CHAPTER - III
THEORETICAL ORIENTATION

In this chapter an attempt has been made to systematically evolve a theoretical framework related to the objectives of the study. This would serve to provide a sound basis and direction to the study. It consists of certain important theoretical perspectives relating to study the feedback mechanism of the personnel serving in the agricultural extension services. The chapter has been divided and presented in the following sections as follows:

3.1 Conceptual framework of the study
3.2 Definitions of some common terms
3.3 Derivation of hypothesis
3.4 Conceptual model

3.1 CONCEPTUAL FRAME WORK OF THE STUDY

3.1.1 FEEDBACK AND FEEDBACK MECHANISM

Feedback is an important component of learning and performance improvement processes in organizations for several reasons. First, feedback plays an important role in motivation in that it provides information about how individuals’ performance compares to their goals. Second, feedback increases individuals’ awareness about how much task effort is required for effective performance. Finally, feedback serves as a learning mechanism because it highlights effective and ineffective behaviors and task strategies, and helps individuals select those behaviors and strategies that will enhance task performance.

Managers and social scientists have long assumed that there is a link between feedback and performance. The process involved in feedback must be understood before human behavior can effectively explained and predicted. Some of the contributions in this field of research are as follows:
<table>
<thead>
<tr>
<th>Contributors</th>
<th>Research Aspects</th>
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<tr>
<td>Rosenblueth et al (1943)</td>
<td>• All purposeful behavior may be considered to require feedback.</td>
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<td></td>
<td>• Feedback as a concept and a term, had long been used by engineers.</td>
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<td></td>
<td>• This was the first time it was used to describe human behavior.</td>
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<td>Wiener (1948),</td>
<td>The term feedback was introduced into the general usage by Wiener (1948) in his approach called cybernetic theory.</td>
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<td>Powers (1973) and Klein (1989)</td>
<td>• Developed a feedback model consisting of referent standard, a sensor, a comparator and an effector.</td>
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<tr>
<td></td>
<td>• The referent standard is the desired state or goal.</td>
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<td></td>
<td>• The sensor determines what the current stage is,</td>
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<td></td>
<td>• The comparator compares the goal to the actual state and the effector takes corrective action.</td>
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<tr>
<td>Illgen et al (1979)</td>
<td>• Consolidated many of the ideas on feedback into one, broad framework.</td>
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<td></td>
<td>• They studied feedback as a complex stimulus that influenced and was influenced by a variety of factors.</td>
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<tr>
<td>Fedor (1991)</td>
<td>• Thought on the attitude and persuasion literature in social psychology to develop a new model of feedback.</td>
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<td></td>
<td>• In the Fedor model there is a stronger emphasis on how these characteristics affect the level of elaboration of the feedback message.</td>
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<tr>
<td></td>
<td>• If there is a HIGH level of elaboration, the recipient will carefully consider the message to determine an appropriate response. Beliefs, attitudes, norms, and recipient control shape the nature of the recipient’s intended response.</td>
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<td>• If there is a LOW level of elaboration, the feedback will simply lead to a habitual response.</td>
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Definition of feedback

According to the Thesaurus, feedback refers to the return to the input of a part of the output of a system, or process.

Feedback is part of a cause-and-effect loop where information about a system is returned to the controller of the system to improve its performance.

Illgen et al (1979) defined feedback as a special case of the general communications process in which some sender conveys a message to a recipient. In the case of feedback, the message comprises information about the recipient. The recipient's perception of the feedback and response to it depends upon his or her personal characteristics, the nature of the message, and characteristics of the source of feedback. The components of the Illgen et al (1979) model include the source of feedback, the recipient's perception of feedback, the recipient's acceptance of feedback, the recipient's desire to respond, the recipient intended response, and the recipient's response. The recipient's perception, acceptance, desire to respond and intended response are all affected by the recipient's individual characteristics. These components, coupled with external constraints, determine the actual response. The recipient's response is evaluated by the source, which leads to complex feedback stimulus, and the feedback cycle begins again.

According to London (2015), feedback is defined as “the information people receive about their performance”. Feedback is a powerful tool that is central to many functions at work, as it guides, motivates, and rewards employees’ behaviours. Feedback tells us how we’re doing and how close we are to reaching our goals. People realize what they know, how they are performing, and what they need to do to improve. Typically, feedback can be found as part of a traditional performance management system which would also include performance appraisal and measurement. More recently, the conflict between the developmental and administrative functions of performance management has become apparent. This has led some researchers to argue that we need to.

Feedback can be conceptualized along multiple dimensions: source, timing, specificity, sign, type and frequency. Most of the existing research on feedback has focused on dimensions other than frequency, and it is generally assumed in the literature that more frequent feedback enhances individual learning and task
performance. A common rationale for this assumption is that more feedback provides information that individuals can use to learn and adopt more effective task strategies, which in turn increases the amount of task effort individuals invest in the task and their subsequent performance.

In nutshell, feedback may be defined as follows:

1. Feedback is information about the output of a system, which controls the system input or transformation process.

2. Feedback is a basic component of self-regulating systems.

3. Broadly, feedback is any information about the system functioning, which has the potential of being used to change the operation of the system.

4. Feedback is a necessary component enabling the correction of errors, the adaptation to environmental changes and the learning process.

5. In a social, system such as work organisation feedback does not automatically create change in the system operation, the process of obtaining, interpreting and using feedback information is important.

**Definition of Feedback Mechanism**

1. A feedback mechanism is a process that uses the conditions of one component to regulate the function of the other.

2. Forms a closed feedback loop which supports the collection, acknowledgement, analysis and response to the feedback received.

3. It is done to either increase or dampen the change in the system.

4. When the process tends to increase the change in the system, the mechanism is known as positive feedback.

5. Negative feedback is when the process seeks to counter the change and maintain equilibrium.

**Effective feedback cycle**

As described by Bangert-Drowns et al. (1991, p. 217), the five states of the learner receiving feedback include:
1. The initial or current state of the learner. This is characterized by the degree of interest, goal orientation, degree of self-efficacy, and prior relevant knowledge.

2. Search and retrieval strategies. These cognitive mechanisms are activated by a question. Information stored in the context of elaborations would be easier to locate in memory due to more pathways providing access to the information.

3. The learner makes a response to the question. In addition, the learner feels some degree of certainty about the response and thus has some expectation about what the feedback will indicate.

4. The learner evaluates the response in light of information from the feedback. The nature of the evaluation depends on the learner’s expectations about feedback. For instance, if the learner was sure of the response and the feedback confirmed its correctness, the retrieval pathway may be strengthened or unaltered. If the learner was sure of the response and feedback indicated its incorrectness, the learner may seek to understand the incongruity. Uncertainty about a response with feedback confirmation or disconfirmation is less likely to stimulate deep reflection unless the learner was interested in acquiring the instructional content.

5. Adjustments are made to relevant knowledge, self-efficacy, interests, and goals as a result of the response evaluation. These adjusted states, with subsequent experiences, determine the next current state.

Effectiveness of feedback process

Meaning of effectiveness

Feedback could be considered effective only when the concerned group of people use it and bring desirable change. As feedback itself at best can only initiate change, it can't bring it. Feedback has to be more than just giving back information or reporting the results of data collection and its analysis. The theory of feedback suggests that feedback can cause changes in behaviour both by the creation and direction of energy. Moreover, the effectiveness of different feedback mechanism depends upon both the characteristics of feedback and process for using feedback.
Criteria for effectiveness

There are several characteristics of the effective feedback, out of which some important is being discussed:

Descriptive

For feedback to generate energy, it should include enough real-life examples and detail illustrations so that the receiver can relate to the information. The data should convey both the detail and the affect that are part of the information.

Relevant

Information can create energy within the feedback receivers only if it relates to the issues that are meaningful to them. Feedback information which is directly related with the lives of the people can create sufficient energy and thus these are relevant only.

Understandable

The feedback must be given in such a way that all the receivers could easily understand it. Therefore, the form, the language and symbols used in feedback be familiar and understandable to the audience of the feedback.

Verifiable

The theory of feedback supports that the people will respond more only to that feedback information that they felt are valid and accurate. The validation of data also depends upon the way it is presented to the receivers. Here presentation includes the data collection process, ways of interviews and sampling procedures etc.

Impact making

The feedback should be concerned much on those aspects of the technology that are under the control of the receiving group. Most people will do the things that will affect the functioning of their own unit or work group. Thus presenting information that relates to the area of activity that can be influenced by the receiver and in turn that creates energy.

Limited

The feedback should be given in limited amount. As we know whenever too much is presented receivers got overwhelmed. People have limits to the amount of
information that they can receive at one time. The reduction in overloading the information makes feedback more effective.

**Continuity**

The successful use of feedback usually involves using the collected data as a starting point for further exploration of the fact rather than as an ending point. Those feedback information which imply that data collection is completed, problems have been identified, and diagnosis work is finished, serve to decrease the energy level.

Feedback is an integral part of effective communication. It is a special case of communication process in which the message comprises information about the recipient. The recipients’ perception of the feedback and response to it depends on their personal attributes. It has the property of being able to adjust future conduct by past performance. In fact, feedback is a necessary component enabling the correction of errors, the adaptation to environmental changes and the learning process.

Feedback provides information on how well individuals are performing relative to their goals and how effective specific behaviors are for a given task. Feedback also suggests how much task effort is required to achieve specific objectives—thereby enabling individuals to learn what task strategies are most effective, learn what level of task effort is required to perform effectively, and revise their strategies and effort as needed to enhance task performance. Despite these theoretical benefits of feedback, prior empirical research demonstrates that feedback can have both positive and negative effects on learning and task performance and these differential effects are often attributed to different dimensions of feedback. Thus, the feedback through effective feedback mechanism increases the functional linkage between the clientele, technologies and the development agencies. Hence, the feedback mechanism ought to be used at all level of extension organizations, so that clienteles’ perception and their views could be reached to the planners, policy makers and researchers for the sustainability of the technology in the long run.

**3.2 DEFINITION OF SOME COMMON TERMS USED**

1. **Awareness of respondents about feedback mechanism**

Awareness refers to the respondents’ consciousness about the feedback mechanism i.e. extension methods and activities through which feedback is being given and received regarding agricultural technology.
2. Perception of respondents about feedback mechanism

Perception is the opinion of respondents regarding feedback, extension activities and methods that were in vogue.

3. Extent of participation in feedback mechanism by the respondents

Extent of participation by the respondents may be defined as the extent of involvement of the respondents in getting or giving feedback through the participation in various extension activities and methods.

4. Extent of utilization of feedback mechanism by the respondents

The extent of utilization refers to the frequency of use of extension activities and methods in getting or giving feedback in feedback mechanism.

5. Problems and suggestions given by the respondents in getting/giving feedback in feedback mechanism

Problems given by the respondents

Problems given by the respondents are defined as constraints faced by respondents (research scientists, extension personnel and farmers) in getting or giving feedback through feedback mechanism i.e. extension activities and methods that are in vogue.

Suggestions given by the respondents

Suggestions given by respondents (research scientists, extension personnel and farmers) are defined as the solutions given by them for the improvement in their participation in and utilisation of feedback mechanism.

6. Age

It refers to the chronological age of the respondents in completed years at the time of investigation.

7. Education

It is defined as the level of literacy possessed by the individual respondent at the time of investigation.
8. Experience

Experience is the total number of years of service attained by the research scientist, extension personnel and farmer in research, extension and farming respectively.

9. Training undergone

Training received refers to the training received in terms of number of days of training attended by respondents during last three years.

10. Extension contact

It refers to that farmers taking information from different sources. It is defined as the degree to which an individual maintains contact with the personnel of the formal organizations of agriculture development and to get information on farming technology.

11. Farm size

It is defined as the number of acres of land the farmer possessed during the time of enquiry.

12. Socio political participation

It refers to the degree of involvement of the respondents in formal/ social organizations as a member or as an office bearer or non-member including their degree of participation in organizational activities.

13. Time

It is defined as the time preferred by the respondents to contact the other two respondents at different levels in feedback mechanism.

14. Access to get /give feedback

It is defined as the degree of accessibility of those from whom the respondents get/give feedback.

15. Feedback during crisis

It is defined as the degree of getting/ giving feedback during crisis by the respondents and how i.e. through personal visits, telephone calls, entrust work to the concerned and give instructions.
16. Reporting

It refers to the extent of reporting by respondents to the higher officials through different forms of communication and feedback mechanism.

17. Transport facilities

It is defined as the degree to which the respondents perceived the availability of transport facilities for giving and getting feedback for the developed technology in his/her working area.

18. Job commitment

It is defined as the degree to which the respondent is committed to perform a given job.

19. Role awareness

Role awareness in this study refers to the perceived awareness of the respondent of the purpose of the job and certain possible roles as a specialist which the respondents can carry out, in his/ her job.

20. Achievement Motivation

Motivation considered in this study is achievement motivation for the research scientists and extension personnel and it is defined as a need to achieve task and try to excel others at their work situation.

21. Personality Type

This variable is referred as the type of behavior most frequently exhibited by the respondents in a given situation.

22. Extension service orientation

It refers to the degree to which respondents were oriented to provide extension and advisory services.

23. Participation behavior in group

It was defined as nature and extent of participation of the respondents in group activities either as a member or leader of the group.
24. Extension teaching methods

It is referred as extent of use extension activities and methods used / conducted in discharging their duties.

25. Communication media used

It refers to the extent of mass media used for communicating by the respondents.

26. Ability to give feedback

It is defined in terms of ability of giving feedback to the officials/scientists/farmers either it is negative or positive by the respondents.

27. Level of interaction

It is defined as the degree of frequency with which the respondents communicate or interact with people working at different levels in the feedback mechanism.

3.3 RESEARCH HYPOTHESIS (Stated in null form)

The following hypothesis was made in view of the objectives under the study, which was tested in light of the findings of the study.

\[ H_{01}: \text{There is no relationship between profile characteristics of the respondents with extent of participation in and utilisation of feedback mechanism.} \]

3.4 CONCEPTUAL MODEL OF THE STUDY THE PARADIGM

Conceptual model is a diagrammatic representation outlining the dominant elements of a system and their interrelationship with respect to criterion variable. In the light of inferences derived from recorded evidences in the literature, above theoretical frame and the hypotheses derived there upon, a conceptual model delineating the relationship between independent variables and dependent variable has been proposed, which diagrammatically presents the important dimensions and postulated relationships among the variables. The conceptual frame work given in the preceding section may be presented paradigmatically which has been developed during the course of study. The model sown in fig. 3.1 is tentative and generalized one.
It is clear from the model that the dependent variables were assessed on the basis of review of relevant literature and 22 independent variables representing the profile characteristics. Dependent variable and profile characteristics are chosen to examine the relationship between the profile characteristics and extent of participation in and extent of utilization of feedback mechanism. This model was hopefully conceived to give an objective assessment of the dependent and independent variables selected for the study.

The final format of such model has been suggested at the end of this dissertation in the chapter of “summary and conclusion”. The model show the postulated relationship between variables based on discussion and assumption made earlier. The model explain that the selected characteristic of the farmers influence their socio-techno-economic changes due to agricultural university. Conceptual model is depicted in figure 3.1.