Towards a Mathematical System for Extension Education

A system of equations describing the relationship of change agent and client has been worked out and presented.

Let A be a change agent in extension education and let B a leader of a local community be his contact person. A and B come from the same cultural group and the same geographical area, the only difference being that A has greater knowledge about improved practices than B. The main task of A is to ensure that he is able to transfer to B what he knows and what is applicable to B's situation out of his knowledge, and also to learn from B his difficulties and to pass them on to institutions of higher learning.

In the initial stages, A will seek B's company and learn about B's local situation and problems. This will involve a number of contacts; let a be defined as the number of contacts needed to establish rapport between A and B.

Rapport may be defined as the point at which B starts seeking A's company. Thus a is the no. of contacts needed to be sought from B by A before B starts seeking A's company, or in other words, comes to his office seeking advice or information.

a depends on the skill of A to establish rapport with B. Let this skill be called b. It is clear that

$$a \propto \frac{1}{b}$$

$$\text{or } a = \frac{k}{b} \quad\dotsfill (1)$$

where, k is a constant depending upon the practice A has obtained during training in establishing rapport and the degree of professional guidance and coaching he has received from his teachers. During training period of A, b should be sought to be brought to the maximum possible for A under the given conditions.

The task before A is to now search out one problem for solution for which he can persuade B to take up a trial. The point at which agreement is reached between A and B (who seeks whose company is not now very relevant here) on one problem of B which can be solved with A's knowledge, can be reached in, let us say, c number of contacts. c will depend on A's skill to sort out B's problem which may be called d. The relation between c and d will be given by

$$c = \frac{l}{d} \quad\dotsfill (2)$$

where l is similar to k in terms of professional training of A.

Since A is one and the same person, and the skills b and d are combined in him, $b \propto d$

$$\text{or } b = \frac{d}{m} \quad\dotsfill (3)$$

where m is the degree of integration A has achieved of the two type of skills b and d.

Solving equations 1, 2 and 3 above we get

$$a = \frac{k}{d \div m} = \frac{km}{d}$$

$$\frac{k\,d}{\dfrac{b}{\dfrac{l}{c}}} = \frac{kdc}{bl} = \frac{k}{l} \times \frac{cd}{b} \quad\dotsfill (4)$$

The values of the different elements of these equations need to be determined empirically.

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