
System Dynamics and Management of Resources

Practical Manual

1st B. Sc. (Hons.) Community Science



Resource Management and Consumer Science
College of Community Science
Vasant Rao Naik Marathwada Krishi Vidyapeeth
Parbhani-431402

Practical Manual

1st B. Sc. (Hons.) Community Science

Authors

Dr. Jayshree R. Rodge

Dr. Hemangini L. Sarambekar

Printed by

College of Community Science

VNMKV. Parbhani

ICAR Developmental Grants

2017

**RESOURCE MANAGEMENT AND CONSUMER SCIENCE
COLLEGE OF COMMUNITY SCIENCE
VASANTRAO NAIK MARATHAWADA KRISHI VIDYAPEETH
PARBHANI 431 402**

CERTIFICATE

**It is to certify that this is the record of the practical work carried
out by _____**

**Reg.No _____ in the Course of
System Dynamics and Resource Management RMCS 122 3 (2+1) during
II semester of B.Sc. (Hons.) Community Science.**

Course Professor

Student

External Examiner

Head

**Resource Management and Consumer Science
College of Community Science
Vasantao Naik Marathwada Krihi Vidyapeeth
Parbhani**

I N D E X

S. No.	Title of Experiments	Page Number	Date of conducting experiment
1	Identification of individual and family values	1	
2	Identification of immediate, short term and long term goals of individual and family	3	
3	Standards for individual and family	5	
4	Decision making by individuals and families	6	
5	Applying decision making process	7	
6	Group work presentation on types of decision and decision making process	8	
7	Family Resources	11	
8	Application of management process to organize an event – planning	13	
9	Application of management process to organize an event – organization	15	
10	Application of management process evaluation to an event : Part I	17	
11	Application of management process evaluation to an event : Part II	19	
12	Application of management process evaluation to an event : Part I	20	
13	Presentation of personal time record	23	
14	Energy Management	25	
15	Work simplification	28	
16	Paper and pencil techniques –II	29	

Identification of individual and family values

Aim: To identify the individual and family values.

Management is a complex process involving the relationships requirements and wellbeing of the family. Management is the natural out growth of human association in the home environment. Management should be looked upon as a way of life. Home is made up of human beings living together in an environment of love and affection. It is predominately concerned with the quality of human association. In this concept management becomes a means of used resources for the attainment of family goals. Efficiency is measured in terms of sound standards and the use of resources that affect individual development and family living. It is therefore intimately linked with values, standards and goals which give meaning to the lives, thoughts, feelings and experiences of the individual family members. Values, goals and standards are the basis that motivate the family to make decision and choices.

Values

The term value signifies the meaning or definition of worth that is attached to any object, condition, principle or idea. It is the believed capacity of something or somebody to satisfy a human desire. Value as a concept is vague and subjective although it is very important to an individual e.g. health and happiness. They are the ways behind our actions and the basis for setting goals. Our decisions are based on values and our values are identified by the choices we make. Values give meaning to life and form the basis for our philosophy of life. It gives directions through the importance we place on the objects and situations in daily living. All values are finally human in that they are created evaluated and enjoyed by persons.

Characteristics of values:

1. A value is always important to the person who holds it.
2. It is desirable and satisfying.
3. It has the ability to develop in a self creative way.
4. It tends to endure (Lasting trends).
5. Values may be either relative or absolute in nature.
6. It is either factual (Containing facts) or normative.
7. It is the quality or desirability of an idea, object or action which governs our choice of methods, modes or goals of action.
8. It is relatively stable but tends to change gradually.
9. The intensity of value one holds varies from individual to individual.

How family value pattern develop?

Attitudes of family members especially that of the homemakers affect the value system of the children. Under favorable conditions attitudes can be deliberately developed both by parents and other members of the family. The attitudes of family members which leads to the realization of values in family living are varied.

Types of values

Although values may be classified as various ways mainly these are classified as **Intrinsic** and

Instrumental

A) Intrinsic Values : Is one that is important and desirable simply for its own sake. It is worthy of being sought for itself alone.

Art and its interest in beauty are an intrinsic value. The sunset we pause to admire, the art collection we enjoy at the civic art center, the symphony we listen to are all expressions of art and it is intrinsic value in living.

B) Instrumental values : Is a means of attaining other values or goals. Technological satisfaction – interest in making objects based on skillful workmanship is primarily an instrumental value because it is sought primarily a means to an end.

- Exercise :
- 1) Identify and enlist your personal and family values.
 - 2) Identify your Intrinsic value and Instrumental value if any.
 - 3) Prepare a comparative list traditional values and Change you noticed in values in modern life

Sr.No.	Traditional Values	Modern Values	Reasons for changes in values

Identification of immediate, short term and long term goals of individual and family

Aim: To identify immediate, short term and long term goals of individual and family Goals

Goals are the ends that individuals or families are willing to work for . They are more defined than values because they are to be accomplished. Many goals grow out of desires, philosophies, attitudes and values. Many goals are set in expectation that reaching them will bring a satisfying life.

Types of Goals

1. Long term or ultimate goal : The long term goals are considered family permanent. They are thought over long periods of time and consequently are ever present. These are the goals that have real meaning to the family group. Although they may be the first goals the family formulate, they are usually the last the family realizes, because they initiate and influence many of the intermediate goals. They are of great importance e.g. educating children. Construction of house, marriage of daughter.

2. Intermediate or short term goals: Families often set the intermediate goal as means of achieving long term goals. These are definite than long term goals and easier to form a clear-cut picture of them e. g. keeping the house clean.

3. Mean end goals: They are the decisions made or the steps taken to attain intermediate goals. There are many means end goals that are ends in themselves and that are reached with a small number of activities e. g. writing a cheque and pay bill or cutting flowers for living room.

Although the goals of families differ in some respects, the major and ultimate goals of home-making may be stated as follows

1. Optimum physical and mental health of family.
2. Optimum development of individual members of family.
3. Satisfying family relationship.
4. Recognition, acceptance and appreciation of human differences.
5. Establishing satisfactory relationship with the community and other sub systems of the society.

Smart Goal Setting

Goals should be SMART - specific, measurable, agreed upon, realistic and time-based. A goal might be to hold a weekly/monthly/yearly activity or a continuous programme throughout the family life cycle.

The acronym SMART has a number of slightly different variations, which can be used to provide a more comprehensive definition for goal setting:

S - specific, significant, stretching

M - measurable, meaningful, motivational

A - agreed upon, attainable, achievable, acceptable, action-oriented

R - realistic, relevant, reasonable, rewarding, results-oriented

T - time-based, timely, tangible, trackable

This provides a broader definition that will help one to be successful in business and personal life.

Top 10 steps to successful goals:

“There is no much thing as a wish without the power to make it come true. You may have to work for it however”. Richard Bach.

1. Successful goals are clear
2. Successful goals are written down
3. Successful Goals are Compelling
4. Successful Goals Require Immediate Action
5. Successful Goals Have an Action Plan
6. Successful Goals are Specific
7. Successful Goals are Accountable
8. Successful Goals Require Work
9. Successful Goals Require CPR
10. Successful Goals Require Celebration

- Exercise :
- 1) List out your short term goals, intermediate goals and long term goals.
 - 2) List out your mothers major goals as a home maker for the family.
 - 3) List out your strategies for achieving smart goals.

Standards for individual and family

Aim: To Know individual standards

Standards are a set of measures of values stemming from our value pattern determining the amount and kind of interest we have in something and the satisfaction we receive. Standards serve as a measure a criterion for measurement of object, ways of doing things and ways of living as we make judgments. They are what individuals and families will accept as adequate and worth working for. Standards can be used on basis for comparison and it is defined as scale or parameter used for comparison.

Classification of Standards

Standards are classified as

1. Content
2. Fixedness or flexibility
3. Quality

1. **Content standards:** Is that class which is tangible. It is capable of being realized objectively, usually in material forms. The level of consumption on living plan of individuals on families is a content concept, as it consists of the goods and services that are deemed important for living and that people willingly serve for to attain satisfaction of wants.

2. **Fixedness or flexible standards:** Shows degree, varying from rigid to less rigid to flexible. Fixedness of standards varies in place and time.

a) **Conventional or rigid standards:** are often associated with social or religious rites and are therefore imposed on the family by a social or religious group.

b) **Flexible standards:** Are those that allow us to adjust our procedure or conducts to conditions. Acceptance of flexible standards gives greater freedom of choice and life is likely to be more relaxed, relations less strained and anxieties less apparent.

3. **Quality standards :** is more easily understood than other classes of standards as it is usually what we mean when we speak of the standards of another person or of ourselves or of a community, Quality refers to the character or essence of something evaluated subjectively and is usually expressed in terms of degree or range.

Standards may be considered high or low, good or bad or correct. It is evaluated by some psychic measure, the quality of conduct a procedure an object to some one's thinking.

Exercise : 1) Which criteria should one use for choosing standards?

Decision making by individuals and families

Aim : To understand types of decisions

Types of Decision Making

1. Individual decision : Individual decisions are pertaining to an individual. They are of personal concern only. Individual decisions are more quickly made. It revolves around the values, goals, standards and roles the individual assumes in the relevant set of framework.

2. Group decisions : These decisions are made from the collective action of several individuals each of whom has distinct values, goals, standards and role perception. This makes the process more difficult. More alternatives tend to be suggested and unproductive approaches are identified and eliminated because the experience of many people acts as guiding point in the selection of best course of action.

3. Habitual decision: These decisions are the lowest level of decisions. Once an individual is trained to do a systematic work he will follow that throughout his life. Essentially they are routine repetitive actions related to daily activities. The choice is automatic because the criteria are well established and no fresh decisions are involved when you have to consider alternatives.

4. Central decisions : A central decision is a very crucial decision in your life where you have to make care and analysis before arriving at the final decision. Each central decision will have supporting decisions to complete the whole decision.

5. Economic decisions: Economic decisions are based on allocation and exchange processes related to resource use. Priority of goals and allocation of resources for each goal is an economic decision. This kind of decisions are made in the household frequently to utilize the resources effectively to achieve goals

6. Technical decisions: These decisions are goal oriented. The alternatives have some known degree of specificity. These decisions involve weighing the alternatives. This means choosing the course of action that are sure to meet the desired outcome or goal.

In technical decision there is known goal, known alternatives and known but limited resources e.g. Health crises in family.

Exercise : 1) Enlist Habitual decisions, Central decision taken by the family, Economic decisions and technical decisions.

Applying decision making process

Aim : To learn decision making process.

Steps in decision making process

7 Steps in Decision Making: from Identification to Implementation

1. Identify a problem or opportunity

- The first step is to recognize a problem or to see opportunities that may be worth.
- Will it really make a difference to our customers?
- How worth will it be to solve this problem or realize this opportunity?

2. Gather information

- What is relevant and what is not relevant to the decision?
- What do you need to know before you can make a decision, or that will help you make the right one?
- Who knows, who can help, who has the power and influence to make this happen (or to stop it)?

3. Analyze the situation

- What alternative courses of action may be available to you?
- What different interpretations of the data may be possible?

4. Develop options

- Generate several possible options.
- Be creative and positive.
- Ask “what if” questions.
- How would you like your situation to be?

5. Evaluate alternatives

- What criteria should you use to evaluate decision making?
- Evaluate for feasibility, acceptability and desirability.
- Which alternative will best achieve your objectives?

6. Select a preferred alternative

- Explore the provisional preferred alternative for future possible adverse consequences.
- What problems might it create?
- What are the risks of making this decision?

7. Act on the decision

- Put a plan in place to implement the decision.
- Have you allocated resources to implement?
- Is the decision accepted and supported by non organization or agency/ family?
- Are they committed to making the decision work?

Exercise: 1) How did you arrive to a decision? Which decision?

2) Write down steps you followed in decision making process.

Group work presentation on types of decision and decision making process

Aim: To learn group decision making

Decision Making in Groups

We all engage in personal decision making daily, and we all know that some decisions are more difficult than others. When we make decisions in groups, we face some challenges that we do not face in our personal decision making, but we also stand to benefit from some advantages of group decision making. Group decision making can appear fair and democratic but really only be a gesture that covers up the fact that certain group members or the group leader have already decided. Group decision making also takes more time than individual decisions and can be burdensome if some group members do not do their assigned work, divert the group with self-centered or unproductive role behaviors, or miss meetings. Conversely, though, group decisions are often more informed, since all group members develop a shared understanding of a problem through discussion and debate. The shared understanding may also be more complex and deep than what an individual would develop, because the group members are exposed to a variety of viewpoints that can broaden their own perspectives. Group decisions also benefit from synergy, one of the key advantages of group communication that we discussed earlier. Most groups do not use a specific method of decision making, perhaps thinking that they'll work things out as they go. This can lead to unequal participation, social loafing, premature decisions, prolonged discussion, and a host of other negative consequences. So in this section we will learn some practices that will prepare us for good decision making and some specific techniques we can use to help us reach a final decision.

Brainstorming before Decision Making

Before groups can make a decision, they need to generate possible solutions to their problem. The most commonly used method is brainstorming, although most people don't follow the recommended steps of brainstorming. As you'll recall, brainstorming refers to the quick generation of ideas free of evaluation. The originator of the term *brainstorming* said the following four rules must be followed for the technique to be effective. Evaluation of ideas is forbidden.

1. Wild and crazy ideas are encouraged.
2. Quantity of ideas, not quality, is the goal.
3. New combinations of ideas presented are encouraged.

To make brainstorming more of a decision-making method rather than an idea-generating method, group communication scholars have suggested additional steps that precede and follow brainstorming.

Do a warm-up brainstorming session. Some people are more apprehensive about publicly communicating their ideas than others are, and a warm-up session can help ease apprehension and prime group members for task-related idea generation. The warm-up can be initiated by anyone in the group and should only go on for a few minutes. To get things started, a person could ask, "If our group formed a band, what would we be called?" or "What other purposes could a mailbox serve?" In the previous examples, the first warm up gets the group's more abstract creative juices flowing, while the second focuses more on practical and concrete ideas.

1. **Do the actual brainstorming session.** This session shouldn't last more than thirty minutes and should follow the four rules of brainstorming mentioned previously. To ensure that the fourth rule is realized, the facilitator could encourage people to piggyback off each other's ideas.
2. **Eliminate duplicate ideas.** After the brainstorming session is over, group members can eliminate (without evaluating) ideas that are the same or very similar.
3. **Clarify, organize, and evaluate ideas.** Before evaluation, see if any ideas need clarification. Then try to theme or group ideas together in some orderly fashion. Since "wild and crazy" ideas are encouraged, some suggestions may need clarification. If it becomes clear that there isn't really a foundation to an idea and that it is too vague or abstract and can't be clarified, it may be eliminated. As a caution though, it may be wise to not throw out off-the-wall ideas that are hard to categorize and to instead put them in a miscellaneous or "wild and crazy" category.

Discussion before Decision Making

The nominal group technique guides decision making through a four-step process that includes idea generation and evaluation and seeks to elicit equal contributions from all group members. This method is useful because the procedure involves all group members systematically, which fixes the problem of uneven participation during discussions. Since everyone contributes to the discussion, this method can also help reduce instances of social loafing. To use the nominal group technique, do the following:

1. Silently and individually list ideas.
2. Create a master list of ideas.
3. Clarify ideas as needed.
4. Take a secret vote to rank group members' acceptance of ideas.

During the first step, have group members work quietly, in the same space, to write down every idea they have to address the task or problem they face. This shouldn't take more than twenty minutes. Whoever is facilitating the discussion should remind group members to use brainstorming techniques, which means they shouldn't evaluate ideas as they are generated. Ask group members to remain silent once they've finished their list so they do not distract others.

During the second step, the facilitator goes around the group in a consistent order asking each person to share one idea at a time. As the idea is shared, the facilitator records it on a master list that everyone can see. Keep track of how many times each idea comes up, as that could be an idea that warrants more discussion. Continue this process until all the ideas have been shared. As a note to facilitators, some group members may begin to edit their list or self-censor when asked to provide one of their ideas. To limit a person's apprehension with sharing his or her ideas and to ensure that each idea is shared, I have asked group members to exchange lists with someone else so they can share ideas from the list they receive without fear of being personally judged.

During step three, the facilitator should note that group members can now ask for clarification on ideas on the master list. Do not let this discussion stray into evaluation of ideas. To help avoid an unnecessarily long discussion, it may be useful to go from one person to the next to ask which ideas need clarifying and then go to the originator(s) of the idea in question for clarification.

During the fourth step, members use a voting ballot to rank the acceptability of the ideas on the master list. If the list is long, you may ask group members to rank only their top five or so choices. The facilitator then takes up the secret ballots and reviews them in a random order, noting the rankings of each idea. Ideally, the

highest ranked idea can then be discussed and decided on. The nominal group technique does not carry a group all the way through to the point of decision; rather, it sets the group up for a roundtable discussion or use of some other method to evaluate the merits of the top ideas.

Specific Decision-Making Techniques

Some decision-making techniques involve determining a course of action based on the level of agreement among the group members. These methods include majority, expert, authority, and consensus rule. “Pros and Cons of Agreement-Based Decision-Making Techniques” reviews the pros and cons of each of these methods.

Majority rule: is a commonly used decision-making technique in which a majority (one-half plus one) must agree before a decision is made. A show-of-hands vote, a paper ballot, or an electronic voting system can determine the majority choice. Many decision-making bodies, including the US House of Representatives, Senate, and Supreme Court, use majority rule to make decisions, which shows that it is often associated with democratic decision making, since each person gets one vote and each vote counts equally. Of course, other individuals and mediated messages can influence a person’s vote, but since the voting power is spread out over all group members, it is not easy for one person or party to take control of the decision-making process. In some cases—for example, to override a presidential veto or to amend the constitution—a super majority of two-thirds may be required to make a decision.

Minority rule: is a decision-making technique in which a designated authority or expert has final say over a decision and may or may not consider the input of other group members. When a designated expert makes a decision by minority rule, there may be buy-in from others in the group, especially if the members of the group didn’t have relevant knowledge or expertise. When a designated authority makes decisions, buy-in will vary based on group members’ level of respect for the authority. For example, decisions made by an elected authority may be more accepted by those who elected him or her than by those who didn’t. As with majority rule, this technique can be time saving. Unlike majority rule, one person or party can have control over the decision-making process. This type of decision making is more similar to that used by monarchs and dictators. An obvious negative consequence of this method is that the needs or wants of one person can override the needs and wants of the majority. A minority deciding for the majority has led to negative consequences throughout history. The white Afrikaner minority that ruled South Africa for decades instituted apartheid, which was a system of racial segregation that disenfranchised and oppressed the majority population. The quality of the decision and its fairness really depends on the designated expert or authority.

Consensus rule: is a decision-making technique in which all members of the group must agree on the same decision. On rare occasions, a decision may be ideal for all group members, which can lead to unanimous agreement without further debate and discussion. Although this can be positive, be cautious that this isn’t a sign of groupthink. More typically, consensus is reached only after lengthy discussion. On the plus side, consensus often leads to high-quality decisions due to the time and effort it takes to get everyone in agreement. Group members are also more likely to be committed to the decision because of their investment in reaching it. On the negative side, the ultimate decision is often one that all group members can live with but not one that’s ideal for all members. Additionally, the process of arriving at consensus also includes conflict, as people debate ideas and negotiate the interpersonal tensions that may result.

Exercise : Find out pros and cons of decision making process

Family Resources

Aim : To learn different types of resources

Resources means an available supply that can be drawn upon when needed. Resources of the family are essential for achieving the family goals. The resources that individuals and families have at their disposal consist of the tools, assets, capabilities and the ways and means they possess. These resources are used in countless ways to achieve which is important to each person and to the family as a group. Without having resources the process of decision making is ineffective. Each time you identify goal to be achieved, you plan how to reach the desired out come. Each time when you plan you identify the resources and think how to use them.

Everyone has many resources. Sometimes one is not aware of all the resources at our command. As a result we are not able to use some of them at all. Even when we are aware of the resources we may not be using them to the fullest extent.

Resources are defined as ‘those material and human attributes (quality) that satisfy our wants.’ They may be tangible (Visible) or intangible (invisible). They vary for individuals, communities, states and nations. However all types of resources are used to achieve the family goals. They are the ‘what’ of management or the enablers, one uses to achieve the goal. Resources are the supply reservoir for use in the family’s specific managerial functions.

Types of resources

1. Human resources :

- Human resources are less tangible and they constitute the personal characteristics and attributes.
- They originate internally.

Types of Human Resources

- Knowledge : Ex. Information needed to purchase a pressure cooker.
- Abilities : Ex. Intellectual ability.
- Skills : Ex. Painting.
- Interest : Ex. Interest in interior designing.
- Energy : Energy to do house hold work.
- Time : One particular hour in a day.

2. Non Human resources

- Non human resources are easily identifiable.
- They are essential for achievement of goals.
- They are limited.
- These are personal possessions.

Types of Non Human Resources

- Money : Income, saving, share
- Material : Equipments.
- Goods : Food, furnishing.
- Community facilities : Library, parks, bus.
- Energy : Fuel.
- Space : House.
- Time : 24 hrs. of the day.

Exercise : 1) Identify and tick mark Human and Non Human resources available to you.

2) Write down one example of each.

Human Resources

Knowledge
Abilities
Skills
Interest
Energy
Time

Non Human Resources

Money
Material
Goods
Community facilities
Energy
Space

- 2) How will you conserve the resources? Give some suggestions?
3) Make a pictorial chart depicting the resources.

Application of management process to organize an event – planning

Aim: To learn planning of an event.

Introduction : Management is a planned activity directed towards the realization of family values and satisfaction of wants of the family members. Management is a behavioral process that recognizes the actions and reactions of persons in living situations as they use the resources to achieve the desired goals.

The Management Process

The management process will increase the probability of attaining the desired quality of life. To achieve the desired quality of life one should set the priority rank for the goals to be achieved. Effective management uses the management process as a tool to achieve the goals prioritized by the individual or the family. The use of management process also helps to maximize the use of resources in the desired manner.

A process is composed of a series of actions or functions to bring about an end result. The management process consists of a series of five progressive and interdependent managerial activities often called sub-system or functions of management.

- **Planning to achieve goals:** Planning includes setting goals, establishing priorities among goals, establishing standards for measuring goals attainment and determining the activities needed to reach the set goals.
- **Organizing for performance:** Organization is the logical arrangement of activities to be performed with in the plan. It includes dividing responsibilities in among the group/family, delegating authority, and scheduling and synchronizing activities.
- **Implementing the Plan:** Implement is putting the plan into action. It involves careful observation of the work performance as per plan.
- **Controlling the activities/Resources:** Controlling helps in successful completion of the plan and conservation / use of resources as per the plan. Directing and guiding are also part of the controlling process.
- **Evaluating the results in light of the goals achieved:** It is the assessment of the whole management process in achievement of the set goal of the family, the resources usage and the quality of the result produced through the process.

All the above activities must be carried out in the management process regardless of what resource or combination of resources are utilized. Each of the sub systems require the mental process called decisions making which is the focal point of the subsystems the quantity, quality and mix of resources that are managed will change with each goals, each person and each situation in which the individual or group functions. The process of management is constant but the results of management are varied as the goals and resources of the persons applying the process to their lives. According to Geory R. T. "Management is a distinct process consisting of planning, organizing, actuating and controlling performed to determine and accomplish the

objectives by the use of people and resources.

Effective management enhances your chances of reaching the goals by making wise decisions, augmenting resources and using them effectively to attain the desired quality of life. It enables you to recognize your values and those of others understand the factors which can affect them: you are able to determine your immediate and long term goals and the process of achieving them and allocating the use of resources within the management process to attain the goals.

Individuals and families have goals. In order to achieve these goals, resources must be identified and allocated, decision must be made and planning takes place. Goals must be ranked in order of priority. Resources must be assessed and analyzed to ascertain which combination will produce the best results. The extent to which individuals and families use management principles and processes will produce the best results. The extent to which individuals and families use management principles and processes will determine to a great extent how effective each is in achieving his or her desired quality of life. The well being, affords the opportunity to assess the roles and increases the probability of achieving a higher degree of positive satisfaction.

Planning

Planning is the beginning of the process of the management. Planning sets all other functions into action; it can be seen as the most basic function of management. Without planning other functions mere activity, producing nothing but chaos.

Planning is devising a scheme for reaching goals. It includes setting and clarifying goals establishing priorities among goals, establishing standards for measuring goals attainment and determining the activities needed to reach the goals. It includes a wide range of decisions dealing with family activities, resources and changing family wants. Planning is thinking through the possible ways of reaching a desire goal. They guide the persons or family is deciding what and how work or activities should be done and provides direction for utilizing resources throughout the management process. Planning includes setting standards to reconcile demands with resources and sequencing actions to meet the standards.

Exercise : 1) Plan an event to apply management process planning.

Application of management process to organize an event –organization

Aim: To learn to organize an event

Introduction

Implementing is putting the plan in to action. It is the accomplishment of goal through control of action, the evaluation of progress towards a goal and the adjustment of plans to meet the changing resources and needs. Implementing involves careful observation of the work performance. It is concerned with the cost in terms of resources like time, money, efforts and the satisfactions derived after the work or activity. Satisfaction can be so important in family living that a plan may be completely changed if one or more family members have negative feelings or are likely to be harmed in some way by the activities. Also, during implementing a goal may prove to be unwanted even though it had once seemed desirable because prediction is not always accurate. Thus implementing call for flexibility in thinking rather than a rigid pattern of action. Self discipline and supervision are very essential while implementing a plan.

Characteristics of Implementation

The function of management involves the following activities:

- **Motivating and Guiding Personnel:** Homemaker has to motivate all the family members to work together to reach common family goals. It is for her to see that the morale of the members is high so that work is done quickly and efficiently.
- **Influencing and Shaping the family System:** Family is a smallest unit of society. Work patterns, which are developed at home, also influence the work outside home. Children learn the managerial abilities at home, which they utilize while doing every task throughout their life.
- **Understanding Family members and Securing their Cooperation:** The homemaker has to understand the needs and capabilities, strengths and weaknesses, and problems of family members. This will help her in getting their cooperation in completing their assigned work and contributing in the family goals.
- **Creating Climate for efficient working:** A positive and happy environment conducive for working with efficiency should be created by a homemaker.
- **Directing Efforts towards Defined Objectives:** A homemaker must influence family members so that they will work willingly and enthusiastically towards the achievement of family goals.
- **To Get Full Co-operation from the Members:** This function of management is very concrete, unlike planning and organization, as it involves working directly with every family member. Home-maker should ensure that she gets full cooperation from family members at work.

Characteristics of controlling process:

- **Leading Function:** Control becomes the leading function of management as it starts planning and continues till the goals are reached. Because of the integrated character of managerial functions, it is rather difficult to isolate control from other functions of management.
- **Unity:** Control is an integral art of management, and is exercised by all managers at all levels. Every member of the family has to exercise control by identifying deviations in time and correcting them so

that the targets are achieved.

- **Continuity:** Like other functions of management, control is an ongoing activity on the part of all homemakers. For example, while following the time plan, the homemaker has to check it continuously to see that what she is doing is according to what she has planned.
- **Flexibility:** It is as much as important attribute of controlling as it is for planning. When plans are required to be revised to meet the needs of time and situation, control ensures a change in the plan and is made to be capable of adjusting to the needs of changing time and situation.
- **Pervasiveness:** Like planning control is also a pervasive activity. Control is exercised throughout the length and breath of the organisation. At all levels and for all areas of the family living, control has a pervasive use to get things done by others.
- **Forward Looking:** To make the performance conform to plan, control must be forward looking in character. Its focus is not on finding deviation but on corrective measures to ensure performance.
- **People Focused:** The modern system of control has become performer focused rather than work focused in character. It also pursues a better type of managing by setting objectives and adopting self control.

Techniques of Controlling: They are those methods, which help in detecting the deviation in the performance. Primarily there are two types of methods. These are

- i. Budgetary
- ii. Non budgetary

i. Budgetary Methods: These methods involve statement of anticipated results in numerical terms. Under this category the most important techniques, which can be used by the homemaker to control her plans are following:

- **Income and Expenditure Budget:** This type of budget shows the family income from various sources and its distribution on family expenditure on various items for a specified period of time.
- **Cash Budget:** This type of budget shows how much cash is available for expenditure and how much is already being consumed.

ii. Non Budgetary Methods: These methods do not involve numeric but help in checking the activities necessary for achieving goals. Some of the most useful such techniques are following.

- **Mental Checklists:** Most often homemakers prepare a checklist and mentally check, which activities are done and which are left. However, there is always a chance that she may forget one or more vital items of the checklist. But it is used most often and is quick and inexpensive way of checking especially when the activities are routine and not very important.
- **Records:** This is a written form of checklist in which jobs, activities and even expenditure is recorded on a sheet of paper. The jobs completed are entered in the record and thus, a homemaker can assess the performance just by looking at a record. This method eliminates the error in checking due to forget but needs more time, energy and attitude of homemaker for writing the records.

- Exercise:
- 1) Organize an event to apply management process organization.
 - 2) Explain the process of controlling in context to the event planned.
 - 3) Write down the benefits of Controlling while organizing an event?

Application of management process evaluation to an event : Part I

Aim: To learn management process evaluation

Introduction

Evaluation is the final stage of management process. It consists of looking back over the steps of planning, organising, implementing and controlling to determine as accurately as possible, how good a Job has been done. Evaluating is assessing the progress in management subsystem and in goal attainment. The main functions of evaluation are assessing the impact of management on quality of living across time and consideration of possible improvement in the management processes. It is analyzing the results and judging the effectiveness of the plan. It helps to understand the reasons why outcomes are different from the desired goals. In managing family living the reasons why outcomes are different from the desired goals in managing family living, the measure by which relative success or failure of a plan can be evaluated is the extent to which it has the advanced family goals. The more definite and clear cut the goals, the more accurate evaluation. Evaluating, as a distinct phase of management, goes beyond checking; it analyzes results and judges effectiveness. It attempts to discover reasons why outcomes vary from the projected or desired goal. It is a broader, longer view that analyzes impacts of action on the total pattern of living. Although evaluation centres around the outcome, it has many functions. In addition to analyzing the outcome, it provides information that can be used as a guideline.

Checking on management effectiveness or efficiency requires analysis, honesty, objectivity and a sound basis for judgment. In managing family living, the measure by which relative success or failure of a plan can be evaluated is the extent to which it has advanced the family's goals. The more definite and clear-cut the goals, the more accurate evaluation can be.

The positive or negative feedback promotes either continuity or change in the system. Positive feedback, reveals differences between expected and actual outcomes, acknowledges factors that support the deviation and favours an increase in or continuation of the deviation which is really a change in goal.

Negative feedback reveals differences between actual and devised output and influences the system to reduce the deviation so that the output stays within the established goals or objectives set.

Purpose of Evaluation

Lewin sees three purposes in evaluation and its purpose indicates its characteristics:

- To see what has been achieved.
- To serve as a basis for the next plan.
- To serve as a basis for modifying the overall plan and peer evaluation, self evaluation, evaluation by elders to gain new general insight.

Methods of Evaluation

Like controlling evaluation can be done by two main methods.

- I. Budgetary methods

II. Non budgetary methods.

I. **Budgetary Method:** The type of budgets which can help a homemaker in evaluation are following:

- **Profit and Loss Account:** These accounts help a homemaker in assessing her monetary results at the end of a specific period. If the balance sheet shows the profit or positive deviation it means that she has managed to save whereas loss points at the negative deviation in the accounts. This can help her in evaluating her achievements.
- **Net worth Statement:** This statement is also used to evaluate the results. The increase in the net worth shows the rise in the standard of living of the family. However, if the net worth of a family is decreasing, it indicates the lowering of standard of living for that family.

II. **Non Budgetary Methods:** Like control, evaluation can also be done by methods other than the budgetary ones. Some of such methods useful for the homemaker are following:

- **Summary Reports:** These are the descriptive reports at the end of the execution of the plan to assess qualitatively the results of the process. It shows the quality of goals achieved i.e. their worth.
- **Checklists:** They are used for evaluation as they are used for control. However for evaluation, checklists are used at the end of the process to assess the results
- **Personal Observations:** Similar to control they are used most often by the homemaker at the end of the process to determine the results or the level of satisfaction it has brought
- **Records:** Household records help homemaker in evaluating the results as they help her controlling the performance. They can be both short term as well as long term records. These help in evaluating the total economic performance of the family and assessing its net worth.
- **Other Techniques Like Audit and PERT:** Though these methods are not used by homemakers but are very important evaluation techniques, usually applied in bigger and more complex organizations.

Evaluation is the generally accepted principles that everyone should strive to secure increasingly satisfying results with the resources at hand. It is the core of management- a specific device toward that end. The homemakers use all the resources of the family, its functions, equipment, information as well as its members to attain their goals. These functions cannot be separated into watertight compartments. Every homemaker uses these functions in varying degrees for the success of management.

Exercise: Evaluate the event which you have planed and organized.

Application of management process evaluation to an event : Part II

Aim: To learn the management process evaluation

Evaluation:

The final step of management process is evaluation. It looks towards both the process of management and the results. Evaluation helps in judging the success and achievement of a plan of action. Its main purpose is to see what has been achieved as a result of effective planning and controlling. This forms the guidelines and basis for future planning. A considerable amount of evaluating is associated with controlling.

It is through this process of evaluation that control is affected. Evaluation step is actually a review of what has already taken place, with an objective towards better management in future. The homemaker learns through experience about the effectiveness of a plan.

It helps her to analyze how well the plan has been executed and how far it has been successful in achieving the goals. The shortcomings and advantages are noted and may be considered in future planning due to this evaluation. Evaluation must be done in relation to goal or objectives.

There are two types of evaluation in management situations:

(1) General evaluation:

It might be casual and subjective. Without analyzing the outcome thoroughly, a manager may recognize a job as good or bad in a given situation.

(2) Detailed evaluation:

It is an elaborate type of evaluation. This means determining the degree of excellence of the managerial job of the home, one has to look into the different aspects of management. Management processes involves planning, organizing, implementing, controlling and evaluating the things which a family possesses in order to achieve goals.

The Process of management should bring about greatest return in satisfaction, growth and development, health and social usefulness to all members. Effective management recognizes the validity of management processes through which one is able to use resources more effectively, give directions to one's life and achieve the desired goals of life

Exercise: Evaluate the event by subjective and detailed evaluation.

Management of personal time record

Aim: To learn to write time and activity plans

Management is the key to happy living Resources of a family are used to achieve family goals. An effective management ensures the use of family resources for the greatest satisfaction of the family.

Time management is a significant aspect of the management of all resources. It is required for every human being irrespective of their nature of work –be it a labour, student, housewife, professional or any job holder or unpaid worker. Time is an intangible resource and it provides an organizing media for our lives a common denominator- with in which we operate. Developing a time sense is a help in management of time. The individual who has a good time sense can control the use of time.

Everyone has 24 hours in a day and time is one resources which is equally distributed to every individual both rich and poor share the time alike effective time management needs the realization of the fact that time has value. It can be used carefully and fruitfully according to the demands. The use of time that will mean the most in the attainment of individual and family goals in the real objective of time management. Time is a quantitative resource that can be measured, but it is an intangible resource. Its classification also varies with different authors. Gross, Crandall and Knoll classified it as a human resource, where as others have classified it as a non human resource. Time is the focal point around which other resources are allocated and used.

As a resource, time can be used in several ways. It is combined with other resources to achieve a desired goal or meet a demand. Within the management process we make decisions concerning its use. It may be allocated for transferring, exchanging, producing, protecting, saving-investing, or consuming.

Using time effectively calls upon your knowledge of the quantitative and qualitative aspects of any other resources combined with your time resource. In addition to this, it also necessitates examining available resources and determining which combination of resources will bring about the greatest degree of satisfaction while minimizing the use of each. It means examining time resources along with all the others.

Effective time management involves the following:

- Recognizing the demands placed upon your time.
- Ascertaining the goals which necessitate the use of your time resources.
- Identifying and setting priorities for these demands and goals.
- Determining which resources to combine with your time resource to enable you to meet demands and achieve goals.
- Recognizing those demands which cannot be altered or changed.
- Identifying any constraints upon both your time and other resources.
- Developing a plan to allocate and use your time resources.

Time plan:

A time plan shows what one expects to do in a given period such as a morning, an afternoon or

possibly during a whole day or week. It may cover the daily , weekly or seasonal activity of homemaker. It leads one to think in advance of the many work problems that one faces.

Types of activities:

Daily activities : Daily activities are those activities which need to be completed in daily routine. This would include the planning, preparation and serving of meals caring for children, elders, invalids and other family members, washing and ironing cloths, making beds, dusting, cleaning and arranging the house sleeping and resting, personal care, shopping of goods required and some of the social activities.

Weekly activities : The activities which need not be carried but needs to be completed at least in a week. These might include mending and sewing cloths, some types of cleaning activities such as airing carpet, changing linen and so on equipment repairs, preparing special meals, visit to relatives, friends or doctors etc.

Seasonal or annual activities : These activities which need to be completed as per season, occasion or once in a year. These groups of activities include putting away or taking out cloths, at a change of season, preserving fruit and vegetables, sewing cloths for children, preparation for festivals, annual cleaning and painting of house planning vacations and holidays.

Factors to be consider while making time and activity plans

1. Peak loads : Work and activities tend to pile up in most homes at certain periods. These peak load periods may occur at certain times of the day, week, month or season. In all homes there is less danger of periods of over loading if the home maker plans to distribute work and activities over the week, so that the demands on time and energy are about the same each day. A yearly calendar of all special and seasonal activities, vacations, holidays is a great help. It enables the homemaker to look ahead and see when and where she can and must fit these special activities in current plans.

2. Sequence and Activities : The sequence or order in which activities follow one another in the day's schedule is in part determined by the definite time tasks, in part by the relationship of tasks to each other and in part by ourselves. Time and motion can be saved by grouping activities that normally follow one another in a sequence and that fit in to a time block and by allowing some activities to overlap. By combining tasks that require the use of the same task one can reduce the time and energy needed for assembling equipment and materials and for cleaning up and putting them away.

3. Time required for different activities : Estimating the amount of time each activity or group of activities will probably take is important in making workable plan, without this information arranging a closely knit plan or deciding how much work one can comfortably do each day is difficult. In all cases enough should be allowed for doing each task satisfactorily and easily.

4. Time for Emergencies : We some times find weekly plans difficult to follow because of unplanned and unexpected interruptions or demands that have to be met. Such emergencies can best be met by allowing some free time in daily plans.

5. Division of tasks : Deciding who will do the various tasks is not difficult if all members of the family have some share in making the plans. The main problem is to divide the work so that each one will carry a fair share of responsibilities and at the same time get experience in daily all kinds of tasks about the home.

Steps in making time and activity plans

Steps 1:

Consists of listing the every day, weekly, special and recreational activities of the family, every day jobs and activities will include all routine work to satisfy their immediate needs. Weekly and special tasks include those activities which will be done once a week like washing clothes , ironing clothes, cleaning the whole house etc. seasonal tasks include the activities like preserving food, planning holidays, planning birthday parties etc.

2. Step 2 :

Consists of making a plan for every day or routine tasks and under lining those that must be done at definite time. This provides a skeleton around which to build the rest of the plan. After the daily or routine tasks are allocated and time, blocks of free time will be left in morning and afternoon for weekly tasks and activities. One of the simplest methods of making a daily time and activity plan is guidance from experienced homemakers who have their plans well in mind. All the routine tasks can be timed as one group of task, weekly and special or recreational activities can be timed in two other large groups. By using this method of grouping and timing, one forms a habit of dating a definite amount of work during certain hours of the day.

Step 3 :

Consists of completing weekly plan. At this point we must fit the weekly special and seasonal jobs into the free blocks of time in the daily plan. In allocating this time the homemaker must consider the needs of her household, the work habits and free time of members of the family.

Step 4 :

Consists of deciding who will do various tasks and calls for group discussion and planning. In doing this the work carried by the mother and father individually as well as the responsibilities they share and the duties of each child, are clearly defined and understood. Step four is usually combined with step two and three because many of their decisions are made when the order and time of work are being determined.

Exercise :

- 1) Record your 1 week time and activity plan.
- 2) Distribute your time on different heads as personal work, sleep, household work, travel, study and entertainment and give a presentation.

Presentation of personal time record

Aim: To learn to write time norms

Pattern of time use and time norms

As average home maker spends her time in various activities such as food preparation dish washing, maintenance of home, care of family members, shopping, education of children, social and religious activities and managerial activities.

The pattern of time use is classified into two groups:

1. Work time and
2. Leisure time.

Work time:

Work is defined as activities producing measurable results for one's self or others. The varieties of work time include time used for pay, household or home-related work, and volunteer work.

Employment:

Time devoted to employment for pay is one category of work time. Employment time differs with the specific job. The specific nature of work hours influences the duration of non work activities and also affects synchronization of personal activities with those of others.

Home-related work:

Household care, personal care and care of other family members is another form of productive or work time. Although the time requirements of specific household work have changed with the technological advancement, the average requirement of time is almost same.

Volunteer work:

Time contributed to the religious activities a community activities or a national activities for no monetary pay is termed volunteer time. Although people using time for community or household work are not often paid a wage, this time use does affect personal, household, community, and national quality of life.

Non-work time:

Sleep is one of the most time-consuming of all human activities. It accounts for about one-third of an adult's day and an even larger share of a child day. Although sleep is needed for survival, the specific amount needed varies with each person. While one person may be refreshed after six hours of sleep others may need nine or more hours of sleep each day. In addition to sleep free time and leisure are classified as non-work time.

Free Time:

Time not devoted to work or to sleep is called free time. Free time may be imposed or may occur by choice. A person who seeks full time work but can find only a part-time job or cannot find work is faced with imposed free time. If the man or woman has insufficient nonhuman, economic resources—like transportation, or tools—or lacks interest in free-time activities, this time may be a constraint rather than as a resource.

Leisure time:

Time spent in activities chosen by the individual and rewarding for its own sake is leisure. In other

words, leisure is un-imposed free time. Family picnics. Water-skiing, horse riding, tennis, reading, or other activities not related to work roles are also considered leisure-time activities.

The time use for specific roles and activities limit the choice available for other time uses. Time is an influential resource because it is used with other resources to reach the desired goals. Through application of management principles, individuals and families can utilize time to achieve desired quality of life.

Time Norms for Household Tasks:

Some attempts have been made to establish norms or average times spent on specific household tasks such as bed-making, washing windows and so forth. Whether or not established norms exist and are known to the home-maker who wishes to manage her time, knowledge of her own time costs is extremely important. Over a period of years a home-maker probably knows about how long it takes her to complete most of her various repetitive tasks.

The study by Batra S. and Seetharaman P. (2000) also reported Time norms for various activities. These are as follows:

- **Homemaking Activities**

The full time home-makers spent maximum time, 6.58 hours on homemaking activities followed by business class, 3.92 hours. The least amount of time was spent by service class, i.e. 3.05 hours on this activity in a day.

- **Employment Related Activities**

The respondents from service class spent maximum amount of time, 6.63 hours on this activity followed by business class 6.54 hours and professional class 6.46 hours. The least amount of time, 5.04 hours was spent by academicians on employment related activities in day.

- **Personal Activities**

The respondents from Academic Class spent maximum amount of time 10.22 hours on personal activities followed by full time home-makers, 9.51 hours. The least amount of time, 8.26 hours was spent by professional class on personal activities in a day.

- **Miscellaneous Activities**

The full time home-makers spent maximum amount of time, 3.19 hours on miscellaneous activities followed by professional class, 2.46 hours and business class, 2.45 hours. The least amount of time, i.e. 2.21 hours was spent by service class on miscellaneous activities in a day.

Norms for Leisure Time:

Some norms are available for leisure time activities of home-makers, Leisure activities may be broadly interpreted as anything not classified as work or rest, and in this interpretation include such uses of time as eating and dressing. They may also be more rigidly interpreted. There is evidence that even in the most restricted sense; leisure is a fairly important part of a homemaker's day. The Weigand study shows a daily average for full time home-makers of approximately 4 to 5 hours spent on community activities and other leisure time activities.

Exercise : 1) Distribute your time under different heads as personal work, sleep, household work, travel, study and entertainment and give a presentation.

2) Set up your time norms for personal activities.

3) Collect time norms from homemakers and present a report.

Energy Management

Introduction

Human energy required for the performance of any task is a combination of normal body functions respiration circulation, secretion and excretion and the energy used to move about and to complete the task. The pace of work, the tools used, and the positions of the worker are among the factors affecting energy use in household work.

Managing home related activities

Measuring the energy costs of household tasks, though useful in planning work and in designing living units, provides only a partial understanding of the fatigue the worker experiences. Some light tasks may be tiring because of personal attitudes, postural strain, muscle tension, or the concentration and skill required. Other energy-demanding tasks may be less tiring than light work because of the cognitive or affective resources of the worker.

The natural capacity of the muscles to produce energy without fatigue is another factor that needs to be understood when evaluating the significance of energy-cost studies for the work in home. The total rate of energy expenditure which represents the capacity of the body to work without accumulating fatigue products in muscles, Passmore and Durnin (1955) Say: "... in order to prevent evidence of fatigue the intensity of the working rate and the length of the compensating rest pauses must be so adjusted as to give gross over-all rates of energy expenditure of not more than 5 Cal/min. The meaning here is that when there is a steady expenditure of energy of 5 Calories or more per minute in a working day, the circulatory system could not continuously carry away from the muscles the waste products of oxidation. At this rate of energy expenditure, moreover, the heat produced from oxidation in muscles would not be dissipated rapidly enough and the body temperature would rise. Both of these effects would result in decreasing the capacity to continue work.

Appropriate energy management is related to three important components of the task performance

1. The Worker
2. The Work
3. The Work Place

Planning energy use

Since energy management is directly involved with the performance of work, the major decision in planning this resource is to solve the problems on when and how to perform the work. It would also require the careful decisions related not only to minimize energy expenditure, but also to avoid bodily discomfort and fatigue.

1. The problem on deciding when to do the work is interwoven with time planning. This involves the preparation of a time schedule in which light and heavy tasks are organized alternately. Besides this, there is a need to incorporate rest periods in between these two tasks. However, one should keep in mind that certain tasks are fixed for certain time slots, as in the case of attending school or work place, meal times, sleeping periods etc. Considering all these and taking into account one's availability

and work demands, an individual should plan her energy use carefully.

2. Time and energy planning are inseparable. Managing energy is similar to managing time. It involves the making of activity plans as well as carrying them out and evaluating the results. In time planning, one's clock or watch helps measure time expenditure, while in energy planning knowledge of the energy costs of different activities, one's skill and ability to turn out work and the effects of fatigue help to measure energy expenditures. Through experience one learns how to work out well balanced, energy, spending patterns that are based on the store of energy available from day to day.

Controlling the energy plan

Once the work plan in the use of energy is ready, the problem of how to implement it arises. The answer to this lies in the understanding and awareness of certain techniques related to body mechanics, work simplification, etc.

Motivation plays an important role in carrying out all activity plans, including those having to do with energy management. We have seen that high motivation makes more energy available for the tasks at hand, and helps control fatigue costs resulting from work.

Developing skills in fitting activities of daily living into the minutes and hours of the day conserves emotional and physical energy and stimulates greater efficiency in work. Skills of this kind lead to greater mental flexibility in the management of energy and in carrying out activity plans. Work simplification, the effective use of the body in housework and the skillful performance of homemaking tasks are the tools that enable a home-maker to conserve time and energy so that more energy will be available for other interests and activities.

Evaluating the energy used

Asking oneself the following questions will help to evaluate success in utilizing one's store of energy:

- Do I think of the use of energy in terms of the goals I wish to attain?
- Do the energy costs of any homemaking tasks seem too high?
- Am I using my energy effectively?
- Have I worked out a well-balanced energy-spending pattern for both my homemaking and my other activities?
- Do I often lengthen my work day in order to finish certain tasks?
- What homemaking activities do I like best?
- What do I dislike? Why do I dislike these activities?
- How can I change my attitudes toward these activities?
- What tasks are most tiring? Why?
- Do I tire easily?
- Do I recognize the type of fatigue I frequently experience?
- Does it make me want to stop working?
- What can I do to relieve fatigue?
- Do I use effective methods of work to avoid fatigue?
- Have I learnt to relax and rest?

An analysis of the answers to above questions would help a home-maker to evaluate whether she managing her energy resource properly or not.

Exercise: List out following activities into light, moderate, heavy and very heavy work activities

Approximate energy costs for selected activities.

Work Calories per minute	Activities	
No work 1 Cal/min	Resting	
Light 1-2 Cal/min	Sedentary activities Sewing Knitting Paring potatoes Machine sewing Operating a vacuum sweeper.	Standing activities Ironing Beating with rotary beater Dishwashing Reaching to 22 inches above floor Reaching to 72 inches above floor
Moderate 2-3 Cal/min	Walking Sweeping Dust mopping Applying floor wax, long-handled applicator Hanging clothes from basket on floor or table Playing piano	
Heavy 3-4 Cal/min	Washing floor Waxing floor Bed making to three inches above the floor	
Very heavy Over 4 Cal/ min	Cleaning carpeted stairs Going downstairs, from floor Dancing Gardening, Weeding	

Work simplification

Aim: To learn the work simplification techniques.

Introduction

A given task is simplified by applying the scientific management techniques even at home. The Scientific management tells us how to analyse different jobs and identify what is inefficient. Nickell and Dorsey defined work simplification as “the conscious seeking of the simplest, easiest and quickest method of doing work”. Gross and Crandall defined it as “accomplishing more work within a given amount of time and energy or at reducing the amount of either one or both to accomplish given amount of work”. It implies proper blending and management of two important resources namely time and human energy.

Improvements in methods of work have come about partly through a common sense approach, but chiefly through laboratory research. There are certain practices so, obviously wasteful of effort that one can improve them by “wading in and doing quickly what should be done.” Such improvements are only a beginning however and slow painstaking research is required for developing fundamental principles in this as in other areas. Motion study, regardless of method, has the overall objective of developing motion-mindedness in those who work. All approaches based on principles of body motion economy and body mechanics aim either to develop better motions or to eliminate motions.

Techniques of Work Simplification

Work simplification and motion mindedness are the two important ways of reducing the time and energy expenditure and simplifying the work methods and analyzing where one can reduce the energy and time usage of the worker.

Some of the techniques used for motion and time studies are:

1. **The pathway chart** : A floor plan of the work area is drawn to scale and is fixed to a drawing board or on the wall. The movement of the worker is followed and reproduced on the plan. String or thread is used to indicate the line of the worker’s motion and where ever she turns a pin is put into the plan and the thread wound around it. Measurement of the length of the string will give an idea of the distance covered, while a study of the number of times a path is followed, re-traced or varied gives ideas about the kind of movement involved. These are then studied to find out how they may be reduced and whether some can be eliminated
2. **Micro-motion film analysis**: A motion picture is taken and analysed to study the finer movements of the hands and other parts of the body. A timing device helps to find out how long each of these has taken.

Exercise: 1) Use pathway chart techniques to study motion and time for the table setting activity and write a report.

Paper and pencil techniques -II

Aim: To learn the techniques to study motion and time.

1. **Flow Process chart** : This is a step by step description of the method used in carrying out an activity. It is an overall investigation of the activities involved in performing the task and indicates the flow of movements.

Symbols used

- - Movement from place to place: A small circle indicates that the worker is walking or moving to carry out the work.
- - Operation: Large circle indicates that the worker is doing some thing with hands
- ◻ - Inspection with eyes: The square indicates that the worker is checking or observing the work she has done
- ▽ - Delay: The triangle indicates that nothing is happening
- ⊙ - Operation with movement: Small circle into big circle indicates that the worker is doing work while walking

2. **Operation chart**: Operation chart makes a detailed study of a part of the activity of a work process. The movements of the two hands are studied in great detail and a finer analysis shows where delays are occurring in the job.

The symbols used here indicates.

- : Small circle indicates movement of the fingers with the arm more or less stationary.
- ▽ : The triangle indicate complete idleness of arms and fingers.

It takes time to make an operation chart than a flow process chart. It is practically important to make an accurate operation chart of two hands. Each hand can be followed by a separate observer

Exercise:

- 1) Use process chart techniques to study motion and time for the table setting activity and write a report.

Practical Manual

Ist B. Sc. (Hons.) Community Science

Authors

Dr. Jayshree R. Rodge

Dr. Hemangini L. Sarambekar

Printed by

College of Community Science

VNMKV. Parbhani

ICAR Developmental Grants

2017