global forum for rural advisory services
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Module 5 Adult education for behavioural change

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In 2012 GFRAS developed the "New Extensionist" document, which details the role that extension plays in an agricultural innovation system, and the strategies and capacities needed (at individual, organisational, and system level) http://www.g-fras.org/en/activities/the-new-extensionist.html. Based on this document the GFRAS Consortium on Extension Education and Training emerged to promote the New Extensionist, mainly through training, curricula review, and research on extension.

The Learning Kit contains 13 modules designed for self-directed, face-to-face, or blended learning and can be a useful resource for individual extension field staff, managers, and lecturers.

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1. Before you begin

1.1 General instruction

This module should be used in conjunction with the workbook provided. As you read through the module, you will find different visual features that are designed to help you navigate the document.

Figure 1: Icons used to highlight important information throughout the manual

The module makes use of keywords (difficult or technical words that are important for you to understand). To ensure that you receive the full benefit from the module, keywords will be marked the first time they occur and defined in a box containing the keywords symbol. Make sure that you read the definition of any words that you are unsure about.

1.2 Activities

Each session in the module will contain various types of activities to help you become knowledgeable and competent. The module contains three types of activities:

A **pre-assessment** is to be completed before reading through the module overview and introduction, and a **post-assessment** is to be completed once the entire module has been covered. This will measure the degree to which your knowledge has improved by completing the module.

Each session contains one or more **session activities** to be completed, in the workbook, where indicated in the module. These activities measure your ability to recall and apply theoretical knowledge.

At the end of each study unit a **summative assessment** needs to be completed. These assessments are longer than the session activities and will test your knowledge on all the work within the study unit.

1.3 Assessment instructions

Keep the following in mind before doing any of the assessments:

- All assessments are to be completed in the provided workbook.
- The manual contains all relevant information you will need to complete the questions, if additional information is needed, such as the use of online sources, facilities will be made available.
- Work through the activities in a study unit and make sure that you can answer all the questions before attempting the summative assessment. If you find that you are not certain of any part of the training material, repeat that section until you feel confident.
- The summative assessment must be done under the supervision of your trainer at the end of your learning period.

Module 5 Adult education for behavioural change

Module outcomes

After completing this module, you will be able to:

1. Explain the basics of behaviour change within the agricultural innovation system context and your role in that process;
2. List the various components that influence the facilitation of learning;
3. Discuss the differences between adult and youth learners and education;
4. Describe and apply principles for proper training development; and
5. Explain the importance of learning assessments and describe the various methods of assessing training programmes.

Module overview

Rural advisory services are called to help stimulate behaviour change amongst the clients they serve. However, change is not an easy process. There are many components which can influence change, one of those being the educational training received. Agricultural extension professionals provide much of the educational training to farmers about new and existing agricultural and environmental practices. Educating farmers within the agricultural innovation system requires the extension professional to be well equipped to provide programming that meets the needs of the learner, facilitates behaviour change and ultimately leads to the adoption of innovations. This module will provide an introduction

to behaviour change and some of the factors that can influence it. Secondly, it provides an overview of important concepts for the facilitation of learning. You will also learn what factors to consider in order to develop a successful training programme. Finally, this module will explain why evaluation is vital in education programmes and show you how to evaluate the educational experience.

Module introduction

Changing behaviours, attitudes or beliefs is a difficult prospect for any person. Many theories have been developed to help understand how, when and why people choose to change their behaviour. One way in which behaviour change can be brought about is through education. Agricultural extension is one of the largest adult education organisations and one of the best examples of non-formal education. Non-formal education includes educational activities that take place outside the established formal education system such as schools, universities and colleges. Non-formal education is characterised by mutual trust, respect and learning between the educators and the learners. There are many factors that influence this teaching-learning environment. One of the biggest factors is the age of the learners. Extension agents work with a very diverse audience; however, the largest proportion of the target audience is adult learners. Adult learners have very different characteristics from youth learners. Adults are generally motivated by an internal need to develop new skills or learn new practices, whereas youth learners are usually more motivated by external factors such as good grades. Therefore, teaching adults about new ideas or technologies is different to teaching adolescents or children.

For extension agents to design successful training programmes that will lead to behaviour change, they have to carefully consider the subject matter, delivery and evaluation methods they use. The subject matter within the extension environment needs to be extremely relevant and useful to the learner. The instructional

methods and materials must be appropriate for learners of various ages with diverse backgrounds. Finally, the evaluation methods used must not only assess the progress of learners, but also whether the training programme has met the needs of the target audience.

 Complete the pre-assessment in your workbook.

Study unit 1: Understanding behaviour change

Study unit outcomes

After completing this study unit, you should be able to:

- Describe the challenges of behaviour change;
- Explain the components influencing the adoption of innovations; and
- Discuss criticisms surrounding behaviour change theories.

Study unit overview

This unit will provide a basic understanding of behaviour change and the potential barriers to behaviour change you will encounter. There are many theories that help explain why people choose or refuse to change. However, this module will simplify this process through discussing change in the context of a popular theory used in agricultural extension, namely **diffusion** of **innovations**. The unit will introduce you to the theory and discuss some of its shortcomings. It will help to outline your role in the change process and set the stage for the importance of proper facilitation of learning for behaviour change.

Diffusion: A special type of communication related to the spread of new ideas and technologies.
Innovation: Any idea, practice or technology that is seen as new by a group of people.

Study unit introduction

Change of any kind is difficult for many people. Farmers are creatures of habit, often very risk averse, and do not necessarily like being encouraged to change the way they do things. There are many reasons people choose not to change their behaviour or adopt new practices. Some of these reasons are social, such the need to uphold the values and **norms** of a society. Others are more concrete, such as financial or institutional barriers. Recognising these barriers will allow you to develop effective extension programmes.

Norms: The unwritten rules and expectations of how members of a social group are expected to behave in a particular situation.

Many disciplines have studied how behaviour change happens and there are many theories that try to explain human behaviour and behaviour change. These theories do not necessarily predict exactly how and why people will change their behaviour but they help us understand the factors that may influence behaviour change and the adoption of new ideas. This can help extension agents identify which issues are likely to affect the success of extension initiatives. However, all change theories make assumptions and tend to oversimplify the real world. This unit will not only discuss one of the most popular change theories within agricultural extension, but also introduce some of its weaknesses.

Session 1.1 Why is change difficult?

Session outcomes

After completing this session, you should be able to:

- Discuss how social and cultural norms can influence people's behaviour; and
- List the main barriers to adopting new practices.

Introduction

Behaviour change is one of the most challenging aspects of an extension professional's job. It is your job to help farmers and other small entrepreneurs make changes that can increase their production, benefit the environment, or help to increase their earnings. However, change is difficult. Think about how you face change. Do you embrace it easily? Is it easy to think how that change will affect your everyday activities? Do you always have the support or the confidence to be successful in implementing that change? Often the answer to these questions is no. Not many people are capable of easily accepting or adapting to change.

However, it is your job as the extension professional to help a farmer feel confident in their ability to accept change. Setting the farmer up for success by increasing their knowledge, aspirations, skills, and attitudes towards change can help this happen. Furthermore, knowing your feelings towards change can prepare you to be more understanding of those that accept change in a different way to you.

Social and cultural norms influence behaviour

People will often behave in ways that their community believe is right. A farmer for example, may use an out-dated technology

because others within the community feel it is appropriate for their farms. Social and cultural contexts and norms are present in almost every part of our daily lives.

Social norms not only predict what most people in a society will do in a particular situation, but also condemn or alienate people who do not behave according to these social norms. This social pressure has a very strong impact on the behaviour of people. In agricultural extension, social and cultural norms and values sometimes have a stronger impact on people's behaviour than the validity of an innovation or the effectiveness of a message.

As an extension agent, you need to understand the social and cultural contexts and norms of a social group. This will ensure that you can develop efficient training and communication strategies and promote change.

Barriers to adopting new practices

Apart from social and cultural barriers, various other barriers to adopting innovations have been identified. The most prevalent barriers to change include:

- Inadequate information: New technologies and innovations usually come with a new set of skills that must be learned. The lack of knowledge about an innovation and the time it will possibly take to learn these new skills, create a barrier to adoption;
- Inadequate financial support: Farmers often lack the capital to implement a new technology and many farmers also have limited access to credit or the available credit comes with high interest rates; and
- Inadequate institutional support: Institutional support (e.g. government, development agencies, etc.) is crucial to implementing new technologies. Without the proper policies and incentives, the adoption of innovations could be delayed. A lack of support personnel or feedback on complaints or problems also add barriers to adoption.

- Fear of failure: Often times when people are faced with change they will experience fear of failure. New ideas or technologies represent uncertainties and, for many, genuine risk. In many societies we are taught from a young age that making mistakes or uncertainty is a bad thing. This way of thinking makes it very difficult for adults to take risks and try new things as we are afraid that we will not succeed immediately. This uncertainty is made worse in circumstances where we know we do not have enough information or experience to succeed or a support system if we do fail. Many farmers or small entrepreneurs in resource poor communities feel that the cost of failure at adopting an innovation is higher than not adopting the innovation at all.

 Complete Activity 1.1 in your workbook.

Session 1.2: Exploring how behaviour change happens

Session outcomes

After completing this session, you should be able to:

- List the characteristics of an innovation that determine its rate of adoption;
- List the stages in the innovation-decision process; and
- Discuss the different categories of innovativeness.

Introduction

Change often happens slowly and over time. Humans are cooperative social learners and the decision-making process is complex. Behaviour change and technology adoption is a complex process with many components and key players. In the 1970s, Everett Rogers began to explore change in the context of agriculture. Rogers developed a change theory called diffusion of innovations. This theory states that diffusion is the process by which an innovation is communicated through communication channels over time amongst the members of a **social system**. This theory consists of four main components, namely the innovation, communication channels, the social system and time. The time component of this theory is further subdivided into two important components called the innovation-decision process and adapter categories.

Social system: A group of interrelated members that are engaged in joint problem solving to reach a common goal

The innovation

When a person sees a new technology, they have certain perceptions about the technology. It is these perceptions

that influence how fast the innovation will spread. The rate of adoption of an innovation is a measure of how quickly the innovation is adopted. This is measured by the number of people in a social group that adopt an innovation within a certain period. Every innovation has the following characteristics that will influence its rate of adoption.

The **relative advantage** is a measure of how much better an innovation is than a previous idea or technology. An innovation must be seen to have some sort of advantage over existing technology. The larger this perceived advantage, the faster the innovation is likely to be adopted. Although the relative advantage is often seen in economic terms, social prestige, convenience and satisfaction are also important factors determining if the technology is advantageous. Before a farmer will, for example consider adopting a new wheat variety, it must show higher wheat yield, economic profit or another advantage for the farmer production practices.

Compatibility is the degree to which an innovation is seen as being consistent with the existing values, norms, past experiences and needs of a social group. It is very difficult to get people to adopt an idea that is incompatible with their social system. This may often require a change in societal norms and values which can be a tremendously slow and tedious process. For example, in some communities, education about issues relating to birth control and family planning might not be compatible with the values and norms of the community and may not be accepted. In an agricultural context for example, a new rice variety may change production practices or need new equipment or inputs. If these new practices are incompatible with cultural or societal norms of the community, the likelihood of adoption will be reduced.

Complexity simply refers to how difficult an innovation seems for potential adopters to understand and use. The more difficult an innovation, the slower the adoption will be. For example, the adoption of computers and smartphones may be slower in some

communities as this technology is seen as difficult to understand and use.

Trialability describes how easily an innovation can be tested or experimented with on a small scale. An innovation that can be explored or experimented with reduces the amount of uncertainty to the farmer thinking of adopting it. When farmers try innovations for themselves, they also learn by doing. For example, farmers may be more willing to try a new crop if they can test it on a small piece of land first.

Observability is the extent to which the results or benefits of an innovation are visible to others. The easier it is for the farmer to see the results of an innovation, the more likely it is that they will adopt the innovation. Visible results can stimulate peer discussion of a new idea. Farmers will ask each other about the innovation itself and the results from implementation. For example, if one farmer yields more crops using a new crop variety, other nearby farmers who see the results will be more likely to adopt the new crop variety.

Relative advantage: The degree to which an innovation is seen as being better than a previous idea.
Compatibility: The degree to which an innovation is seen as consistent with the values and norms of a social group.
Complexity: The degree to which an innovation is seen as difficult to understand and use.
Trialability: The degree to which an innovation can be experimented with on a limited basis.
Observability: The degree to which the results of an innovation can be seen by the community.

Complete Activity 1.2 in your workbook.

Communication channels

Different communication channels play different roles at different times during the diffusion of an innovation. Information can pass through both formal and informal communication channels. Mass media channels are more effective in transmitting knowledge about innovations to large groups of people. Interpersonal communication channels are more effective in forming and changing the attitudes of individuals to new ideas. Mass media channels are mostly cosmopolite, meaning they link a person with information and sources outside their social system. Interpersonal channels can be cosmopolite or localite.

Formal communication: Official communication that occurs in a formal format.
Informal communication: Free and frank communication between people who share a casual relationship.
Mass media: Communication media where the sender can reach a large number of people over a long distance without direct interaction.
Interpersonal: Direct interactions between people.
Cosmopolite: Relating to sources outside an individual's social system.
Localite: Relating to sources within an individual's social system.

Time

The adoption of new technologies or practices does not happen overnight. It takes time for innovations to spread through a community. Some people will adopt an innovation as soon as they become aware of it, whereas others will take longer to adopt the same innovation. Including the time component in the diffusion of innovations theory allows consideration of the fact that new technologies and practices take a while to spread throughout a

community, and that not everybody will adopt innovations at the same time. The time component is involved in diffusion in two very important ways, namely the innovation-decision process and the adopter categories.

The innovation-decision process

This is the process by which a farmer goes from first learning about an innovation to the implementation and confirmation of the results of that innovation. Understanding this process is important for an extension agent, as you can help facilitate a farmer's movement through this process. Figure 1 shows the steps of this process.

Figure 1: The innovation-decision process

The innovation-decision process involves five main stages:

- The knowledge stage is the point where a person learns that a new innovation is available and starts to look for more information on this innovation.
- In the persuasion stage a person forms a positive or negative opinion of an innovation.
- The decision stage is the stage where a person decides to adopt or reject an innovation.
- In the implementation stage a person actively puts an innovation into use. During this stage, a person may also change an innovation to suit their specific situation. This is known as re-invention.
- In the confirmation stage a person will assess the results of the decision they made. At this stage, a person will frequently change their decision if they receive conflicting messages about the innovation. It is here that the person will decide to continue or discontinue use of the innovation.

Example 1.1

The following is a practical example of the innovation-decision process. A new wheat variety has become available. This wheat variety has an increased yield and is more drought and pest resistant. Seed salesmen, together with extension agents, want to introduce this innovation to farmers (knowledge stage). Some farmers want to try the new variety but others just want to keep on using the wheat variety they are used to. Seed salesmen give away a small trial bag of the seed for the farmers to test (persuasion stage). After the farmers test the new wheat seed, many of them decide to use it (decision stage). These farmers now start to plant more and more of the new wheat variety (implementation stage). The farmers who planted the new wheat variety harvest a bigger crop with less input. These results convince the farmers that they made the right choice. It also convinces some of the other farmers to try out the new wheat seed (confirmation stage)

Adopter categories

People do not all adopt new technology at the same time. Some people will start using new technology as soon as it becomes available, while others will wait until they absolutely have to use it. Diffusion researchers have developed a classification system based on how willing people are to adopt an innovation. These adopter categories are based on **innovativeness** which is the degree to which a person is willing or able to adopt an innovation in relation to others in the same social system.

These categories are ideal types and can be a bit restrictive. People can be in different categories for different innovations. However, these categories can be very useful for extension agents especially when designing training programmes. As an extension agent, you can use these adopter categories to tailor

your lesson to the audience. For example, if you are teaching a group of farmers that traditionally lag in their adoption of a new technology; you may have to spend more time helping to dismiss their uncertainty. On the other hand, if they are a group of early adopters, they can help the innovation seem more compatible with the social system. Therefore, training them might be more about the technical components of the innovation and its benefits as opposed to diminishing concerns. Figure 2 shows the typical proportions of the five adopter categories in a social system and Table 1 summarises the differences between the five categories.

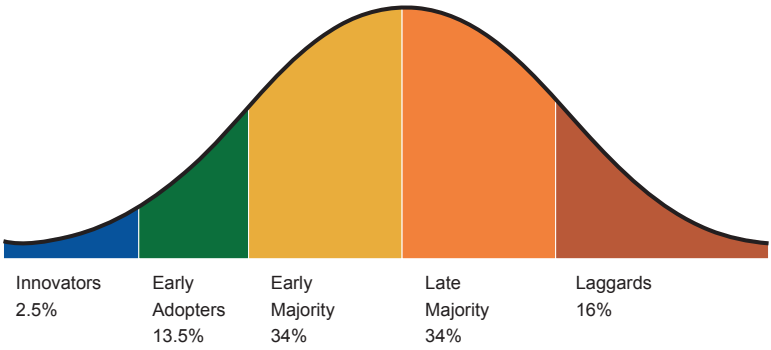

Figure 2: Categories of Innovativeness

Table 1: Comparison of the five categories of innovativeness.

	Innovators	**Early adopters**	**Early majority**	**Late Majority**	**Laggards**
Time to adoption	The first 2.5% to adopt new ideas.	The next 13.5% to adopt new ideas.	The next 34% to adopt.	The next 34% to adopt.	The last 16% to adopt new ideas.
Attitudes and values	Risk takers and experimenters.	Progressive	More conservative than early adopters.	Sceptical of new ideas.	Very traditional.
Social status and relationships	High social status but their farming practices might not be accepted. Some **opinion leaders**. Very cosmopolite.	Highest social status. Greatest proportion of opinion leaders within the community and community organisations	Above average social status. Some opinion leaders but mostly informal contacts within the community.	About average social status. Mostly localite and little activity in community organisations	Below average social status. Very few opinion leaders and somewhat isolated.
Financial status and farm size	Generally have the largest and most specialised farms.	Large farms but less specialised.	Slightly larger than average farms but less specialised and efficient.	Slightly smaller than average farms with little specialisation.	Small farms with low income.

	Innovators	Early adopters	Early majority	Late Majority	Laggards
Sources of information and communication behaviour	Contact with researchers, scientists and other innovators. High level of contact with extension agents.	Highest level of contact with extension agents.	Some contact with extension agents but mostly receive information from early adopters.	Little contact with extension agents mostly receive information from friends and neighbours.	Main source of information is friends, neighbours and relatives.
Approach for extension agent	They actively seek information about new ideas, so provide easy access to information sources. Invite them to be part of the design of the programme.	They are usually the first present at meetings, so offer support for a limited number to trial an innovation. Recruit and train some as peer educators.	They are likely to be present at meetings and are likely to be influenced by results, so provide them with clear benefits of the innovation.	They are less likely to seek information or attend meetings. Ensure the compatibility of innovations. Use other farmers from the community who successfully adopted an innovation as examples.	Not likely to attend educational meetings. Interpersonal communication more effective than mass media. Provide them with a lot of control over when and how they can adopt an innovation.

Innovativeness: A measure of how quickly a person adopts new ideas.
Opinion leader: Any person who is able to influence the attitudes and behaviour of others in a desired way relatively regularly.

Complete Activity 1.3 in your workbook.

The social system

The final component of the diffusion theory is the social system. A social system is a group of connected members solving problems together to reach a common goal. The members of a social system can be a group of individuals, informal groups, communities or organisations. The social system affects the diffusion of an innovation in two main ways, namely the norms of the social system and the role of opinion leaders.

The norms of a social system can be a major barrier to the adoption of an innovation. An innovation needs to be compatible with the norms and values of the social system. As an extension agent, you need to have knowledge about the values and norms of the farmers you work with as this knowledge will allow you to develop effective training programmes for farmers.

Another important factor within the social system is the role of opinion leaders. An opinion leader is an individual who is able to influence the attitudes and behaviour of others in a desired way relatively regularly. In any society, there are usually a number of these key players that can influence the decision making of a farmer. People rely on the perceptions of those around them to determine whether an innovation is acceptable within their society as a whole. Opinion leaders can serve as role models and can bring the **critical mass** to the adoption of an innovation.

Critical mass: The point at which enough people in a social system have adopted an innovation so that the further rate of adoption is not necessarily dependent on increased effort of the change agent.

It is important that you are able to identify these opinion leaders. They are usually the early adopters and educating them will be different to educating the average farmer. One can use these opinion leaders to show societal support for an innovation by inviting them to be model farmers or by helping them become educators themselves. In this way, farmers can see someone like them using an innovation.

Complete Activity 1.4 in your workbook.

Session 1.3: Drawbacks of change theories

Session outcomes

After completing this session, you should be able to:

- Discuss the criticism of the diffusion of innovation theory.

Introduction

Theories are often oversimplifications of reality and make a lot of assumptions. While theories help us to understand how things usually work, it is important to realise that they are just a guide. All theories have strengths and weaknesses. Extension agents should remember that each farmer and social system is different and that they will approach behaviour change with caution. There is always the potential for unintended consequences with the adoption of new technology.

Criticisms of the diffusion of innovation theory

As with any theory, the diffusion of innovation theory also has its strengths and shortcomings. In agricultural extension, two main criticisms have been identified, namely individual blame **bias** and furthering inequalities.

Individual blame bias

Individual blame bias is the tendency to blame individuals for not adopting an innovation rather than the system they are part of. Late adopters are often individually blamed for not adopting an innovation or for being slower in adopting an innovation than other members of their social system. Extension agents should be careful not to immediately hold individuals responsible but rather

make sure they fully understand the reasons for non-adoption. For example, a late adopter might not fully understand the new technology and may need extra training or help. In addition, differences in access to capital and resources can be major inhibiting factors to technology adoption. These are often out to the hands of the individual farmer and not necessarily indicative of their willingness or unwillingness to adopt.

Furthering inequalities

One of the unintended consequences of the adoption of new technology is the widening of the gap between people with lower and higher **socioeconomic** statuses. This widening of the socioeconomic gap does not necessarily happen deliberately. Farmers with a higher socioeconomic status usually have more access to resources and contact with innovations. This allows them to adopt innovations earlier and more fully than the average farmer and can lead to benefits that increase their socioeconomic status. These farmers also typically have more input in planning and decision making within their community and can suggest innovations that will benefit them more than farmers with a lower socioeconomic status.

Bias: To show prejudice for or against someone or something.
Socioeconomic: Issues relating to the interaction of social and economic factors.

Complete Activity 1.5 in your workbook.

Concluding remarks

The main goal of extension agents is to design and implement programmes that will bring about a desired level of behaviour change or the adoption of an innovation. Understanding the barriers that prevent potential adoption can help extension agents plan education programmes and strategies to overcome them. One way to help understand behaviour change is with behaviour change theories. The diffusion of innovation theory is a widely-used change theory and proposes that the characteristics of the innovation and the potential adopters will determine the rate of adoption. Extension agents should recognise these characteristics and use them to design successful education programmes. However, all change theories describe an ideal situation and extension agents should be careful when applying theories to real world situations, as each farmer and social group will be different. Behaviour change theories should only be used as a guide to help understand how change can happen and what factors may influence behaviour change. Furthermore, extension agents should also be aware that there could be unintended outcomes as a result of the adoption of a new idea or technology.

Complete the summative assessment in your workbook.

Study unit 2: Facilitating learning for behaviour change

Study unit outcomes

After completing this study unit, you should be able to:

- Explain the difference between passive and active learning;
- List the various factors that influence learning;
- Discuss the importance of motivation in learning and behaviour change; and
- Describe the difference between adult and youth learners.

Study unit overview

One of the main functions of extension agents is the facilitation of learning for behaviour change. It is important that extension agents understand how people learn best and what factors affect learning. Throughout this unit, you will be introduced to basic knowledge about how people learn and you will learn the difference between active and passive learning and how to actively engage learners. This unit will discuss what factors influence learning and how you should consider these factors when designing an educational programme. Motivation is a very important concept in learning and behaviour change and this unit will deepen your understanding of the role motivation plays in the facilitation of learning. Finally, you will learn about the difference between adult and youth learners.

Study unit introduction

Learning is a complex and active process that not only includes gaining information or knowledge but also leads to a change in

attitudes, skills or behaviours. To understand how people learn, you have to understand how the brain works and how people think about the world around them. When people are actively engaged in learning activities, they remember more of what they learn. The more senses they involve while they are learning, the more interested they will be in the subject matter. This is especially the case as people grow older. People want to be more active in their learning; it is no longer a passive action of simply memorising information.

How people learn is influenced by many factors that range from simple concepts like physical comfort and difference in learning style to more complex ideas like personal motivation. Extension agents must consider all these factors when designing educational programmes. This is particularly true for adult learners. Teaching adults is very different to teaching adolescents or children. Adult learners have unique characteristics that will influence how they learn. A large proportion of extension audiences will be adults, therefore, understanding adult learners is crucial for the development of successful educational programmes.

Session 2.1: How people learn

Session outcomes

After completing this session, you should be able to:

- Explain why the human brain needs to be engaged as a whole to maximise learning;
- Describe Dale's Cone of Learning; and
- Distinguish between passive and active learning.

Introduction

The more engaged people are with a topic, the more likely they are to remember and become familiar with the topic. During learning, the more engaged a person's senses (sight, touch, hearing) are, the more they tend to remember. To better understand how a person learns, you need to know a little of how the brain works. The brain is divided into two sides called hemispheres. Different people use different ways of thinking about the world around them and the different sides of the brain are, to some extent, responsible for different ways of thinking. Furthermore, as people grow older, they want to be more active in their learning. It is no longer a passive action of just memorising information.

The brain and learning

The human brain is made up of two sides called the left and the right hemisphere. These two sides are generally responsible for different ways of thinking. Table 2 shows the differences between left-brain and right-brain thinking. Most people mainly use either left-brain or right-brain modes of thinking. However, for educational programmes to be successful, they have to consider and engage both left-brain and right-brain modes of thinking. Engaging both sides of the brain enables the information to move from short term memory into long term

memory. This movement helps to create linkages in the brain with other previously learned information.

Table 2: Differences between left-brain and right-brain modes of thinking

Left brain	Right brain
Uses logic to solve problems.	Uses intuition to solve problems.
Moves in a sequential order.	Moves randomly from task to task.
Processes information in a linear way.	Processes information holistically.
Easily identifies details.	Easily sees end result.
Analytical.	Creative.

Passive and active learning

The more interested and involved people are when learning, the more likely it is that they will remember the information that they are learning. Edgar Dale, an **educationist**, proposed a theory that generalises how much information people tend to remember after a period of time depending on the way they learned the information. This is called Dale's Cone of Learning and Figure 3 illustrates this. According to this theory, people remember more information when they learn through **active learning** activities rather than through **passive learning** activities. Table 3 lists the main characteristics of active and passive learning.

Educationist: A specialist in the theories and methods of teaching.
Active learning: Teaching methods that directly involve learners in the learning process and make them think about what they are doing.
Passive learning: Teaching methods where learners receive information from an expert source, such as an educator or textbook, and just take notes.

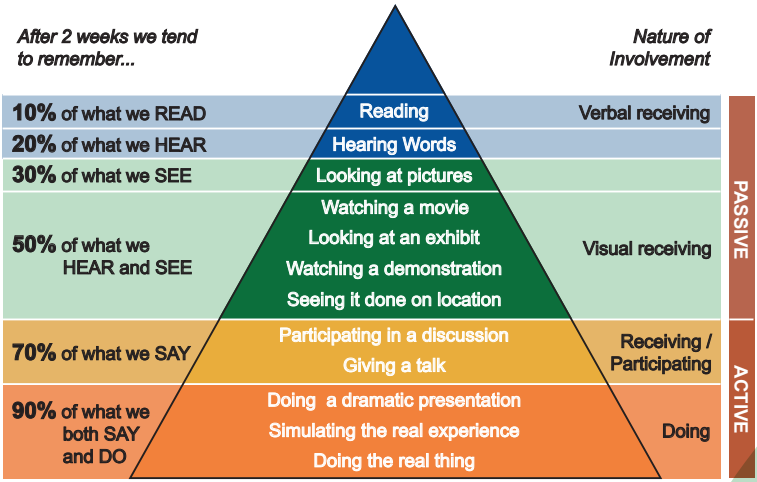

Figure 3: Dale's Cone of Learning.

Table 3: The characteristics of passive and active learning.

Passive learning	Active learning
Learner waits for directions and information to be delivered and simply follows instructions.	Learner is actively involved, intentionally making an effort to understand information.

Passive learning	Active learning
Learners do not reflect on what they have learned and simply repeat information without understanding it.	Learners reflect on what they have learned and evaluate themselves on whether they understand what they learned.
Learner is less likely to remember information long term.	Assists long term memory by relating new information to learner's existing knowledge
Little opportunity to test critical thinking skills.	Creates opportunities to test critical thinking skills.
Learner may become tired and get bored easily.	Learners have a longer attention span because they are fully engaged.
Learning is less personalised and may seem irrelevant to learner.	Learning is personalised and learner is able to see the possible application of the knowledge.


Complete Activity 2.1 in your workbook.


Complete Activity 2.2 in your workbook.

Session 2.2: Factors that influence learning and learning styles

Session outcomes

After completing this session, you should be able to:

- Discuss the various factors that influence learning; and
- List and describe the three main learning styles

Introduction

Learning is a complex and active process that involves a change in knowledge, skills, behaviour and attitudes. There are many factors that can influence how someone learns and these can be grouped into three categories: physical, emotional and intellectual. A very important intellectual factor that influences learning is the learning style of a learner. Different learners will have different ways they prefer learning and this will affect their educational experience. You need to be aware of all of these factors and should be able to address them in order to create the best possible learning environment.

Factors that influence learning

Physical factors

Issues relating to physical health and comfort can greatly influence learning. Ill health, malnutrition and physical disabilities (e.g. impaired hearing or vision) can negatively affect learning. Physical discomfort can also affect a person's ability to concentrate and learn. Factors like good lighting, proper ventilation, a suitable temperature and comfortable seating can have a big positive impact on how people learn. Extension agents need to remember that farmers will find learning much easier in surroundings where they feel comfortable. For example, when

teaching a group of farmers outdoors, you should take note of whether there is enough shade or if there are bathroom facilities close by.

Emotional factors

Emotional factors are more complex to understand. Social factors (e.g. cultural demands and social expectations), personal factors (e.g. instincts and feelings) and motivation are amongst the emotional factors that affect learning. Motivation is a very important emotional factor. People are more motivated to learn when they feel competent enough to do what is expected of them and can see a definite link between their actions and achievements. It is important that farmers see the value of the subject that you will be teaching and have a clear sense of purpose.

Intellectual factors

Intellectual factors include level of education and learning preferences. Everybody prefers different ways to learn. These different ways of learning are called learning styles. There are several documented learning styles, but the three main styles are visual, auditory and tactile. Knowing the different learning styles will help you become a more effective educator. Every farmer will probably have a different learning style and, by incorporating different methods into your teaching, you will be able to reach the majority of your audience.

Visual: Relating to the sense of sight.
Auditory: Relating to the sense of hearing.
Tactile: Relating to the sense of touch.

Three main learning styles

Visual learning style

People with a visual learning style learn best when they can see or read new information. They think in pictures and prefer using pictures, diagrams, charts, graphs, displays and demonstrations to retain information. They are also more comfortable with written rather than spoken instructions. You will often hear these people ask the questions 'show me?' or 'can you write that down for me?'. Visual learners enjoy reading, writing, sketching and drawing. To accommodate visual learners, you can incorporate the following techniques:

- Use a lot of graphics and diagrams to reinforce learning;
- Illustrate as well as write out difficult concepts;
- Use demonstrations and physical examples (i.e. a plant that was treated with a new pesticide vs a plant that has not been treated).
- Highlight important information in different colours;
- Colour code notes and other study material to organise learning material;
- Use flashcards to review material; and
- Use a chalkboard or white board during teaching if available.

Auditory learning style

People with an auditory learning style learn through listening or talking about new information. They think in words and prefer verbal lectures, discussions and talking things out. Auditory learners are more comfortable with spoken rather than written instructions. You will often hear these learners asking 'tell me' or 'will you explain something to me?'. People with an auditory learning style are generally good at speaking and presenting and enjoy discussing new information with the educator and other learners. To accommodate auditory learners, you can incorporate the following techniques:

- Use presentations and read study material aloud;
- Use verbal analogies and storytelling to explain difficult concepts;
- Use **mnemonic devices** to review material;
- Engage learners in conversation about the subject matter; and
- Allow learners to present verbal summaries.

Tactile learning style

People with a tactile learning style learn best through hands-on activities. They like moving and doing and prefer practical demonstrations and building models. Tactile learners find it hard to sit still for long periods of time and are more comfortable actively participating in learning activities. You will often hear these learners say 'let me try that'. People with a tactile learning style generally have good hand-eye coordination and express themselves easily with movement. To accommodate tactile learners, you can incorporate the following techniques:

- Incorporate a lot of hands-on practical activities.
- Use role playing or dramatisation.
- Encourage learners to take notes while listening and reading.
- Create songs, rhymes or other mnemonic devices to explain difficult concepts.
- Allow learners to build models or create **dioramas** to summarise what they learned.

Mnemonic device: Using acronyms or rhymes to help you better remember important information.
Dioramas: A three-dimensional model representing information, either in miniature or large-scale.

Complete Activity 2.3 in your workbook.

Complete Activity 2.4 in your workbook.

Session 2.3: The importance of motivation in learning and behaviour change

Session outcomes

After completing this session, you should be able to:

- Discuss why motivation is important for learning; and
- Discuss why motivation is important in behaviour change.

Introduction

Motivation is a very important component of learning and behaviour change. A person must feel motivation to learn about something new and they must also feel motivation to change their behaviour. Motivation is a very challenging concept to define and measure. Motivation can generally be divided into two types: intrinsic and extrinsic. Intrinsic motivation is driven by internal rewards for behaviour and arises from inside individuals whereas extrinsic motivation is driven by external rewards for behaviour that originate from outside an individual. Extrinsic motivation can also come from economic or social factors such as, increased income, peer pressure or increased social status. Any person is motivated by a combination of intrinsic and extrinsic factors.

Motivation and learning

Motivation is a critical element of learning. Several intrinsic and extrinsic factors influence motivation in learners. Three major factors have been identified that affect motivation in learners

- Competence; a learner needs to believe that they have the ability to complete a task or learn new information;

- Control and choice; the learner needs to feel that they have some sort of control and choice over the learning process; and
- Personal relevance and interest; the learner must have some interest in the information they are learning about and they must see the value of this information to their everyday life.

Based on these factors, you can include some of the following instructional strategies to improve the motivation of your learners:

- Emphasise to the learners that they can master the material if they put effort into it;
- Set clear and achievable learning goals;
- Use real world examples and problems that the learners can relate to; and
- Before starting to teach a topic, introduce a relevant real-life problem that motivates the need to learn the new information.

Motivation and behaviour change

Motivation is also an important factor in behaviour change. Social **cognitive** theory is a human behavioural theory that suggests that people are motivated by a combination of cognitive, personal, behavioural and external environmental factors. This theory proposes that individuals, driven by a combination of past experiences, observed behaviours and external factors, set goals for themselves and then direct their behaviour in order to achieve these goals. The social cognitive theory describes four interrelated processes that have an effect on motivation and goal achievement:

Cognitive: A way of thinking.

- Self-efficacy is the extent to which an individual believes that they can accomplish a task using their own skills under certain circumstances. The higher someone's level of self-efficacy, the more motivated they will be to achieve a goal;
- Self-observation of an individual's own behaviours can show them what progress they have made toward achieving a goal and motivate further behavioural changes;

- Self-evaluation compares an individual's current performance with a preferred performance or goal set previously. It is very important that end goals are specific and relevant as vague goals will not motivate; and
- Self-reaction to their own performance can be very motivating. If a person feels that they have made acceptable progress, they will have a bigger feeling of self-efficacy and will be more motivated to reach an end goal. On the other hand, if a person feels that they have not made good progress, it can motivate them to work even harder to achieve the goal.

Extension agents can use this theory to better understand what motivates people to change their behaviour. Understanding the components of the social cognitive theory will allow you to address the various processes that can influence behavioural change and can help you to increase the chances of effecting behaviour change in your audience.


Complete Activity 2.5 in your workbook.

Session 2.4: Adults are a different kind of learner

Session outcomes

After completing this session, you should be able to:

- Describe the differences between adult and youth learners; and
- Discuss the basic principles of teaching adults.

Introduction

Adults engage in learning in a very different way from children or adolescents. Youth learners are often just passive receivers of information, as they are given the information by an expert (teacher, lecturer, or parent). Adults have past experiences, education, and can often have resistance attitudes toward receiving new information. Since adults will make up a large part of the extension audience, it is important for extension agents to understand that adults learn differently to children. Most of the farmers that you will work with as an extension agent will be young adults (aged 18-35) or older adults and will be there to learn by choice; therefore your approach to teaching them should be different.

Characteristics of adult learners

Adult learners differ from youth learners in five key characteristics. These characteristics are summarised in Table 4.

Table 4: The characteristics of adult and youth learners.

	Youth learners	Adult learners
Self-concept	Dependent personality. Teacher directs and evaluates learning.	Independent personality. Self-directed. Self-evaluation becomes more common.
Previous experience	Little to no previous experience.	A large amount of previous experience that can be used as a starting point for learning and built on further.
Readiness to learn	Mostly learns what society expects. Curriculum is uniform and standardised by age-level.	Comes from the need to develop new skills that will help with life tasks and problems.
Orientation to learning	Subject centred. Curriculum organised by subject matter.	Task or problem centred. Learning must be relevant to needs. Learning is organised around life and work situations.
Motivation to learn	Extrinsic External pressure based on academic rewards and punishment.	Intrinsic Internal pressure based on quality of life.

Principles of teaching adults

Based on the characteristics of adult learners, several practical considerations emerge for teaching adults:

- Create an environment conducive to adult learning: Adults need a comfortable learning environment where they feel they are accepted, respected, and supported. Teaching venues should be arranged informally and contain appropriate resources. You should take time to get to know your adult learners personally and avoid talking down to them;
- Allow for self-diagnosis of needs: Adults will be more motivated to learn about things they feel they need to know. You should allow your adult learners to engage in joint determination of what they need to know;
- Allow for active engagement in the planning process: Adults who are directly involved in the planning of their own learning experience will be more interested and engaged in learning. The extension professional can work with the group of adults to create a plan for learning about a new technology. With your knowledge of behaviour change, you can help your clients plan a programme where they can engage with the new technology or practice in a way that can increase potential adoption and change; and
    - Facilitate joint learning experiences: The extension agent may know a lot about a technology or a practice. However, it is important for all adults to engage in the teaching and learning experience. The adult learners will often have more knowledge of what can work in their context and this knowledge not only helps the extension agent see the feasibility of the new technology or practice for the farmers but also helps the farmers feel as though their knowledge and experience is valued.


Complete Activity 2.6 in your workbook.

Concluding remarks

Many factors influence how people learn new information. People generally learn better when all their senses are actively engaged. The more you engage with something new, the better you are at learning and remembering it. When you are trying to influence behaviour change, it is important to remember that the more someone engages with a new technology or practices a new behaviour, the more it will build comfort and the confidence to do it themselves. All people prefer using different methods when learning new information. As a facilitator, it is important that you are aware of the different learning styles and incorporate different teaching methods to reach all the members of your target audience. It is also essential for extension agents to realise the importance of motivation in learning and behaviour change and to develop educational programming that does not demotivate learners. Extension audiences are made up of a large number of adults. Adults engage in learning in a very different way to adolescents and children. You need to know how to engage adults in positive learning experiences so that they can receive new information, process it successfully and make the decision to adopt an innovation or change their behaviour.

Complete the summative assessment in your workbook.

Study unit 3: Training design for behaviour change

Study unit outcomes

After completing this study unit, you should be able to:

- Collect information about your clients to meet their needs;
- Design a training programme for optimum information transfer; and
- Discuss different approaches to facilitate learning

Study unit overview

Extension professionals may have a lot of knowledge about agricultural production, new technologies or new practices, but information about the clients they will be working with is vital to designing a training programme for successful knowledge transfer. As an extension agent, you will work with a wide variety of people. In this unit you will learn the importance of knowing your audience. Knowing how to teach is just as important as knowing your topic or audience. This unit gives an overview of the considerations to take into account when you design a training programme. Finally, this unit will provide an overview of different approaches for facilitating learning for behaviour change.

Study unit introduction

Extension audiences are a very diverse group of people. They range from children to the elderly and they come from different cultural and socioeconomic backgrounds. They also have different preferences when it comes to learning new information. All of this information is useful to the extension agent in better understanding their audience. The more information you have

about your audience, the greater the chance that you will create an effective training programme. Furthermore, choosing appropriate teaching methods and knowing how to use them effectively is vital for training design that will ultimately lead to behaviour change.

Session 3.1: Knowing your audience

Session outcomes

After completing this session, you should be able to:

- Discuss the importance of knowing your audience; and
- Collect useful client information.

Introduction

As an extension agent, you may be familiar with the topic and you might have some idea of the people you will be working with; however it is very important to know your target audience in relation to the topic. Designing an effective and successful training programme will depend on your understanding of the farmers you will be working with.

Demographic information

In order to find out more about your audience, you can begin by gathering **demographic** information:

- The number of men or women in your target audience or the sex of your target audience can make a difference in how you as an extension professional engage with your clients;
- The average level of education of your audience is a very important factor to consider when designing your training programme, for example, your programme will differ if the farmers you will be working with have formal education (primary/secondary school) or just informal training;
- Religious orientation can impact the timing of your education programme (time of year or day) and it will also influence how you will relate with each other (i.e. appropriate engagement between men and women);

- Factors such as farm/operation size or whether farmers own or rent their farmland will influence their learning and adoption of new ideas and technologies;
- Infrastructure factors such as access to irrigation, equipment and transport can also influence behaviour change; and
- In addition to knowing about your audience as individuals, it can help to know their level of innovativeness. In other words, are you working with a farmer that is quick to adopt change (innovator) or are you dealing with someone that often does not engage in new activities unless there is no other choice (laggard). Are you working with someone who is seen as a person of influence in their community (opinion leaders)? All of this information can determine how the information is presented.

Demographic: The statistical data of a population, especially data relating to average age, income and education.

Previous knowledge

Previous knowledge about new or similar practices can be both an advantage and a drawback. Previous learning can assist learning by linking new information to existing knowledge and skills. Prior learning also gives people confidence to learn new information. Previous learning can also be a disadvantage. Sometimes farmers might believe they have information about the topic but it may not be factual information. Incorrect information may lead to reluctance to adopt or change behaviours.

Appropriate learning environment

It is important to find the best learning environment for a particular practice or innovation. As an extension agent, you have to ask questions about the training environment, such as: would it be best to facilitate learning at a farm or is the topic best suited to be taught in a central community location? Should the training

take place on a research farm in order to show ideal results or would it be better to go to a model farmer's farm?

Time and effort considerations

It is important to consider whether your training programme will be feasible for the intended audience. How much time will the training take? Can your farmer's take that much time out of their day for the training? Is it in a location that will be difficult for them to get to? Is there a cost associated with the training?

 Complete Activity 3.1 in your workbook.

 Complete Activity 3.2 in your workbook.

Session 3.2: Training design

Session outcomes

After completing this session, you should be able to:

- Discuss which factors you should consider when designing a training programme; and
- Discuss the advantages and disadvantages of different delivery methods.

Introduction

It is important for extension agents to properly design training programmes to best convey new information. There are many things that you have to consider when you design a training programme. Not only do you need to be very familiar with the training topic, you also have to choose the appropriate delivery method. The choice of delivery method will depend largely on the number of people you want to reach with the training programme at the same time. Each of these delivery methods has their own advantages and drawbacks. You will also need to consider what level of change you want to accomplish with your training programme. It is essential that you determine the end purpose of a training programme before you start teaching.

Familiarise yourself with the topic

A good educator needs to be very competent in their subject matter. After finding out as much information as possible about the target audience, you should familiarise yourself with the training topic. The training will be very different if your farmers do not know anything about the topic but if they have significant previous knowledge, the training may not be as basic and would address other more complicated concerns and considerations.

Identify the desired level of change

Training programmes need to be designed with a specific end goal in mind. Is the goal for the training just to provide new information and knowledge, to change opinions and attitudes or to develop new skills? It is important to set the intended level of change during the planning stages of the training as this will guide your choice of instructional materials and methods.

Identify an appropriate delivery method

There are a wide variety of ways in which extension agents can deliver new information to farmers. The appropriate method will depend on how many people you are trying to contact or train at once and can be divided into individual, group or mass contact methods.

Individual contact methods involve a one to one ratio of extension agent to client during which time the extension agent provides personal instruction of a specific nature. Individual contact methods develop good relationships within the community and provide personal knowledge of the local problems. These methods also allow for immediate feedback to client questions and concerns. However, the cost of these methods is higher per contact and it limits the number of people that an agent can reach. Extension agents providing individual contact need to have excellent time management and interpersonal skills. Examples include farm or home visits, office visits, telephone calls and personal correspondence or demonstration.

Group contact methods involve teaching a number of people gathered in a group or a number of groups. With group contact methods, an extension agent can reach a larger number of people at a relatively low cost. On the other hand, group contact methods require a large amount of administration to accommodate the schedules of all the members of the group and are also limited to certain locations due to the audience size. Extension agents who use group contact methods need to have

good public speaking and presentation skills. Group methods are adaptable to many different learning styles. Group methods include meetings, demonstrations, organised clubs, field tours and workshops.

Mass contact methods involve communicating information to a large number of people using mass communication media. Mass contact methods give extension agents the opportunity to reach a large number of people at different locations at the same time. These methods also allow the audience some flexibility in when they review the information. Mass contact methods are also useful in reaching people who do not actively seek the advice of extension agents. However, these methods can be very expensive and require specific equipment and production time. Mass contact methods using mass media also frequently lose exposure in favour of entertainment media. Mass contact includes using radio, television, newspapers and social media.

 Complete Activity 3.3 in your workbook.

Session 3.3: Different approaches for facilitating learning

Session outcomes

After completing this session, you should be able to:

- Discuss and use different experiential learning principles; and
- Discuss and use different cooperative learning principles.

Introduction

A primary function of extension agents is to facilitate learning. There are a wide variety of methods available to extension agents to facilitate successful learning. However, the more involved the learner is in the process, the more likely they are to learn and retain new information. The challenge for the extension agent is to design teaching activities that actively engage learners and lead to successful learning.

Experiential learning

Experiential learning can be simply defined as the process of learning through experience or learning by doing. During experiential learning, learners use information they have learned and past experiences to solve real-world problems or situations and the instructor simply directs and facilitates learning. Experiential learning teaches learners the abilities they need to solve real-world problems with confidence. This form of learning also motivates people to learn because they are engaged in learning and they see the applicability of what they are learning. Examples of experiential learning include case studies, practical experimentation, field work and apprenticeships.

Cooperative learning

Humans learn from one another. It is important to encourage participative learning where farmers can learn from one another and alongside the extension professional. Extension professionals can learn a lot from farmers and cooperative learning can benefit both parties. Cooperative learning is a teaching method using small groups where learners work together to maximise learning. There are three types of cooperative learning groups:

- Formal groups: The instructor structures the groups (e. g. members, size), assigns tasks to the group to complete cooperatively and evaluates the group's performance;
- Informal groups: Learners form groups to discuss learning material and help each other understand new information; and
- Base groups: These are long term groups that are formed by the instructors or the learners and provide each member with long term support, encouragement and assistance in the learning process. These groups can be particularly helpful in bigger classes where the ratio of learners to instructor is large.

Actively discussing, explaining and debating the material being studied engages learners more than simply listening or reading alone. In addition to the academic benefits, there are social benefits to using cooperative learning. People working in these groups develop a wide range of interpersonal skills like listening to others, exchanging ideas and encouraging others. These participatory methods also allow learners to take ownership of their own learning, keeping them motivated.


Complete Activity 3.4 in your workbook.

Concluding remarks

Extension agents will work with a very diverse audience during the course of their career and must gather as much information about their audience as possible. The more information the extension agent has about their audience, the better chance they have for designing a relevant and meaningful learning experience. Not only should an extension agent be very familiar with the extension topic before designing training, they must also clearly define what the learning outcomes should be. It is very important to select the appropriate delivery method; knowing how to teach is as important as knowing what to teach. An extension agent should choose the appropriate delivery method based on the number of farmers they need to communicate with at once. All these consideration are important to help the extension agent plan an effective and successful education programme. This information should ideally be collected during project planning phase using methods such as focus groups, surveys, questionnaires, personal interviews and census or municipal records. Effective education programmes use a variety of instructional methods that actively involve learners. Extension agents should attempt to use experiential and cooperative learning methods as these methods can help farmers feel ownership over the information and their decision to change.

Complete the summative assessment in your workbook.

Study unit 4: Evaluating your educational programme

Study unit outcomes

After completing this study unit, you should be able to:

- Discuss the importance of assessing client satisfaction;
- Discuss the importance of evaluating learning and use appropriate evaluation methods;
- Discuss the importance of evaluating extension training programmes and describe the commonly used indicators for programme evaluation.

Study unit overview

Evaluation is an important component of extension programming. Assessing clients' satisfaction and their learning will help to plan future programmes and make existing programmes better. In this unit, you will learn why it is important to evaluate the extension services being provided to farmers. This unit will also discuss why learning evaluation is important. You will learn why evaluating adult learners is different from evaluating youth learners and what common indicators are available to successfully evaluate your education programme.

Study unit introduction

One definition of evaluation is when a group or an individual makes judgements about the value of all or part of a programme by collecting evidence to determine if prescribed standards have been met. One of the primary functions of extension agents is to communicate knowledge to farmers and facilitate the adoption of new ideas, practices and technologies. Therefore, farmer satisfaction is one of the most effective ways to evaluate the success of an extension programme. Numerous

factors can influence the level of client satisfaction. Understanding these factors will allow an extension agent to design extension programmes that will meet the client's needs.

Not only is client satisfaction important, it is also vital to evaluate whether set learning objectives were met successfully. Learning assessment allows the extension agent to evaluate whether learners have successfully gained new knowledge, skills or behaviours. However, it is important for extension agents to design evaluation with adult learners in mind. Generally adult learners are not motivated by good grades or passing or failing a subject. Adult learners usually approach education programmes because they have a need to develop new skills or learn new practices that will better their socioeconomic situation. Therefore, evaluating adult and youth learners is very different. Evaluating adult learners should focus more on whether these learners have been equipped with the adequate knowledge or skills to address their needs. Furthermore, in order to successfully evaluate adult learners, the learners must feel respected and have a level of control over their own evaluation.

The evaluation of the extension education programme is just as important as learning assessment. The extension professional needs to evaluate whether the education programmes addressed the needs of the farmers and whether the adoption of the innovation had the intended effect. Programme evaluation will also allow the extension agent to determine what factors influence the success of the programme, which will help with the planning of future programmes.

Session 4.1: The importance of client satisfaction

Session outcomes

After completing this session, you should be able to:

- Discuss the importance of client satisfaction.

Introduction

Extension programmes are meant to provide a service to their clients. Clients that are satisfied and happy with a service will form long term relationships with extension agents. Satisfied clients will also influence other potential clients to join in extension programmes. It is important for extension agents to assess whether their clients believe their needs have been met or if they require more training. Measuring client satisfaction should be carried out regularly for results to be useful and beneficial.

Considerations for evaluating client satisfaction

Client satisfaction is one of the most important elements for developing and maintaining good relationships between agricultural extension agencies and farmers. Satisfaction can be defined as the achievement of prior expectations related to a product or service. Evaluating the satisfaction of farmers is important for several reasons. Farmers are the target audience of these programmes, therefore they should be able to judge and report on their performance. Secondly, the farmers experience these programmes more personally than people not directly involved in the extension programmes. Finally, the success of extension programmes depends on the continued participation of the farmers. Satisfied farmers will be more willing to participate.

Quite a few factors can affect client satisfaction and it is important for you to keep these factors in mind. The following are just a few examples factors that have an influence on farmer satisfaction:

- Personal factors (age, gender, level of education, family size);
- Farm attributes (farm size, livestock ownership);
- Perceived economic returns (increased productivity, increased income);
- Access to credit or financial aid;
- Level and frequency of involvement of change agents;
- Communication methods used;
- Technology used; and
- Amount and type of information give.

There are many different ways extension professional can collect information to assess client satisfaction, including informal discussions with farmers, questionnaires, discussions with colleagues and supervisors and meetings with community leaders. To ensure farmer satisfaction, extension agents should remember the following principles:

- Extension agents should engage farmers in the planning and evaluation of the extension programme;
- Extension educators should use a variety of delivery and instructional methods;
- Extension agents should frequently use different communication methods to communicate extension information; and
- Extension agents should provide reliable and frequent feedback to farmer problems and suggestions.

Complete Activity 4.1 in your workbook.

Session 4.2: Evaluating extension programmes and learning

Session outcomes

After completing this session, you should be able to:

- Discuss the importance of evaluating learning;
- Discuss the importance of evaluating the extension programme; and
- Describe the commonly used indicators for programme evaluation.

Introduction

Learning in extension programmes can be defined as the extent to which participants increase knowledge, increase their skillset, or change their attitudes as a result of attending a programme. This is an important part of extension programming. These components (knowledge, skills, and attitudes) help to build the foundation for behaviour change. If the farmer has the necessary knowledge, the skills they need to implement a new practice, and a favourable attitude towards the change, the more likely the farmer will be to change. It is the extension agent's responsibility to assess the learning process to ensure that the farmers are prepared for the desired behaviour change. However, evaluating adult learners is very different to evaluating youth learners and you need to be aware of these differences.

Furthermore, it is very important that evaluation planning takes place during the design of a training programme and not afterward. This will allow you to set relevant goals and learning objectives in addition to designing meaningful assessments. In addition to assessing learning, extension agents have to evaluate whether the education programme addressed all the planned objectives of the extension programme.

Assessment of learning

One of the final steps of the education process is evaluation. There are a number of important questions to ask while one is developing the learning assessment. The first question you need to ask is why is assessing learning important. Assessment allows the instructor to see whether the stated objectives were met. Did the educational activity equip the farmer to the best of their ability to have the knowledge, attitudes, and skills to change their behaviour in their own time?

The second question is when should evaluation take place. The timing of evaluation can be divided into two forms, namely, summative and formative assessment. Formative assessment happens during the learning activity, is continuous and provides feedback to both the instructor and the learner about learning. Formative assessment provides feedback to the instructor while the programme is on-going and allows the instructor to modify and improve their teaching methods. Formative assessment can also ensure that the learners have captured and understood the material. On the other hand, summative assessment happens at the end of a learning activity and provides feedback to the instructor about the overall success of the learning activity.

A frequently overlooked question during the evaluation stage is who is being evaluated. Adults bring different motivations and experiences to the table. Using only traditional evaluation techniques (i. e. tests, exams, and grades) may seem condescending to adult learners and cause them to feel disrespected. When evaluating adult learners, extension agents should remember the following principles:

- Adult learners should be actively involved in the planning of learning assessment;
- Adult learners should be allowed to self-assess and receive specific, descriptive feedback from the instructor;
- Adult learners should be allowed to collect and communicate evidence of their learning with other learners;

- Assessments should take place within the context of the real-world problems and needs of adult learners; and
- Instructors should create a safe learning environment that encourages learning from mistakes.

Lastly, it is important to make use of a wide variety of tools and techniques to assess learning including **quantitative** and **qualitative** methods. Quantitative assessment methods typically collect numeric data, such as tests and exams. Qualitative methods are more open ended and include group discussions and verbal presentations. Not only will this approach allow you to gather useful information that will guide and facilitate better learning but it will also accommodate the different learning styles of your learners.

Quantitative: Referring to quantitative or numeric data.
Qualitative: Referring to qualitative or descriptive data.

Commonly used indicators for programme evaluation

Apart from assessing the farmers' learning, extension agents also have to evaluate the education programme. Feedback from project evaluation will allow you to assess whether an extension programme has met the needs of the target audience and successfully facilitated the adoption of new ideas and technologies. The targeted outcomes of programmes (TOP) model of programme planning and evaluation describes different levels of programme development and evaluation. A major component of the TOP model is Bennett's Hierarchy of Evidence, named after Dr. Claude Bennett. Bennett's Hierarchy consists of seven levels of development and evaluation objectives, with each level being more complex than the previous level. Figure 4 shows the different levels of Bennett's hierarchy of evidence.

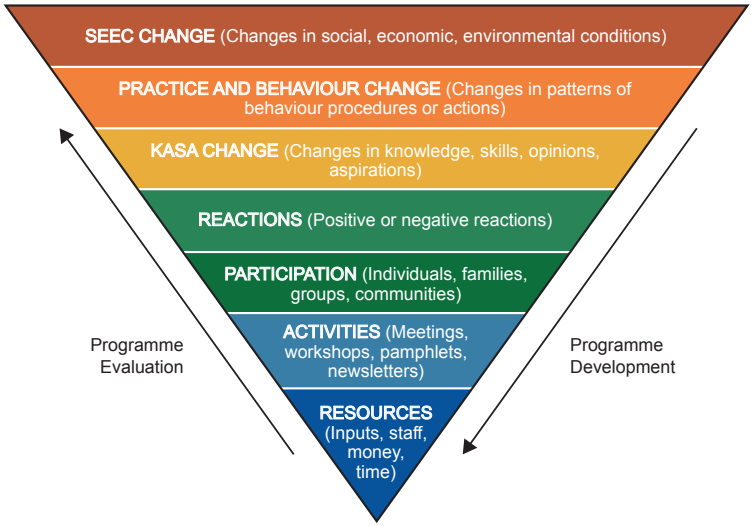

Figure 4. Bennett's Hierarchy of Evidence.

The TOP model distinguishes between two types of evaluation. The process evaluation includes the lower levels of the hierarchy and measures the resources used, educational activities used and participation and reaction of the target audience. The outcome evaluation includes the higher, more complex levels and evaluates the medium to long-term outcomes of the project. Table 5 shows examples of evaluation strategies based on this model.

Table 5. Examples of evaluation strategies in Bennett's hierarchy of evidence.

Programme levels		Evaluation strategies
Outcome **Process**	**Social, economic and environmental condition (SEEC) changes**	Measure changes in learner's personal and working lives as a result of the programme (e.g. increased income). Measures end results.
	Practice and behaviour changes	Measure changes in learner's behaviours and practices as a result of the programme (e.g. measure actual number of adopters)
	Knowledge, attitude, skill and aspirational (KASA) changes	Measure changes in learner's knowledge, opinions, skills and aspirations as a result of the programme (e.g. increase in knowledge, improved skills)
	Reactions	Evaluate reactions of learners to the programme (e.g. degree of interest).
	Participation	Determine the number and characteristics of people reached (e.g. attendance, audience demographics).
	Activities	Compare which activities were actually delivered against planned activities. Evaluate the methods used to communicate with learners (e. g. pamphlets, newsletters).
	Resources	Compare actual time and cost against planned time and cost.

 Complete Activity 4.2 in your workbook.

Concluding remarks

Client satisfaction within agricultural extension is important for evaluating the success of the programme and also for programme continuation and accountability. Extension agents should be aware of the critical importance of client satisfaction and should be able to design and use appropriate methods to assess client satisfaction. Evaluation is a crucial part of education as it allows the educator to assess the progress made towards achieving set goals or learning objectives. Furthermore, it is important to have your programme evaluation prepared before you begin the programme as this will lead to the development of meaningful and relevant assessment strategies.

 Complete the summative assessment in your workbook.

 Complete the post-assessment in your workbook.

Glossary

Definitions

Word	Definition
Active learning	Teaching methods that directly involve learners in the learning process and makes them think about what they are doing.
Auditory	Relating to the sense of hearing.
Bias	An opinion about whether a person, group of people or idea is good or bad which influences how you deal with it.
Cognitive	A way of thinking.
Compatibility	The degree to which an innovation is seen as consistent with the values and norms of a social group.
Complexity	The degree to which an innovation as seen as difficult to understand and use.
Cosmopolite	Relating to sources outside the social system of an individual.
Critical mass	The point at which enough people in a social system have adopted an innovation so that the further rate of adoption is not necessarily dependent on increased effort of the change agent.
Demographic	The statistical data of a population, especially data relating to average age, income and education.
Diffusion	A special type of communication related to the spread of new ideas and technologies.

Word	Definition
Dioramas	Three-dimensional models representing information, either in miniature or large-scale.
Educationist	A specialist in the theories and methods of teaching.
Formal communication	Official communication that occurs in a formal format.
Informal communication	Free and frank communication between people who share a casual relationship.
Innovation	Any idea, practice or technology that is seen as new by a group of people.
Innovativeness	A measure of how quickly a person adopts new ideas.
Interpersonal	Interactions between people.
Localite	Relating to sources within a social system of an individual.
Mass media	Communication media where the sender can reach a large number of people over a long distance without direct interaction.
Mnemonic device	Using acronyms or rhymes to help you better remember important information.
Norms	The unwritten rules and expectations of how members of a social group are expected to behave in a particular situation.
Observability	The degree to which the results of an innovation can be seen by the community

Word	Definition
Passive learning	Teaching methods where learners receive information from an expert source, such as an educator or textbook, and just take notes.
Qualitative	Referring to qualitative or descriptive data.
Quantitative	Referring to quantitative or numeric data.
Relative advantage	The degree to which an innovation is seen as being better than a previous idea.
Socioeconomic	Issues relating to the interaction of social and economic factors.
Tactile	Relating to the sense of touch.
Trialability	The degree to which an innovation can be experimented with on a limited basis.
Visual	Relating to the sense of sight.

Abbreviations

Abbreviation	Description
IPM	Integrated Pest Management
KASA	Knowledge, attitudes, skills and aspirations
SEEC	Social, economic and environmental conditions
TOP	Targeted outcomes of programmes

Resources

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Other modules of the New Extensionist modules are:

1. Introduction to the New Extensionist
2. Extension Methods and Tools
3. Extension Programme Management
4. Professional Ethics
5. **Adult Education for Behavioural Change**
6. Knowledge Management for RAS
7. Introduction to Facilitation for Development
8. Community Mobilisation
9. Farmer Organisational Development
10. Value Chain Extension
11. Agricultural Entrepreneurship
12. Gender in Extension and Advisory Services
13. Risk Mitigation and Adaptation

Other related modules developed by GFRAS are on:

- Evaluation of Extension Programmes
- Policy Advocacy for RAS