had a selection efficiency as high as .88 to .98. This indicated that at least 88% to 98% of the personnel selected on the basis of present selection system would be successful in performing the job and also would be well satisfied on all facets of job as well as on overall job.

6. Three-fourth of the variance in job-performance and job-satisfaction could be accounted for by what is measured by the four objective tests together.

7. Prediction equations enabled to estimate job-performance and job-satisfaction on the basis of the performance on four objective tests.

8. Test of Clerical Aptitude and the Test of English have more predictive power as compared to the other two tests.

9. The selection process was not affected due to change in item-positions because of shuffling within the page in four forms.
5.12 Implications of the Study

1. Though the Tests of Reasoning Ability, English and Numerical Ability were difficult, it was justifiable since very few candidates were required to be selected out of large number of applicants.

2. If we are required to select personnel with satisfactory level of job-satisfaction using a single objective test or only few of the four objective tests, order of preference for selection should be Clerical Aptitude, Numerical Ability, Reasoning Ability and English.

3. For selecting personnel who will be well satisfied at job the weightages to the tests should be in the order of Clerical Aptitude, English, Numerical Ability and Reasoning.

4. If we are required to select personnel with high level of job-performance using a single objective test or only few of the four objective tests, the order of preference for selection should be English, Clerical Aptitude, Reasoning Ability and Numerical Ability.

5. For selecting personnel who will perform well on the job, weightages should be given in the order of English, Clerical Aptitude, Reasoning and Numerical Ability.

6. Since the performance of high performers who are most likely to be selected, is not affected due to change in item position, strategy of shuffling the tests within the page can be well utilised to reduce the scope for candidates to copy the answers from each other.
5.13 Suggestions for future study

1. The study can be replicated to many other sample groups drawn from other parts of the country.

2. The descriptive paper performance may be included in predictive model.

3. The interview performance may be included in predictive model.

4. The study can be replicated to individuals with different levels of academic achievement.

5.14 Epilogue

A detailed study was carried out and presented in five chapters. Selection process was introduced, review of the literature and relevant studies was carried out and presented and its implications were highlighted. Methodology used was described in Chapter 3. Data was thoroughly analysed and the reliability and validity of the tests was established. It was established that the objective type tests had a very good level of selection efficiency.