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# *Information system analysis and design of “Project Headway British Council Test Center”.*

Heaven's Light is Our Guide



**Rajshahi University of Engineering &  
Technology**  
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# Chapter 1

## Problem Identification

### 1.1 Introduction

Project headway British Council Test Center (PHBC Test Center) is an excellent organization with a mission to reshape the young mind, was established in 2007 and successfully completes its 12<sup>th</sup> year with gratitude and glorification in 2018. This organization is working in association with the British Council and has international recognition for its top of the line service to its students and for following the international rules and regulation.

Such as it follows the Cambridge Curriculum which prepares students for life, helping them develop an informed curiosity and a lasting passion for learning. As schools can shape a Cambridge curriculum around how they want their students to learn, helping them discover new abilities and a wider world, this organization's authorities are also a concern to maintain that. Here at this organization, the students can develop some skillset as like as Cambridge students develop the skills they need to achieve at school, university and work.

Thematic Learning is a way of teaching and learning, whereby many areas of the curriculum are connected together and integrated within a theme. It allows learning to be more natural and less fragmented than the way, where a work day is a time divided into different topic areas and whereby students practice exercises frequently related to nothing other than what the teacher thinks up, as he or she writes them on the board.

A library is an important source of knowledge to young minds in many places. It develops the important habit of reading among the students. Libraries help to Impact positively on the academic achievement of the students. Students can perform better during examination by reading various books. British Council has given a library corner at the top floor. The library 'Bookmark' has been designed for students that lead to numerous programs like Spelling and Reading Contest, World Book Day and Magic Box, Arts Competitions, Reading Circle, etc.

Here in the Project headway British Council Test Center (PHBC Test Center), projects are not just assignments for the student. It is an opportunity for you, the parent, to come alongside your student and teach and refine his or her skills. Project-based learning (PBL) is a student-centered pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems. Students learn about a subject by working for an extended time to investigate and respond to a complex question, challenge, or problem.

The vision of this organization is to provide world-class education and create an impact on the young generation towards prosperity and generosity.

This organization has an interesting employee structure and it is given below:

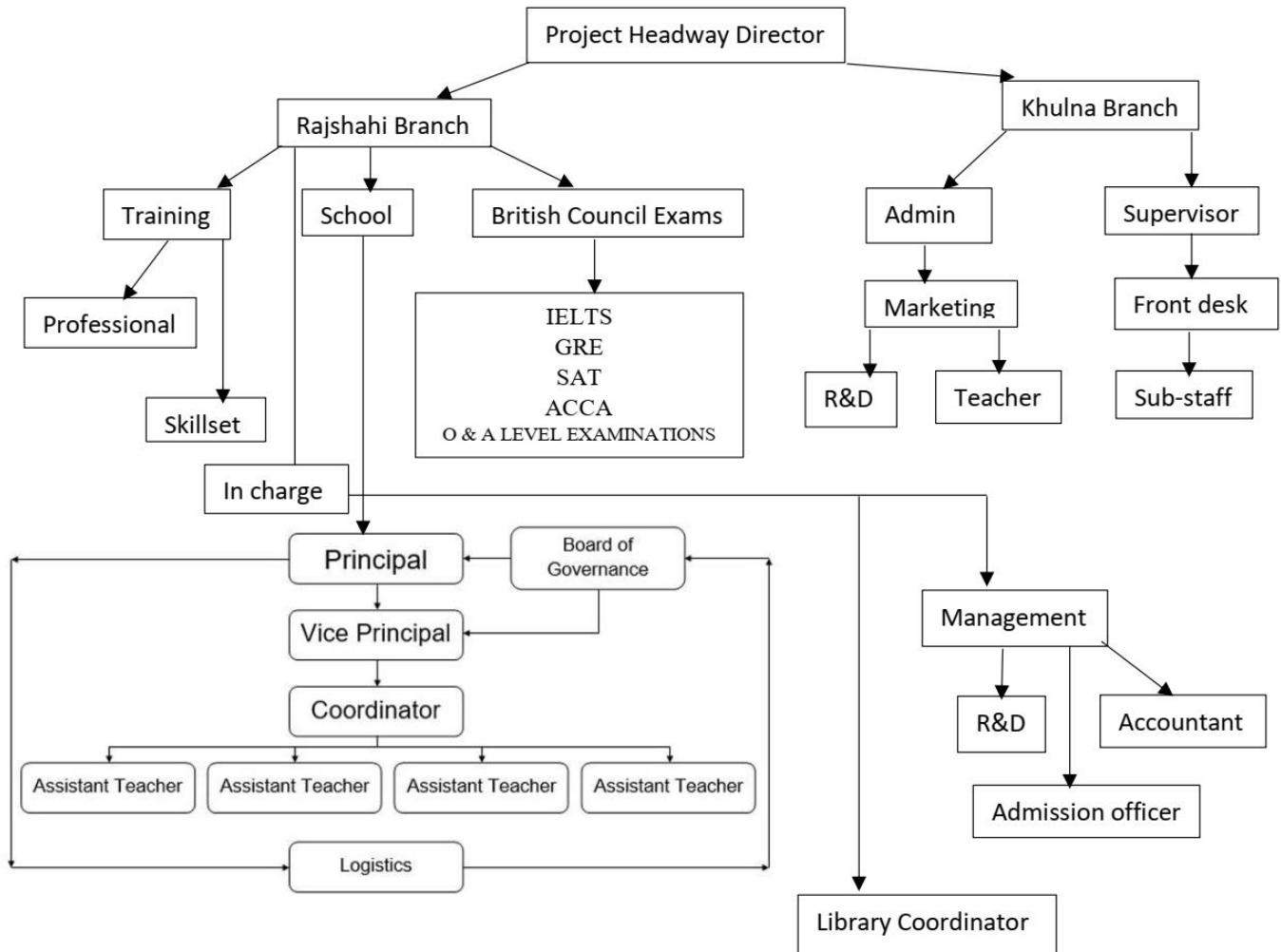


Figure 1.1: Employee Structure

This organization has a nationwide impact such as job market access, skillset development as well as it has also international impact like student placement in abroad university, immigration, etc.

## 1.2 Problem Identification :

Before analyzing a system the analyst must find out the problems which are existing in a candidate system. The following problems had been found during the investigation at the Project Headway British Council Test Center (PHBC Test Center):

### **Problem -1: Problem Regarding Monitoring System**

Currently Project Headway British Council Test Center (PHBC Test Center) is facing problems with their student monitoring system. We have found the following problems in their monitoring system.

- Students' Attendance - Manual
- Students' Feedback (Students' to Center) – Irregular
- Students' Notification (Center to Students') – Average
- Students' Observation - Average
- Students' Dropout - Less
- Students' career-related counselling - Irregular

### **Problem -2: Problem Regarding Information Flow System**

Having an organizational website isn't just about your reputations and services — it's also about providing something of value to potential customers. Though Project Headway British Council Test Center (PHBC Test Center) has a website and some flaws have been found there too and they are as follows:

- Website is below standard and not updated regularly.
- No Person is directly involved with the maintenance of the website.
- Lack of sufficient information on the website.

### **Problem -3: Problem Regarding Staff Management**

Staff management is the management of subordinates in an organization. Managers are required to supervise and administer the activities and ensure the well-being, of the staff that reports to them. Staff management may involve moving a workforce around and utilizing human resources. In there, some problems are marked regarding staff management and they are described below:

- Frequent changes in staff
- Training of the staffs goes later
- Not everyone is equally skilled

### **Problem -4: Problem Regarding Crowd Maintenance**

Their classrooms are designed for limited students which strictly follows the Cambridge rules regarding classroom. But occasionally they face the problem of maintaining large students count.

### **Problem -5: Problem Regarding Whole Management System**

While talking with the Director of the Project Headway British Council Test Center (PHBC Test Center), he stated a problem about their management system which is a need for an automated management system to monitor their all branches whole management system remotely.

### **Problem -6: Problem Regarding Payment and Billing System**

The Director also shared a problem regarding their payments and billing system which is currently managed manually which requires very tough account skill but skilled personnel is very rare to find.

### **Problem -7: Problem Regarding Network System**

A problem has been found regarding network in the building which is nearly no mobile network signal is found in the building area of that organization.

### **1.3 Conclusion**

The basis for a candidate system designed to improve an information system is Problem identification. This gives a clearer direction about what actually the existing system is. Problem identification leads the analyst to a preliminary survey or initial investigation to determine whether an alternative system can solve the existing problem. The initial investigation must define the scope of the analysis, perceived the problems, opportunities, and directives that triggered the analysis. In the system of Project Headway British Council Test Center (PHBC Test Center), a number of problem statements were identified during the preliminary investigation which will lead our analysis moving forward to the next stages of the system development life cycle.

# Chapter 2

## Initial Feasibility Analysis

### 2.1 Introduction

An initial feasibility study means the test of a system proposal according to its impact on the organization, workability, ability to meet user needs and effective use of existing resources. Here are our initial system analysis's findings at Project Headway British Council Test Center (PHBS Test Center) and related suggestions. At the time of feasibility analysis, there are three major considerations are required to be focused on. They are described in the following sections.

### 2.2 Initial Feasibility Study

Depending on the results of our initial investigation, the survey is expanded into a more detailed feasibility study. In this section, three major factors of the initial feasibility study are brought under the consideration which is described in the following section. These three factors revolve around the whole investigation and evaluation of the system's problem, identification, and description of candidate systems.

#### **2.2.1 User's demonstrable needs and candidate system's approach to meet them:**

##### **User's demonstrable needs:**

The needs which are user's Demonstrable are given below:

- i. Users want to make sure that all the students of their organization can have the facility of digital attendance system.
- ii. As users are very conscious about the quality of their organization, they, every time want to get the right feedback from their students remotely which is very difficult to get from them in person because students feel uneasy to give feedback directly.
- iii. Users feel a need to have a digital alert system to provide necessary information directly to the attached students or their parents mobile.
- iv. Users demand to decrease the absenteeism and dropout rate of their students below 1%.

- v. Users demand to develop a system where they can arrange a program related to the Students' related career counseling.
- vi. Users want to have an interactive website where all the information about their organization will be easily accessible and easy to update and maintenance cost is low.
- vii. Users demand to control the frequent changes in the staff.
- viii. Users demand to find a way to develop the skillset of their employee regularly and cost-effectively.
- ix. Users asked us to develop a system to maintain the occasional large crowd effectively.
- x. Users demand to develop an impactful management system to boost up their organization's prosperity.
- xi. Users and Students demand to update the existing payments and billing system.
- xii. The employee and the Students demand to solve the network problem inside the organization's area.

#### **Candidate system's approach to meet User's demonstrable needs:**

The needs of the users are somehow met by the candidate system and which are not met with full satisfaction are described below:

- i. Students' attendance is now taken manually by the office staff which is a time-consuming fact.
- ii. Students' feedback is taken manually via question paper without asking any identification-related information.
- iii. Any notification is being sent manually via office staff to the students' ends.
- iv. Absenteeism and dropout problems are tried to be solved via counseling.
- v. Career-related programs are organized but irregularly.
- vi. An organizational website is available but is not interactive.
- vii. Has a website which is below standard and information are updated rarely.
- viii. As all staffs are not equally skilled, training programs are being held but is a lengthy process.

- ix. To meet the network problem establish their own network system but is not so efficient enough.

### **2.2.2 Resources available for given candidate system:**

Resources available for the given candidate system are described below:

**Land property:** The Project Headway British Council Test Center (PHBS Test Center) has a large area of the land property where their own building is currently under construction. The authority of the organization has owned more land recently which is a very valuable resource for the organization.

**Manpower:** The organization has sufficient manpower. This manpower is a great strength for the organization if all the members perform their duties properly.

**Convenient communication system:** The organization is located in the renowned area of the city of Rajshahi and has a branch in Khulna main city and the communication system is undoubtedly good which is a plus-point for them.

**Alternative power supply:** The organization has a generator for supplying power while load shedding occurs. This is a great resource for the organization.

**Hazard Control System:** The organization has an alternative emergency exit system along with top of the line hazard control system.

**Library:** There is an immense collection of books in their own library called Bookmark for their students and staffs.

**Documentary:** The organization is currently developing a documentary on them which will definitely add value to their organization.

**Well decoration:** The organization is well decorated and well planned.

Most of the problems of the **Project Headway British Council Test Center (PHBS Test Center)** are seemed to be worth solving which were found by our investigation so far are described below:

At present, their main concern is evolving around the student management system which includes, automated attendance system, feedback system, properly notification sending system and more.

There is deficient space for managing a large crowd. This scarcity of sufficient space is not so easy to eradicate as there is a limited amount of land property.

The problem of the ongoing payments and billing system is also a solve-worthy problem. As this system is analog and slow it can be made digitalized and faster by applying some simple techniques.

The organization's security framework is extremely sensitive. There are insufficient security cameras here. This problem is also possible to solve easily.

In previous we have discussed that there exists a lack of efficient skilled manpower in this organization. But this scarcity of efficient staffs can be fulfilled within a very short period of time.

Skillset development program for an employee can boost organizational growth.

Other solve worthy problem is to provide online support to the organization. Making and maintaining a website is an easier task for the authority.

Another one is related to the development of whole organizations digital management system which can be easily developed by the authority.

Upgradation of Payments and Billing system can easily be financed by keeping the organization's reputation in mind.

### **2.2.3 Likely impact of the candidate system on the organization**

The features which are needed to be added to the development of the organization are expensive. So adding new features can affect the whole system. Many problems can be solved. These problems are:

- i. Users' needs to know about the student management system. This problem can have a feasible solution. It is not a very costly matter. This problem can be solved in varies way. It will be needed to find out which solution affects the system most. Because changing the total system is very difficult.
- ii. If efficient skilled manpower is added, the economic ability of the system may be affected. Because if we add efficient manpower then they will demand a huge salary, and this will affect the economic ability of the museum.
- iii. If we add a digitalized management system, there will be the necessity of computers. We have to find whether the economic ability of the organization can afford it or not.
- iv. Network problem in the organizational area can easily be solved too.

The candidate System can fit within the organization's master Management Information System Plan (MIS) plan in various ways. For example, Creating an interactive website will meet the existing master MIS plan also some plans may affect the MIS plan very badly.

### **2.3 Conclusion**

In the previous chapter, we discussed the existing problems of the system. In this chapter, we tried to find out whether those problems are worth solving or not. We figured out many problems in the existing system. After the initial investigation, we realized that some problems can be solved easily and some problems are very hard to solve. Solving some problems are very difficult like lack of efficient and skilled manpower. As it is a profitable organization, the tasks become more difficult because at the end we have to keep the organizational growth in mind. However, after the completion of the initial investigation, the system appears to us having a lot of potentials and it seems that a lot of modifications and developments can be done with respect to this system despite the limited funding and many other obstacles.

# Chapter 3

## Information Gathering & Analysis

### **3.1 Information Gathering:**

#### **3.1.1 Introduction:**

Gathering information about the existing system is a key part of analyzing the feasibility of a candidate system. If the information gathering tools can be used properly the analyst is more likely to be successful. The traditional tools which are used for gathering information are interview, questionnaire and on-site observation. These tools help analyst access the effectiveness of the existing system and provide the design for recommending a candidate system.

Information can be gathered in several phases. For example, information can be gathered through available documentation, such as procedures manual, documents and their flow, interviews of the user staff and on-site observation.

Moreover, an analyst needs to collect information about three main areas of the system. These are - information about the firm, the user staff, and the workflow.

- ❖ First of all information about the organization's policies, goals, objectives, and structures are needed to be collected. The organization policies help to determine the conduct of the system. Policies are translated into rules and procedures for achieving the organization's goal. The organization's commitment to objectives is described by the statement of goals. Objectives are milestones of accomplishments towards achieving goals. The organization's structure indicates management's directions and orientation.
- ❖ The second type of information required for analysis is knowledge about the people who run the existing system. An analyst should focus on employee's roles, authority relationships, job status and functions, information requirements and interpersonal relationships. Briefly it can be said that the analyst should find out the people whom he/she is going to be dealing with.
- ❖ The third and last type of information is about the workflow of the system. Mainly, workflow focuses on what happens to the data through various points in a system. This is mainly shown in a Data Flow Diagram (DFD).

#### **3.1.2 Information gathering tools:**

For gathering the information we have to go through many processes. This process is known as information-gathering tools. These tools give an analyst the way of gathering information perfectly and completely. These tools are analyzed and followed.

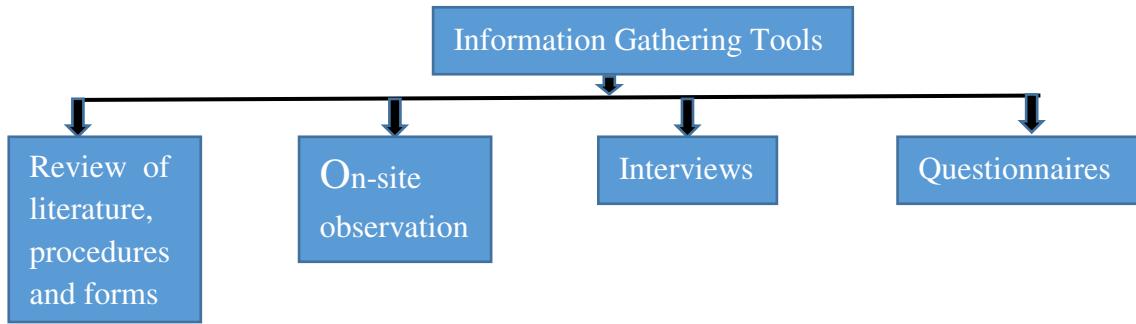


Figure 3.1.1: Information Gathering Tools

### 3.1.2.1 Review of Literature, Procedure, and Forms:

Procedures, manuals, and forms are useful sources for analyzing the system of an organization. If the manuals are up-to-date, they save the analyst's time of information gathering. We collected a number of manuals and forms which describe the system's functionality, publications and the collection of the organization. As the system which we are working on is a profitable organization, it has forms which involve the users. But there are few forms and publications which have helped us to gather information about the working procedures, about the staff and about the organization structure. Some of those forms and manuals are added here.

#### 1. Leaflet



Figure 3.1.2: Leaflet of English Language course

## Chapter 3: Information Gathering & Analysis



Figure 3.1.3: Leaflet of Project Headway Grammar School



Figure 3.1.4: Leaflet of School English Course



Figure 3.1.5: Leaflet of IELTS Training

These leaflets are part of the marketing plan of the Project Headway British Council Test Center for introducing different services to the promising student's and help the students to take the wise decision. And if any assistance needed, officer's are always there for help at front desk.

## 2. Payment slip

Page 1 of 2

ID _____	<b>PROJECT HEADWAY</b> British Council & ACCA Test Center <b>SAMPLE ADMISSION FORM</b>		One photograph here
(Please complete this form in <b>BLOCK</b> capitals using black / blue ink.)			
Date of Admission			
<input style="width: 25px;" type="text"/> dd <input style="width: 25px;" type="text"/> mm <input style="width: 25px;" type="text"/> yy			
Name _____			
<input style="width: 100px; height: 20px; border: none; border-bottom: 1px solid black; margin-bottom: 5px;" type="text"/> Address / Residence <input style="width: 100px; height: 20px; border: none; border-bottom: 1px solid black; margin-bottom: 5px;" type="text"/> Present Address			
Gender : <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female		Profession:	Level:
Present Academic Level:		Institution:	
<input style="width: 100px; height: 20px; border: none; border-bottom: 1px solid black; margin-bottom: 5px;" type="text"/> Mobile <input style="width: 100px; height: 20px; border: none; border-bottom: 1px solid black; margin-bottom: 5px;" type="text"/> Email		<input style="width: 100px; height: 20px; border: none; border-bottom: 1px solid black; margin-bottom: 5px;" type="text"/> Emergency Number	
<u>Select your course here</u> (Tick the checkbox)		<u>For office use only</u>	
• Practical Spoken & Written English <input type="checkbox"/> • IELTS Premium ( AC / GT ) <input type="checkbox"/> • IELTS Crash ( AC / GT ) <input type="checkbox"/> • Professional English Language <input type="checkbox"/> • Corporate IELTS <input type="checkbox"/> • IELTS Mock Test <input type="checkbox"/>		Total Course Fee Mock Test Fee Amount Paid Amount Due Next Payment Date Due Paid Due Collected Date	
Possible deadline of your course: DD MM YY      Taken Library Facility: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Which of the following modules do you find hard to use? Reading    Writing    Listening    Speaking    Vocabulary    Grammar    Spelling			

Signature of Admin \_\_\_\_\_ Admission Officer \_\_\_\_\_ Signature of Student \_\_\_\_\_

Figure 3.1.6: Payment Slip

3. Student Admission form:

1of1 | Page  
Abuse of any copies of invoice shall be unlawful

**Course Fee Payment Receipt**

Best cooperation with British Council to make your life unbeaten

Date of Admission :	<input type="text"/>	Candidate ID No :	<input type="text"/>
Name :	<input type="text"/>		
Course :	<input checked="" type="checkbox"/> IELTS Premium <input checked="" type="checkbox"/> IELTS Crash <input checked="" type="checkbox"/> IELTS / GRE Mock Test <input checked="" type="checkbox"/> Spoken & Written English (APTIS) <input checked="" type="checkbox"/> Corporate English / IELTS <input checked="" type="checkbox"/> GRE / SAT Prep <input checked="" type="checkbox"/> JSC / PEC / SSC Teens (APTIS)		
BDT:	<input type="text"/> Total Course Fee <input type="text"/> Paid Amount <input type="text"/> Due		
Duty Officer	Duty Officer	Enrolled Student / Guardian	
.....	.....	.....	

1of1 | Page  
Abuse of any copies of invoice shall be unlawful

**Course Fee Payment Receipt**

Best cooperation with British Council to make your life unbeaten

Date of Admission :	<input type="text"/>	Candidate ID No :	<input type="text"/>
Name :	<input type="text"/>		
Course :	<input checked="" type="checkbox"/> IELTS Premium <input checked="" type="checkbox"/> IELTS Crash <input checked="" type="checkbox"/> IELTS / GRE Mock Test <input checked="" type="checkbox"/> Spoken & Written English (APTIS) <input checked="" type="checkbox"/> Corporate English / IELTS <input checked="" type="checkbox"/> GRE / SAT Prep <input checked="" type="checkbox"/> JSC / PEC / SSC Teens (APTIS)		
BDT:	<input type="text"/> Total Course Fee <input type="text"/> Paid Amount <input type="text"/> Due		
Duty Officer	Duty Officer	Enrolled Student / Guardian	
.....	.....	.....	

Figure 3.1.7: First page of the admission form.

**Read the admission terms and conditions carefully**

- The office reserves all rights to change terms and conditions without any prior notice.
- To complete the course successfully, make sure that the course fee is paid properly.
- The document is issued without any kind of alteration.
- The money receipt is not valid without being stamped with official embosses or seal of the Project Headway.
- **Admitted candidate is non replaceable.**
- **Admission fee is non-refundable in any case of defaulter or dropout.**
- If you refuse to receive the result of placement test, the office will charge 500/- for the test.
- If you change the course after the course has been started, the office will charge 1,500/- extra.
- Do not lose this receipt as the document is required to check your course and payment status.
- The receipt is only used for course admission, not for other purposes.

**Read the admission terms and conditions carefully**

- The office reserves all rights to change terms and conditions without any prior notice.
- To complete the course successfully, make sure that the course fee is paid properly.
- The document is issued without any kind of alteration.
- The money receipt is not valid without being stamped with official embosses or seal of the Project Headway.
- **Admitted candidate is non replaceable.**
- **Admission fee is non-refundable in any case of defaulter or dropout.**
- If you refuse to receive the result of placement test, the office will charge 500/- for the test.
- If you change the course after the course has been started, the office will charge 1,500/- extra.
- Do not lose this receipt as the document is required to check your course and payment status.
- The receipt is only used for course admission, not for other purposes.

Figure 3.1.8: Second page of the admission form

4. Online Advertisement:



Figure 3.1.9: Online Marketing

5. Website:

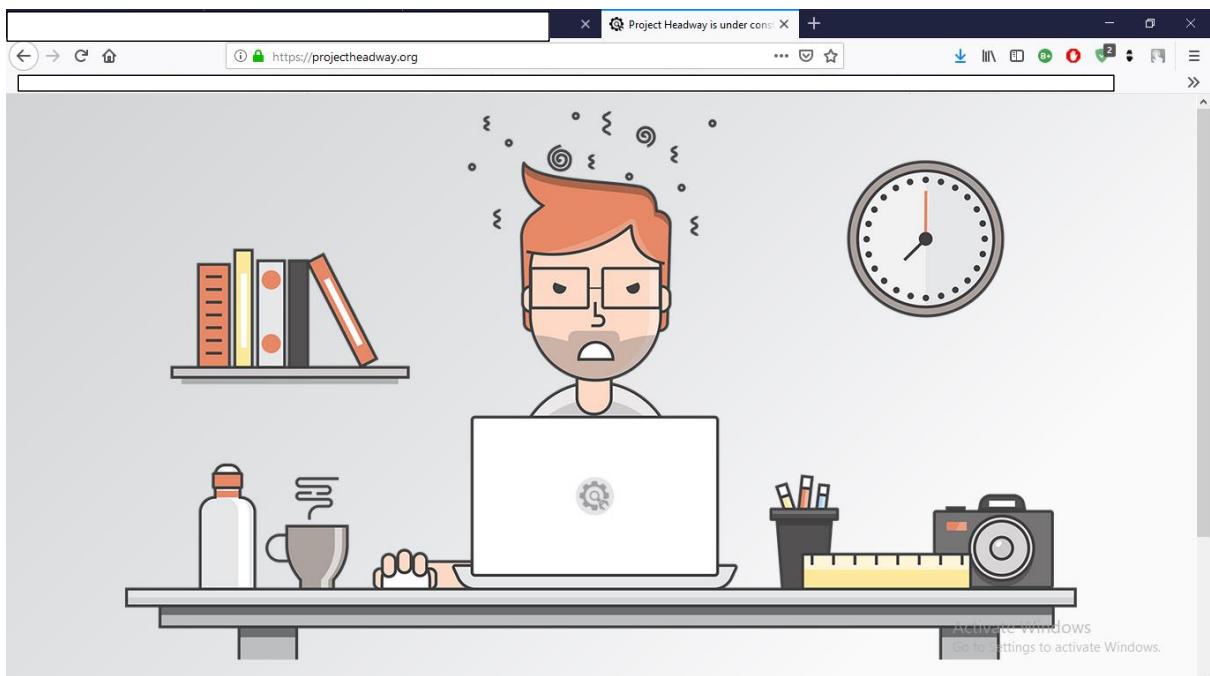


Figure 3.1.10: Online Website (Under Maintenance)

### **3.1.2.2 Onsite Observations:**

On-site observation is a method of gathering information by noticing and observing the people, events, and objects. The analyst visits the organization to observe the workflow of the current system and understands the requirements of the system. The main objective of an onsite visit is to get as close to the real system as possible.

#### **Semi-profitable organization**

Project Headway British Council is a semi-profitable organization and the main goal of this organization is to serve the student of Bangladesh, more specifically the student who wants to develop themselves of Bangladesh. A semi-profitable organization is an organization that has been formed by a group of people in order to pursue a common goal of making some money as well as to serve the community with their efforts and wisdom. As a semi-profitable organization, this organization often dedicated to furthering a particular social cause or advocating for a particular point of view. The sources of income also include the money earned by selling some services and money earned by charitable donation for the social cause. The salaries of the employees are met by the money earned from students tuition fees.

#### **Authority of Project Headway British Council Test Center**

Project Headway British Council Test Center is one of the best organization for English language training in Bangladesh. All of the functions and other actions are maintained and performed by the director of the organization. This organization has international recognition as it is currently in association with the British Council. The other employees are also recruited by maintaining international quality and standard. The key person who is the director of this organization:

Paul Biswas,  
Director of Project Headway British Council Test Center.

#### **Project Headway British Council Test Center surroundings**

1. Enough road space in front of the building
2. Nice parking space on the ground floor
3. Separate stairs for entry-exit and emergency exit.
4. The different section of the organization is located different floor of the building.

## 5. Office Room

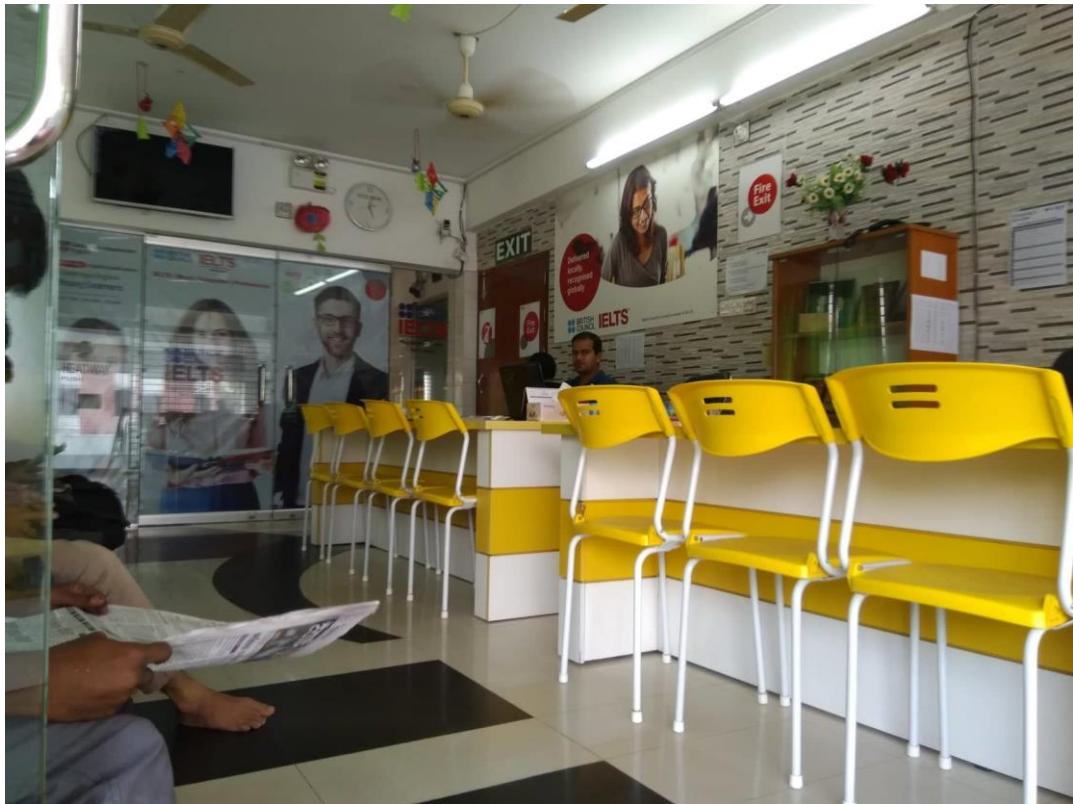


Figure 3.1.11: Office Room

## 6. Class Room



7. Hall Room

Figure 3.1.12: Class Room



Figure 3.1.13: Hall Room

8. Other Facilities



20

Figure 3.1.14: Other Facilities

### **Direct Observation of Project Headway British Council Test Center**

Direct observation technique was used for observing the Project Headway British Council Test Center. A direct observation takes place when the analyst observes the system at work. This direct observation technique has helped in many ways. The followings were observed during the onsite observation.

- ❖ The organization has mainly one entrance with a well decorated gate.
- ❖ At the entrance of the main building, there is a guard table for security inspection.
- ❖ There are three different floors for a different purpose. One for Training, one for library and school, and one for the test center.
- ❖ The whole building was well decorated.
- ❖ The whole class was digitalized.
- ❖ The whole building was under CCTV surveillance.
- ❖ At the first floor of the building, there are the office rooms. The officers and their assistants work in the offices.
- ❖ There is an enriched library which is situated on the second floor of the building. The library has a vast collection of books of literature. But the library is not open for the visitors. Only the teachers and students of the organization and the members have access to the library for research purpose.
- ❖ The relationship between staff and system management seemed to be well.
- ❖ The behavior of the office attendants and the security guards were seemed to be well mannered. They are helpful to students. They are also responsible for their duties.
- ❖ The institute is well decorated and creates an environment which motivates the students to engage with study more and more.
- ❖ The office employees are most helpful and student-friendly.
- ❖ Instructors are well qualified.
- ❖ The whole environment is nice and clean in all manner.

### 3.1.2.3 Interview :

We have already gathered information from the review of literature, procedures, and form and on-site observation. The previous information gathering tool, namely on-site observation is only focused on describing the situation and working procedures of the system which is observed by human eyes. But we cannot learn everything about the system only by observing the facts as they happen. To enter deep into the system we need to learn about people's perception, feelings, or motivations. For this purpose we need to use other information-gathering tools. We have conducted two additional methods to gather information about the system. They are interviews and questionnaires.

By interviewing different level people we were able to know about such areas which are not possible to explore. By interviewing various types of hidden information are being possible to gather. For conducting interview we selected peoples from a different level of the institutions. They are:

1. Director of Project Headway British Council Test Center
2. Employees of Project Headway British Council Test Center
3. Security Guards of Project Headway British Council Test Center

Our interview with the director of the Project Headway is recorded below:

**Question:** Sir, would you please describe the history of the development of Project Headway British Council Test Center?

**Director:** Project Headway British Council Test Center (PHBC Test Center) is an excellent organization with a mission to reshape the young mind, was established in 2007 and successfully completes its 12<sup>th</sup> year with gratitude and glorification in 2018. This organization is working in association with the British Council and has international recognition for its top of the line service to its students and for following the international rules and regulation. It follows the Cambridge Curriculum which prepares students to develop an informed curiosity and a lasting passion for learning. Here at this organization, the students can develop some skillset as like as Cambridge students develop the skills they need to achieve at school, university and work.

**Question:** How do you organize the Project Headway British Council Test Center?

**Director:** We have two branches. One in the Khulna and other in the Rajshahi branch. It is mainly a student-oriented organization, so, we have a school in Rajshahi. We have principal and vice-principal to manage the school under the Board of Governance. There is an examination section where IELTS, GRE, ACCA, SAT, A-level and O-level examinations are taken. There is also a training center for professional and skill development. In Khulna branch, there is an admin for managing R&D section, teacher and for managing the marketing section

of our organization there is an admin. We have also office in charge to supervise the admission section, accountant and R&D section.

**Question:** Would you please describe the organization structure?

**Director:** As I told you earlier, there are two branches of our organization, one at Rajshahi and other at Khulna. At Rajshahi branch, there is a training center, office in charge, a school and admission center. The school has principal, vice-principal, coordinator and assistant teacher. At Khulna branch, there is an admin of marketing and R&D section and a supervisor for supervising office staff.

**Question:** How did you manage the whole system of your organization?

**Director:** It's a challenging task of any director of any organization. I daily collect the information, review, and development from the supervisors of each section. I also try to know their want as well as the user of our organization. Sometimes I take an on-site observation to see the whole process of their individual system. That's how I can manage.

**Question:** How many people are working at present in the organization?

**Director:** At Rajshahi and Khulna branch, about 85 people are working.

**Question:** Do you think you have enough manpower to run the organization properly?

**Director:** I don't think that the amount of manpower is enough for running our system. Recently we are having some job-switching issue. That's why the number is not either decreasing nor increasing. We are trying to increase the number of increasing efficiency and development.

**Question:** What do you think about the reason of job-switching?

**Director:** I think the salary issue and the facilities should be the reason behind it.

**Question:** What about the security guards? We have come to know that only two of the ten guards are on duty on time. Do you think this is enough?

**Director:** I think this is not enough. It would be better if we could increase the number of security guards working at a time. But the guards also need enough rest to perform their duties. So it is currently not possible to recruit more than 2 guards at a time.

**Question:** Is this a profitable or non-profitable organization?

**Director:** Obviously this is a profitable organization with some charitable works.

**Question:** As it is a profitable organization, how do you serve the community?

**Director:** As I mentioned earlier, by doing some charitable works and funds we can serve the community.

**Question:** How do you run the development activities? Where does the financial support come from?

**Director:** As I mentioned earlier, it is a student-oriented and profitable organization. So, mainly financial support comes from the students in our school. A big amount of income has come from the admission section of IELTS, GRE, SAT, etc. Suppose for a complete IELTS course about BDT 13000 is taken from a student. Some organization helps sometimes to enrich the quality of education as it is an educational organization.

**Question:** We observed that there was a supply of alternative power. Do you think that it is enough for backup?

**Director:** Recently at Rajshahi, load shedding problems are very rare. But in summer, there needs AC in the classroom, which consumes more energy. Sometimes the electricity falls in summer season. That's why we use a generator for the backup and I think we have enough backup power come from generator.

**Question:** We have noticed that there are security cameras inside the buildings. Don't you feel the necessity of security cameras outside the building? Are they sufficient for whole buildings?

**Director:** Yes, that is a big limitation of our system. After feeling the necessity of security cameras I have decided to set up closed-circuit cameras in the galleries as well as at the entrance of the office. But that will take more time to be installed.

**Question:** Well, one more thing for security purpose. As there is no vault or box to preserve the bags and other tools being carried by the visitors or students, they usually enter into the building with their bags and other things. What will you say about this?

**Director:** Actually there should be a vault for preserving necessary accessories of the students. But we have some space limitations. But it will be done in the future.

**Question:** Sir, you know this is an era of modern technology. A website is a must for any institution nowadays. We've noticed that there is one, but not good enough. What do you think about that?

**Director:** Yes, we have a website.

**Question:** Sir, this is not a full website. This is only a few web pages in the website of Project Headway British Council Test Center. What's about the full website?

**Director:** Actually I haven't analyzed the website properly. I thought that students can contact us about the admission system and we can simply tell them. But I think the website should be developed with a professional developer. Nowadays, a website is the reflection of any organization. As far I know the website is not working properly. I am now adding it to my notebook for future meeting.

**Question:** Okay, that's good. But, what kind of things would you want to keep on your website?

**Director:** The admission procedures, our academic schedule, students and teachers database, online admission process, membership, online courses, scholarship procedures, skill development courses, live question-answering section, our office exhibition, notice board, and our achievements.

**Questions:** Do you feel the necessity of any other technical equipment?

**Director:** Obviously. As I'm thinking about developing the website, we need manpower in IT Sector to manage the website. Besides, we have not any monitor, HD Cameras. To show our achievements we need a big notice board also.

**Question:** Do you think you have taken proper steps to preserve the reputation of the organization?

**Director:** Of course. To preserve the reputation we take a survey from our students. We take consent from guardians and professor of different well-known varsities. We also join the different seminar and career fair to enrich our publicity and try to motivate the students from well-known institutions. Hope that it will be updated day by day.

**Question:** Do you have any plan to extend the premises of Project Headway British Council Test Center?

**Director:** I think the classrooms should be extended. Some classrooms are very small to cover the whole students. So I have a plan to extend the classroom over the top floor. Capsule lift should be constructed.

**The question to the employees:**

**Question:** Sir, how frequently do you arrange tests?

**Employee:** We arrange the British Council's English Exams like IELTS, Aptis Every month.

**Question:** Do you offer any other tests except IELTS and Aptis?

**Employee:** Yes we do. Every year, we take O level, A level, and ACCA Exams.

**Question:** What other facilities do you offer to your students except providing the chance of giving tests like IELTS?

**Employee:** We have different short course, professional course, and other different English course. We provide students our services to improve their skill through these courses.

**Question.** : Speaking of skill development, what kind of skill development courses do you provide?

**Employee:** We have various courses for skill development. For example, we have courses like Life skills,

IELTS(GT AC)

Practical Spoken and written English

Children English for children

Corporate English

GRE(Revised)

SAT(General) etc.

**Question:** In the previous question you have mentioned Children and Corporates. What kind of facilities do you provide for children, what to corporates?

**Employee:** For children, we have “Children English” program. We have PROJECT HEADWAY GRAMMAR SCHOOL program for children. This is the best English medium school in Rajshahi and better than many schools in Dhaka. In this program, we make our children smart in English. These courses are specially designed. We do arrange different programs for them like annual sports and cultural program. We take special care of our children and try to teach them in a friendly way. We do follow the British Council and UNICEF’s Child Protection Policy.

And for corporates, we have a special course. For them, we take the course on Friday and Saturday both in morning and evening session so that they can continue without any difficulties in their job.

**Question:** What's about class time, course duration, etc?

**Employee:** We have a course with a duration of 1,3 and 9 months. Our courses start at 3 And 5 in the evening. We take 3 to 5 class a week.

**Question:** Do you provide any materials to your student

**Employee:** We provide every course materials free. We provide original materials with copyable materials. We also have a British Council Library corner with rich collection of books and online express.

**Question:** Do you provide any facilities for far away from students?

**Employee:** Right at this moment, we don't have an accommodation facility. But we do help our students to get their accommodation in a mess or hostel.

**Question:** Why do you think your organization is the best in your sector?

**Employee:** We have trained and experienced teachers in the class who besides teaching, also learns from students so that they can provide better service to our students. Our teachers are well qualified, they have 7,8 even 9 band score in IELTS.

We've designed our courses in such a way that students can understand each lesson separately. We have class tests, mock tests, group tests, feedback, etc. sessions. We know how to teach our students. As British council test center and as we follow ISO Standards, we maintain First-Last Education Quality.

**Question:** If we move to some technical details, do you think your system is digitalized?

**Employee:** Not fully. But we are trying to make it digitalized. We are trying to make students attendance system, notification system, feedback from students, etc. totally digitalized so that there will be no mistakes or delay and the system will be transparent.

**Question:** What about your web site? Is this rich enough? Who does handle it?

**Employee:** We have our limitations here. It is a disappointing point that our website is below standard. No person is directly involved with handling it. We have a lack of sufficient information on our website. But we are focusing on this sector. I hope we will have a nice website as soon as possible.

**Question:** Do you have enough resources like manpower, office, and class space, etc. ?

**Employee:** We have enough manpower to work for now. But we are expanding our office. We are making another building for our office and class space. When we will be running that building we'll need more working stuff.

**The question to the security guard:**

**Question:** From when you have been working in the organization?

**Security guard:** I'm here from 1 year.

**Question:** How much time of the day you have to perform your duty?

**Security guard:** 6 hours a day.

**Question:** Do you face any difficulties performing your duty?

**Security guard:** No, I'm pretty comfortable with my duty.

### **3.1.2.4 Questionnaires**

Questionnaires can be used as an alternative or in addition to an interview. They are particularly useful when a large number of people need to be interviewed or when the people involved are widely dispersed.

The main advantage of using a questionnaire is that large amounts of data can be gathered in a short amount of time. However, there are some disadvantages that need to be considered if the data gathered is to be useful.

The questionnaire shown below was used to collect information from the employees and staff of Project Headway British Council Test Centre. In the questionnaire, we used mostly Dichotomous and multiple-choice questions. Here one staff's response is shown as an example.

**Information Collection Form:**

This form is to gather current information about Project Headway British Council Test Center. This information may contribute to the improvement of the organization. We appreciate your contribution to this, it will help us report more accurately on the current state of the organization. We would be grateful for the answer to the following questionnaire.

#### **3.1.2.4.1 Sample Questionnaires**

**Information Collection Form (from Employee)**

Please **Answer** each **Question** by checking one :

1. What kind of peoples of the following mostly come here? (mark all that apply)

**Options:**

A. School Students

- B. Academics
- C. Universities and Colleges Student
- D. Corporates
- E. Other, please specify\_\_\_\_\_

2.What kind of information do you feel should be in the Website? (mark all that apply)

**Options:**

- A. General information
- B. List and Details of courses
- C. Images
- D. Exam Dates
- E. Other

Please specify: \_\_\_\_\_

3.Do you think there is enough security?

**Options:**

- A. Yes
- B. No
- C. Undecided

4. On a scale of 1 to 5, how happy are you at work?

**Options:**

- A. 5/5
- B. 5/4
- C. 5/3
- D. 5/2
- E. 5/1

5. Do you think the website needed to be improved?

**Options:**

- A. Yes
- B. No
- C. Undecided

6. Do you have international recognition?

**Options:**

- A. Yes
- B. No

7. Do you have standard classroom facility?

**Options:**

- A. Yes
- B. No
- C. Others

8. Do you have an emergency exit?

**Options:**

- a. Yes

- b. No
- c. Others

9. Do you have back up power generator?

**Options:**

- A. Yes
- B. No

10. Organization type?

**Options:**

- A. Profitable
- B. Non profitable
- C. Others

11. Thinking of the organization as a whole, how would you rate each of the following?:

Very good   Quite good   Neither good nor poor   Rather poor   Very poor   Not used

Environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Staffs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teachers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toilets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. What do you think are the main challenges and changes for your organization in the current time?

Answer:

13. Are there any additional comments you would like to make about your position or the organization as a whole?

Answer:

### Information Collection Form (from Students)

1. What was the last degree that you have completed?
  - a. PSC
  - b. JSC
  - c. SSC
  - d. HSC

- f. Under Graduate
  - g. Graduate
2. In which course you currently enrolled here?
    - a. APTIS
    - b. School English
    - c. IELTS
    - d. GRE
  3. What did you feel about the quality of the instructors?
    - a. Very good
    - b. Good
    - c. Not bad
    - d. Bad
  4. You like the teaching process \_\_\_\_.
    - a. 5/5
    - b. 4/5
    - c. 3/5
    - d. 2/5
    - e. 1/5
  6. You like the environment here \_\_\_\_
    - a. Excellent
    - b. Good
    - c. Not bad
    - d. Bad
  7. You think about the digital classroom \_\_\_\_
    - a. Well decorated
    - b. Good
    - b. Sufficient enough
    - d. Not sufficient
  8. What do you feel about your improvement after spending time here?
    - a. Beyond expectation
    - b. As expected
    - c. Good
    - d. Not so much
    - e. Not at all
  9. What do you feel about the other facilities?
    - a. Best
    - b. Better
    - c. Good
    - d. Not bad
    - e. Bad
  10. What do you think about network facility?
    - a. Very Satisfied
    - b. Satisfied
    - c. Good
    - d. Not bad
    - e. Bad
  11. What do you think about the office environment?
    - a. Very Satisfied
    - b. Satisfied
    - c. Good

- d. Not bad
  - e. Bad
12. Do you know if this organization has a library?
- a. Yes (blue)
  - b. No (red)
13. If yes, are you a member of it?
- a. Yes (blue)
  - b. No (red)
14. If no, do you intend to be a member? If not, why?
- a. Yes (blue)
  - b. No (red)
15. Do you have any idea about the student support desk about abroad study?
- a. Yes (blue)
  - b. No (red)
16. Did you get your needed help from them?
- a. Yes (blue)
  - b. No (red)
17. Rate this organization (out of 5).

### Information Collection Form (from Guardians)

1. What do you think about this organization?
  - a. Best
  - b. Better
  - c. Good
  - d. Not bad.
2. Do you think it is suitable for your child?
  - a. Absolutely yes
  - b. Yes
  - c. No
3. What do you think about the improvement of your child?
  - a. Satisfied
  - b. Good
  - c. Not bad
  - d. Not satisfied
4. What do you feel about the environment of the organization?
  - a. Very good
  - b. Good
  - c. Not bad
5. Are you happy with the overall security system?
  - a. Very satisfied
  - b. Satisfied
  - c. Good
  - d. Not satisfied

### 3.1.2.4.2 Questionnaires Analysis

#### Information Collection Form (from Employee)

Please **Answer** Each **Question** by checking one :

1. What kind of peoples of the following mostly come here? (mark all that apply)

**Options:**

- F. School Students
- G. Academics
- H. Universities and Colleges Student
- I. Corporates
- J. Other, please specify \_\_\_\_\_

Graph:

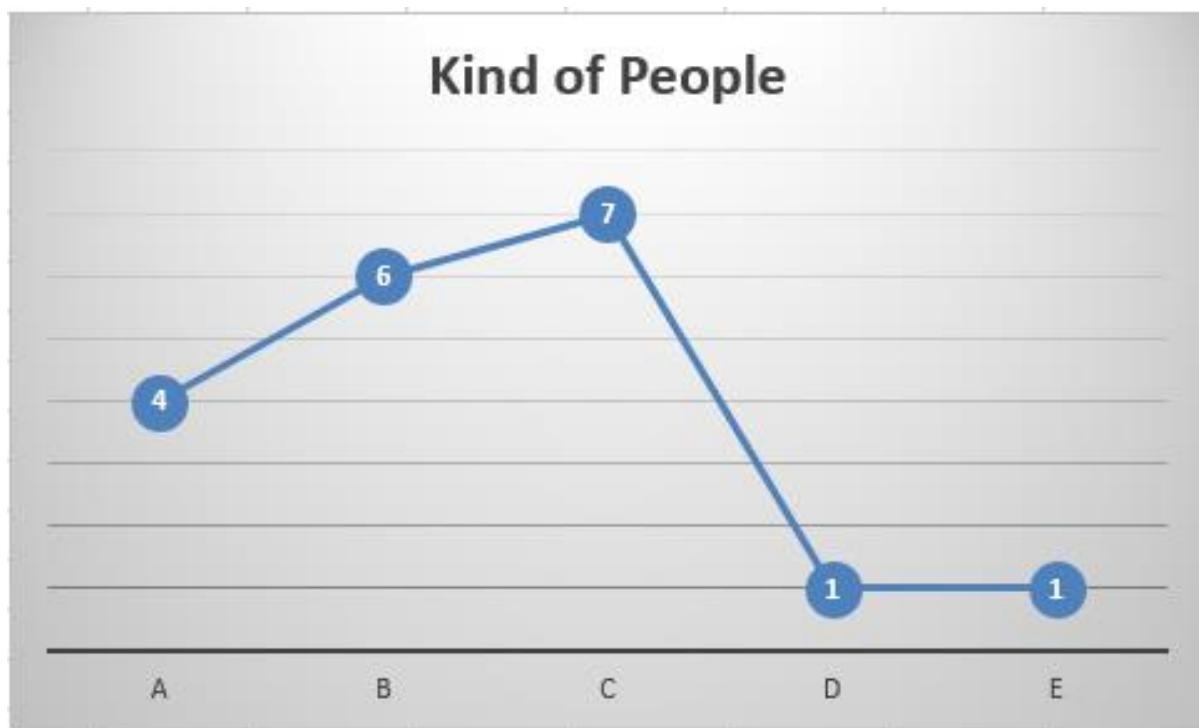


Figure 3.1.15: Graph of kinds of people join the course

Conclusion:

Mostly University Undergrad students and Graduate students are the service taker from this organization. But day by day school and college students are increasing here. Corporates are also coming here to take the training to level up there carrier.

2. What kind of information do you feel should be on the Website? (mark all that apply)

**Options:**

- F. General information
- G. List and Details of courses
- H. Images
- I. Exam Dates
- J. Other

Please specify: \_\_\_\_\_

Graph:

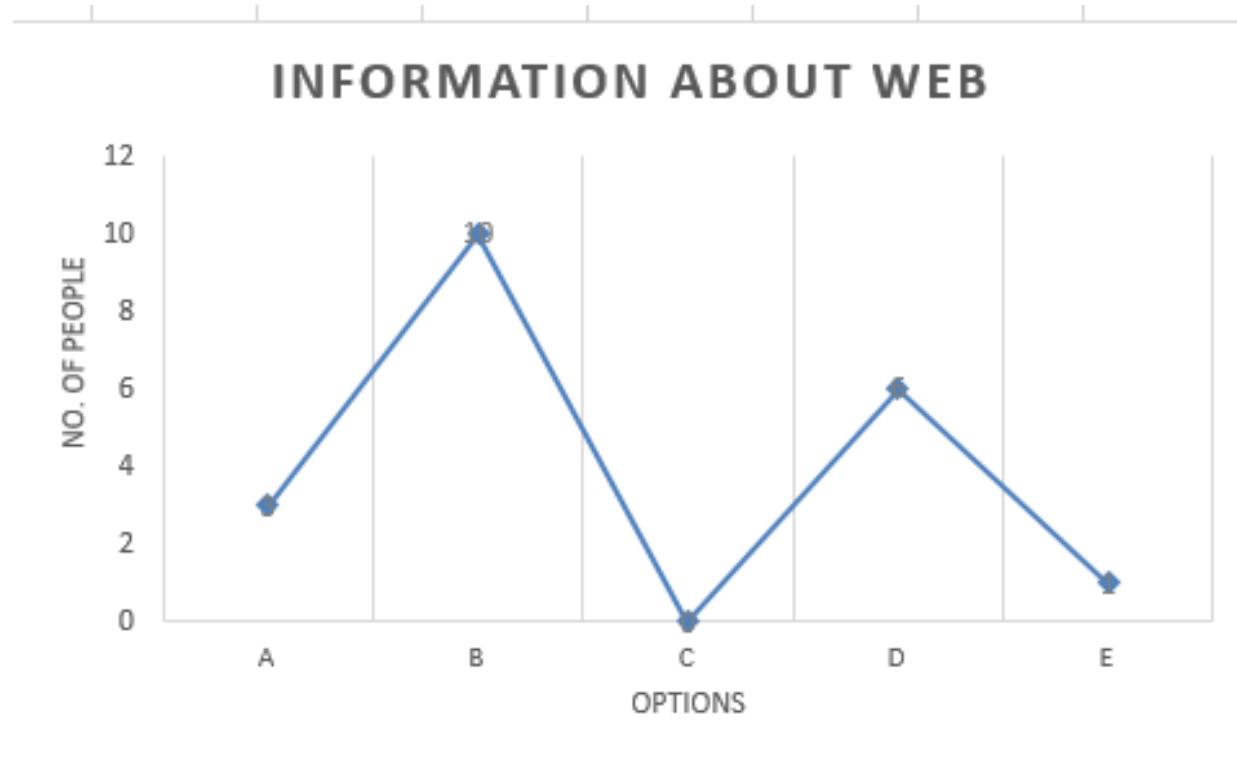


Figure 3.1.16: People's opinion about the website

Conclusion:

They think that the list of all courses and their details should be on the website.

3. Do you think there is enough security?

**Options:**

- D. Yes
- E. No
- F. Undecided

Graph:

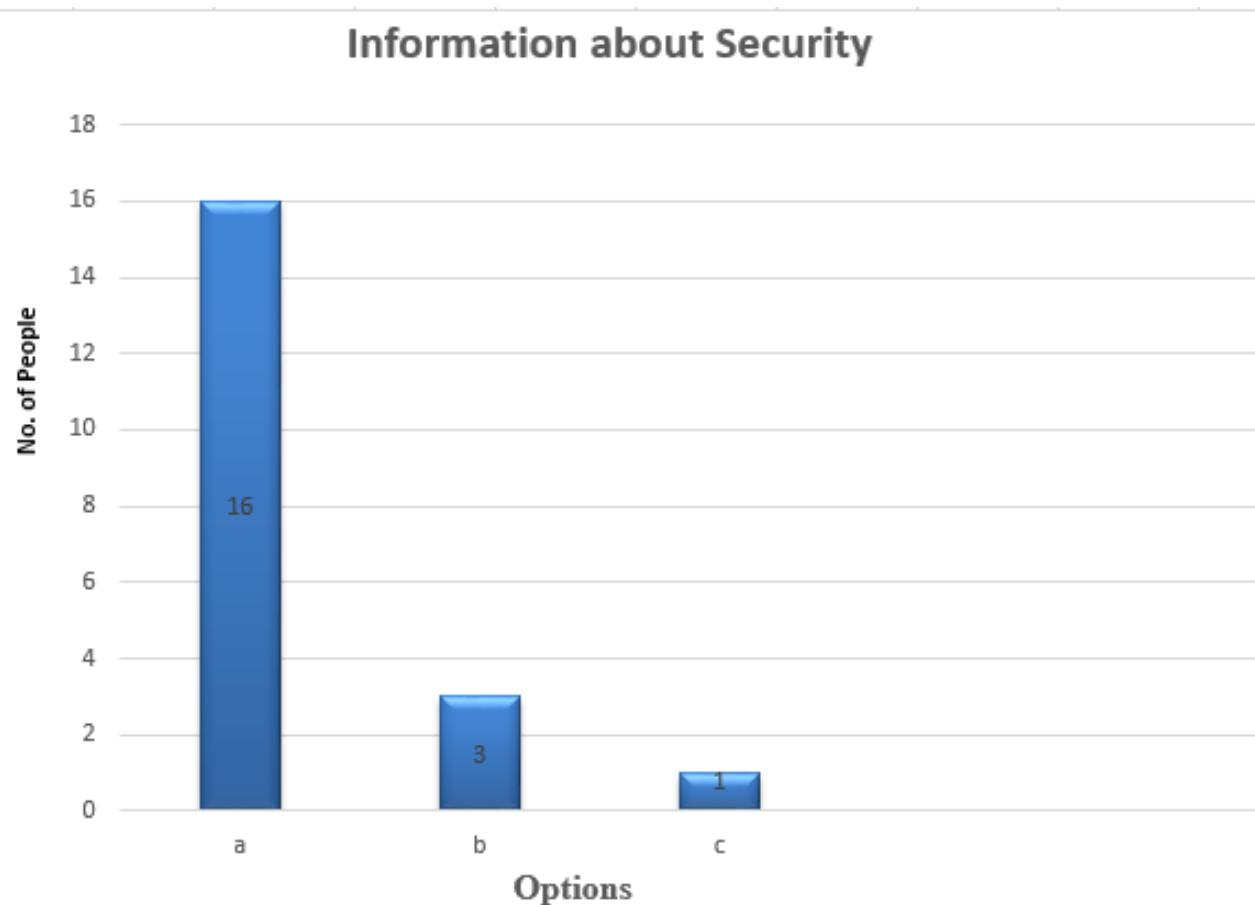


Figure 3.1.17: People's opinion about Security

Conclusion:

They are mostly comfortable with the existing security system.

4. On a scale of 1 to 5, how happy are you at work?

**Options:**

- F. 5
- G. 4
- H. 3
- I. 2
- J. 1

Graph:

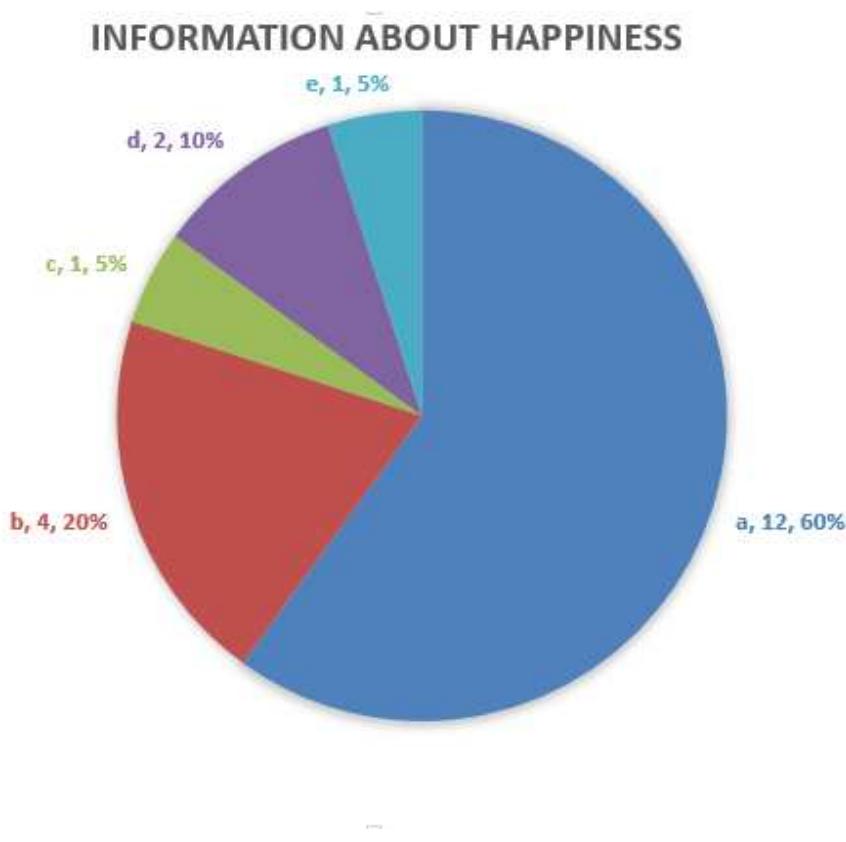


Figure 3.1.18: How happy people are at their work

Conclusion:

Most of them are happy with their work, means there has job satisfaction inside them.

5. Do you think the website needed to be improved?

**Options:**

- D. Yes
- E. No
- F. Undecided

Graph:

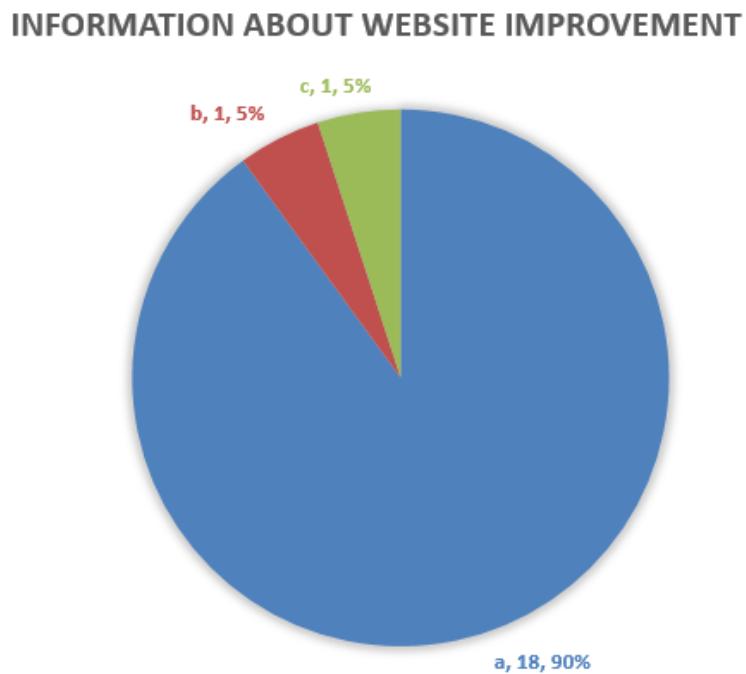


Figure 3.1.19: How much people feel the need for website improvement

Conclusion:

There has a website, but this needed to be seriously improved. And we previously saw it that they are working on it.

6. Do you have international recognition?

**Options:**

- C. Yes
- D. No

Graph:

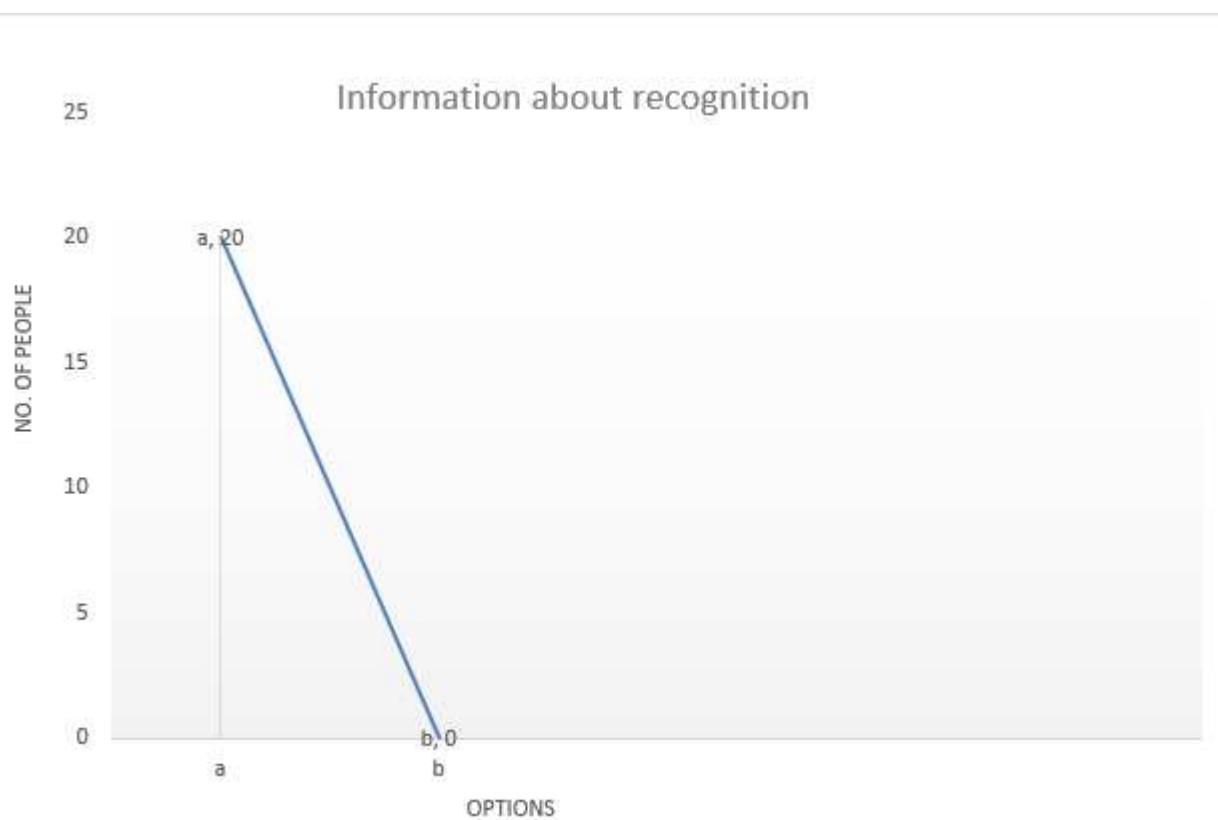


Figure 3.1.20: Opinion about international recognition

Conclusion:

It is an internationally recognized organization. It also follows the British syllabus and standard system as a measurement tool.

7. Do you have a standard classroom facility?

**Options:**

- D. Yes
- E. No
- F. Others

Graph:

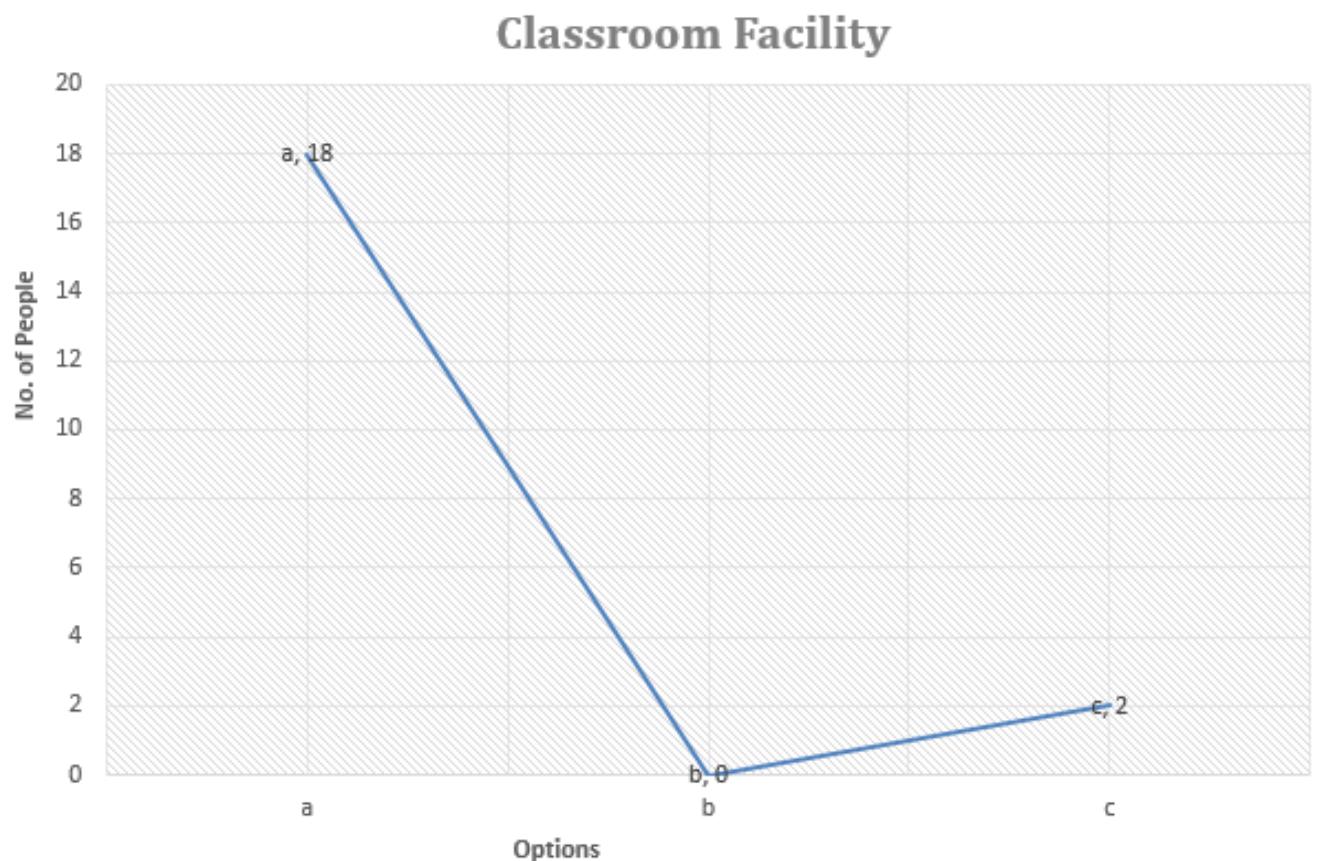


Figure 3.1.21: People's thinking of classroom facility

Conclusion:

Most of them think that this organization has standard classroom. But some of them think something is needed to be improved.

8. Do you have an emergency exit?

**Options:**

- d. Yes
- e. No
- f. Others

Graph:

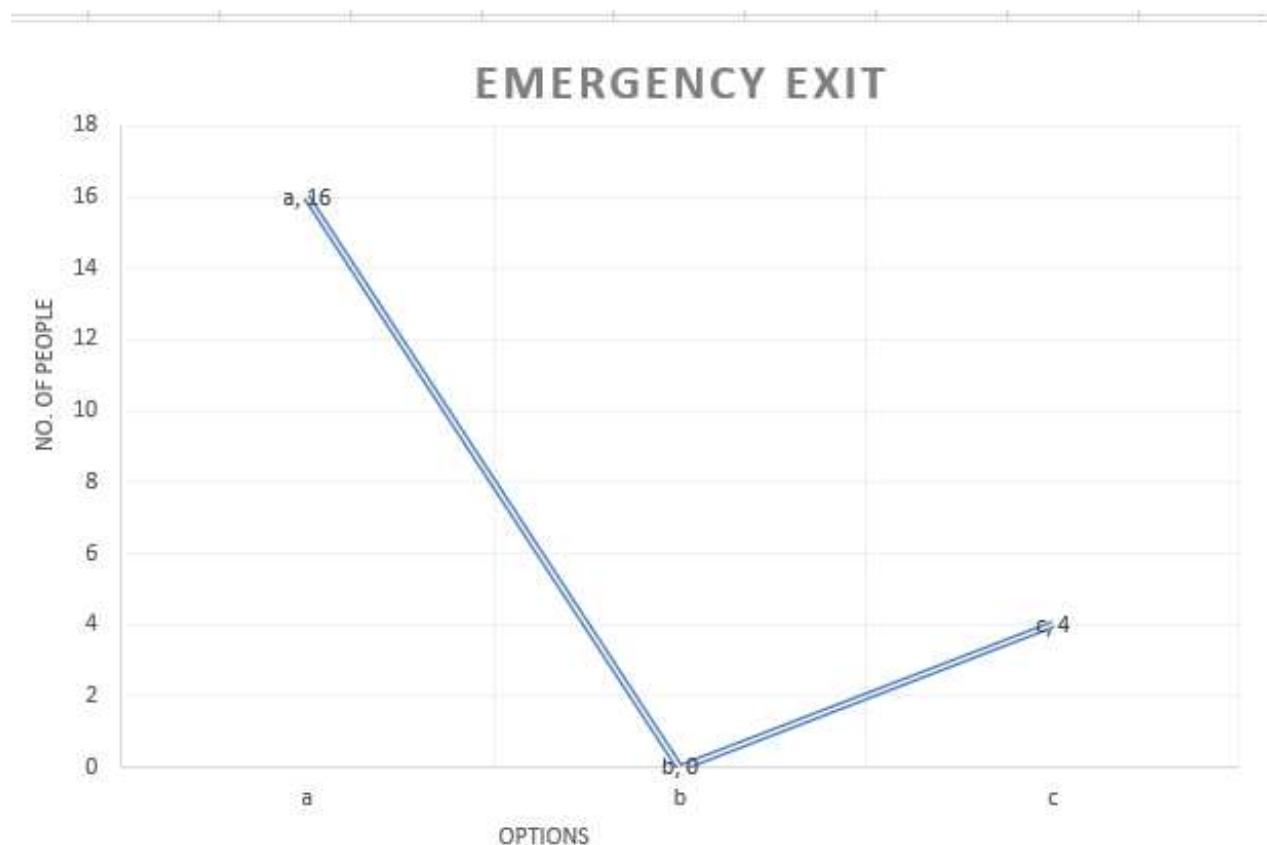


Figure 3.1.22: People's acknowledgment of Emergency Exit

Conclusion:

Most of them think that this organization has standard alternative exit system. But some of them think something is needed to be improved.

9. Do you have back up power generator?

Options:

- C. Yes
- D. No

Graph:

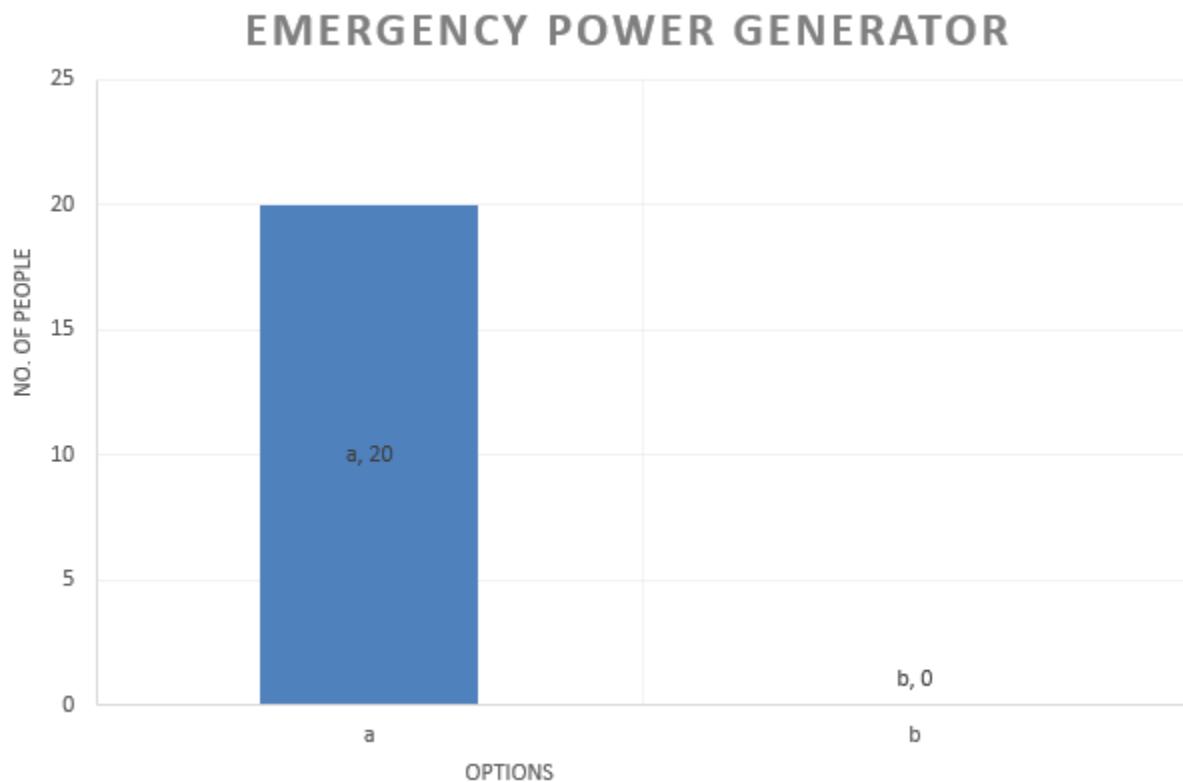


Figure 3.1.23: People's acknowledgment of backup power

Conclusion:

All of them think that this organization has standard alternative exit system.

10. Organization type?

**Options:**

- D. Profitable
- E. Non-profitable
- F. Others

Graph:

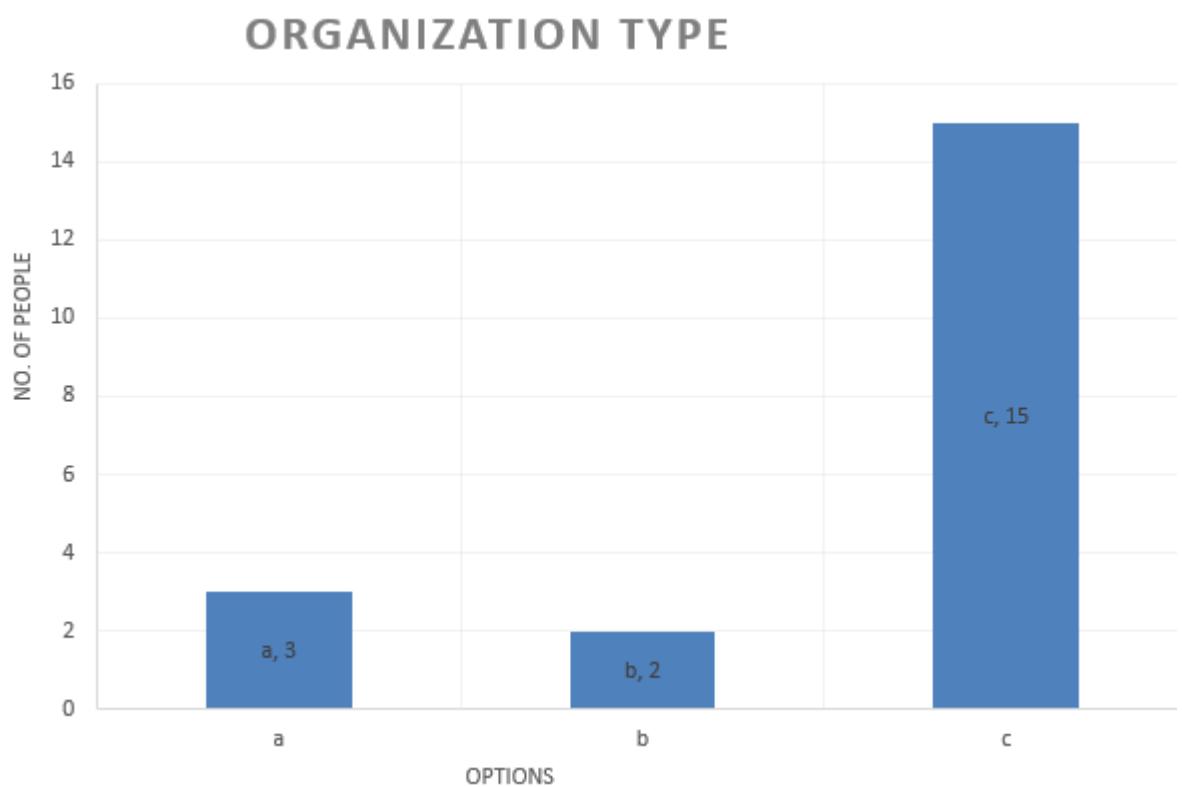


Figure 3.1.24: People's thinking of organization type

Conclusion:

It is a profitable organization but it serves its community to such an extent that no other organization does.

11. Thinking of the organization as a whole, how would you rate each of the following?:

	Very good	Quite good	Neither good nor poor	Rather poor	Very poor	Not used
Environment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Staffs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teachers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. What do you think are the main challenges and changes for your organization in the current time?

Answer: In this modern era, People are using technology every time. It's part of our life now. If we do not include new technology in our organization.

13. Are there any additional comments you would like to make about your position or the organization as a whole?

Answer: No, Thank you.

**Student Form**

4. What was the last degree that you have completed?

- a. PSC
- b. JSC
- c. SSC
- d. HSC
- e. Under Graduate
- f. Graduate

Graph:

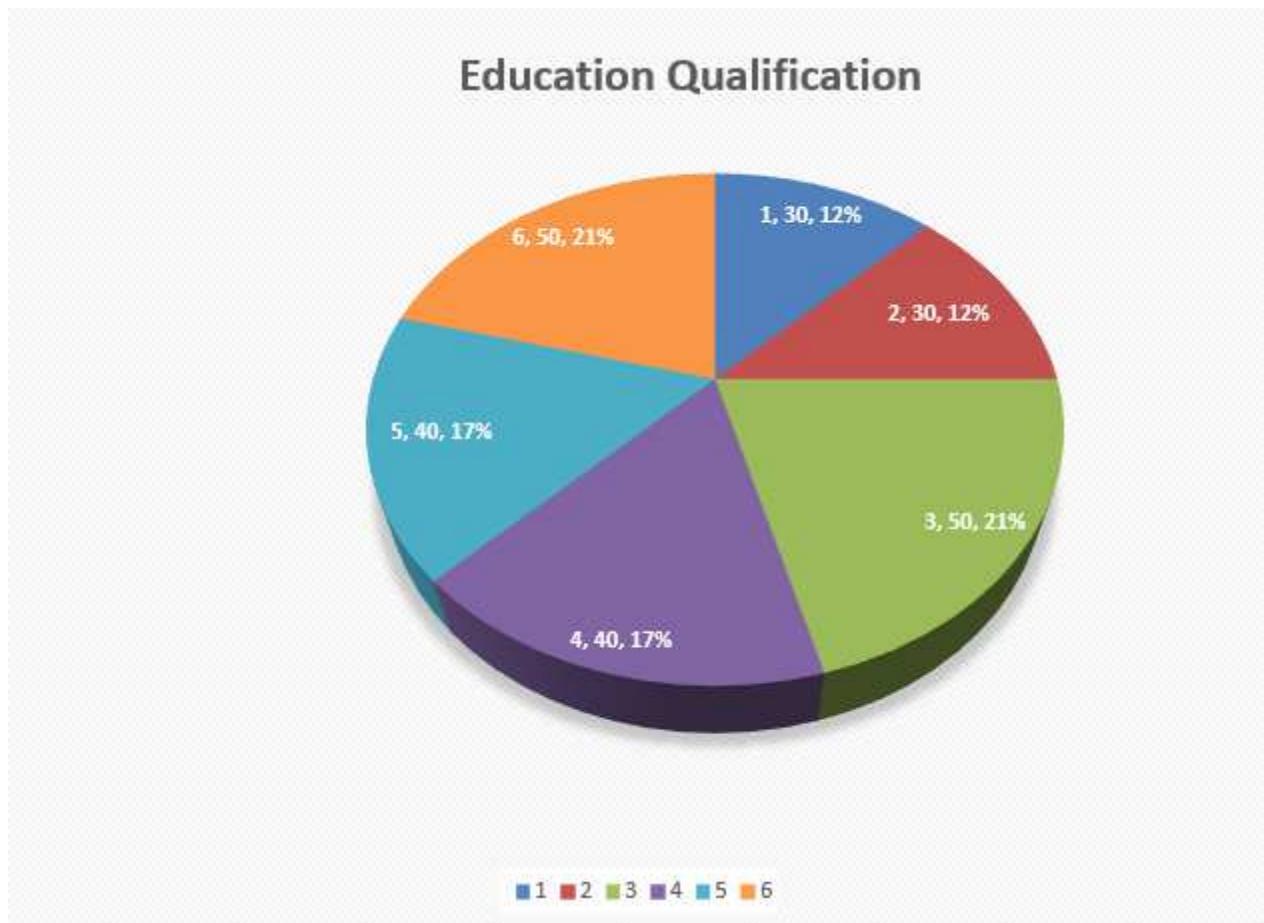


Figure 3.1.25: Education Qualification of Students

Conclusion:

Different backgrounds students are enrolled here. But most of them are Undergrad and graduate student.

5. In which course you currently enrolled here?

- a. APTIS
- b. School English
- c. IELTS
- d. GRE

Graph:

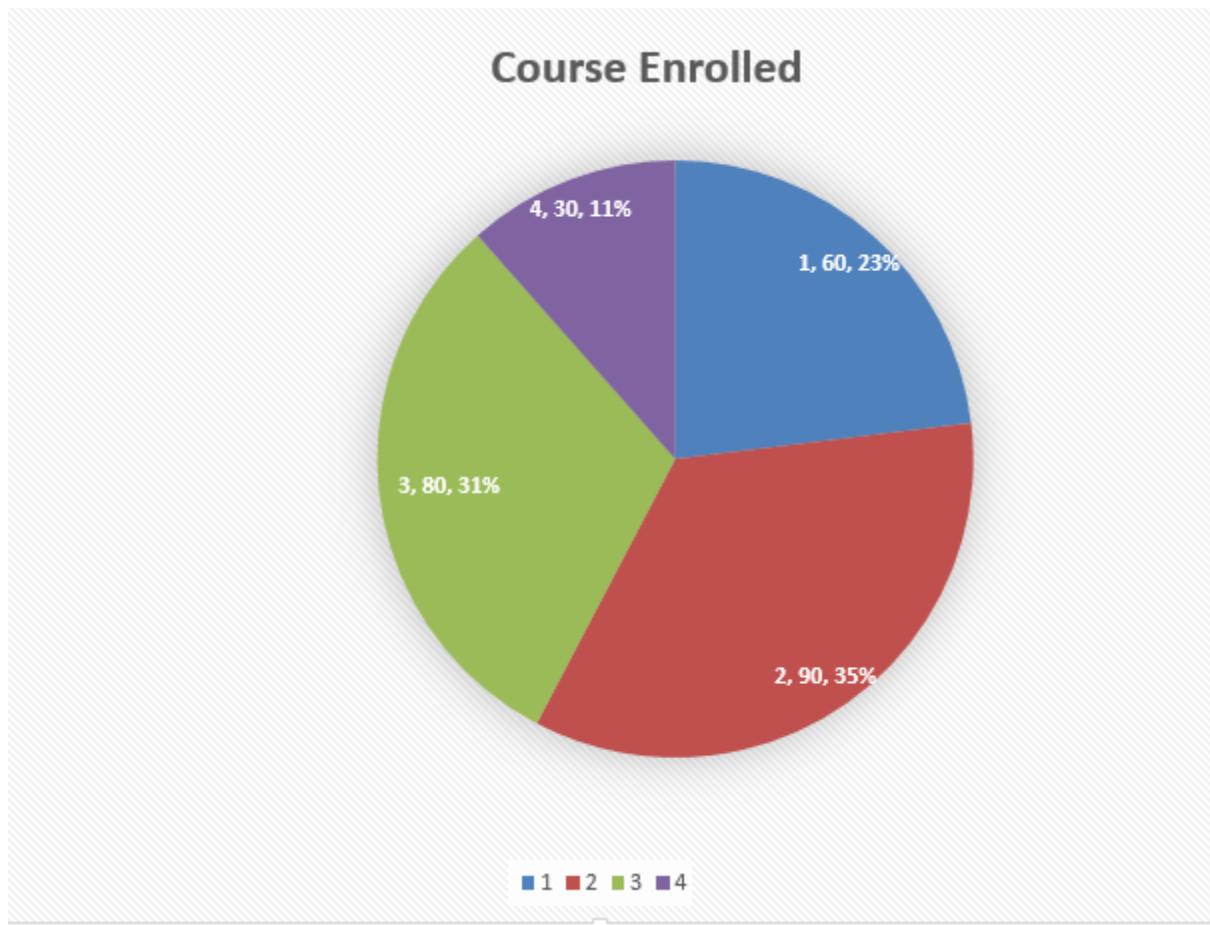


Figure 3.1.26: Courses Enrolled by Students

Conclusion:

Most of the students are enrolled for School English program then in IELTS program.

6. What did you feel about the quality of the instructors?

- a. Very good
- b. Good
- c. Not bad
- d. Bad

Graph:

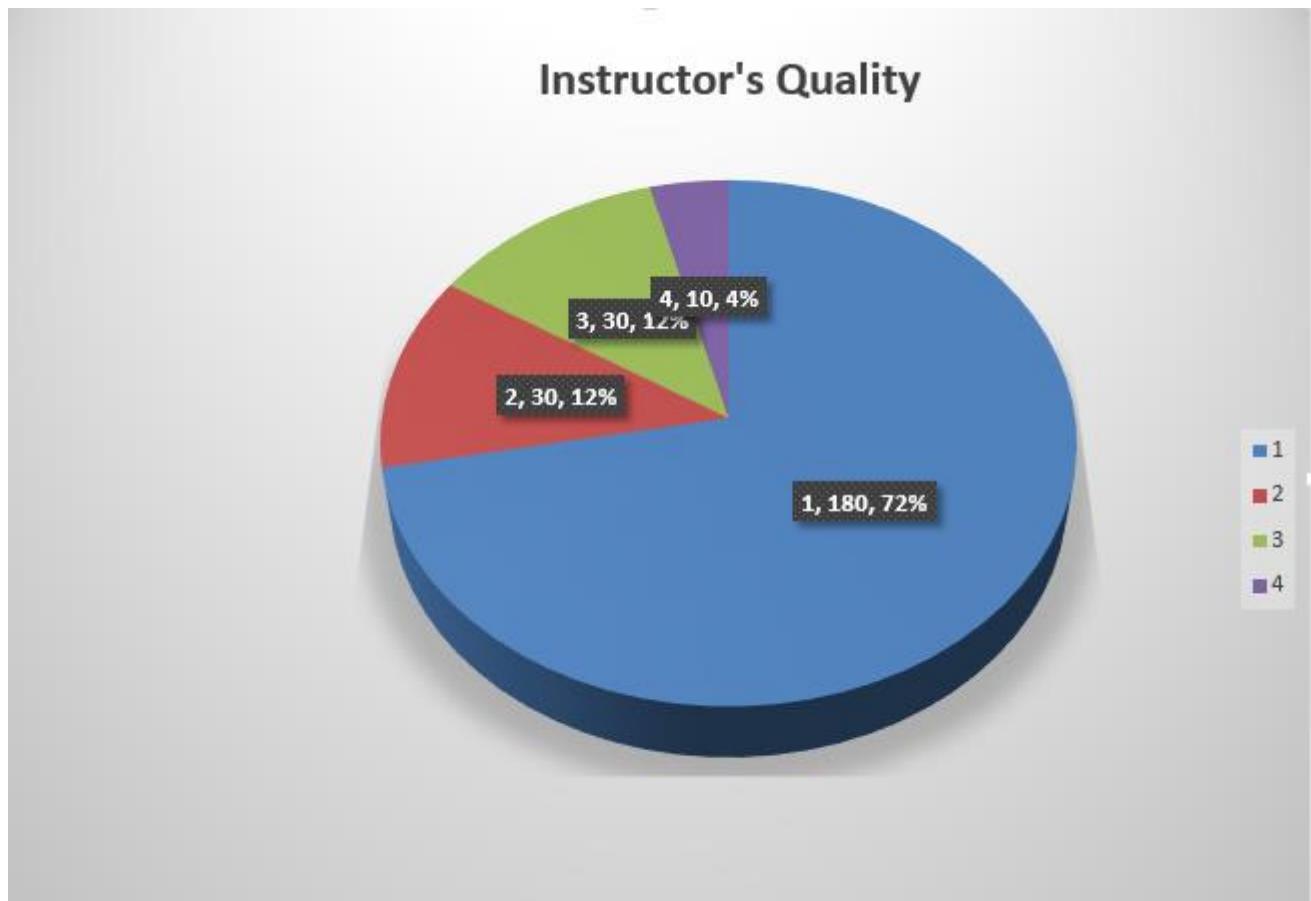


Figure 3.1.27: Instructor's Quality

Conclusion:

Most of them are satisfied with their instructor's performance.

4. You like the teaching process \_\_\_\_\_.

- a. 5/5
- b. 4/5
- c. 3/5
- d. 2/5
- e. 1/5

Graph:

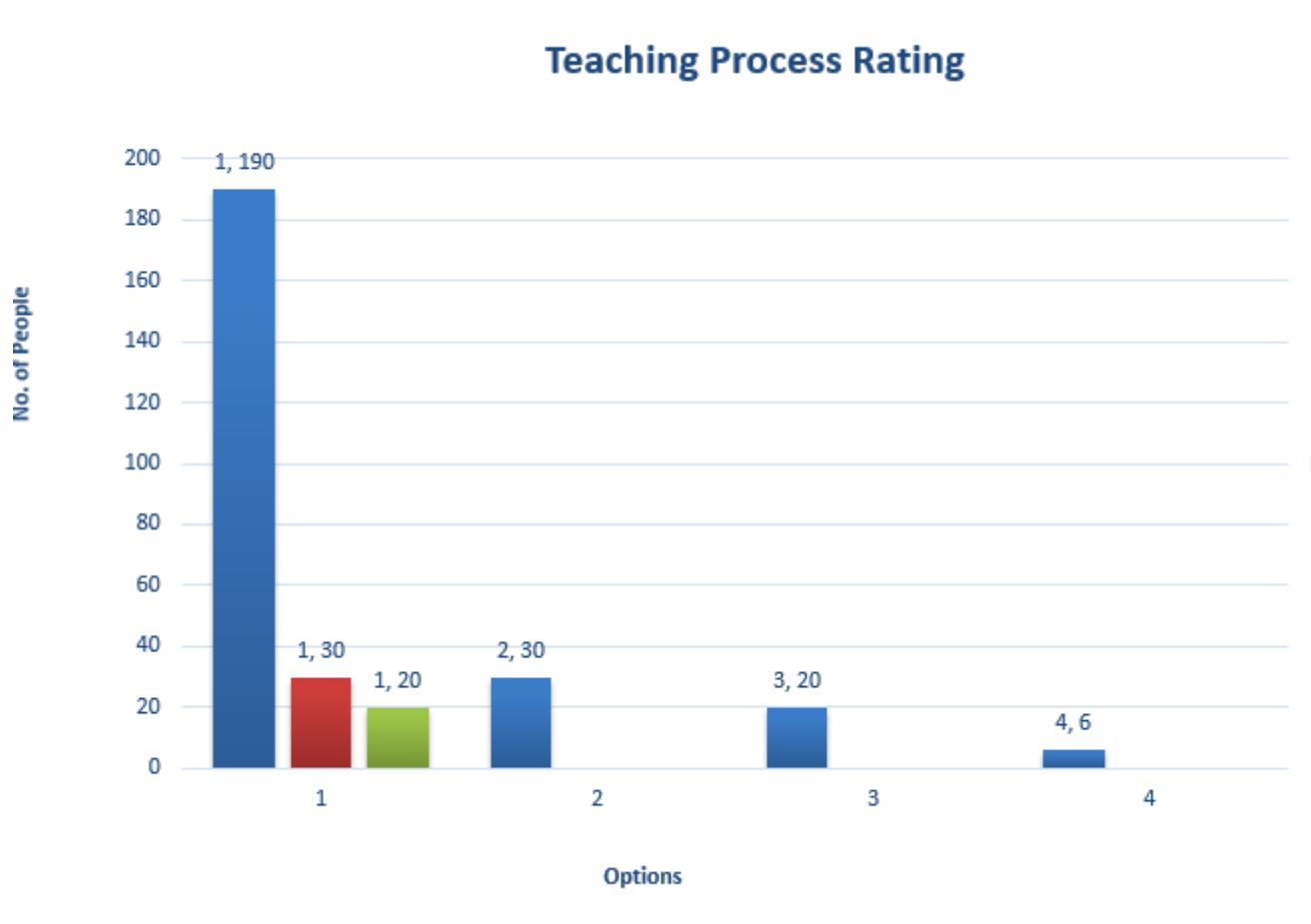


Figure 3.1.28: Teaching Process Rating by Students

Conclusion:

Most of the students like the teaching style in here.

6. You like the environment here \_\_\_\_\_

- a. Excellent
- b. Good
- c. Not bad
- d. Bad

Graph:

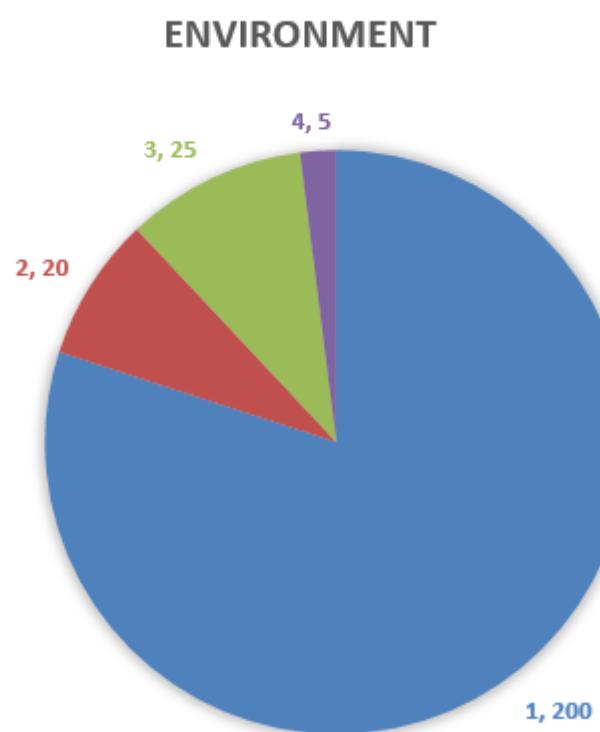


Figure 3.1.29: Opinion on Environment

Conclusion:

Most of the students like the environment here.

7. You think about the digital classroom \_\_\_\_\_

- a. Well decorated
- b. Good
- c. Sufficient enough
- d. Not sufficient

Graph:

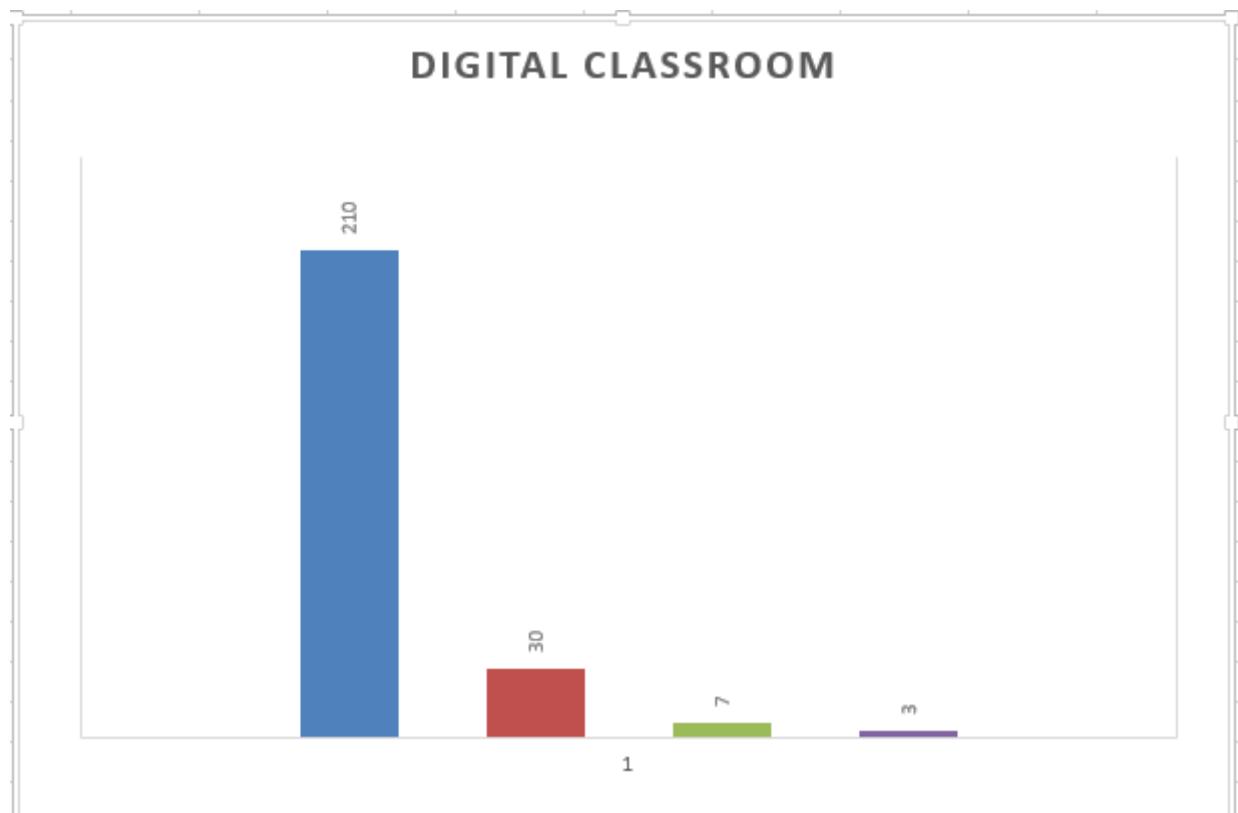


Figure 3.1.30: Opinion About Digital Classroom

Conclusion:

Most of the students like the well-decorated classroom here.

8. What do you feel about your improvement after spending time here?

- a. Beyond expectation
- b. As expected
- c. Good
- d. Not so much
- e. Not at all

Graph:

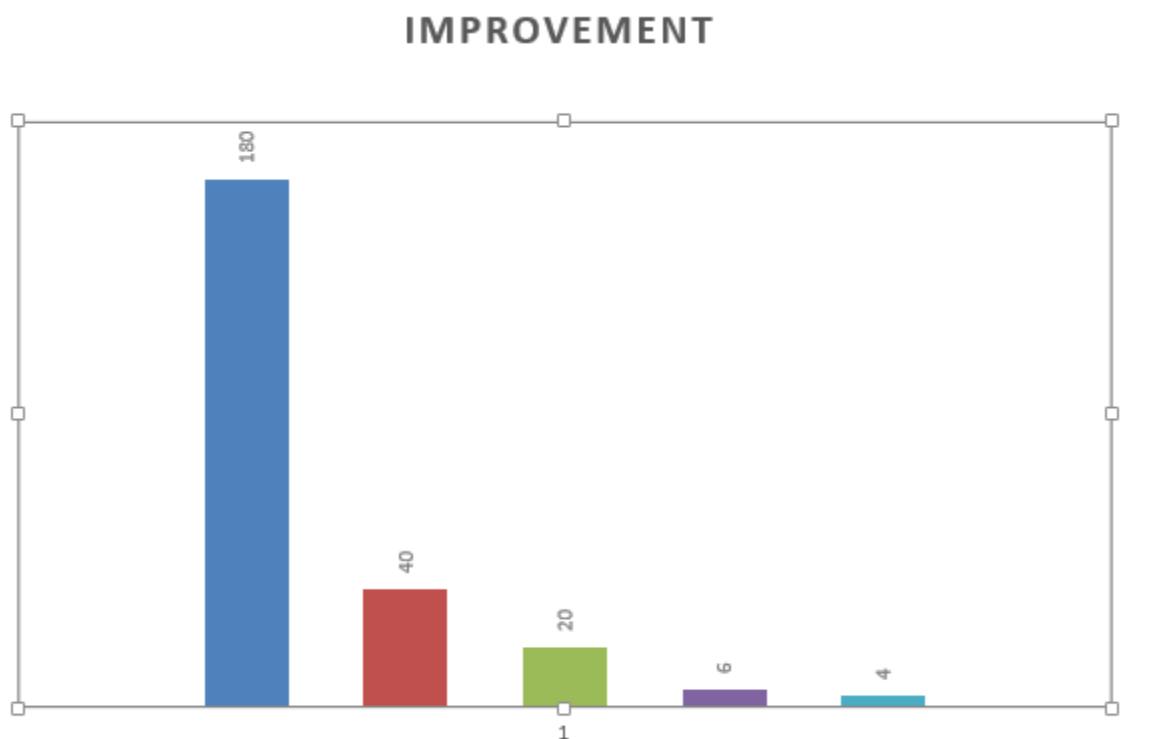


Figure 3.1.31: Improvement

Conclusion:

Most of the students are confident about their performance increase.

9. What do you feel about the other facilities?

- a. Best
- b. Better
- c. Good
- d. Not bad
- e. Bad

Graph:

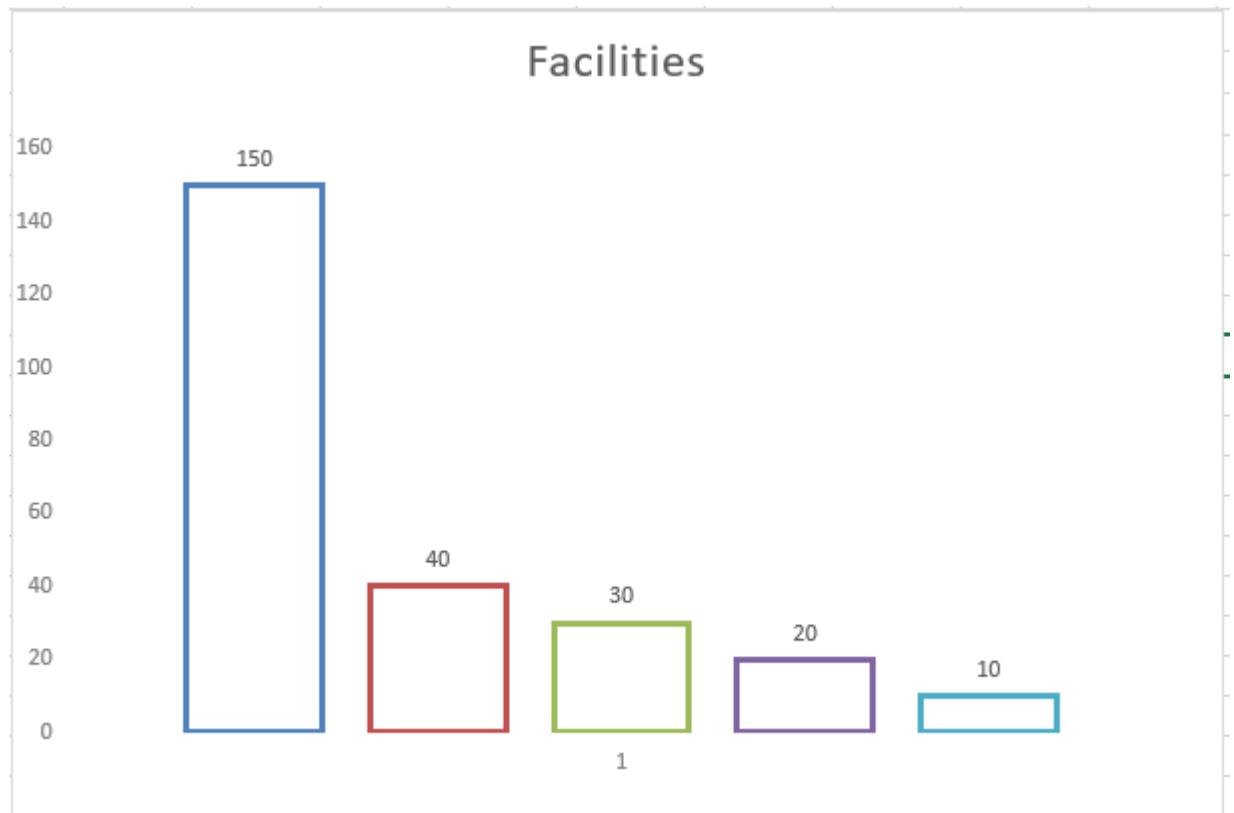


Figure 3.1.32: Facilities Enjoyed by Students

Conclusion:

Most of the students are satisfied with other facilities here.

10. What do you think about network facility?

- a. Very Satisfied
- b. Satisfied
- c. Good
- d. Not bad
- e. Bad

Graph:

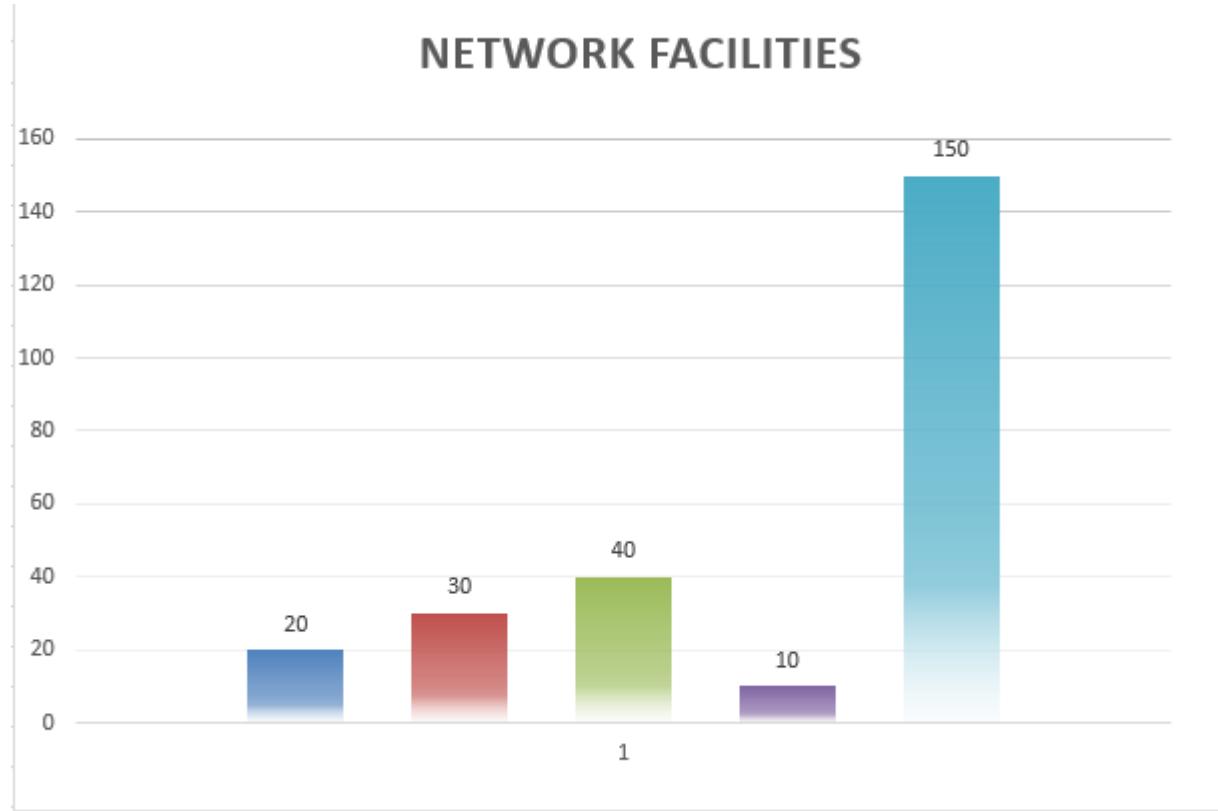


Figure 3.1.33: Network Facilities

Conclusion:

Most of the students are not satisfied with network facilities here.

11. What do you think about the office environment?

- a. Very Satisfied
- b. Satisfied
- c. Good
- d. Not bad
- e. Bad

Graph:

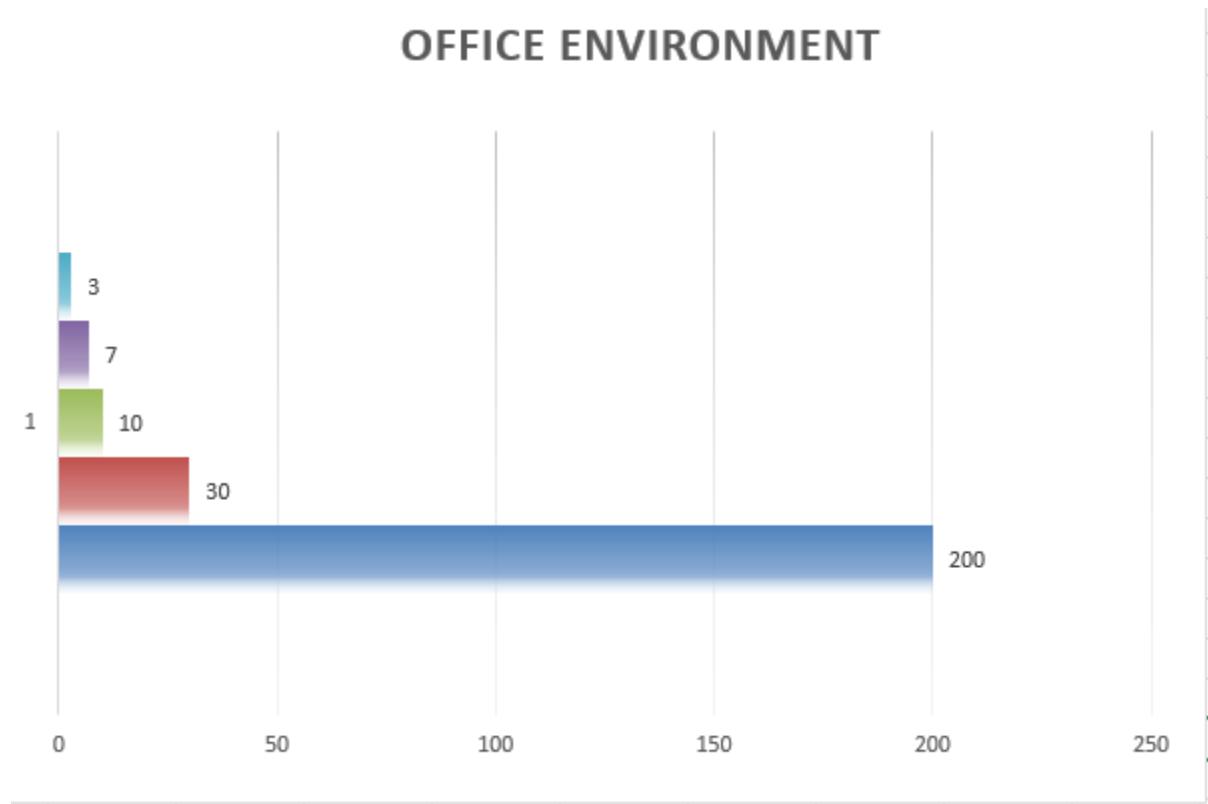


Figure 3.1.34: Office Environments

Conclusion:

Most of the students are satisfied with the office environment.

12. Do you know if this organization has a library?

- c. Yes (blue)
- d. No (red)

Graph:

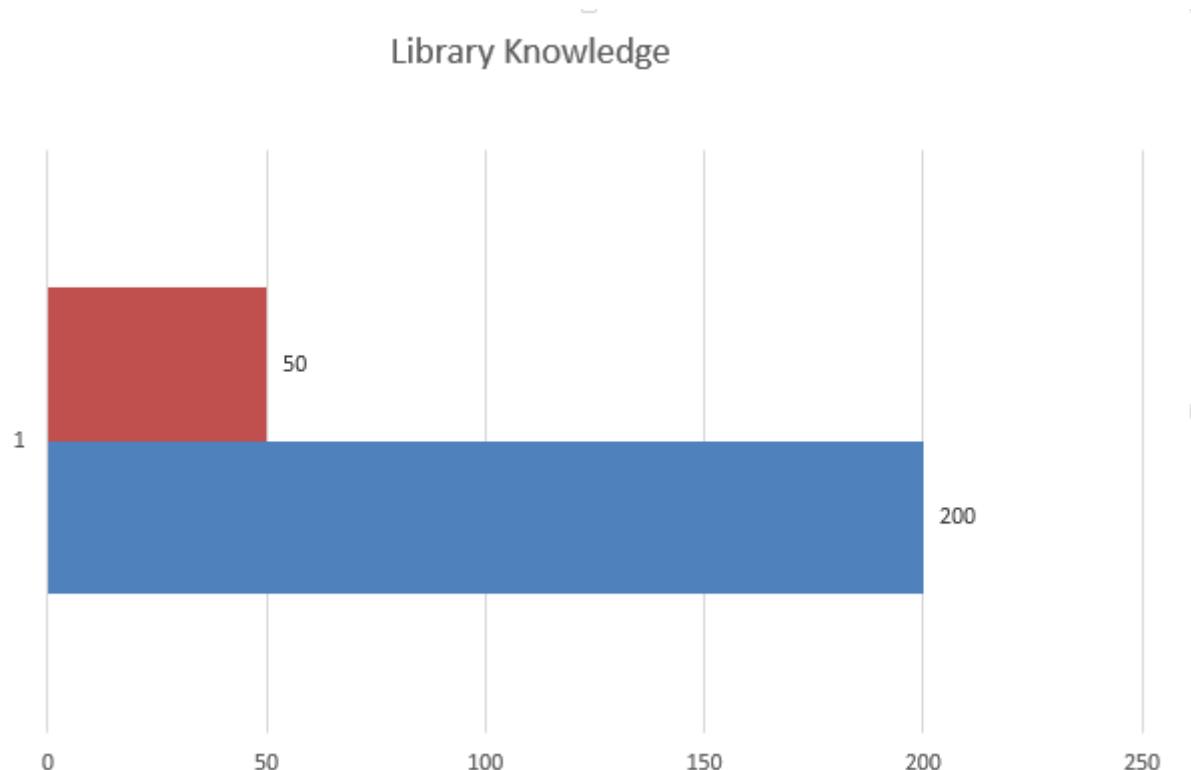


Figure 3.1.35: Library Knowledge

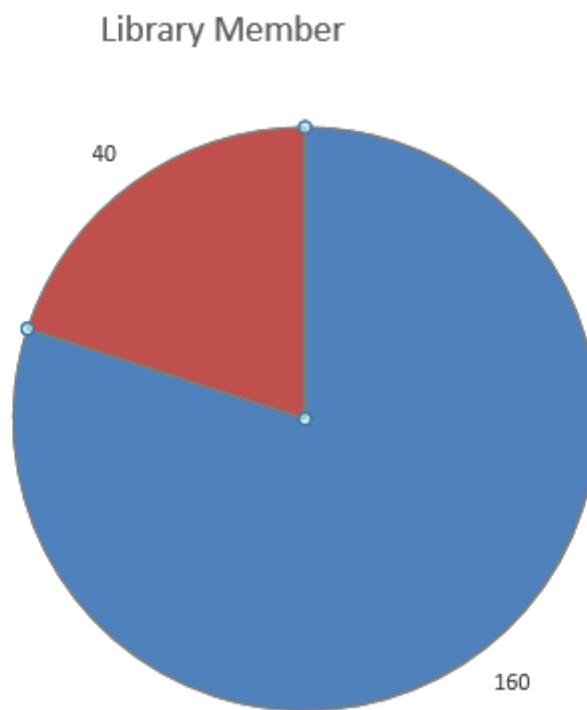
Conclusion:

Most of the students are familiar with the library facilities.

13. If yes, are you a member of it?

- c. Yes (blue)
- d. No (red)

Graph:



---

Figure 3.1.36: Library Member

Conclusion:

Most of the students who are familiar with the library facilities are a member there.

14. If no, do you intend to be a member? If not, why?

- c. Yes (blue)
- d. No (red)

Graph:

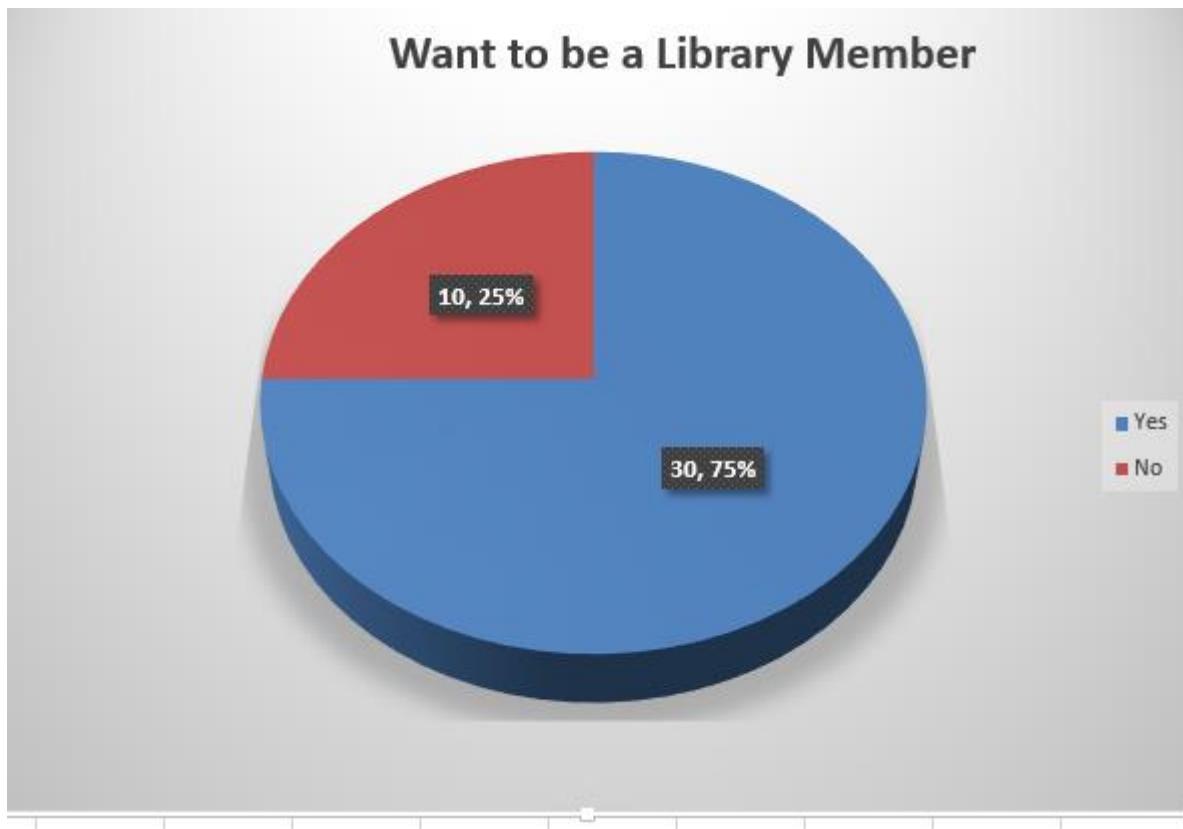


Figure 3.1.37: Interested to be a Library Member

Conclusion:

Most of the students who are not familiar with the library facilities want to join there.

15. Do you have any idea about the student support desk about abroad study?

- c. Yes (blue)
- d. No (red)

Graph:

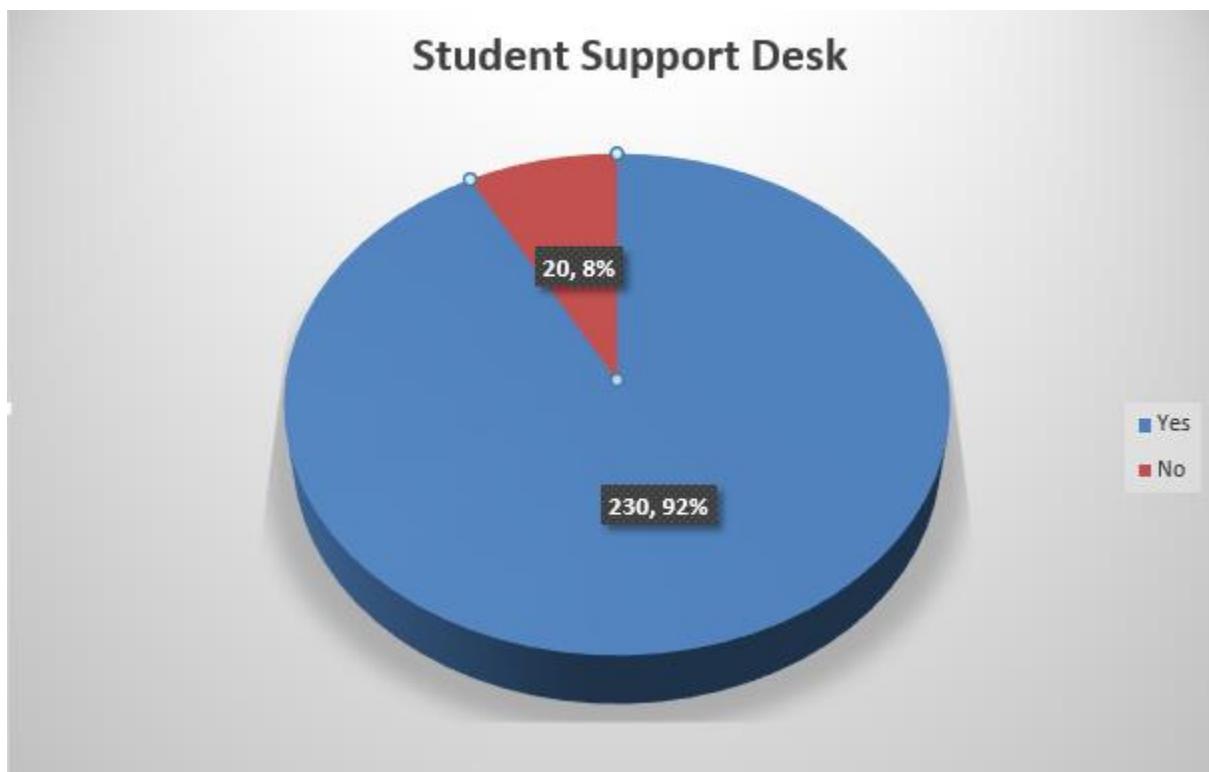


Figure 3.1.38: Students Support Desk Knowledge

Conclusion:

Most of the students are familiar with the help desk facilities.

16. Did you get your needed help from them?

- c. Yes (blue)
- d. No (red)

Graph:

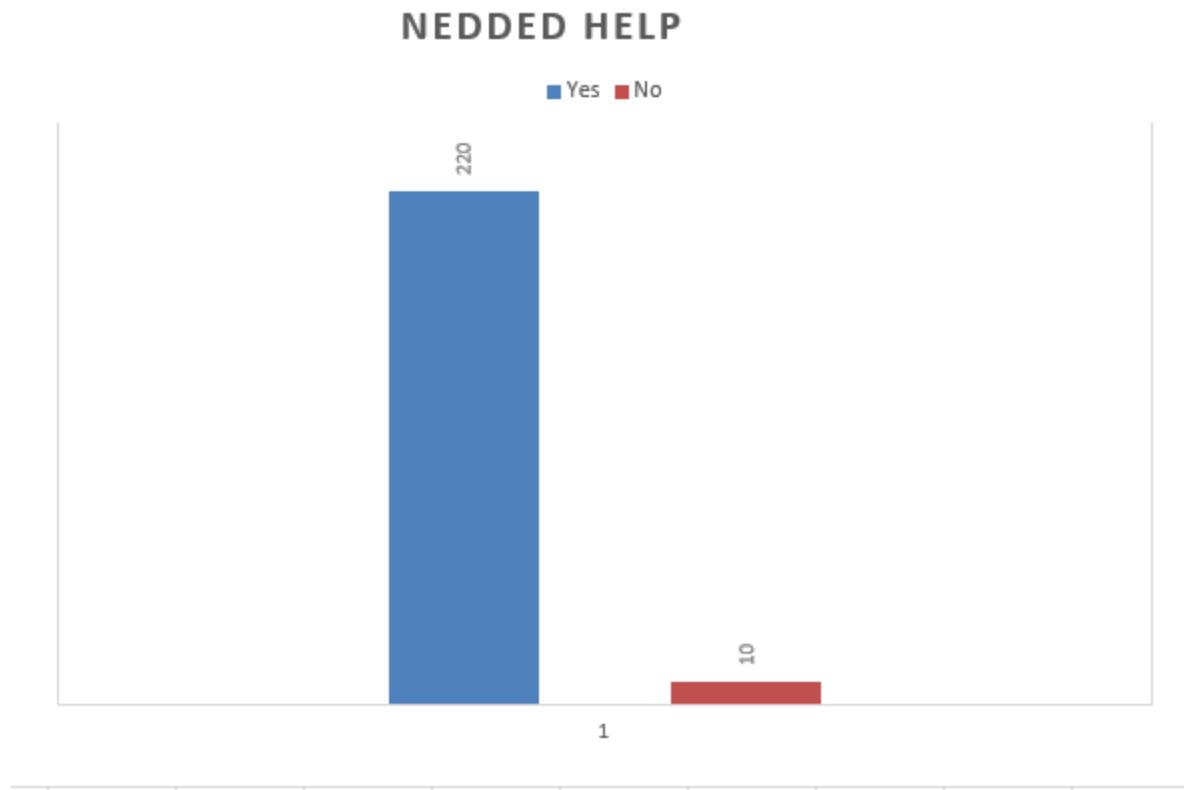


Figure 3.1.39: Got helped by them

Conclusion:

Most of the students are happy with the help desk facilities.

17. Rate this organization (out of 5).

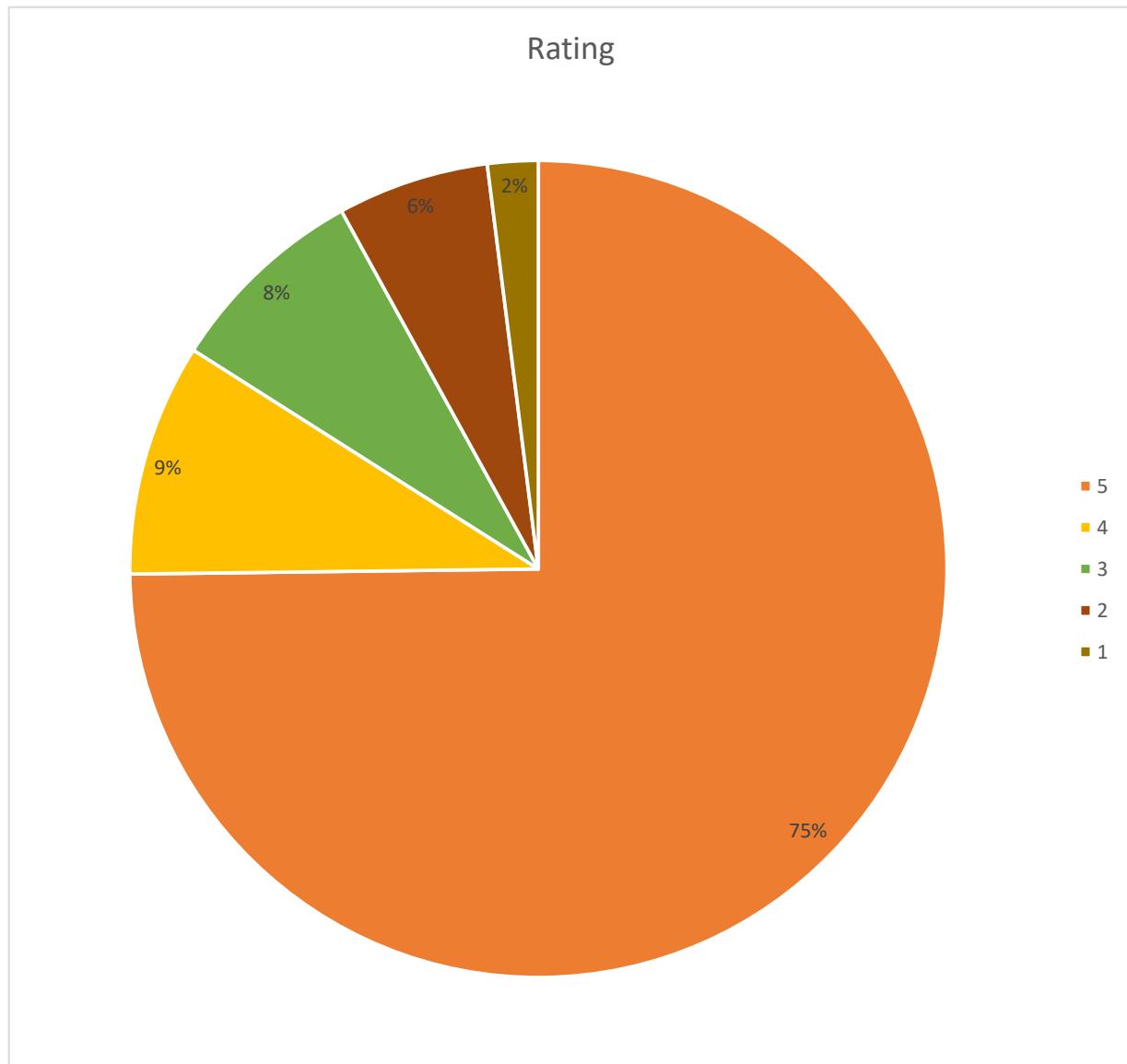


Figure 3.1.40: Rating

Conclusion:

Most of the students are happy with the organization and rated as 5 star.

### **The Guardian Form**

2. What do you think about this organization?

- a. Best
- b. Better
- c. Good
- d. Not bad.

Graph:

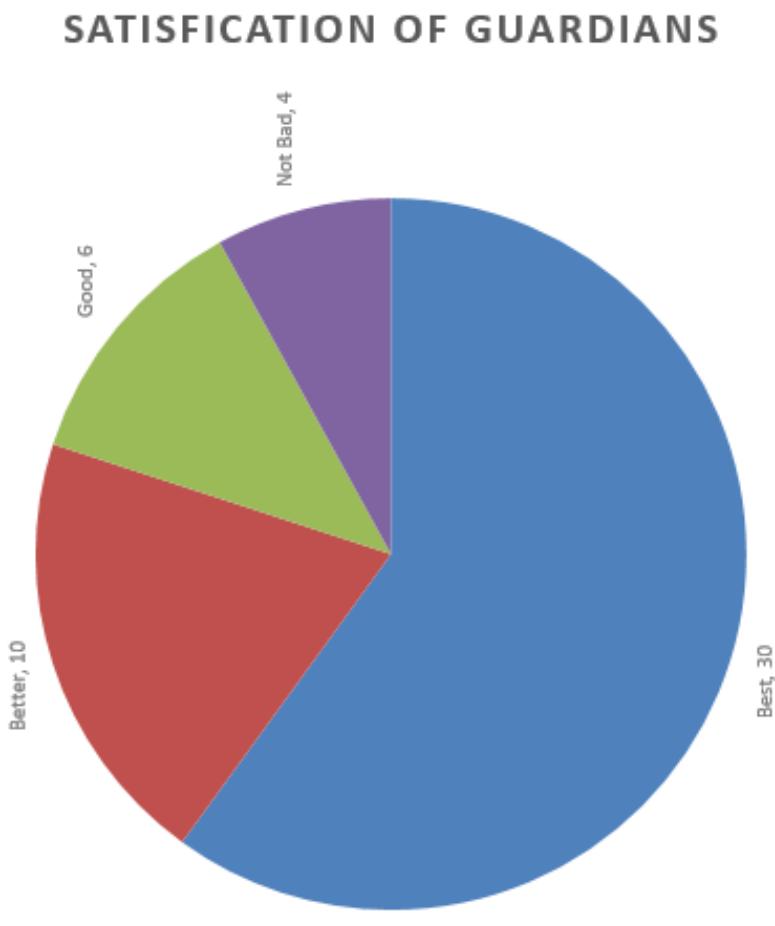


Figure 3.1.41: Satisfaction level of guardians

Conclusion:

Most of the guardians are happy with the organization and rated as best.

2. Do you think it is suitable for your child?

- a. Absolutely yes
- b. Yes
- c. No

Graph:

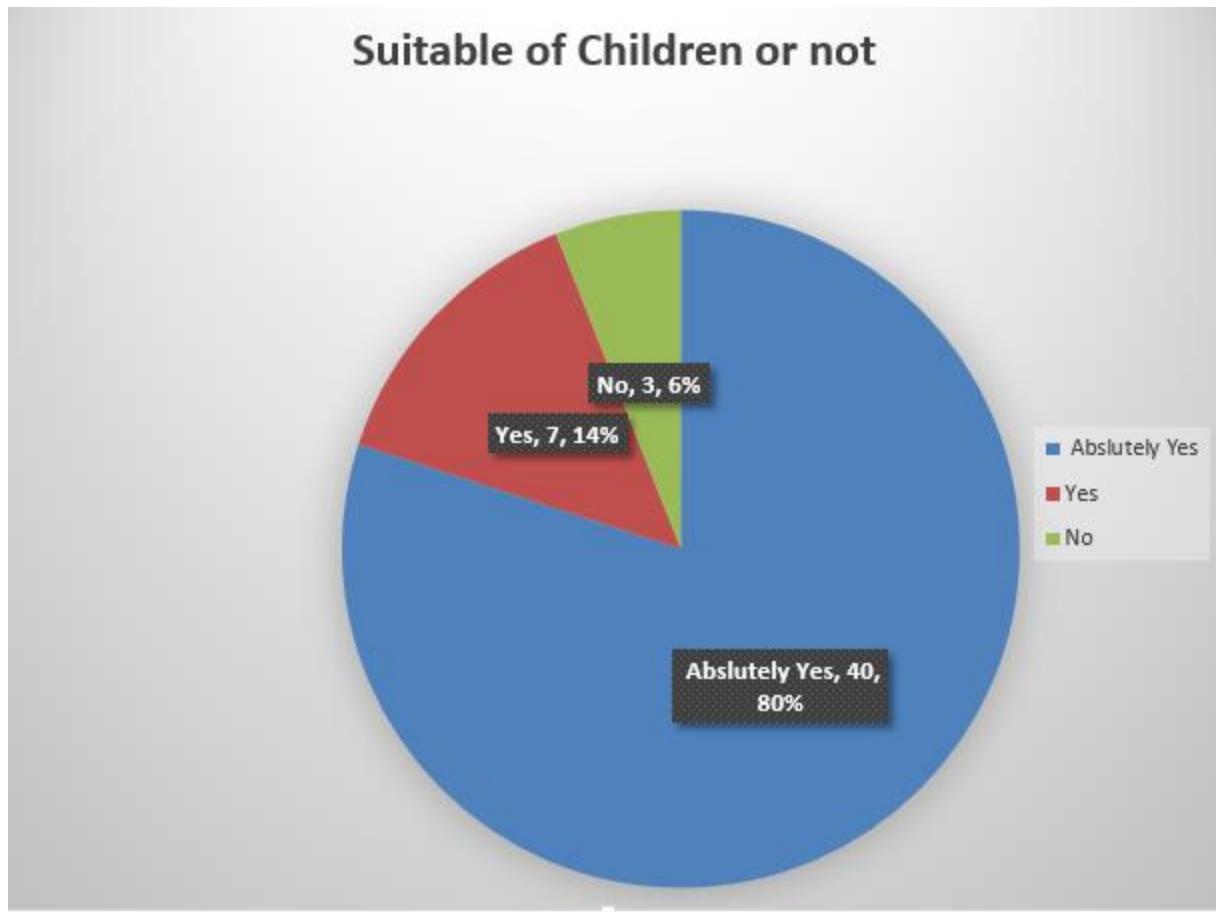


Figure 3.1.42: Suitable for children

Conclusion:

Most of the guardians are happy with the organization and choose as best for their children.

3. What do you think about the improvement of your child?

- a. Satisfied
- b. Good
- c. Not bad
- d. Not satisfied

Graph:

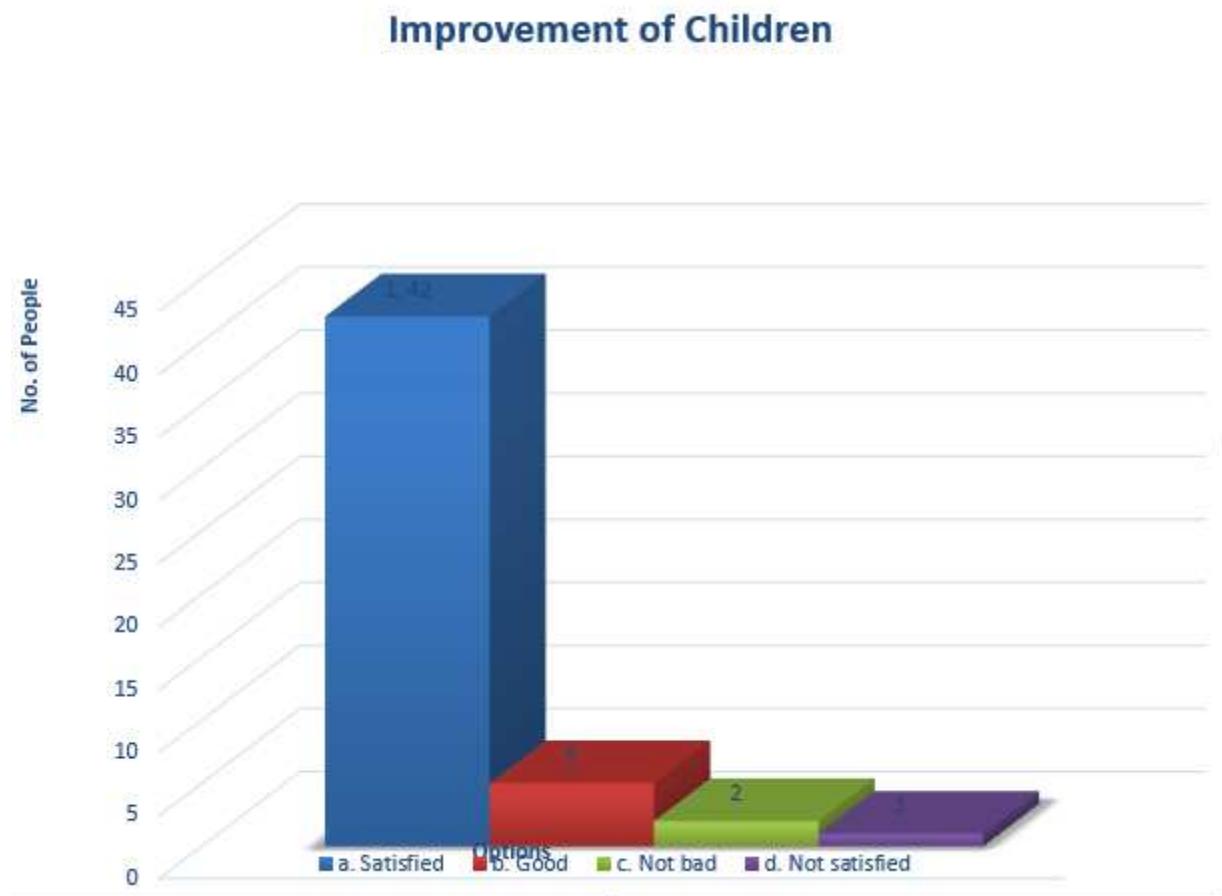


Figure 3.1.43: Improvement of children

Conclusion:

Most of the guardians are happy with the with their children improvement.

4. What do you feel about the environment of the organization?

- a. Very good
- b. Good
- c. Not bad

Graph:

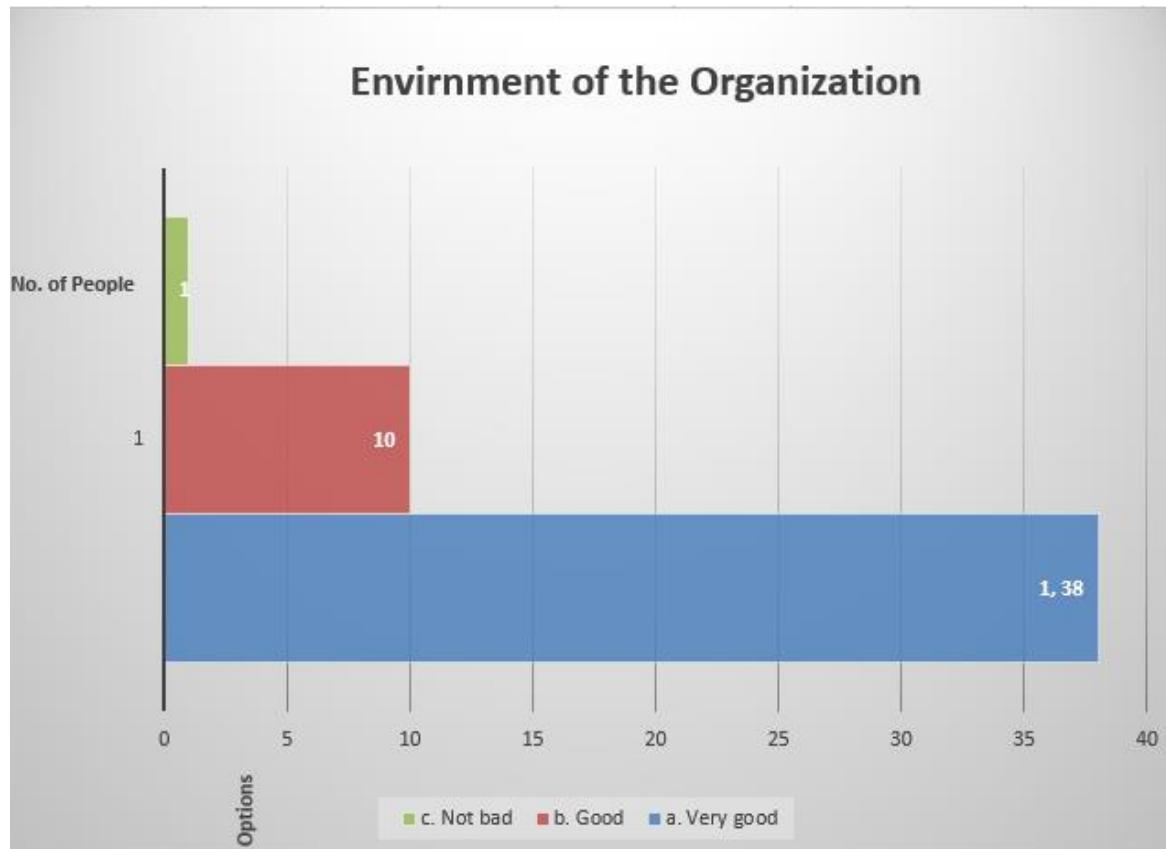


Figure 3.1.44: The environment of the organization

Conclusion:

Most of the guardians are happy with the organization and choose as the best environment for their children.

5. Are you happy with the overall security system?

- a. Very satisfied
- b. Satisfied
- c. Good
- d. Not satisfied

Graph:

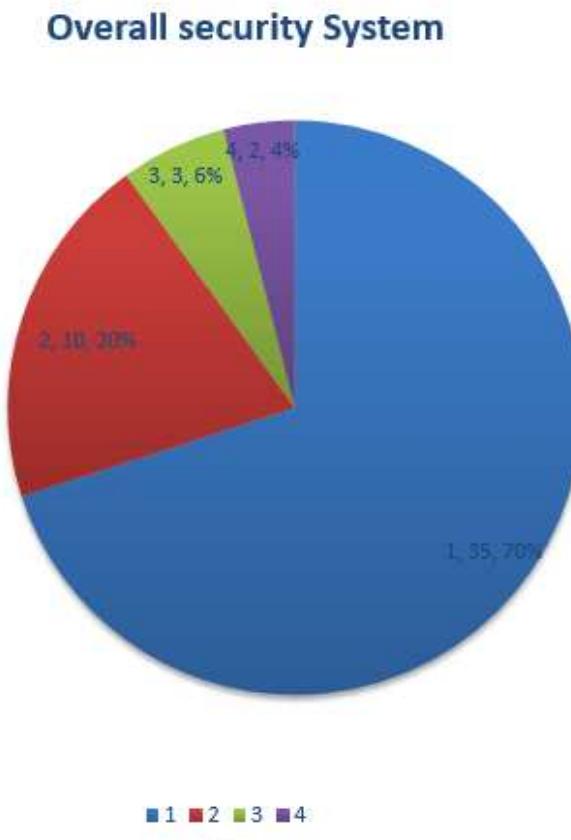


Figure 3.1.45: The overall security system of the organization

Conclusion:

Most of the guardians are happy with the organization and choose as the best-secured environment for their children.

### 3.1.3 Overview of the existing system

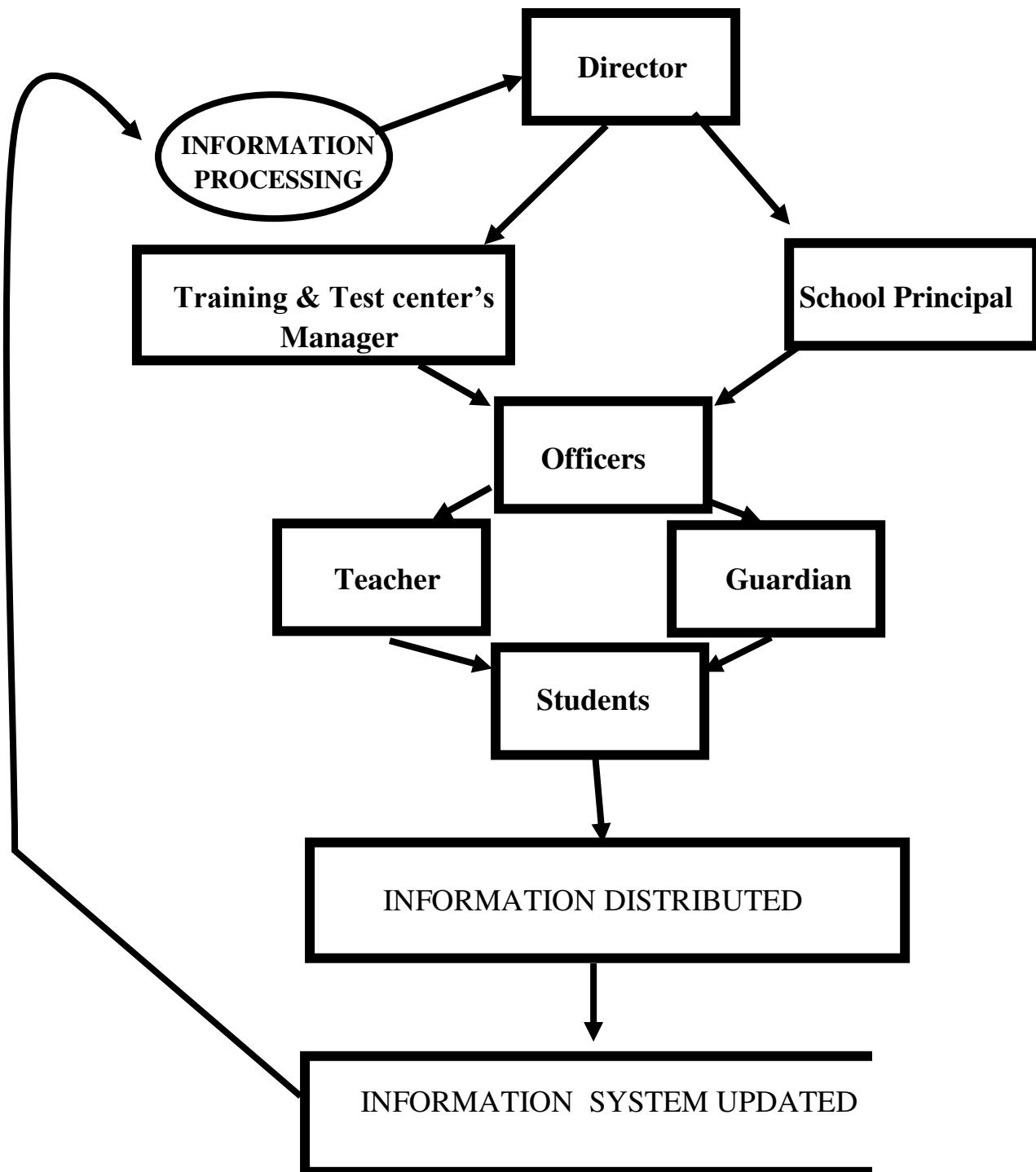


Figure 3.1.46: DFD of Project Headway's Information flow.

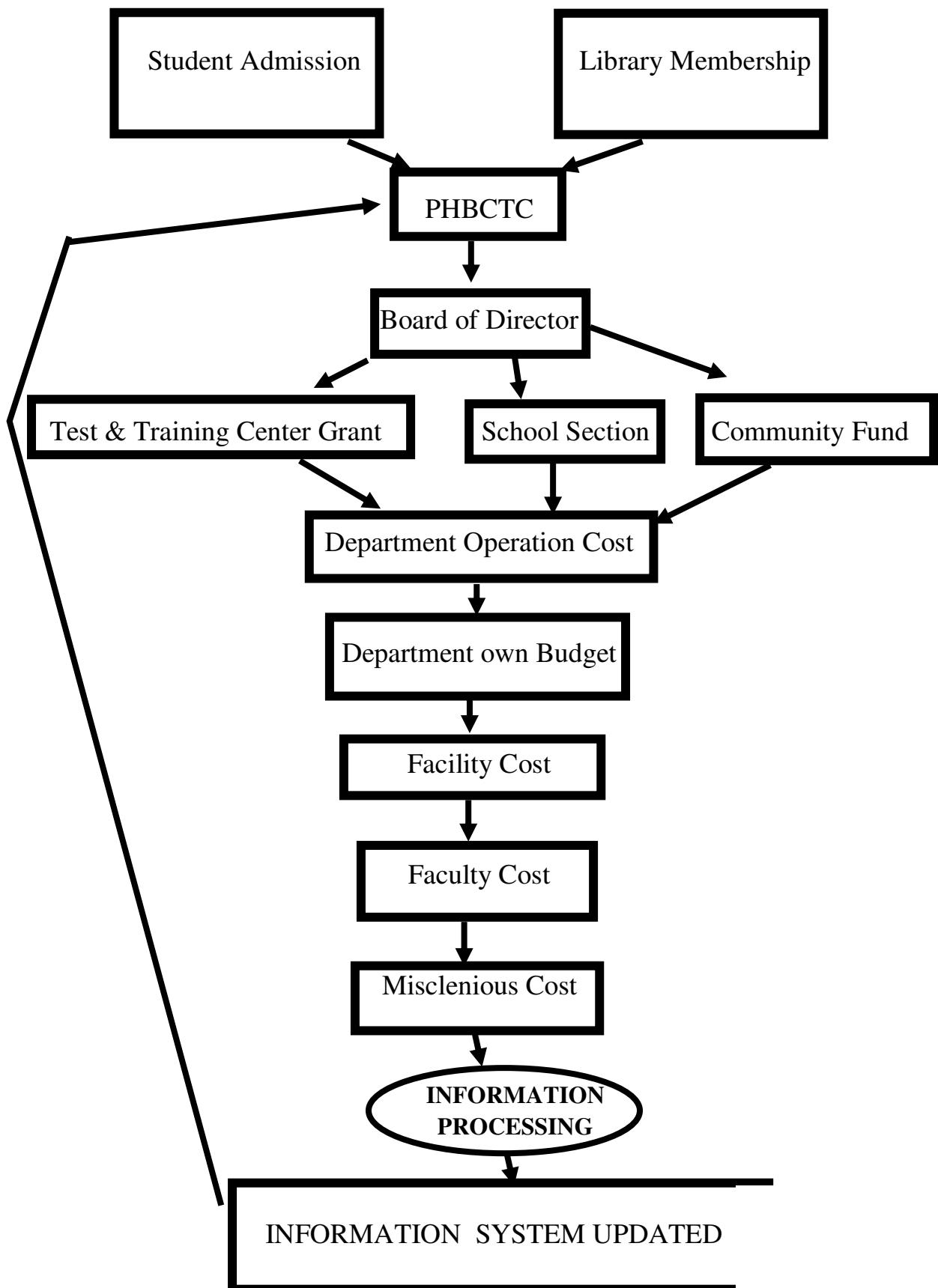


Figure 3.1.47: DFD of Project Headway's Cash flow.

### **3.1.3.1 Description of the DFD's:**

DFD is a very important aspect of describing a system. Here for the Project Headway's system, the overall process can be drawn by two DFDs. The first is about how the organization's information flow. In figure 3.1.46, we design the DFD for this process. In this DFD source is system structure. In this DFD, it represents that when a piece of information is needed to be circulated, it directly comes from director. Director gives the information to the Training & Test center manager or to the school principal based on the information. Then they give it to the necessary officer. After that officer give it to the teacher, and then students get it. Sometimes officer directly calls the guardian and pass the information to let the student know. Then the officer updates the information database that the information circulation is completed.

Now we describe the second DFD. This DFD is about how Project Headway arranges fund. The fund is very important for an organization. In figure 3.1.47, we see the second DFD. Here there are two sources. They are Student tuition fee and library membership. Our first process is student tuition fee. There is a data flow between source system and process PHBCTC. PHBCTC earned most of the cash from student tuition. after earning the money, director sends it to T&T center, school section, and community fund. Then they spend the money on various purpose of that own department.

### **3.1.4 Conclusion**

In the first section of this chapter, we discussed various information-gathering tools. we got information from these tools and forms. We used those tools for analyzing the system of the museum. We had to collect a number of documentation and forms. The collection of those forms are difficult. we have to go to high officials to collect those forms. These forms gave us the idea about different sectors of Project Headway British Council Test Center. We came to know about the different part of that organization. We also gained idea about the payments of the organizations. But these forms are not so well organized. There are a few relations between the forms. So it takes time to gather information about the existing system.

The second tool we used for gathering information is on-site observation. We went to Project Headway's office physically to observe the system. The major objective of the on-site observation is to get close to the real system. So we did the same. After visiting, we gathered various important information about the system. We used direct observation method for this purpose. But this method took a long time to complete.

The third technique used was an interview. This is a face to face interpersonal meeting. We asked questions to the staff of different levels and tried to read their minds. This was a great tool for gathering more information about the system. We also had an opportunity to validate the information given by them as we talked to different levels of people. However, we had to take a good preparation for arranging the interviews.

We also designed an information collection form to analyze the mentality of the employees about the system. this helps us to understand the lacks of the system.

Finally, two Data Flow Diagrams were designed for the existing system. It helps one to perfectly understand the existing system. The DFDs show the major transformations of the system like collecting a sculpture or collecting funds.

## 3.2 Information Analysis

### 3.2.1 Introduction:

After gathering the information our first duty was to survey those data and analyze those data. Our data was mainly collected via different data collection tools. After analyzing those data what we have found are enlisted below.

By doing literature review and after interviewing the people from different level of that organization what we found is satisfying to some certain extent.

- ❖ From the literature review we learned about the organization's different curriculum activities. But need some improvements. Online advertising was good. But the website was terrible. It needs a massive change.
- ❖ From the onsite observation we have learned about the overall environment of this organization physically. No major problem was found during the visit. But we think some modification is needed in some areas which are enlisted below:
  - Exit system
  - CCTV coverage
  - Network inside the building
  - Student management system
  - Student feedback system
  - Student locker
  - Discipline inside building
- ❖ From the interview with the director and the other staff, we have learned different problems as we mentioned earlier like network, etc. which is needed to be solved.
- ❖ We had prepared 3 set questionnaires for employee, students, and guardians and we gave it to them correspondingly. Total employee number was 20, student number was 250 individual and guardian number was 50.

After surveying that information what we have found is presented graphically below :

Office employee:

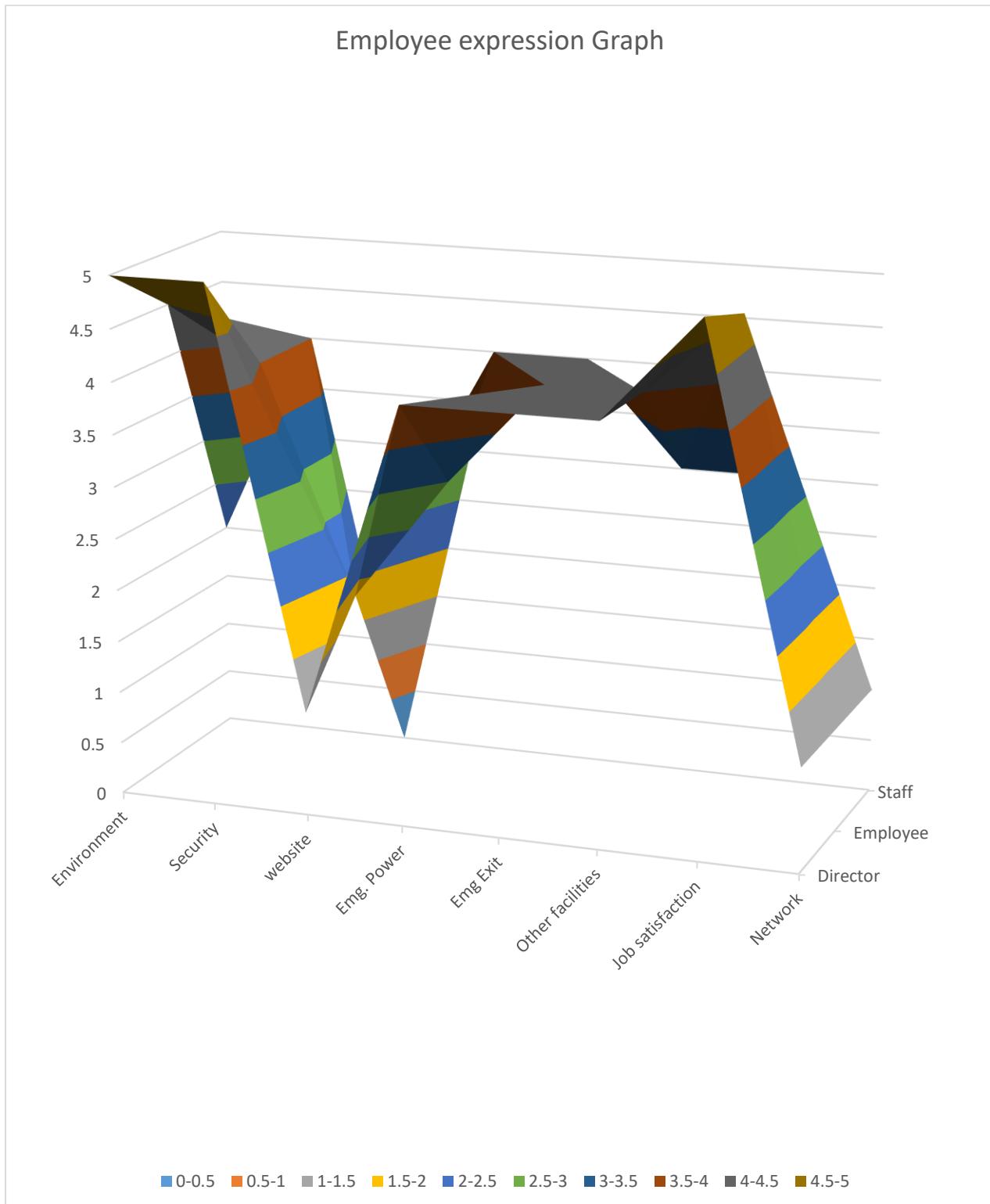


Figure 3.2.1: Employee expression Graph

Students:

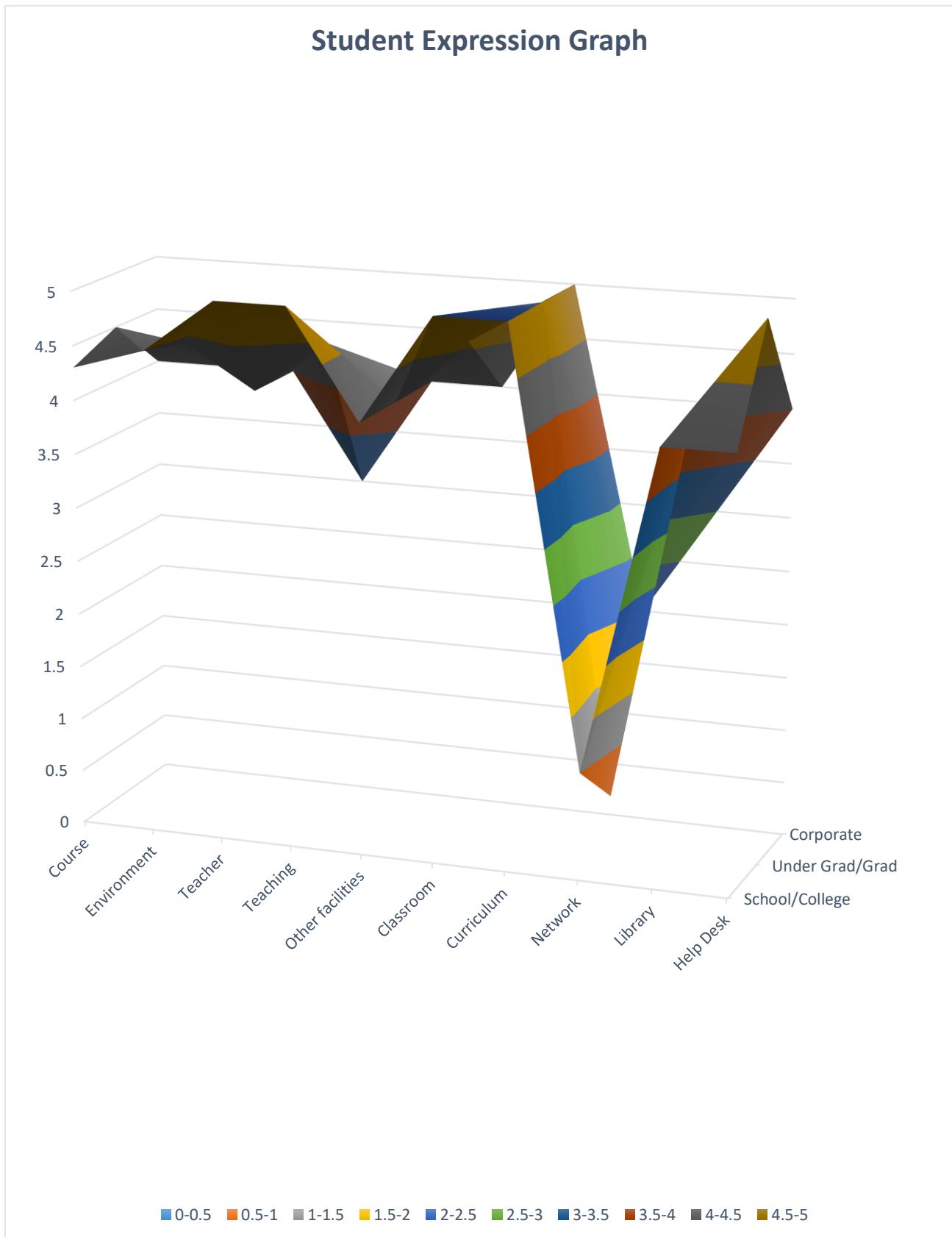


Figure 3.2.2: Student Expression Graph

Guardians:

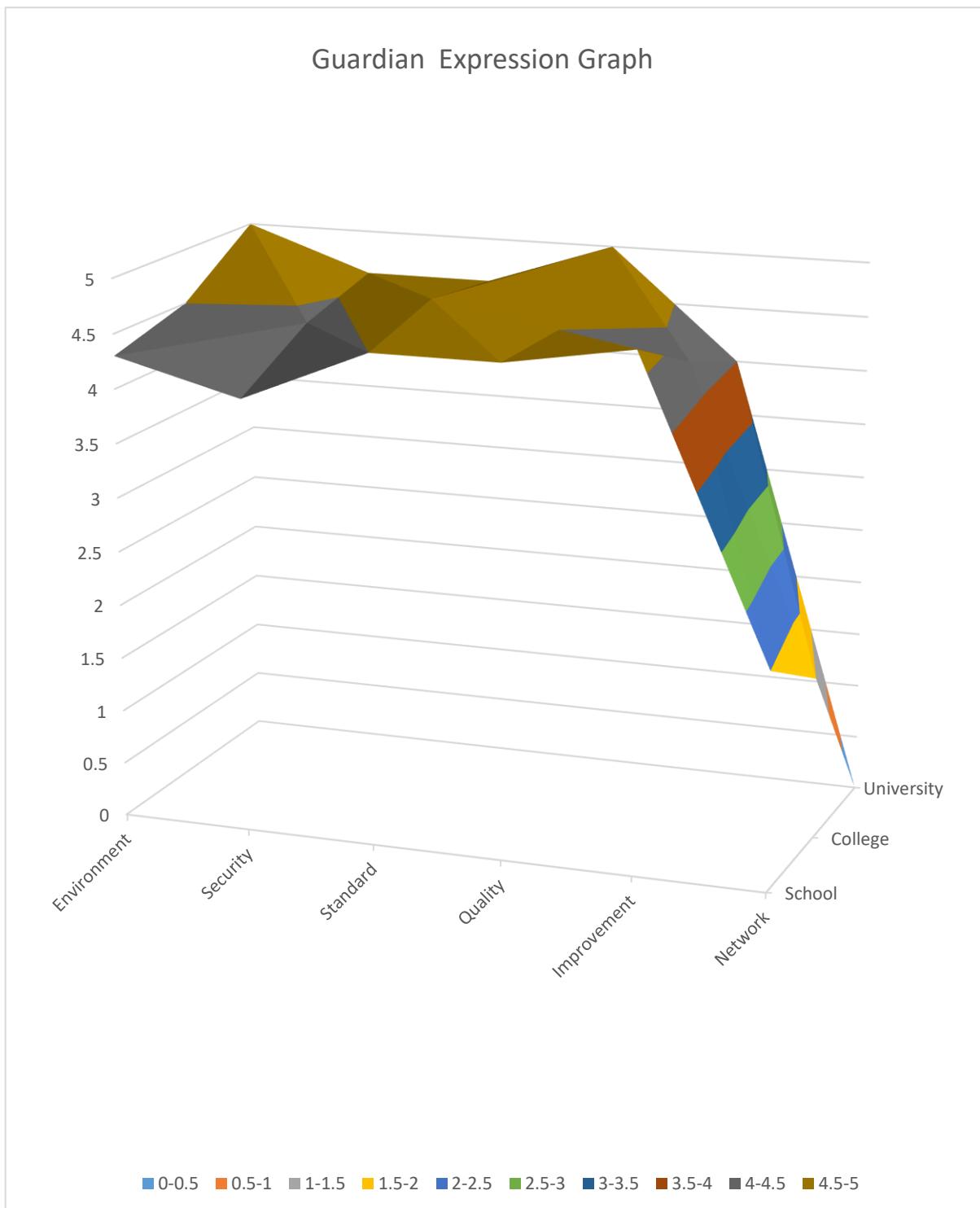


Figure 3.2.3: Guardian Expression Graph

From these graphs, we can say that there have few problems regarding network, website, security and some other things.

- ❖ From the analysis of existing DFD, we have found some major flaws in the system like mostly one-way communication, lack of two-way communication. Data dependency, lack of full website, network problem, etc.

### **3.2.2 Conclusion:**

No system is error-proof but we have to learn from the error and improve the system. As an analyst after collecting all this information and analyzing it, we have found that this existing system is a promising system, but not 100% okay. We have found different flaws and we have mentioned all of them above. Our next target is to propose a feasibility report on these findings.

# Chapter 4

## Feasibility Analysis

### 4.1 Introduction

In chapter two we discussed the initial feasibility study of our system which results in a proposal that determines whether an alternative system is feasible. A proposal summarizing the thought of the analyst is then submitted to the user for review. If the proposal is approved then the feasibility analysis initiates. A feasibility study is an analysis of how successfully a project can be completed, accounting for factors that affect it such as economic, technological, legal and scheduling factors. Project managers use feasibility studies to determine potential positive and negative outcomes of a project before investing a considerable amount of time and money into it.

For example, a small school looking to expand its campus might perform a feasibility study to determine if it should follow through, taking into account material and labor costs, how disruptive the project would be to the students, the public opinion of the expansion, and laws that might have an effect on the expansion.

A feasibility study tests the viability of an idea, a project or even a new business. The goal of a feasibility study is to place emphasis on potential problems that could occur if a project is pursued and determine if, after all, significant factors are considered, the project should be pursued. Feasibility studies also allow a business to address where and how it will operate, potential obstacles, competition and the funding needed to get the business up and running.

The purpose of the feasibility study is to present the project parameters and define the potential solutions to the defined problem, need, or opportunity. Having brainstormed a variety of potential solutions, the project team expands on each of these potential solutions, providing sufficient detail, including very high-level costing information, to permit the project leader to recommend to the approving authority all of the viable potential solutions that should be further analyzed in the next phase. Project constraints and limitations of expenditure are among the various factors that will determine viability.

### 4.2 Feasibility Considerations

There are three key considerations which are deeply involved in the feasibility analysis of a system. They are economic, technical and behavioral feasibility, which we obeyed strictly.

**Economic Feasibility:** Economic analysis is more commonly known as cost/benefit analysis. This method is used for evaluating the effectiveness of a candidate system. This is the procedure of determining the benefits and savings that are expected from a candidate system and comparing them with the cost.

**Technical Feasibility:** In technical feasibility, the following issues are taken into consideration.

- ❖ Whether the required technology is available or not

- ❖ Whether the required resources are available - programmers, testers, debuggers, software and hardware

Once the technical feasibility is established, it is important to consider the monetary factors also. Since it might happen that developing a particular system may be technically possible but it may require huge investments and benefits may be less. For evaluating this, the economic feasibility of the proposed system is carried out.

**Behavioral Feasibility:** Behavioural feasibility determines how much effort will go into educating, selling and training the user staff on a candidate system. In behavioral feasibility analysis, an estimate is made of how strong a reaction the user staff is likely to have toward the development of a computerized system.

### 4.3 Feasibility Study

We have studied the present system of Project Headway British Council Test Centre and have come to a conclusion of two potential candidate systems that are capable of producing more output than the present system. In the next section, the three candidate systems have been described. Then economic, technical and behavioral feasibilities have been considered. After that the characteristics of the candidate systems have been identified, performance of each candidate system have been evaluated and at last the best candidate system has been selected for the design phase.

#### 4.3.1 Candidate system-I

- ❖ First of all, the Test Centre premises should have the direction signs indicating the entrance to the classroom and the library room. For this purpose, a small amount of funding is needed. But this will help the visitors a lot.
- ❖ The admission should be computerized to make the system more transparent. The software can be developed for this purpose. The authority can hire a developer to design software for designing the admission system. The staff who presently works at the reception should be trained to operate the computerized system. This is not so difficult task for him. To initiate the computerized admission system a computer together with a printer are needed to be installed at the reception desk.
- ❖ The classrooms need to be more secured and also it needs to make sure that nothing is ruined by students. For this purpose, CCTV camera can be installed. This will make the security personnel aware if any harm happens to the books at library. This system will require a moderate amount of money which is not so much regarding the safety of the library and books.
- ❖ The library and classrooms need to be set up in such a way that the student can easily understand and find them from their arranging order. For this, they should be arranged according to the order. This rearrangement of the rooms need no financial or technical support but the user staff needs to be willing to make it happen.
- ❖ The whole building should be covered with closed-circuit cameras for increasing security. Also a control room is needed to check the footage of all the cameras inside

the classrooms and library. A good amount of financial support is needed for this purpose.

- ❖ The library should be made accessible to interested persons so that they can gather information and read books. Not everyone should get access to the library. But the members should have easy access. That's why there's a need for a library man.
- ❖ An organization obviously needs an alternative power supply to ensure uninterrupted supply of electricity during power failures. A solar system can be installed as an alternative power supply as a solar system is getting popular day by day. Although the initial setup requires a healthy amount of money, it will need no further costing on regular basis. Moreover no extra manpower is needed to maintain the system.
- ❖ Nowadays all the systems are forwarding toward computerized systems. Project Headway British Council Test Centre also needs to install a computerized system for different official works and that software need to be updated on regular basis. The library management system also needs to be computerized. Although this computerized system installation needs a huge amount of money this will be cost-efficient considering various criteria. All the computers need not have a very high performance. But a strong database is needed. The staffs who are presently working on hand are needed to be trained for using the computerized system. This will take a few weeks of training.
- ❖ For any notification to students, we can notify the students through mobile SMS. For this, we have to communicate with a telecommunication company. We can provide bulk SMS system. We'll need some technical support. For this support, we need some financial support.
- ❖ The current system takes payment manually which is in cash. We propose here a mobile banking system. Nowadays, mobile banking services like Bkash, Rocket, etc. are available and easy to handle. That will make it easy for students to pay as they can pay from anywhere and whenever they want. This will be beneficial to the system too. It is very easy to handle and transactions are transparent. So, there's almost no possibility of transactional error.
- ❖ The organization needs to arrange a few public programs for publicity purpose and for raising funds and sponsors.
- ❖ Nowadays social media plays an important role considering publicity purpose. Project Headway British Council Test Centre can also raise public attraction by creating a social media page (e.g. Facebook page) to increase publicity. This page should be updated periodically by publishing the latest news and events arranged by the museum. A permanent employee needs to be recruited for maintaining the social media page.

### 4.3.2 Candidate system-II

Here we have to design a candidate system for Project Headway British Council Test Centre. This organization is operated in an old system. The world is developing day by day. We have to cope with the change. For this, we need a system which is better for the era. The design is given below:

- ❖ The first thing for getting to a test center is an admission. Now-a days for any digital organization digitalized system is a must. So we can build software for admission system. For this we can communicate with various IT organizations. For choosing admission software interface we can online support. After choosing we can give details to the developer team. Since we have to think about the budget we have to select an IT firm who can design the system at a low cost.
- ❖ People go to the test center for taking the various course. People spend many hours on course purpose. It takes time. Again they have also programs with children. So, the toilets must be neat and clean. There will be separated toilet for men and women.
- ❖ A library is a medium for gathering knowledge. In Project Headway British Council Test Centre students may need to read books anytime. A library provides them with such facility. The library should be opened for all. There is no internet connection and computer in the library. We bought 5 or 6 computers and set up internet connection for the visitors. Though it is a very costly idea, it is a need of the edge.
- ❖ Classroom decoration is also an important aspect of designing a training center. There are several options for decorating classrooms. It can be period wise or area wise. Area wise means in which course are being taken where. If some course is same type or for same category students the classrooms are kept sequentially. Period wise means they are kept periodically in respect to time.
- ❖ We have to design a security system for the test center. A now-a-day security camera is common matter for any organization. We have to set security camera at the right place in every room. For choosing the right place for security camera we can talk to the technician. We have to cover full building. It is a costly case. We also have to have data storage for keeping the record of the security camera. The storage must be big enough for keeping the record of three months. It is a standard time limit. We also have to recruit a person who will manage security camera and storage. There must be a control room with a computer. The security personnel will monitor every footage of the security camera and inform the guard if some awards happen.
- ❖ Now-a-day every institution has online support. Online support helps visitors to understand nature of the organization. So we design a website for this museum. In this website we will demonstrate various issues about organization. In this site we add a routine in which day the center will open or close. Here we also add contact number. We can also add a short demonstration of the courses or tests. For this we have to hire a developer who will design the site. So we have to make budget for this purpose.
- ❖ There must be a way to notify the students about the notices from the organization. To solve this, we proposed a system which is online-based. The student will have their

account on the platform and will be notified daily. This requires some additional support from the online support team.

- ❖ To make payment to the organization, we can contract with a local branch of a renown bank. Students will pay their payment at the bank branch. This will help the system to avoid transactional issues. That will be clear and there's no need of an accountant.
- ❖ Electronic media has a huge impact on making people curious. We have to grow curiosity among people for taking courses here. For this purpose, we can use electronic media. So we have to make fund for this purpose. We can arrange talk-show, documentary about the organization. We can also write article in many newspapers. These are very helpful for making people curious. We can write article on various journals about the recent works of the organization. For writing article we can hire a professional article writer. So there is also a cost.

Skilled manpower is very important in organization management. We need skilled manpower for managing the computerized system, security purpose, and security camera, etc.

#### 4.4 Identifying the characteristics of candidate systems

For the above two candidate system considered, we attempted to evaluate the candidate system to find the best one out. For this purpose at first, the characteristics of the two candidate systems were analyzed. Table 4.1 summarize the characteristics of the two candidate systems.

Table 4.1 Characteristics of the two potential candidate systems

Characteristics	Candidate System I	Candidate System II
<b>Admission system</b>	Computerized	Computerized
<b>Classroom Protection</b>	Alarm System	Glass Protection
<b>Classroom decoration</b>	Time period wise	Area wise
<b>Library access</b>	For library members	For all
<b>Publicity</b>	Social media	Electronic media
<b>Notification System</b>	SMS Based	Website Based
<b>Payment System</b>	Mobile Banking	Renown Bank
<b>Alternative power supply</b>	Solar system	AC generator

## 4.5 Performance and cost-effectiveness

After analyzing the characteristics of the two candidate systems, each candidate system's performance was evaluated against the system performance requirement set. The criteria chosen by us were user-friendly database system, reliability, security of the system, visitor attraction. These criteria were firstly evaluated in qualitative terms(e,g, excellent, very good, fair, good, etc). The cost includes both designing and implementing the system. For cost analysis the criteria chosen are system development, user training, and system operation. System performance criteria are evaluated against the cost of each system to find out which one is more cost-efficient. Below are two tables showing the qualitative evaluation matrix and cost evaluation matrix showing the system performance of the two candidate systems.

Table 4.2 Candidate qualitative evaluation matrix

Evaluation Criteria	Candidate system I	Candidate system II
User- friendly	Excellent	Excellent
Reliability	Very good	Very good
Security	Excellent	Very good
Students Notification	Excellent	Very good
Payment System	Excellent	Fair
Cost System development	Very good	Good
User training	Fair	Fair
System operation	Excellent	Very good

Table 4.3 Performance/cost evaluation Matrix

Evaluation Criteria	Candidate system I	Candidate system II
User- friendly	90-95% Interactive	90-93% Interactive
Reliability	95%	95%
Security	1-1.5 lac BDT	1.5-2 lac BDT
Students Notification	90-95%	Around 90%
Payment System	90-95%	80%

<b>Cost</b> <b>System development</b>	1 month approximately	1-2 month
<b>User training</b>	7-10 days	10-15 days
<b>System operation</b>	Less money needed	Comparatively more

## 4.6 Weighting system performance and cost data

The above two matrices are not so clear to find out which candidate system is more efficient. So we attempted to create a weighted candidate evaluation matrix for weighting the performance of each candidate system. For this purpose, a weighting factor was assigned to each evaluation criteria based on the effect of that criterion on the success of the system. Then each criterion was rated between 1 to 5. After that, the weight of each criterion was multiplied by the relative rating to determine the score. Finally, the sum of the scores was calculated for each candidate system to find out the best one.

Table 4.4 Weighted Candidate Evaluation Matrix

<b>Evaluation criteria</b>	<b>Weighting Factor</b>	<b>Candidate system I</b>		<b>Candidate System II</b>	
		Rating	Score	Rating	Score
<b>Performance</b> <b>User-friendly</b>	3	5	15	5	15
<b>Reliability</b>	3	4	12	4	12
<b>Security</b>	4	5	20	4	16
<b>Student's Notification</b>	5	5	25	4	20
<b>Payment System</b>	4	5	20	3	12
<b>Cost</b> <b>System development</b>	5	4	20	3	15
<b>User training</b>	2	4	8	3	6
<b>System operation</b>	3	5	15	4	12
			135		108

## 4.7 Selecting the Best Candidate System

The system which has the highest total is judged the best system. Here the candidate system-I has the highest value. So it is the best system for the improvement of the Project Headway British Council Test Centre. From the above table, we can see that Payment System, notification system and system development cost played the most vital role to differentiate the two candidate systems. So from all the feasibility analysis we have come to a decision that candidate system-I suits best for our concerning system.

## 4.8 DFD of Proposed Selected Candidate System:

### 4.8.1. DFD of the proposed selected candidate system's information flow :

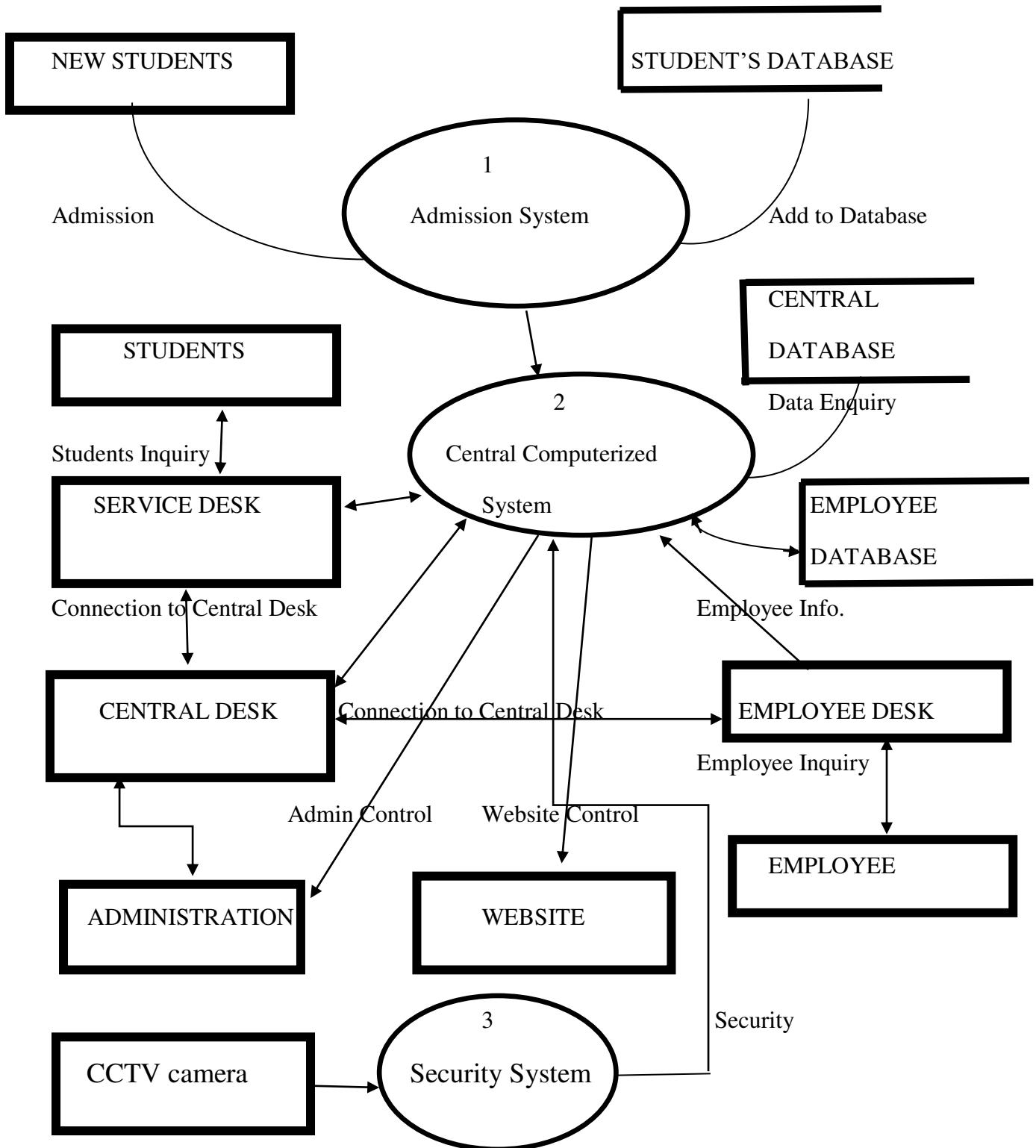


Fig 4.1. DFD of the proposed selected candidate system's information flow

#### 4.8.2 DFD of the cash flow of the proposed system:

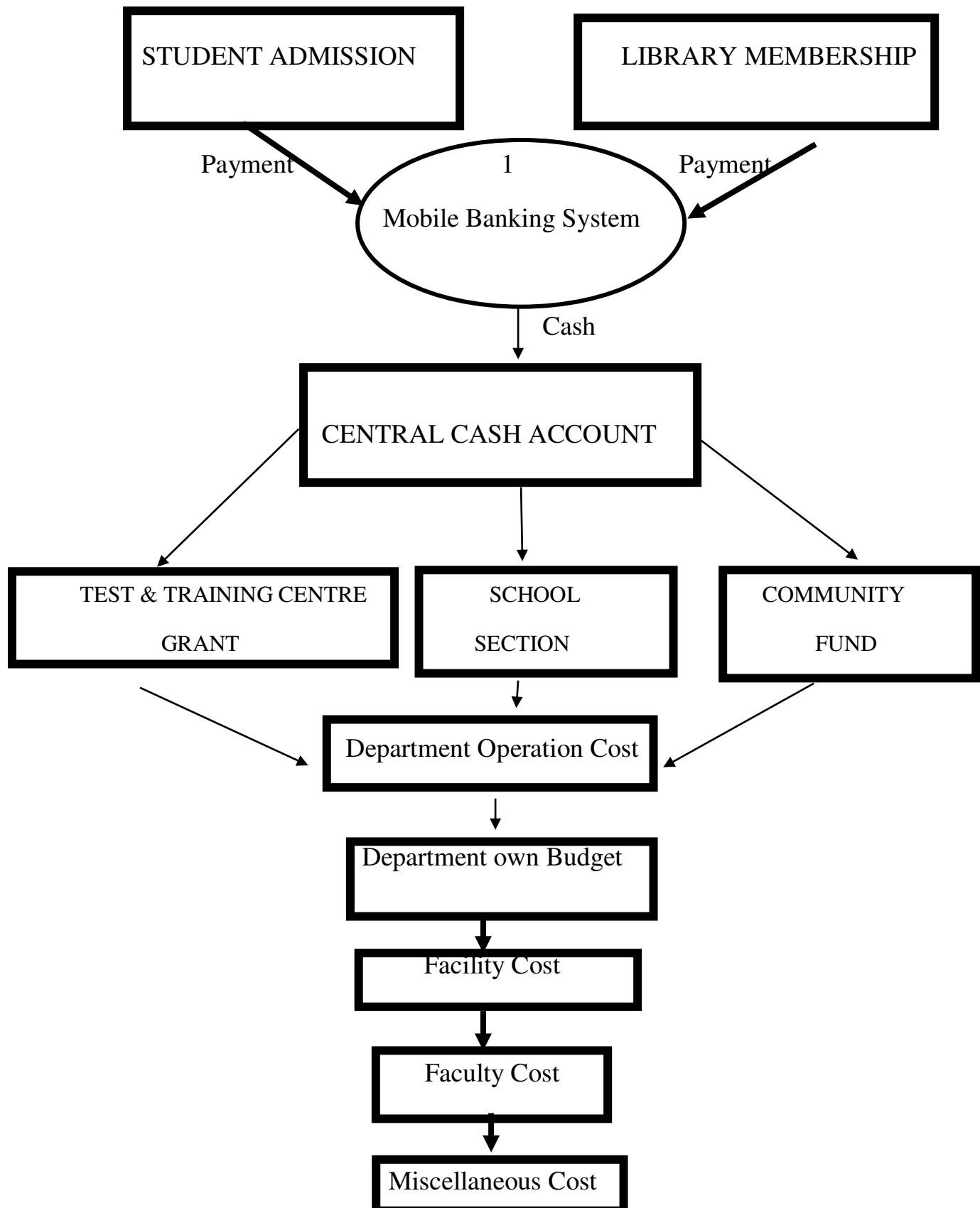


Fig 4.2: DFD of the cash flow of the proposed system

### 4.8.3 Description of the DFD

In our previous system, there are some drawbacks. To remove the drawbacks we change the system a little bit. In figure 4.1 our new DFD is defined. We only want to make the system easy and suitable in the perspective of the organization and also for the customers who are students in this scenario. So we digitalized the system. Here we explain the changes:

- In the DFD for the cash system, We've added an extra process which is mobile banking. This is done for the beneficiary reason on both sides. The user (students) will be benefitted as they no longer suffer from bringing cash. It is more easy that way. And from the view of the organization it has become very easy to collect cash from the users and track every transaction without an error. All the cash is transferred to one main account. Then it is distributed according to the system. We haven't change anything in the money flow after this stage. All other parts remain unchanged.
- Another change is the admission system. We have made the system totally computerized. The students can fill-up their admission requirements through the process we've called "Admission System". This system is connected to student's database. With necessary information from the database this process will perform the task of admission and store the new student's info to the database.
- Here comes our main section in this step. We have a totally centralized system. All the other activities are divided into sections and all the sections are controlled and connected through the centralized system. We have named the process "Centralized computer system". This process handles all other processes. This process is connected to central database, employee database, website, and all the other section. In summary, this part act as the brain of the system.
- We have divided the central desk into sub desks. This saves a lot of sufferings and load of works. As there are different sections, the work task is divided into these sections. Each section performs its own task, so no section have to wait for other sections and no one can interfere in other's. This way makes the system possible to work in a parallel way. The student's desk will take care of the students. They will handle every situation of the students. The employee desk will handle employees. They will hear employee's complains and any other needs. This section will keep track of the works and performance of the employees. For their help we will have a dedicated employee database.
- To combine the sub-desks we have proposed a central desk. This desk will combine other desks. This section has a direct ace to the central system. The administration is connected with this central desk. For any hard situation the central desk will communicate with the administration and discuss the matters. Again this desk will hear other desks problems too and solve them or give them instructions.
- Finally, we have added security system to the DFD. This process will connect the CCTV cameras with the central system. From the footage of these cameras, everything will be monitored.

## 4.9 Conclusion

A feasibility study is conducted to select the best system that meets performance requirements. This process includes the evaluation of a candidate system and selection of the best system for the job. Three key considerations are involved in feasibility analysis. They are economic, technical and behavioral. These factors play an important role in feasibility analysis. A number of steps are performed in feasibility analysis. We designed a candidate system for our system and came to a conclusion to decide which one is the best by evaluating the two candidate systems. We manipulated different evaluation processes. Finally a DFD is included at the last of the chapter which represents the designed candidate system of ours very clearly.

# Chapter 5

## I/O Forms Design

### **5.1 Introduction:**

Forms of any organization represent what kind of organization that is, what it will do as well as their goals. A form is used to collect data. Without data, there is no system. In many cases, to get this precise data to make an impact on our system, we need to have data forms to collect and capture information directly. This helps automate data collection, thus saving time and creating more accurate reports. Forms elicit and capture information required by organizational members that will often be input to the computer. Every form represents individual things. To update and requirements of the form some things are explained in this part.

### **5.2 Forms of Project Headway British Council Test Center (PHBCTC):**

The organization provides mainly two forms. As it is an educational institution it is based on the students. So the main two forms, admission form, and students' payment form are considered to be designed. The requirements including these forms to be designed are described in the following.

#### **5.2.1 Students' Admission Form:**

In this admission form usually, the maximum profile of students should be collected as well as the course that is provided to the individual students should be described elaborately. Some specific changes should be considered in the following:

- ❖ Here only a student's level is asked in the form. But if the level and the subject background of students is asked, then it would be more specific. By mentioning the subjects the Bangla Medium and English Medium students can be filtered. So, as it follows the British curriculum the Bangla medium students should be taken care of most. So, the subject mentioning of students in which he/she is specialized is very important.
- ❖ Here possible deadline, of course, is asked. But for more elaboration of completing a course time should be added by the organization on this form. Students can give their opinion but for completing a course properly the least optimized time should be mentioned corresponding the courses. By this, a student can choose what should be chosen and get a proper idea of it.

ID _____	<b>PROJECT HEADWAY</b> British Council & ACCA Test Center <b>SAMPLE ADMISSION FORM</b>		One photograph here														
(Please complete this form in BLOCK capitals using black / blue ink.)																	
Date of Admission:																	
dd mm yy																	
Name: _____																	
Address / Residence Present Address																	
Gender : Male <input type="checkbox"/> Female <input checked="" type="checkbox"/>		Profession:	Level:														
Present Academic Level:		Institution:															
Mobile			Emergency number:														
Email																	
<u>Select your course here</u> (Tick the checkbox) <ul style="list-style-type: none"> <li><input type="checkbox"/> Practical Spoken &amp; Written English</li> <li><input type="checkbox"/> IELTS Premium ( AC / GT )</li> <li><input type="checkbox"/> IELTS Crash ( AC / GT )</li> <li><input type="checkbox"/> Professional English Language</li> <li><input type="checkbox"/> Corporate IELTS</li> <li><input type="checkbox"/> IELTS Mock Test</li> </ul>		<u>For office use only</u> <table border="0"> <tr><td>Total Course Fee</td><td></td></tr> <tr><td>Mock Test Fee</td><td></td></tr> <tr><td>Amount Paid</td><td></td></tr> <tr><td>Amount Due</td><td></td></tr> <tr><td>Next Payment Date</td><td></td></tr> <tr><td>Due Paid</td><td></td></tr> <tr><td>Due Collected Date</td><td></td></tr> </table>		Total Course Fee		Mock Test Fee		Amount Paid		Amount Due		Next Payment Date		Due Paid		Due Collected Date	
Total Course Fee																	
Mock Test Fee																	
Amount Paid																	
Amount Due																	
Next Payment Date																	
Due Paid																	
Due Collected Date																	
Possible deadline of your course: _____ DD MM YY		Taken Library Facility: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No															
Which of the following modules do you find hard to use?  Reading   Writing   Listening   Speaking   Vocabulary   Grammar   Spelling																	
Signature of Admin _____ Admission Officer _____ Signature of Student _____																	

Fig 5.2.1: Admission Form

- ❖ Taken library facility should be open for all the students. Because the library is an important place for gathering knowledge. So, the option of taking library facilities is awkward.

- ❖ In the last section of students' form, there is asked to mention some skills that are hard for any student. By these things, the organization can filter out the most needed things to be served for the students. But if the survey can be taken by rating system, then by weighted factor, the most important things could be ranked properly.
- ❖ The mentioned courses should be explained with short notes in the admission form. Anyone can realize the mentioned courses properly.

### 5.2.2 Payment Receipt Form:

In the payment receipt, some things can be changed or updated. They are explained in the below:

- ❖ The cost of every course should be mentioned in the payment receipt. For this, anyone can get an idea to give the payment.
- ❖ Student mobile number and guardian mobile number should be included on this form. If any payment is cleared then there would go a notification message from the organization.
- ❖ There should 3 copies of the receipt. One for the student, one for the office and one for the bank copy (if needed).

Course Fee Payment Receipt		
Best cooperation with British Council to make your life unbeaten		
Date of Admission	:	<input type="text"/>
Candidate ID No.:	:	<input type="text"/>
Name	:	<input type="text"/>
Course	<input checked="" type="checkbox"/> IELTS Premium <input checked="" type="checkbox"/> IELTS Crash <input checked="" type="checkbox"/> IELTS / GRE Mock Test <input checked="" type="checkbox"/> Spoken & Written English (APTIS) <input checked="" type="checkbox"/> Corporate English / IELTS <input checked="" type="checkbox"/> GRE / SAT Prep <input checked="" type="checkbox"/> JSC / PEC / SSC Teens (APTIS)	Total Course Fee : <input type="text"/> Paid Amount : <input type="text"/> Due : <input type="text"/>  Next Payment Date : <input type="text"/> Payment Clear : <input type="text"/>
BDT:	<input type="text"/>	
Duty Officer	<input type="text"/>	Enrolled Student / Guardian
	<input type="text"/>	<input type="text"/>

- ❖ There is assigned to check the payment by two duty officer. But their designation is not mentioned. There must be one cash officer or treasurer to sign the payment.
- ❖ Email and contact number should be included in the payment receipt.

Fig 5.2.2: Payment receipt

### 5.3 Conclusion:

Collecting the data needed from the users can be critical for a system and forms are really the way to make that happen. So we tried to design the form carefully so that important data related to the system can be collected and processed correctly. We also followed the guidelines for making the form useful to the user by making the forms easy to fill in, ensuring that forms meet the purpose for which they are designed and by keeping the form attractive.

# Chapter 6

## Database Design

### 6.1 Introduction:

The database is the combination of some data that is processed and organized in such a way, to obtain a connection or relation between the data and can be used jointly by multiple users applications. In a simple, database (the database) can be expressed as organizing data with the help of computers that allows data to be accessed easily and quickly. In this case, the definition of access can include data acquisition and manipulation of data such as adding and deleting data. Benefits of databases in general, among others :

- As a principal or an important component in the system information, because it is the basis for providing information.
- Determining the quality of information quickly, accurately, and relevant, so that the information presented is always updated. Information can be said to be worth when it benefits more than the cost to obtain.
- Overcoming duplicate data (data redundancy)
- Avoid any data inconsistencies
- Overcoming difficulties in accessing data
- Develop a standard format of data.
- The use of multiple users (multiple users). A database can be used at once is shared by many users (multiuser).

In the fast development of information technology, it's time for an organization or company whether small, medium and large scale use of information systems based on the database to help its operations. With a good database system of an organization will be able to manage and monitor operational activities so they can take quick and appropriate steps if a problem occurs. So a good database system would bring rapid progress in the organization or a company.

### 6.2 Database design for Project Headway British Council Test Center (PHBCTC):

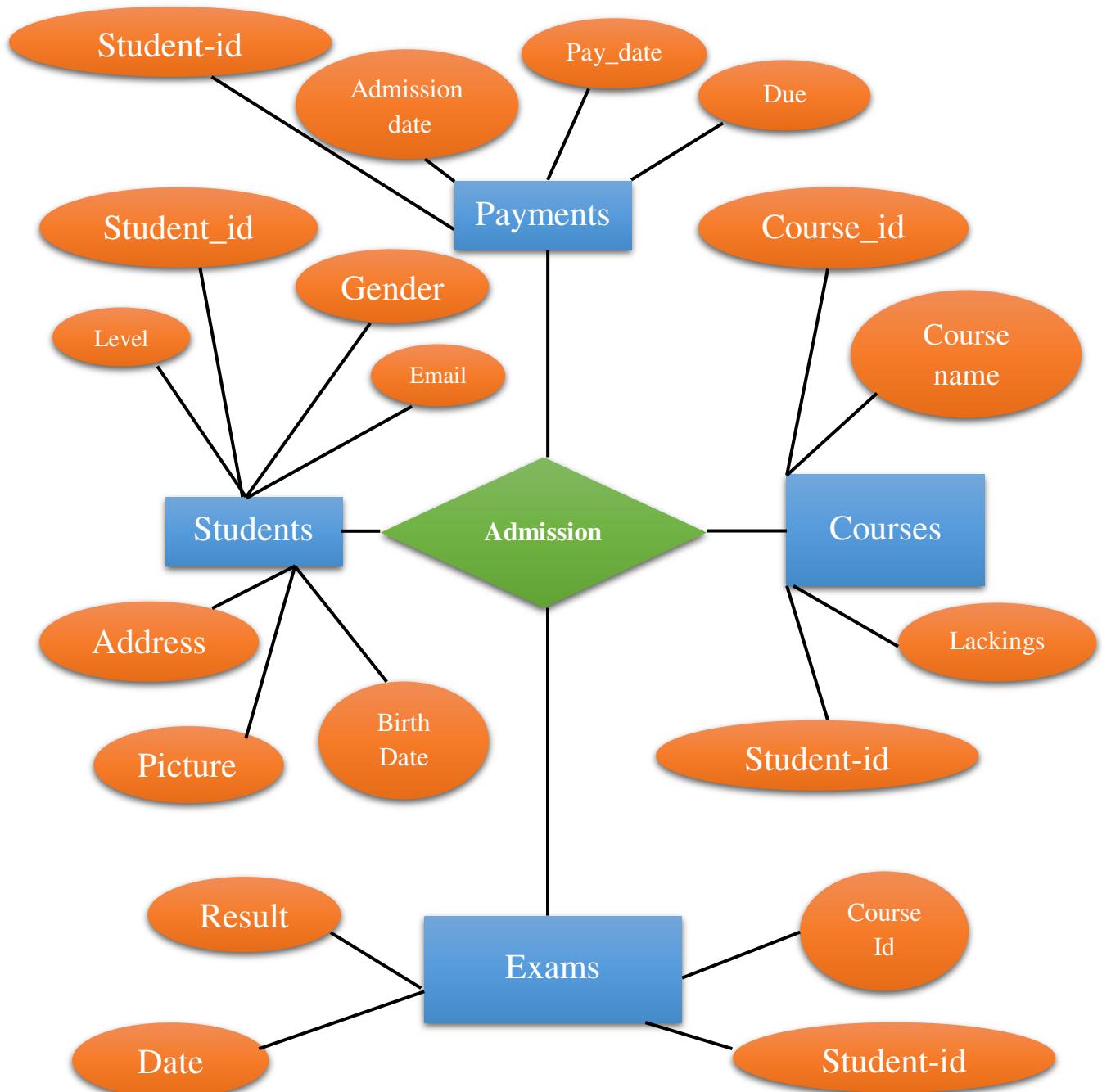
There is no existing database in the system of Project Headway British Council Test Center. So we designed a database for all the students, teachers and employee of the organization and school of it. The name of the database is '*PHBCTC Data Base*'.

#### 6.2.1 ER diagram Design:

The ER diagram defines the conceptual view of a database. It works around real-world entities and the associations among them. At view level, the ER diagram is considered a good option for designing databases. Any object, for example, entities, attributes of an entity, relationship sets, and attributes of relationship sets, can be represented with the help of an ER diagram.

Entities are represented by means of rectangles. Rectangles are named with the entity set they represent. Attributes are the properties of entities. Attributes are represented by means of ellipses. Every ellipse represents one attribute and is directly connected to its entity (rectangle).

Our designed database can be represented by means of three ER diagram. One is for all the students another is for the teachers and the other is for managing the employee records. In the first ER diagram, the four entities are connected with the relationship named '*Admission*'. Each entity has a one-to-one relationship with the others. The common primary key “*Student\_id*” defines the relationship. Here all the four entities have several attributes each. The entities are defined as ‘*Students*’, ‘*Courses*’ ‘*Exams*’ and ‘*payments*’. Figure 6.1 shows the ER diagram for all the students’ admission of PHBCTC.



## Chapter 6: Database Design

Figure 6.2.1: ER diagram for the database of students' admission of the PHBCTC. The second ER diagram represents the employee management system. Here are three entities, namely *Employees*, *Salaries*, and *Job\_designation*. The *Employees* entity has six attributes while the other two has four attributes each. The entities are connected with a one-to-one relationship. Figure 6.2 shows the ER diagram for the employee management system.

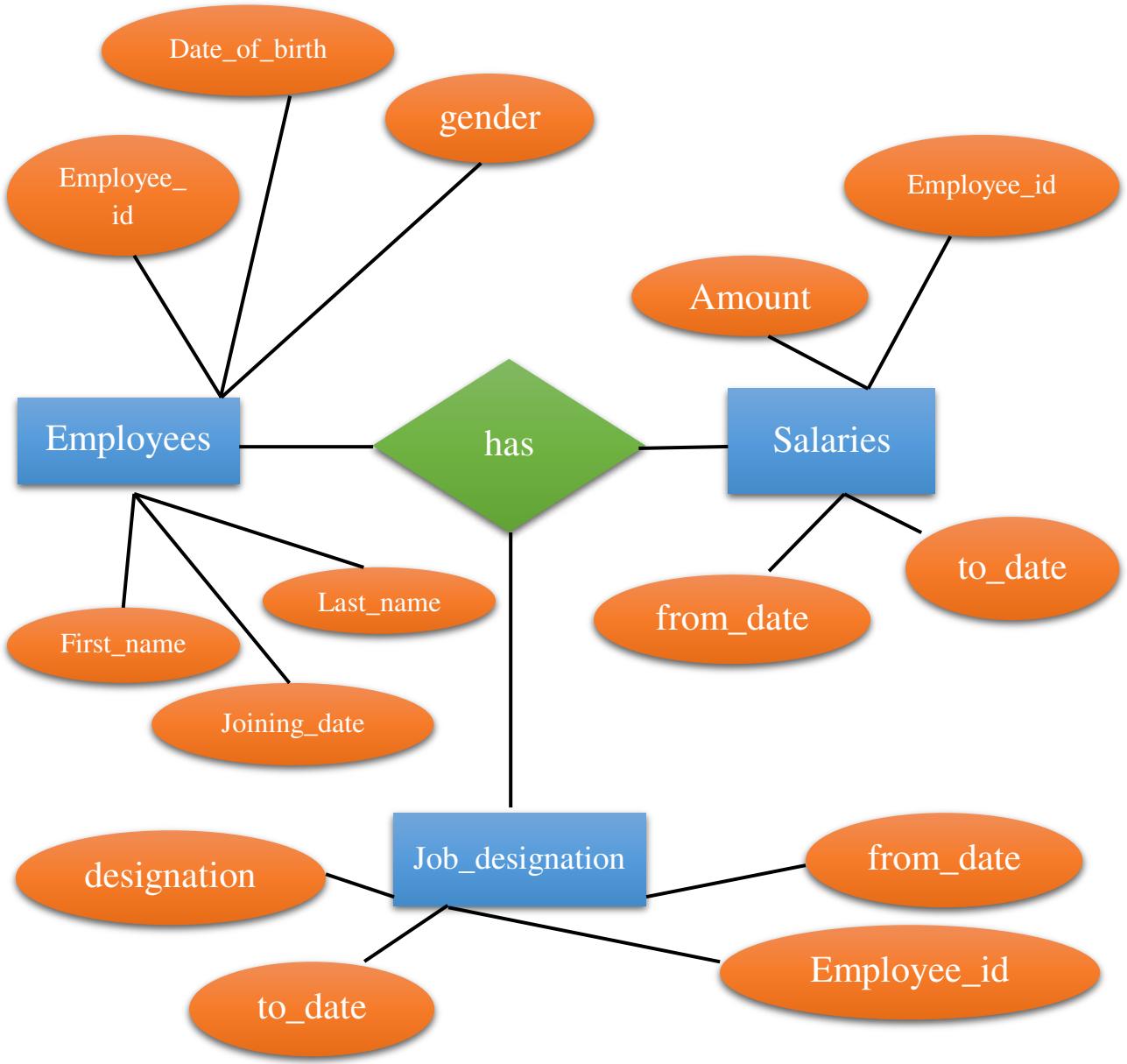


Figure 6.2.2: ER diagram for employee management of PHBCTC.

The third ER diagram represents the teacher's management system of PHBCTC school. Here are three entities, namely, *Teachers*, *Class*, and *Designation*. The *Teachers* entity has six attributes while the other two has three and four attributes each. The *Teachers* and *Class* entities are connected with one-to-one relationship via '*takes*' and The *Teachers* and *Designation* entities are connected with one-to-one relationship via '*has*'. Figure 6.3 shows the ER diagram for the employee management system.

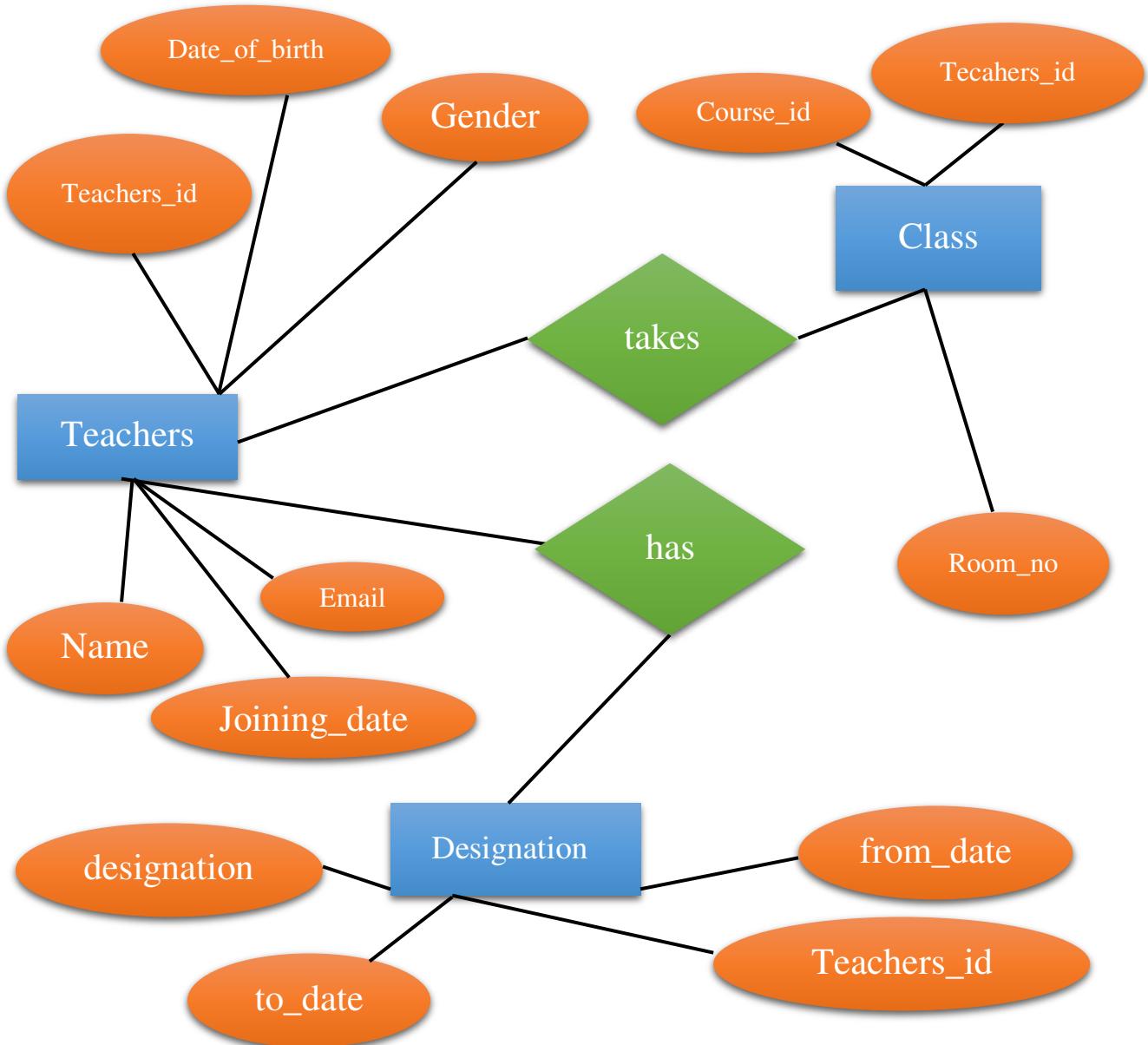


Figure 6.2.3: ER diagram for teachers of the PHBCTC school.

## 6.3 Database Tables

A database most often contains one or more tables. Each table is identified by a name (e.g. "Students" or "Payment"). Tables contain records (rows) with data. For a database of the system, we created seven database tables. The structure of the database tables are defined here

### 6.3.1 Students Table:

Students table has seven columns. They contain the information of all the students of PHBCTC. There is a primary key which is 'student\_id'. Also, there is a unique key('Email') which ensures that all values of the column are different.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Student_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More
2	Email	varchar(100)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More
3	Gender	varchar(30)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More
4	Level	varchar(15)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More
5	Address	varchar(100)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More
6	Pictures	varchar(100)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More
7	Birthdate	date			No	None			Change  Drop  Primary  Unique  Index  Spatial ▾ More

Check all   With selected: Browse Change Drop Primary Unique Index Add to central columns  
 Remove from central columns

Figure 6.4: Students table structure

### 6.3.2 Courses Table:

The Courses table contains information about all the courses a student want to do. Here Student\_id is the primary key and Course\_id is the unique key.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Course_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext ▾ More
2	Course_name	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext ▾ More
3	Lackings	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext ▾ More
4	Student_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext ▾ More

Check all   With selected: Browse Change Drop Primary Unique Index Add to central columns  
 Remove from central columns

Figure 6.5: Course table structure

### 6.3.3 Payment table:

In the Payment table, the list of payments of students has been stored. Here student\_id is a primary key.

# Chapter 6: Database Design

The screenshot shows the 'Structure' tab for the 'payments' table in the 'pbctc database'. The table has four columns: 'Students\_id' (int(11)), 'Admission date' (date), 'Pay date' (date), and 'Due' (date). 'Students\_id' is defined as a primary key. The table structure includes options for 'Change', 'Drop', 'Primary', 'Unique', 'Index', 'Spatial', 'Fulltext', and 'More'.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Students_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	Admission date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	Pay date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	Due	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Check all With selected: Browse Change Drop Primary Unique Index Add to central columns

Figure 6.6: Payment table structure

### 6.3.4 Exams table:

In the Exams table, the list of exams and the corresponding result from the students has been stored. Here student\_id is a primary key.

The screenshot shows the 'Structure' tab for the 'exams' table in the 'pbctc database'. The table has four columns: 'Course\_id' (int(11)), 'Students\_id' (int(100)), 'Result' (int(30)), and 'Date' (date). 'Students\_id' is defined as a primary key. The table structure includes options for 'Change', 'Drop', 'Primary', 'Unique', 'Index', 'Spatial', 'Fulltext', and 'More'.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Course_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	Students_id	int(100)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	Result	int(30)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	Date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Check all With selected: Browse Change Drop Primary Unique Index Add to central columns

Figure 6.7: Exams table structure

### 6.3.5 Employee Table:

In the Employee table information of all the employees have been stored. Employee\_id is the primary key.

The screenshot shows the 'Structure' tab for the 'employees' table in the 'pbctc database'. The table has six columns: 'Employee\_id' (int(11)), 'Gender' (varchar(20) collated as latin1\_swedish\_ci), 'Date Of birth' (date), 'First\_name' (varchar(15) collated as latin1\_swedish\_ci), 'Last\_name' (varchar(15) collated as latin1\_swedish\_ci), and 'Joining date' (date). 'Employee\_id' is defined as a primary key. The table structure includes options for 'Change', 'Drop', 'Primary', 'Unique', 'Index', 'Spatial', 'Fulltext', and 'More'.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Employee_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	Gender	varchar(20)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	Date Of birth	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	First_name	varchar(15)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
5	Last_name	varchar(15)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
6	Joining date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Check all With selected: Browse Change Drop Primary Unique Index Add to central columns

Figure 6.8: Employee table structure

### 6.3.6 Job\_designation table:

This table contains the designation of each employee and also their joining date in that post.

# Chapter 6: Database Design

The screenshot shows the 'Table structure' view for the 'job\_designation' table in the 'phbctc database'. The table has four columns: Employee\_id, To\_date, From\_date, and Designation. The Employee\_id column is defined as int(11), To\_date and From\_date are defined as date, and Designation is defined as varchar(15) with a collation of latin1\_swedish\_ci. Primary keys are assigned to Employee\_id, To\_date, and From\_date. Unique constraints are assigned to Designation. Indexes are present on all four columns. Spatial and Fulltext indexes are also listed.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Employee_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	To_date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	From_date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	Designation	varchar(15)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Figure 6.9: Job\_designation table structure

## 6.3.7 Salaries table:

Salaries table handles the salaries of the staff of PHBCTC.

The screenshot shows the 'Table structure' view for the 'salaries' table in the 'phbctc database'. The table has four columns: Employee\_id, Amount, To\_date, and From\_date. The Employee\_id column is defined as int(11), Amount is defined as int(11), To\_date and From\_date are defined as date. Primary keys are assigned to Employee\_id, Amount, To\_date, and From\_date. Unique constraints are assigned to Employee\_id. Indexes are present on all four columns. Spatial and Fulltext indexes are also listed.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Employee_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	Amount	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	To_date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	From_date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Figure 6.10: Salaries table structure

## 6.3.8 Teachers Table:

Teachers table has six columns. They contain information about all the teachers of PHBCTC school. There is a primary key which is 'teachers\_id'. Also, there is a unique key('Email') which ensures that all values of the column are different.

The screenshot shows the 'Table structure' view for the 'teachers' table in the 'phbctc database'. The table has six columns: Name, Email, Joining Date, Gender, Teacher\_id, and Date\_of\_birth. The Name column is defined as varchar(11), Email is defined as varchar(100), Joining Date is defined as date, Gender is defined as varchar(15), Teacher\_id is defined as int(100), and Date\_of\_birth is defined as date. Primary keys are assigned to Teacher\_id and Date\_of\_birth. Unique constraints are assigned to Name and Email. Indexes are present on all six columns. Spatial and Fulltext indexes are also listed.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Name	varchar(11)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	Email	varchar(100)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	Joining Date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	Gender	varchar(15)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
5	Teacher_id	int(100)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
6	Date_of_birth	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Figure 6.11: Teachers table structure

# Chapter 6: Database Design

## 6.3.9 Class table:

In the Class table, the list of room numbers according to teachers has been stored. Here teachers\_id is a primary key.

The screenshot shows the 'Table structure' view for the 'class' table in the 'phbctc database'. The table has three columns: Teachers\_id, Course\_id, and Room\_no. All columns are of type int(11) and have 'None' as their default value. The 'Teachers\_id' column is defined as the primary key. There are also three unique indexes on the table.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Teachers_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	Course_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	Room_no	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

Figure 6.12: Class table structure.

## 6.3.10 Designation table:

This table contains the designation of each teacher and also their joining date in that post.

The screenshot shows the 'Table structure' view for the 'designation' table in the 'phbctc database'. The table has four columns: Teachers\_id, To\_date, From\_date, and Designation. The 'Teachers\_id' column is defined as the primary key. There are also three unique indexes on the table.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Teachers_id	int(11)			No	None			Change  Drop  Primary  Unique  Index  Spatial  More
2	To_date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  More
3	From_date	date			No	None			Change  Drop  Primary  Unique  Index  Spatial  More
4	Designation	varchar(15)	latin1_swedish_ci		No	None			Change  Drop  Primary  Unique  Index  Spatial  More

Figure 6.13: Designation table structure.

## 6.4 Conclusion

A database is a collection of interrelated data stored with a minimum of redundancy to serve many applications. Database design minimizes the artificiality embedded in using separate files. The primary objective is fast response time to inquiries, more information at low cost, control of redundancy, clarity, and ease of use, data, and program independence, privacy and security of information, etc. Nowadays a database is a must for any kind of system and organization. But Project Headway British Council Test Center has not their well-enriched database. Some of the records are kept in the traditional file system. So we focused on designing a database for the organization. This database schema development does not require a lot of money, but the users' willingness to do it. If this database is developed by the authority it will help the system a lot as well as building a good website of them.

# Chapter 7

## Observation & Conclusion

The Project headway British Council Test Center (PHBC Test Center) is known to be one of the best organization for providing students necessary training in English in the subcontinent, containing priceless collections training module, exams, and books and periodicals. And as a research facility, the Project headway British Council Test Center (PHBC Test Center) is vital for studies in English language and in ACCA. As we approach modern world, organization like Project headway British Council Test Center (PHBC Test Center) can play a major role in the society as artistic, cultural importance. Since this organization has been engaged in improving the knowledge of the English Language as well as promoting higher study and research abroad, little more attention is required to improve this organization.

However, in our modern society, it has become necessary and indeed urgent for the organization to completely follow their missions, their goals, their functions, and their strategies to reflect the expectations changing world. So is the case for Project headway British Council Test Center (PHBC Test Center), We proposed a newly updated system for the organization which may be helpful to improve the organization's condition, to meet the needs regarding modern society exceptions.

Our goal was to make the overall system of the organization such as admission, information flow, cash flow, charitable work, training session, and publications more organized,to make the organization worth admitting by making system more attractive to the students, to make the organization more secure and use modern techniques for organization's system. People expect quality from the organization, and this includes meeting their needs. We generally focused on creating enough opportunities for students to develop and realize their creative potential as well as making 'learning new things' easy and entertaining ways for the students by improving different parts of the whole system. We also considered improving access to the collections and to upgrade internal information management in Project headway British Council Test Center (PHBC Test Center). The systems should comply with the external demands of the authorities and society regarding open access to information about the organization.

We observed and record the varying aspects of the organization systematically. In observing we were able to see what works well and what could be improved. By analyzing present condition and problems of the organization. We found out new requirements for the organization which is needed to fulfilled to meet our goal. We have tried our best to find out every the in the organization and developed a viable solution to these problems, according to which we have proposed to update that system.We proposed the new candidate system design with DFD and ER diagram. In out new design of the system, we proposed to make the system more online-based, database designs were also mentioned. Use of security cameras and power systems were also

proposed with importance. Improvement of the library was also taken into consideration. And a new fully functional website is also suggested.

Though we proposed out new candidate system with all features and functions specified clearly, considering all significant factors, such as economic, technological, legal and scheduling factors, some areas should be emphasized more in the future to make the project fully successful. Due to some limitations, some requirements of the project design may not be beautifully implementable or implementable at all in the future. Due to inadequate funding, the requirements where financial support is necessary such as enhancement of the security system, buying new security cameras, developing a new website, power supply installing, making a new computer system might become hard to implement. Although the future payoffs of wise investments are impossible to predict precisely, failure to support the organization's collections is the most certain way to eliminate any odd. Some requirements of the project are lengthy processes which may become difficult to put into action considering the time. The behavior and mentality of the staff of the organization is also a concern. We observed that most of the staffs in the organization seemed to be well educated and are professional enough to assist in fulfilling the requirements inside the organization like website development, installing and updating databases. The organization does have limited manpower and storage system. Some requirements may not be implementable because of the limited space and manpower of the organization. Also a little technical illiteracy of the lower level staffs may become an obstacle in the way of the improvement of the system.

Considering both limited scope and funding we designed the new candidate system. There are numerous challenges that may have to be faced at the time of implementation of the new Candidate system. These challenges will increase/decrease in severity dependent upon the organizational setup. As long as the organization is fully aware of these challenges and deals with them appropriately, they can easily be overcome. To ensure the success of the system, careful and often extensive planning is required. High involvement and commitment are also required on the part of employees to spend the time required on the projects to ensure that they understand the strategic plan. Using effective use of the resources, the system can be smoothly implemented. Efficiently creating the system will provide the required output and become responsive within the expected time. Following through all the process and plan properly is the need here. If the administration takes a nice step, then the problems existing in Project headway British Council Test Center (PHBC Test Center) may be removed to a great extent, the only challenge is to execute the plans and processes correctly.

We hope, implementation of our proposed structure with clarity and dedication, will play an important role in solving an existing problem and delivering better service, meeting the mission and vision of Project headway British Council Test Center (PHBC Test Center).