Chapter 2

Review of others' work

2.1. Introduction

In present time, education has become a mass phenomenon in Sri Lanka. The load on education system has become very high but the policies and procedures related to admission, teaching, infrastructure and examination have not been streamlined to handle this vast load. Despite the best efforts, government bodies and universities have not been able to achieve much in maintaining desired quality standards of the technical institutions. External interference and pressure in all aspects of education such as admission policy, teaching process, faculty selection and examination system etc have played vital role in deterioration of quality of education. In order to achieve the perspective correspondence of the education of right quality, in May 2004 [27] the NIBM was brought under the purview of the Ministry of Skills Development, Vocational and Technical Education.
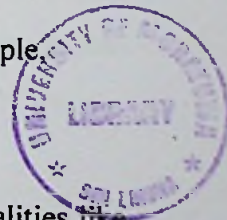
2.2 Examination Systems

Examination occupies a very significant place in a university or institutional system. Examination is an instrument to test what the student has learned and retained in his mind during course of study. University examinations have stimulating effect on both students and teachers. To the Student, it gives a goal toward which he is directed and impels him to attain that goal with in specified period of time. Examination may be used as a means to organize and integrate knowledge, it encourages student to go through various books and integrate ideas to respond to a given problem[1] .For a teacher too, examination gives a stimulus and goal orientation to his work. In a nutshell, we may say that examinations are inevitable, without examination the work of students and teachers will neither have precision and any direction. Examination is always an effective instrument to evaluate the

quality and quantity of knowledge or say learning in a specific field [14]. University examinations are conducted for each stage at the end of the academic session. There is hardly any month for which there is no exam. Examinations continue for months causing physical and mental stress both for students as well as for university administration. Declaration of results also takes very long time owing to which students remain ideal for months together. Moreover, the dates of examinations and those of declaration of result also vary between different universities, so sometimes students are not able to get admission to higher studies in the universities or academic fields of their choice. This process aims at measuring the degree of knowledge assimilated by the students during a course of study or training imparted to them. In technical education special emphasis is given to continuous evaluation of students' performance during a term or academic session.

The examination system should process the following features [2]:
- It should be an isolated system so that it can operate without fear, favor, pressure and prejudice.
- It should be based on sound principles, policies, and procedures directed towards the achievement of its goals.
- It should be governed by academic people and not by administrative people.
- It should have flexibility and adaptability to the changing needs.
- It should be transparent in policies and procedures.
- It should be manned by persons with appropriate qualifications and qualities like self discipline, accuracy, secrecy, time consciousness, high degree of integrity with the objectives of the system and complete understanding of their duties responsibilities.
- It should have adequate manpower to handle various functions of the system for avoiding the excessive work pressure on existing workforce which would otherwise result in error and delay.
- It should employ modern computing facilities and software to process enormous data and generation of documents to make these operations human independent.

2.3 Quality Problem in Examination System

2.3.1. Qualify of Practical Examination

Technical education attaches high importance to teaching and learning of practical aspects of various subjects. Practical examinations in many subjects are conducted orally that fail to examine experimental skills acquired by the students. Practical examinations are often conducted in great hurry disregarding the examination schedule which affects the quality of examination [15]. External examiners appointed for practical examinations do not turn up occasionally and the examinations are conducted by internal examiners thus defeating the system procedure and objectives.

2.3.2. Declaration of Results

In many universities, inordinate delay occurs in the publication of examination results leading to the following problems:-Students join higher semester without knowing their eligibility for the semester. This uncertainty lowers down their seriousness in their studies. Student failing in some subjects apply for reassessment. This facility lowers down their seriousness in their studies [18]. Thus delay in declaration of results has serious consequences in the management of academics and subsequent examinations.

2.3.3. Revaluation of Answer Books

It is the right of every student to be evaluated as accurately as possible. With a view to ensuring objectivity and transparency, universities should prepare and supply detailed marking scheme for the guidance of the examiners. However, in some cases lapses may occur due to various reasons beyond control, request for reassessment of answer book should be acceded to in order to provide justice to the students. During reassessment, the answer book is examined by another examiner and the mark awarded by the second examiner is taken as correct which may not always be true. In order to make this process more meaningful and reliable, reassessment must be carried out jointly by the original

examiner and one additional examiner from the approved panel of examiners for the concerned subject.

2.3.4. Award of Grace Marks

In order to increase the percentage of passing, sometimes grace marks are awarded by the university to some students. This policy is not based on any scientific moral and leads to deterioration of quality of technical education. The award of such grace marks should be discouraged.

2.3.5. Examination Schedule

Generally examination schedules prepared by the universities provide one or two day's gap between two consecutive papers. This practice prompts students to prepare for the examination during these gaps and distracts them from regular studies[21]. Resorting to examination schedules based no of daily examination will induce a habit of regular studies and advance preparation for examinations one hand and will result in early completion of examinations on the other.

2.3.6. Continuous Evaluation of Students' Performance

At present highest attention is paid by the universities, teachers, students and parents to the performance of students' in the terminal examinations. This induces a tendency of last hour preparation in great hurry leaving no scope for digesting the knowledge. Learning is a continuous process and hence evaluation of learning outcome must be done on a continuous basis. Thus examination schemes have to be redesigned attaching higher weight age to continuous evaluation of students' performance

2.4. Organization and Various Phases of Examination System

Organization of examination is a peculiar type of jobs involving different types of data processed and managed by different line branches within the examination wing of the university. Its complexity increases with the increasing number of examinations during the session. Right from the initial stage of students' enrolment to the final stage of the declaration of result, various jobs are required to be under-taken with proper care and sophistication.

In a typical government university, in order to understand examination systems, it is essential to understand the organizational structure of the university and sources of data. The university has campus teaching departments, distance education directorate and affiliated colleges spread across geographical jurisdiction. The university conducts examination for the students who are on regular rolls of these organs. Also there are students either failure candidates or who are authorized by the law to appear as private candidates in the examination. The regular students apply for examination through the head of the institutes they are studying and other students apply directly to the head of examination called Controller of Examinations (COE). The examination related data management can be divided into two phases [12];

2.4.1. Pre-Conduct Phase

In this phase the application form of the students are processed and all the relevant details of students like college code, registration number, fee details, paper code, hall ticket generation etc are created. Any discrepancy in form is communicated to the student so that it can be removed in time. This is one time activity carried out at least one month before the examination.

2.4.2. Post-Conduct Phase

This phase involves from sending answers sheets for evaluation, collecting evaluated answer books, tabulation of marks obtained, applying moderation or grace marks criteria,

declaration of results, generating & dispatching detailed marks cards (DMCs) etc. up to the processing student's request for revaluation. In this phase some processes can be carried out time and again like students can always ask for duplicate DMCs.

During these phases, the data related to students need to preserved for a specific period of time and some of the data like marks of the students and their registration need to be preserved for good in order to ensure future verification or to settle disputes arising about veracity of the university degree at anytime during the life time of the student. The branches of examination system viz. Registration Branch, Conduct Branch, Examination Branch, Evaluation Branch, Re-evaluation Branch, Secrecy Branch work in unison; therefore, generally all the branches are housed in the close vicinity or in the same building in a typical university system. These branches are manned by different officials by clearly defining their roles & responsibilities and they are accountable for any breach or any foul play with the examination activities [20]. All these data related activities are carried out by various examination branches in co-ordination as shown in Figure. 2.1.
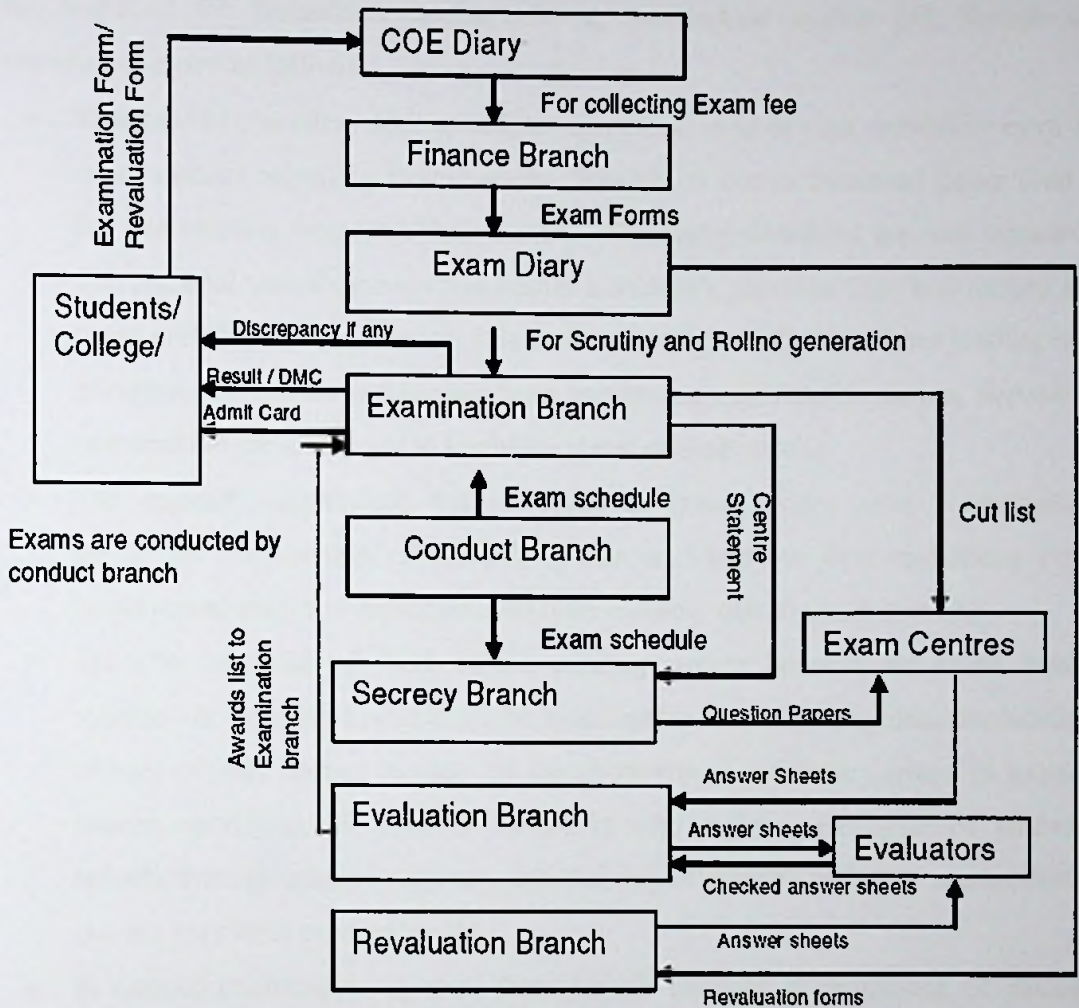
Figure 2.1: Manual Examination Activities of a typical university system.

2.5 Limitations of Manual Examination System

Though the manual examination system is organized in well defined physical branches, still the movement of paper based records is slow. The examination process in manual system continues for months causing both physical and mental strains over the examinees. Publication of results also takes a very long time owing to which students remain idle for months together. Sometimes the delay in declaration of result cause heavy losses to the students as generally they cannot join further studies or appear in competitive exams or join jobs because of the non-availability of examination result in

time. Some of the limitations of the existing examination system [4], though not comprehensive, are as follows:

- Students have to either correspond through postal mail or visit university even for minor queries regarding examinations. Sometimes due to increased paper load in the examination branches their correspondences/applications are not traceable. The personal visit to universities wastes a student's precious time and money and cause unnecessary harassment. It is a common sight to find students jostling near university in various service windows purchasing examination forms, depositing examination fee and to get to know the status of their results.

- The manual examination system leads to errors, more time consumption, inefficient and wastage of valuable resources. Moreover ever increasing paper based record registers are difficult to store securely due to space scarcity.

- There is repetition of work in the existing system because the same data is recorded in different branches of the examination. This leads to data duplications as well as huge money is spent by the university to purchase papers. In existing system, managing of students' record is very tedious. Retrieval of students' records through manual registers, maintaining of records and data reconciliation etc. are very time consuming [5].

- In manual examination system, there remain chances of tempering of students records. Sometimes fake degrees are prepared and there is no online verification of the same. This leads to unfair practices and also it mars the credibility of a university.

2.6. Existing Examination Management Systems

My project is on proposing Examination Management System for NIBM to effectively manage examination processes. Current NIBM examination system wastes time and makes many errors on schedule preparation and publication, repeat examination registration, result releasing, selection of awardees and result sheet issuing unnecessarily. My first attempt was to finding existing software applications which compatible with Examination Management System. So I started a survey on finding existing examination

systems in the world and I have identified some applications which are currently used by higher educational institutes and universities. They are listed below;

- Chancellor ERP
- Eduswift
- FS UMS 2010
- IDAA
- University ERP

2.6.1. Chancellor ERP

ERP product "Chancellor" is a multi-campus software solution. It has been developed with extensive research for well over a decade in the education domain. It follows processes based on education best practices. All the modules of Chancellor are fully integrated which automate the working of various departments and branches in a multi-campus environment. The data stored in the central server is secure and can be accessed through LAN or web browser. The Examination Module is designed to impart the knowledge of a student in the objective sense.

The Examination Module is designed to impart the knowledge of a student in the objective sense. Its features are Sets pass percentage criteria for internal and external exams, Dynamically sets exam schedule for external exams, Defines exam fee for different types of exams under various fees schemes, Sets course wise reappearing, re-evaluation and re-totaling fees per paper or max fee, Sets last dates for remittance and application of exam fees, Automatically calculates fine as per predefined fine slab, Provides to copy exam fee setting for other courses and branches, Allows to issue admit cards in bulk to the students of same branch, Automatically shows the list of student short of attendance at the time of issuing admit card, Promotes students to the next class thereby updating every record for the promoted student(s) which minimize all the manual efforts, Allows you to enter marks for external exams and training, Tracks re-evaluation and backlog applications and enters the marks separately. Reports are View detailed report on subject wise marks, View marks for particular student subject wise, individual

subject wise, marks% wise and rank wise, Detailed overall performance reports, View list of students appeared /reappeared for exams, View group wise training marks details, View re-evaluation result, View exam fee collection report, View list of applications for exams, re-evaluation and re-totaling, View course wise exam schedule for all or selected exam, View exam time table, View exam fee setting based on fees scheme, Course wise exam setting [22].

2.6.2. Eduswift

EduSwift School Management System is also excellent exam management software that can be effectively used to **create examination schedules**. Students and teachers have profile-based access to the schedule. Based on the grade in which a group of students are and the subjects they study, examination-related timetable is generated through this school exam management system. This exam management portal also takes into account those practical exams that have to be lined at the end of the examination schedule. This exam management software also gives the option to define whether the exam results will be shown as marks or grades [23].

2.6.3. FS UMS 2010

FS UMS 2010 is software developed according to the needs of Pakistani Universities. It makes university management easy, transparent & plays vital role in decision making. This software is equipped with a lot of reports concerning all the departments of the university including Student, Human Resource Teacher(S), Academics, Examination & Accounts (Fee Management & payroll).Features are one click reports for directors, teachers and accountants, Save unlimited data of all sessions and retrieve it any time you want, Find records, payment records, results of students in seconds, Get result grades, and transcripts of students automatically, Role based security to authorize operations of users in certain areas only, Developed in latest Microsoft based technology, User friendly and easy to use, Shipped with tutorial videos for ease of use, one click installer included, no need of experts, Backup restore utility included for easy backups & restoration of the database [24].

2.6.4. IDAA

iDaa's specialty extends to the management of educational resources beyond coursework. Our University Management System enables the smooth management of the different functions within a university. The product helps with all facets of university management: right from admissions, to academics, examinations, fees, financials, HR, student accommodation, events, placements, and facilities and transport fleet management.

The whole system is very easy to use, resulting in a very low ramp-up time for users to benefit from it. The UMS is also a secure system that needs very simple maintenance.

iDaa's University Management System is an end-to-end product that can be deployed by a university to simplify and streamline all its processes. A typical deployment would include extensive management of the institution's distance education programs.

The product also enables hybridization of traditional systems with online systems, so that no one is left behind for lack of computer knowledge. For instance, an applicant can enter his/her information to submit an application form, and the same can also be performed by a university administrator.

iDaa UMS can be used very effectively as part of a distance learning program. Capabilities for entering contact class attendance information, as well as details of contact classes and examinations are excellent features geared toward that group.

The UMS can also be used to generate hall tickets and provisional certificates for the students of the university, with options to customize the documents per university guidelines and specifications.

For administrators, the UMS provides an excellent means of tracking and managing the various administrative departments within the university. Along with iDaa's learning management solutions, the UMS works to automate most processes within the university, for more efficient working.

The UMS provides features that cover most of the functions within a university. The management system is, in its core form, an automation product. It automates the tasks that can be, allowing staff to focus on their core duties.

The features are Online admissions, including online notifications and application verification and approval, Academic management, including management of different colleges and courses, Examination management, with features to schedule exams, generate hall tickets, and generate certificates, Fee management, Complete and comprehensive financial and accounting module, HR and Payroll management, Student accommodation management, with options to allot rooms/dorms to students, and manage the canteen/mess, Discussion forums for alumni and placement assistance, Management of events and seminars, Transport fleet management to manage all the vehicles and their routes, Hospital management, with diagnosis, tests, and appointment capabilities, Interactive Reporting System includes Extensive reporting for a variety of parameters, Various types of charts including tables, bar charts, pie charts, Group report generation and Sub-report generation [25].

2.6.5. University ERP

The University ERP (Enterprise Resource Planning) is more of a long-term commitment than the integrated and specialized software solution for any educational institution for providing students, faculty, and staff with highly effective tools to help them support and improvise on learning, discovery, and engagement.

University ERP is primarily an initiative to replace universities administrative computing systems with a new integrated system. The processes that will be affected by the ERP implementation shall include Admission, Academics, Examination, Human Resource Management System, Financial Accounting, Budgeting, Research and many other areas. It provides for an effective Decision Support System to manage the entire operations and helps in taking timely decisions.

Implementing university ERP should thus be an ideal choice in improving and expanding student and faculty services in any university or educational institution. University ERP supports institutions of all sizes and types as an integrated suite of proven, scalable, enterprise-wide application on a single database [26].

2.6.6. Summarizing Features

Features	Existing Solutions				
	Chancellor ERP	Eduswift	FS UMS 2010	IDAA	University ERP
Exam Scheduling	YES	YES	NO	YES	YES
Repeat Registration	NO	NO	NO	NO	NO
Result View	YES	YES	YES	NO	YES
Awardees Selection	NO	NO	YES	NO	NO
Transcript Request	NO	NO	YES	NO	YES
Result Analyzing	YES	NO	NO	NO	NO

Table 2.1: Examination Activities of a typical university system.

2.7. Releasing Result

2.7.1. Deakin University-Australia

Before the final exam results are released, students will receive a letter advising how to access them. There are two ways to access the results on the results release day:

- o Online – the letter will contain:
  - the internet address for accessing your results online
  - a user ID
  - a personal identification number (PIN)
- o By SMS – students need to pre-register for this service each semester. Read the letter carefully and follow the instructions provided.

Students should contact the Business Services Group, Deakin University, if a letter notifying student of these arrangements is not received by the date shown at important dates and fees.

All candidates' final exam results are released on the dates shown in the CPA (Certified Practicing Accounts) Program professional level important dates. Students receive an official CPA Australia results transcript by post after the SMS and internet results release. If students do not receive a printed results transcript within two weeks after the advertised mailing date, contact your local CPA Australia office.

Deakin University cannot give results over the telephone, by email or in person. CPA Australia staff can only discuss results, subject to identification and screening procedures, after the official release of results.In accordance with the policy of CPA Australia's Professional Qualifications Advisory Committee (formerly the Education Advisory Committee), neither the pass mark for each segment nor the mark range for each grade are disclosed.

2.7.2. Aston University, Aston Triangle, Birmingham.

Students receive a full summary of their assessment/exam results after the Exam Board has sat after the exam period at the end of the second semester. The results are available for students to view on MAP (My Aston Portal) and a paper copy of their transcript is set by post to their home address. Any coursework that is set during the academic year will be marked and returned to students with feedback normally within 6 weeks of the work being handed-in.

2.7.3. University of Oxford

Staff at the Examination Schools is not permitted to give out results over the telephone and cannot advise when results will be available. Once your results are released students will be sent an email informing them that their assessment results and the result for the year (if applicable) are available to view in Student Self Service. If they are completing their studies they will also be able to view your final classification.

Candidates will be unable to view student's results unless they have verified their details. For information on how to do this please visit the following page on Student Self Service. Students can select to have their name omitted from publicly displayed lists using Student Self Service. Changes may not be taken into account if they are made during the times when lists are due to be published. Appeals against the outcome of an examination should be referred via college to the Proctors.

2.8. Issuing transcripts

2.8.1. University of Cambridge

University of Cambridge now issues transcripts online through a secure electronic document system. This system enables students and graduates to access their documents online and allows recruiters and others to verify the authenticity of these electronic documents via this secure website hosted at the University of Cambridge. The system uses highly secure technologies and is much more secure than traditional paper verification methods.Documents are digitally signed to make them legally valid and tamper-evident, allowing for quicker and more efficient verification of genuine documents.Students and graduates benefit from the ability to easily send official documents anywhere in the world, securely controlling who can access and authenticate documents.Access is only via CamSIS Self-Service for current students, or CamSIS Extended Self-Service. for students who have completed their course. Access to CamSIS self-service is free, but there is a one off charge of £25 for life time access to the online transcript facility.

They are identical to the online transcript and are available to order as follows;
- online through the University of Cambridge Online Store
- Alternatively you can place your order:
    by post using the downloadable form below

- In person at the Student Registry (open Mon-Fri, 9.00am-4.45pm). Requests will not be processed until payment has been received. It is not possible to produce these documents while student wait. Orders made in person will be dispatched in the same way as other orders placed.
- Download the order form for transcripts

If ordering by post or in person, payment can be made in cash (GBP) or by cheque, bankers draft or postal / international money order. Cheques should be made payable to University of Cambridge' and should be drawn in Sterling or $US (conversion to be done by applicant). Cheques will be cashed once the order is received but dispatch can take longer.

2.9. Summery

In this chapter I have done a literature survey to study about examination management system. Prior to introducing new examination system I have studied about nature of examination system, quality aspect of the examination system, various phrases of the examination, limitations of manual examination and currently available examination software. When developing an examination management system I have to introduce various features. So I have to study existing examination management systems deeply.