Triển khai nội dung nghiên cứu

Controlling your projects

Outline

- **Aims:**
  - To introduce the skills needed to manage yourself and your project effectively as it is progressing.
- **Learning objectives:**
  - Control the five elements in your project as it progresses.
  - Understand problems that can occur and be aware of ways of dealing with them.
  - Manage your time effectively.
  - Know how to use your supervisor effectively.
  - Work efficiently in a project team

1 Introduction

- Once your project is underway it needs to be carefully managed and controlled or it **will** fall apart.
- You cannot assume that, (*having completed a detailed project plan…*), the project itself will be plain sailing and you can relax.
- You need to be
  - aware of problems that might arise,
  - remain motivated,
  - manage your time effectively,
  - make effective use of your supervisor and
  - deal with other stakeholders appropriately

Getting started – project initiation

- Once you've planned your project
  - you are ready to start work on the actual project itself– called project *initiation* or *getgo*
- You will want to establish some working practices, a work area or working environment in your home or at your institution.
- You will want to set up an initial meeting with your supervisor and establish your relationship and rules of engagement.

Managing the five project elements

- **A project consists of five elements:**
  - three consumables: *time, resources* and *cost* (which are used to develop the project's product); and
  - two attributes of the project's product; *scope* and *quality.*
- **These five elements need to be managed and controlled as your project is progressing**

Managing the five project elements

- Within academic projects students will often argue that *time* is the most important of these elements
- *Cost* is another factor over which you have little control.
  - However, in most academic projects, costs aren't usually a concern.
  - All the facilities you require are generally available; if not, your project would probably not have been accepted in the first place.

Managing the five project elements

- Q*uality* and *scope* are those elements over which you have most control and appropriately have the greatest responsibility for
- *Resources* are probably the most important element of all.
  - Without resources there will be no project.
  - In this case interest falls on the human resources that are available – i.e., you, your supervisor and possibly a project team

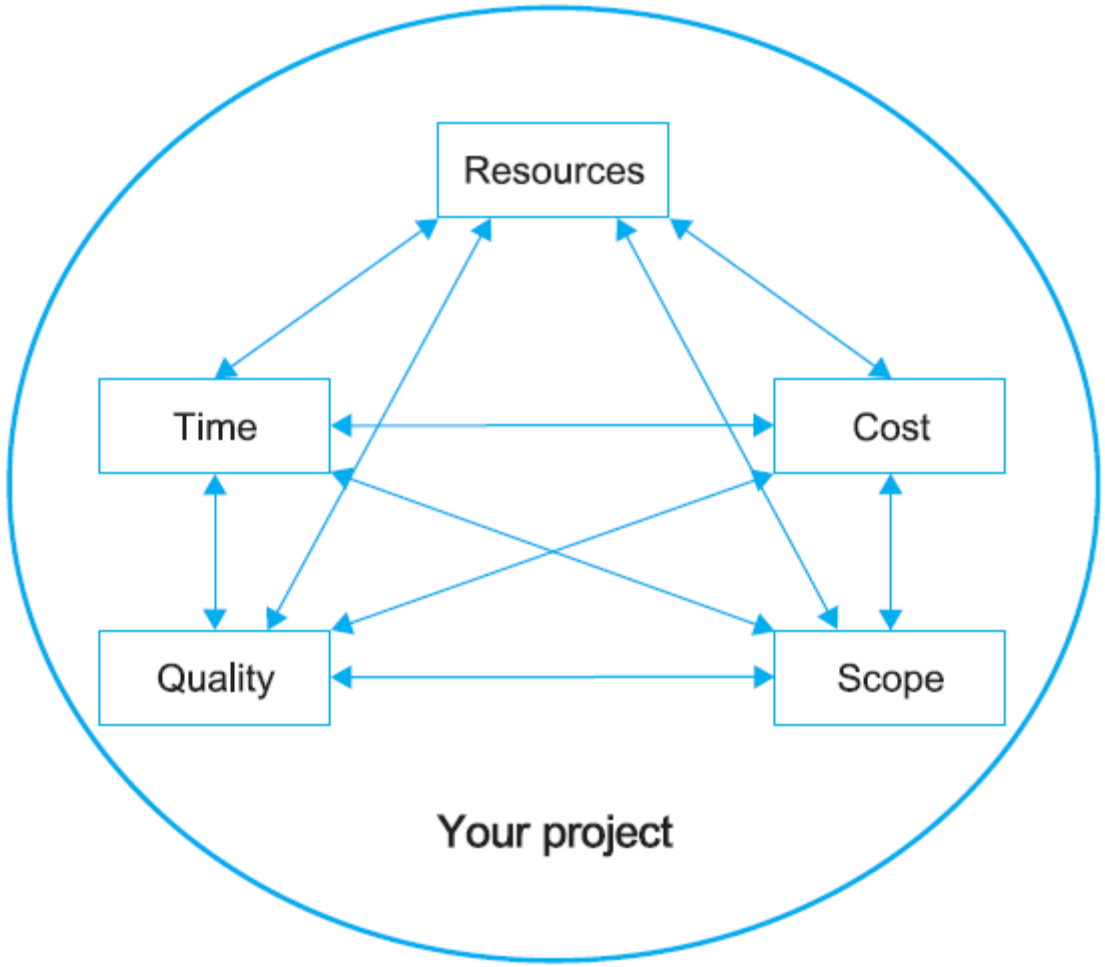

Figure 7.1 Balancing five project elements against one another

Project control

- The five project elements require managing and controlling through the five main project stages: *definition, planning, initiation, control* and *closure.*
- Focus on these five elements changes as the project progresses through these stages
- Project management will often involve deciding how to trade each of the five project elements off against one another as your project progresses

Time v Quality	Save time by reducing the quality of your product. If you wish to improve your project's quality this will clearly take longer.
Time v Scope	Save time by reducing the scope of what you intend to do. Increasing the scope of your project will take longer.
Scope v Quality	Improve quality by reducing scope; reduce scope to improve overall quality of the project's product.
Resources (i.e., you) v Time	Improve your own time management to give yourself more time on your project. If you want to spend time doing other things, you will have less time to spend on your project – see Section 7.3, 'Managing your time'.
Resources v Quality	Improve your time management to so that you can spend more time on your project and improve its quality.
Resources v Scope	Improve your time management to so that you can spend more time on your project and improve its scope.

Table 7.1 Summary of tradeoffs between the elements over which you have control

2. Dealing with problems

- If your project progresses to completion smoothly without any problems, you are probably very lucky indeed.
- Virtually all projects encounter problems at one stage or another.
- It is not really the nature of the problem that you encounter that can lead to project failure, but **how you deal with the problem** that counts

Weakening

- Weakening is something that can happen at any stage of your project.
- It can stem from
  - a lack of motivation,
  - a lack of confidence in what you are doing,
  - losing your direction,
  - working yourself too hard and burning yourself out or
  - the feeling that you have attempted to do far too much in the time available.

Weakening

- Weakening is something that can usually be traced right back to the first stage of your project – its *definition.*
  - Did you decide to pursue a project you weren't really interested in?
  - When you planned your project did you plan to do too much?
  - Were the aims and objectives of your project too vague leading you to lose faith in what you are doing because you don't appear to be heading anywhere?

Weakening

- The first solution to dealing with this problem is clearly to address its root cause – i.e.:
  - Make sure that you select a topic in which you are really interested,
  - Think about ways you can reduce the scope of your project without compromising its quality,…
- Another way to overcome a lack of motivation towards your work is to move on to something else

Personal problems

- Over the period of your project, be it six months, a year or more, chances are that you will experience a personal incident of one kind or another.
  - This can range from happy occasions such as getting married, having a baby, a significant birthday celebration and so on, to sadder, more difficult events to cope with such as illness, family bereavement, splitting up with your partner, etc.
- Other personal ‘problems’ you might encounter include moving house, changing jobs, being selected for a university sports team and so on

Personal problems

- The most important thing to do in any of these situations is to tell somebody what has happened
  - Should be your supervisor, personal tutor or course leader.
- By following your institution’s procedures you are at least going some way to dealing with your problem

Hardware failure

- In almost all projects these days, computers are used to a greater or lesser extent.
  - They might be used simply to word process your final report or they might be used throughout the entirety of your project as you develop a program or use them to analyse data.
- Whatever the case you may well find that the computer you use fails and that data and files you are using are lost or erased forever.
- The only answer to these kinds of problems is to make numerous and frequent back-ups

Data availability

- Data availability is often a problem with student projects.
- Either a journal or a book you require is unavailable, you can’t get hold of some data, you lose your contact in a local company where you hoped to perform a case study or you receive a poor response from some questionnaires you issued.
- Whatever the problem, your project looks as though it will suffer from a lack of available data

Discovering your work/research has been done before

- On a taught degree you will not be expected to make a contribution to world knowledge, but this is not the case for research degrees.
- The first means of avoiding this problem is to ensure that you have conducted a thorough literature survey in the first place.
- If you are satisfied that the work you are doing is unique, there is still a worry that someone else may publish your ideas/results first.
- One way to overcome this is to submit internal reports within your own department.
- At research degree level, your supervisor should be an expert in your field of study.
- They should know about developments in the field and what contribution your work is going to make

Other things taking priority

- Your project will never be (and shouldn’t be) your only interest.
- You will have other subjects to deal with, coursework, your part-time or full-time job, a social life, a personal life and so on…
- The only way to deal with this problem is through better time management

3. Managing your time

- Although there are some specific techniques you can employ to save time,
  - the only way to make dramatic improvements in your use of time is to approach time management from a fundamental analysis.
- This fundamental analysis is a *process* that involves three stages and is summarised in Figure 7.2:
  - **1.** Decide what you want to do.
  - **2.** Analyse what you are currently doing.
  - **3.** Change what you are doing to achieve your aims.

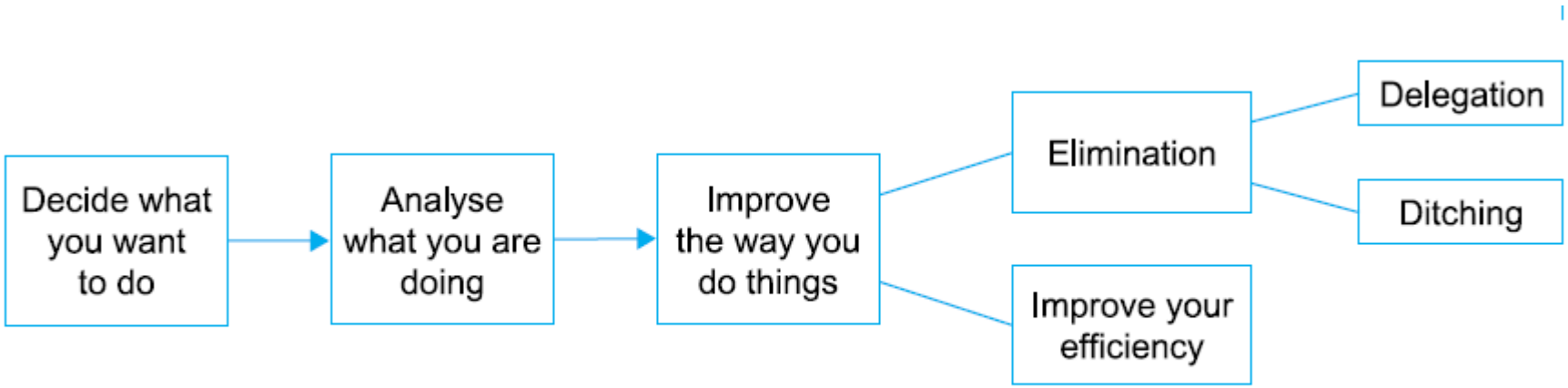

Figure 7.2 The time management process

Decide what you want to do

- The first stage of successful time management is to decide exactly what you want to achieve in terms of goals and objectives
- Short- and long-term goals
- Work goals, family goals, community goals, self goals …

Analyse what you are doing

- Analysing how you are currently spending your time is achieved through two activities.
  - First, you need to identify *how* you are spending your time and,
  - Second, you need to *categorise* the time you have identified.
- *Time logs,* which are probably the most popular technique for recording time usage, a way to chart how you spend your time.

Time	Activity	Effectiveness	Comments/ Improvements
7.00–8.00	Get ready for university	50%	Could probably do this in 30 minutes but I'm always tired
8.00–8.30	Walk to campus	80%	Could get the bus but I need the exercise
8.30–9.00	Meet friends in canteen	10%	Need to socialise
9.00–10.00	Lecture	70%	Quite good today!
10.00–10.15	Coffee break	10%	I need a break
10.15–12.00	Tutorial/seminar	50%	Could have done this in half the time
12.00–1.30	Lunch – students'	20%	Far too long but I

Change the way you do things

- There are only two ways to improve your use of time to achieve the goals you have set yourself:
  - **1.** eliminate activities you don’t need to do; and
  - **2.** be more efficient doing the things you have to do.

Time management tips

- Procrastination (delaying)
- Grains of time (ineffective small periods of time)
- Email
- Unfinished business
- Interruptions
- Perfectionism
- Losing things
- Short breaks
- Long breaks
- Log books

4 Working with your supervisor

- One of the main resources of your project is your supervisor and, as such, how you get along with and how you use this individual needs effective managing
- two roles that a supervisor can perform:
  - A *manager*
  - An *academic advisor.*

4 Working with your supervisor

- The following areas which your supervisor should be able to advise you on when acting in an academic capacity:
  - research design and scheduling
  - literature surveys
  - theoretical and conceptual development
  - methodological issues
  - development of appropriate research skills
  - data collection and analyses.

Using your supervisor effectively

- Prepare for your meetings
- As part of your meetings you may well want to discuss the following topics each time: What progress you have made since the last meeting, What problems have you encountered, Whom have you met, What do you intend to do next,…
- Make notes during your meetings
- Arrange your next meeting
- Follow your supervisor’s advice
- Be prepared to communicate with your supervisor through other means – by email or telephone, for example

5 Working in teams

- Due to increasing numbers of students within higher education, group working for projects and assignments is becoming more and more common
- working in teams will provide you with an invaluable experience in
  - interacting with others,
  - sharing work,
  - overcoming joint difficulties and
  - introducing you to the working practices of the ‘real world’.

Team roles

- Different institutions have different regulations for establishing project teams
- Whether you can choose your own team or whether your group is assigned to you at 'random', all your team members will bring two kinds of skills into your group; *personal* (*team*) *skills* and *technical skills*
- *Common Roles*
  - *Team leader* – chairperson, coordinator. Responsible for time-tabling the work, assigning it, chasing team members' progress, chairing meetings, making difficult decisions, etc.
  - *Librarian/secretary* – minutes meetings, coordinates paperwork and all literature.
  - *Team contact (communications officer)* – liaises with external bodies – the client, supervisor, etc.
- 9 personal skills: three groups

Action oriented roles

- **Shaper** – Dynamic, thrives under pressure and overcomes obstacles.
  - Can be argumentative and annoy other team members.
- **Implementer** – Disciplined, reliable and efficient.
  - Takes ideas from others and acts on them. Although willing to take on jobs other people dislike, often set in his or her ways and does not like change.
- **Completer-Finisher** – Conscientious, attends to detail well and finishes work on time.
  - Has a strong attention to detail and aims for the highest standards.
  - Finds it difficult to delegate work and can annoy other team members by attention to detail and worrying about things.

People oriented roles

- **Coordinator** – Good manager, delegator, chairperson. Able to see the wider context of the project and understands other team members' strengths and weaknesses. Sometimes resented because only seems to delegate work to everyone else.
- **Resource investigator** – Extrovert communicator – good for making contacts and working with external stakeholders. However, loses interest easily and needs refocusing on the task.
- **Team worker** – Cooperative, diplomatic and good listener. Helps to keep the team together and working well but can be indecisive: does not like to take sides.

Thought oriented roles

- **Plant** – Creative, imaginative, can solve difficult problems. Does not like criticism; often introverted. Often so preoccupied with problems that s/he doesn't communicate effectively.
- **Monitor evaluator** – Sees all options and maintains a strategic view of the project. Tends to be quite shrewd and objective in decision-making. Because of focus on strategic issues, can appear quite detached from the day-to-day operations of the project and does not really inspire others.
- **Specialist** – Narrow specialism and viewpoint but dedicated. While essential to certain parts of the project, contribution can be limited. Often uses a lot of jargon in communications.

Technical skills

- Technical skills are particularly important within computing projects. Depending on the nature of your course, and the type of project you are undertaking, you will need team members with some of the following technical abilities
  - Programming – high level, low level, 4GLs, visual programming, etc.
  - Databases – analysis, design, development
  - Systems analysis
  - Systems design
  - Information systems
  - Human computer interaction
  - Networking
  - Computer systems architecture
  - Graphics
  - Mathematics (including statistical analyses, etc.)

Team development

- Teams do not form together in a consistent manner and generally evolve through five stages of development
  - **Forming**
  - **Storming**
  - **Norming**
  - **Performing**
  - **Mourning**

Managing the team

- Group coordination will clearly rest on the shoulders of the team leader
- The main coordinating link that should be maintained within a group project is through frequent team meetings

Resource allocation histograms

- In order to identify which members of your team are working on which tasks at particular times, you could use a *resource allocation histogram* (RAH).
- RAHs are used by project managers to balance out work commitments amongst staff and resources and show, quite clearly, which resources are working on which tasks at any given time

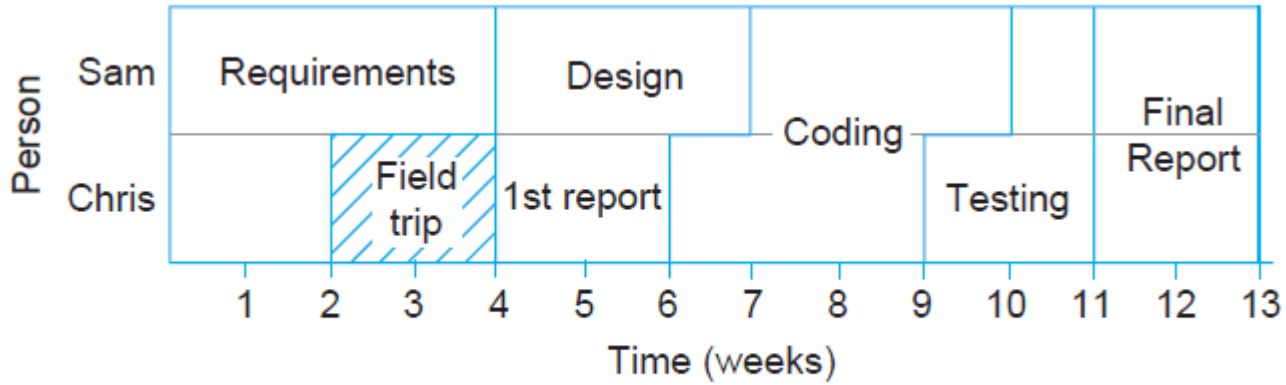

Figure 7.4 A *resource allocation histogram* of a simple development project

Group work reports and the allocation of marks

- Quite often, institutions expect individual students to reflect on their experience of teamwork and report on the conduct of other members of the group.
- Examiners may also want to know how to distribute marks amongst the team members –
  - should everyone be given an equal share or have some members contributed more than others

Systems to support team work

- There are a number of online systems available that can help your team perform more effectively.
- These systems include those that allow you to share documents, those that allow you to manage the team (arranging meetings, assigning work, etc.), configuration management systems that allow you to control changes to a system that several people are working on simultaneously and discussion forums

Summary

- All projects have five elements that require managing to some extent as the project progresses: *time, cost, quality, scope* and *resources.*
- These elements need to be balanced against one another so that you achieve your project’s aims and objectives

Questions