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INSTRUCTIONAL MODULE 9.1:

NEEDS ANALYSIS

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Module 9.1: Needs Analysis

It is often useful, in pondering and analizing educational situations and plans, to learn from "non-educational" settings, such as military and industrial training. It is necessary, when doing this, to keep the differences among situations, as well as the similarities, in mind.

Military and industrial training typically involve "short courses" for well defined, and highly specific jobs or duties. Thus a course for "radar mechanic" may last only 18 weeks. A more advanced course may come later at the "radar technician level". Such courses may be taught either by experienced technicians or by engineers.

Education, in contrast, involves many years rather than weeks, and it may prepare the learner for a specific job, as in vocational education or professional schools, or it may not, as in an "arts" curriculum.

In either case, the needs of the society as well as the needs of the individual presumably are kept in mind, whether planning an educational curriculum or a brief job-training course.

Whether considering how to solve an industrial or an educational problem, teaching (or training) is seldom to be viewed independently of a much larger context. A manufacturing company is concerned with production,

research, sales, and profits. A school is concerned with future needs of society, and with present and future needs of the students.

While education and training are clearly of prime consideration in schools and factories, the solution to some problems is not through more education or training, but thru organization, management, finance, policy making, and day-to-day administrative routines.

In short, things are not always as they seem to be.

We will illustrate the above principle by an anecdote from industry, and then consider how such an experience may or may not relate to solving a school problem.

An Industrial Anecdote

This writer was once called in as a "training" consultant to a large business firm. The "problem" was defined by the firm as a "sales training" problem. The basis for this problem definition was that many of the salesmen "in the field", who had gone thru the company's sales training program, were showing a drop in sales volume rather than an increase. The firm concluded that there must be something wrong with its training program, and so they called in the training consultant.

After observing the training program for a few days, and comparing the activities in the training classroom with the job description and the training objectives, the consultant formed the tentative impression that the training program "looked good", because the activities the trainees were practicing in the classroom seemed appropriate for the objectives. Videotape recordings were made of "mock sales presentations" by students, with the instructor playing the role of the "potential customer". The teaching which preceeded these practice sessions was congruent with the objectives and the practice sessions. During the sessions the instructor used every "sales resistance" tactic known, thus facing the trainees with realistic challenges, both as to deciding what to say next, and practice in how to say it.

The videotapes were played back, stopping the tape for critique at critical steps in the systematic sales approach being taught. Much of the early instruction dealt with data gathering on the type of business for which sales were attempted. The firm referred to was selling something all businesses can use.

The consultant informed the management of the firm that the "real problem" might not be in the training program. It was suggested that weekly sales figures for salesmen in the field be broken down into 6-month categories,

representing how long the salesmen had been in the field after completion of training. It was soon discovered by this analysis that the poorest sales records were coming from the men with the most field experience.

The consultant then hypothesized that either one of two things could account for the data:

(1) Salesmen "forgot" part of what they learned in school as length of time since training increased.

(2) Salesmen stopped doing some of the things they learned in school, even though they "still know how to do it". In short, they can do it, but they don't.

It was then decided that the consultant should "visit the field". So he first went to a district sales office, spending a day talking with the sales supervisor, and going over records of individual salesmen. He then was scheduled to "ride" with several salesmen for a half-day each, picking some high performers and some low performers, in terms of sales volume. The consultant went with the salesman to visit each customer, and talked with the salesmen about their methods, and watched them at work, both in the research library and in the field.

These findings resulted from the visit to the field. (In the following account, "younger" means short time since training, and "older" means longer time in the field since training. This tends to correlate with the actual (chronological)

age of the salesmen, but it is "time since training" that is important. Here were the main facts of the "younger" men:

1. Younger men spent more time in research and preparation for each sale.

2. Younger men made fewer calls on customers per day, but spent more time with each customer.

3. Younger men pressed for a larger order than last received from the customer.

4. In sales contacts, the younger men followed the method taught in training more closely.

5. Younger men always made appointments in advance; they never made "cold turkey" calls (selected at random or for nearness to location of last call, based on past sales records.)

Here were the main facts of the older men:

1. Although the older men could name the steps in the sales approach taught during training (and hence probably could do those steps), they did not actually follow those steps when calling on customers. Often they played the "old buddy" game, rather than a studious sales approach.

2. The older men made almost no preparation or research prior to calls. They made calls without appointments, flipping thru their address files to see which firm is "closer".

3. The older men often would ask "Do you want the same as last year?", rather than suggesting that business volume

might justify a larger order.

4. The older men said they often "got tired of the job", and didn't feel like doing any preparation for the calls. (This did not seem to be related to illness, in all but one case).

While there were a few exceptions to the above trends (e.g. some cases of high production by an older man and low production by a younger man), the trends were clear.

It was concluded that the older men had not forgotten what they learned during training; rather, they just stopped doing it that way. They persisted in short-cuts in the face of declining commission earnings.

So the solution to the problem was not to be found in the training program, but was to be sought elsewhere.

The consultant, in his report to the company, offered a long list of alternate solutions or next steps. These included:

1. Adjust the pay base: the ratio of salary to commission.

2. Have the older men ride a day with the younger men, to "trade ideas", and to relieve the lonesomness of the job periodically.

3. Conduct contests ocassionally giving a few <u>scheduled</u> prizes.

4. Also conduct <u>unannounced</u> contest weeks, to give <u>unexpected prizes</u> to high producers.

5. Conduct a monthy meeting in which the highest producer

for the previous month puts on a sales demonstration.

6. Bring in a management consultant to study operating policies and procedures.

7. Stage "role playing" sessions, in which older and young men share their worries as well as their successes or satisfactions. (Let an older man choose between an easier pace (no preparation), and weigh the financial return against his other motives and satisfactions).

8. Some further studies of motivation and morale were also suggested.

9. The possibility of a short "refresher" course in the training school was suggested for that (perhaps small) proportion of performance drop which may have been due to forgetting.

In general, then, the evidence seemed to strongly suggest that the supposed "training" problem was really a "motivation" problem. The difference between high and low performers seemed not to be in what they could do, but in what they would do or did do.

An ethical footnote might be in order. Note that as soon as the "training consultant" suspected that the problem was not a "training problem", he said so, and voluntered to terminate work in favor of bringing in a consultant in "management" or "morale". But since the firm wished the "field study"

to be done, and since quite objective facts and figures could be involved, the comparision of high and low performance was based on prior experience of the consultant in use of the "critical incident technique". The consultant therefore felt qualified to do at least a preliminary field study, and to make some alternate recommendations. However, in making the alternate recommendations, the consultant suggested that management might wish to use a different kind of consultant before making final decisions on action to be taken.

The consultant thus:

(1) Kept the firm informed of hunches as well as objective data

(2) Offered to withdraw in favor of another consultant

(3) Agreed to do further work he felt qualified to do.

(4) Offered alternate solutions, suggesting that final action should be based on a broader concensus of employees, management, and another consultant.

(5) Refrained from recommending any additional consulting to improve training, since there was little or no evidence that the training program needed improvement. Actually declined to study the training program more closely because he did not believe that it would actually benefit the employees, the company, or the stockholders.

It is, indeed, the unusual training program that could not be improved in a way to be economical in the long run.

But since the consultant spotted no lack of congruence between the job requirements and the training, and since he could not suggest better training methods than those already in use, and due to the high performance of recently trained men, it appeared uneconomical to consider expenditures to improve the training program.

Now, how could all this relate to an educational needs analysis, or problem analysis?

Needs Analysis in Education

For a Single Brief Failure

Suppose a teacher discovers that her pupils scored very low on a test over a unit of instruction that her previous classes mastered easily. What could be the reason that her present class did less well than earlier classes? There seems to be a great number of possible explanations, some of which are:

1. The teacher is getting bored with teaching the same thing year after year, and her lack of enthusiasm hindered learning.

2. The teacher was ill, depressed, worried, or upset for some reason.

3. There was an epidemic of illness among the pupils. Some came to class while ill; others stayed at home.

4. There were many interruptions over the loud speaker from the principal's office during that period of time.

5. Everybody was upset over some local or national problem or emergency.

6. The teacher changed her methods or materials.

7. The teacher forgot some of the teaching procedures she previously used.

8. The present class is not as interested in study as were former classes.

9. The class is drawn from a different area than the former classes; so the population of students being "sampled" has changed.

10. There were school disruptions such as fights, demonstrations, or student elections.

11. The unit was taught at a different time of year than before.

12. The overall sequence of units has been changed.

The above variety of possible explanations shows that what appears to be a "learning problem" may be a result of some non-instructional happenings. So the answer to the question "what happened?" might require considerable study. So it is clear that the skill of the teacher and willingness to study on the part of the pupils are only two of many kinds of factors that can create a "problem". So, as in the previous example of a "training problem" in industry, the poor performance of this class may not have been due to poor teaching or to poor study effort by the pupils.

This illustrates that in planning to remedy a problem, the most obvious explanations as to cause and cure may not be the correct ones.

So although an exhaustive "formative evaluation" would require data on the <u>outcomes</u> of the instruction (poor test scores), also data are needed on <u>process</u> variables (what went on during the period).

It should be noted that the practical reason for trying to determine the cause of the poor learning is in order to specify the remedy.

While part of the remedy is to re-teach the unit, at least for the pupils who scored low on the test, another part of the remedy could be to attempt to reduce distractions, if that was one of the causes of the problem. If some long-term, general unrest or epidemic seems to be part of the cause, the teacher may need to decide between re-teaching the unit (thus giving up another planned unit), or going on with the plans. If the units are hierarchical in nature, she should re-teach the unit. If not, she may make a different choice. It is possible that school policy would help in making the decision.

Another factor in deciding whether to re-teach a unit to the entire class, or to redirect only some learners to appropriate remedial instruction, is the pattern in item analysis of test scores and in the range among pupils in total score.

If all students uniformly scored low, the instruction needs to be improved before the unit is re-taught, unless outside factors were considered to have temporarily detracted from the success of all students. If only a few pupils earned low scores, only those below the required standard of mastery need to re-take the unit. If most students missed a few test

questions, the competencies relating to thoses questions should be re-taught.

Thus the possible remedies for poor test results over short periods of instruction are:

1. Try to remove distractions or external factors that led to poor results.

2. Improve the instruction.

3. Re-teach the unit.

4. Provide remedial instruction on an individual basis, as needed.

5. Re-analize the sequence of units.

6. Consider whether the learning is hierarchical or not in making a decision.

7. Consider using different methods or materials.

8. Consider school policy.

9. Warn teachers who will later have the same class when some units had to be dropped in order to re-teach other units.

10. Employ individualized instruction so that some pupils can master all units, even in the face of distractions or conditions that impede progress for other students.

For Lengthy Failures

Suppose now that an entire class or an entire school over an entire year is achieving less than in previous years. Some of the same courses that can create a failure on a single unit

could be operating. But there are also new alternatives to examine, such as:

1. Was the curriculum or the method of evaluation changed?

2. How far is the design objective being missed? That is, how many students are scoring below minimum standards on how many objectives?

3. Is performance uniformly low on all objectives, or only on some of them?

4. Has the sequencing of units been changed?

5. Have methods or materials changed?

6. Did the school introduce any new rules or administrative routines?

7. How is faculty morale?

8. Are all teachers experiencing poor performance of pupils, or only a few?

9. Have major re-assignments of personnel occurred?

10. What are the relations of teachers with the administration, the parents, the community, and the school board?

11. Do other schools also find achievement dropping? If so, what do they believe is causing the problem?

12. Has a new administration been installed?

13. Has the school been severely and publicly criticized?

14. Have the courts or federal agencies made rulings that create major changes?

15. Is there a feeling that teachers and pupils share a

nation-wide anxiety or malaise?

16. Is family income and nutrition on a par with that of of earlier groups of pupils?

17. Has the population shifted?

18. Are pupils rebellious, unhappy, disinterested, or ill?

19. Is there widespread dissatisfaction on the part of teachers with salary or working conditions?

20. Are any outside agitatiors evident?

21. Have standardized tests been employed to compare achievement with that of other schools?

22. Is public support of the schools favorable?

23. Are "input" variables (library; laboratories, etc.) up to standards?

24. Are "process" variables (how the school and instruction are conducted) similar to that of other schools?

25. What efforts have individual teachers made to bring improvement? What were the results?

26. Were outside consultants brought in? If so, what were their opinions on the problem?

27. Are the design objectives unreasonable?

28. Are the tests in agreement with the objective?

29. Are teaching methods in agreement with the objectives?

30. Do methods vary among teachers using the same general curriculum? If so, do results differ among methods?

31. Are there any legal or administrative constraints

which restrict the operational style the school would like to adopt?

32. Have goals been reviewed recently?

33. Have students been consulted as to their perceived value of the curriculum?

34. Are materials and methods much different from those used in other schools?

Remedial actions. It is clear, from the range of questions just posed, that the appropriate remedial actions could vary from purely instructional changes, to public relations efforts, or appeals to the the legislature or the courts. Often an outside evaluator is called in to get a broader perspective on just how serious the problem is, as compared to other schools with which the evaluator is acquainted.

Often schools may ask a consultant to help them conduct a "self-study", regardless of whether a major problem is perceived to exist. In some such cases this would be a prevention action rather than a remedial action. A self-study may begin with re-evaluation of goals, and be followed by analysis of methods used to reach the goals. Then an appropriate evaluation of achievement is made to see how well the goals are being met. In this process, alternate methods are considered for reaching the goals, and efforts are made to remove any constraints operating against the school's

freedom to take the preferred method to achieve the goals.

Re-Appraisals of Needs

In a rapidly changing society such as ours, there is need for periodic re-assessment of the goals of the school and of the curriculum.

Often it is prudent to begin with a review of national educational goals. Various organizations sponsor reports of commissions formed to assess national goals. States, also, make such assessments, and publish general goals for the state.

A school can begin, then, by reviewing reports of national and state goals in order to compare them with present goals of the school. The school can ask, "How should our goals differ, if at all, from state and national goals?" The next step is usually to make the school goals more specific than state or national goals. Public consensus or support may be sought for new goals developed by the school.

Once the new goals are set, or the present ones re-affirmed or revised, the school then needs to study its overall operation for compatibility with such goals. There are many facets to this stage of inquiry. Some questions which might be asked are:

1. Do we have sufficient funds to achieve these goals?

2. Do we have the necessary buildings, organization, administration, and staffing?

3. Are our teachers qualified to work for achievement of these goals?

4. Do we need consultant help?

5. How should our present curricula, teaching methods, and materials change?

6. What is our total plan for reaching these goals?

7. How will we know how well we are doing in achievement of these goals?

8. What kind of evaluation do we need of our resources, of our processes of operation, and of the product of our processes (pupil achievement)?

As shown in another module, once the goals are defined, they need translating into more specific objectives for each year of schooling. The yearly objectives need to be futher specified into unit objectives. Eventually unit objectives must be converted to performance objectives, which in turn are analyzed as to their smaller parts, in order to decide upon the sequencing of instruction.

Once objectives and sequencing are planned, and subordinate components analized as to type or domain of learning, one can then go on to the design of the instruction and to the development of appropriate evaluation devices.

Orientation to the Future

When re-appraising educational goals, it is wise to look ahead, to look back and to look around. It is well to know the history and present status of education, and also to try to predict the future.

The federal government supports some "policy research centers" whose function is to attempt to predict future changes in our society which might signal a need for new educational curricula. These agencies employ "consensus" techniques to pool the judgements of various groups of experts on what changes are coming, and when. Thus a composit picture is drawn of what life will be like in the predicted future society. Then one can ask, "what will adults need to know how to do to be happy and productive in that society?" The answer to that question then gives clues for curriculum changes.

While we do not attempt here to review the predictions that these research centers are working toward, one generally percieved change for the future is more leisure time and a shorter work week. This leads to the question "Do people now know how to make good use of that much leisure time?" In general, the concensus is "no", because universities are beginning to develop programs to teach people how to use leisure time for a happier life.

A happy life is certainly a desirable goal of education, but other major goals also relate to:

1. Earning a living, and
2. Being a good citizen.

What is the Purpose and Role of Education?

So far we have discussed a curriculum philosophy of preparing young people to live and adjust well to the furture society as they will find it when they are adults. But one could state alternate philosphies, as follows:

1. Prepare the child to change and improve society.
2. Prepare the child to relate the future to the past.
3. Prepare the child to adjust to society
4. Prepare the child to perpetuate the present culture and its traditions.

Approach No. 1 above would educate the child to be a change agent; No. 2 would stress knowledge of past history; No. 3 emphasizes adjustment; and No. 4 represents a desire to maintain the status quo.

It is the writer's assumption that in our present "multi-culture" there would be people of various ages who would defend various ones of the philosophies listed.

These philosophies also seem to vary in their relative emphasis upon being productive; being knowledgeable; being adaptive; being happy; being respectful of the past; and being a change agent.

Also one can see some differences in emphasis on whether education is for the good of the individual or for the good of society. Hopefully a suitable curriculum could be good for both. Certainly one would seek the best accomodation of the two interests.

Also the above philosophies seem to reflect different views as to whether society should shape the schools, or whether the schools should shape society. One must be careful to not expect either too much or too little of the schools. One must keep in mind that government and business have powerful effects upon the nature of society. The schools deserve neither all the credit nor all the blame for our present society.

Finally, in face of the degree of uncertainty in predicting the future, and realizing it is difficult for individuals to change society, a certain "openness" needs to be preserved, suggesting that the schools try to prepare people to solve new problems and to adjust to situations as well as to try to change situations. Apparently a matter of of great disagreement at present is how much effort should be made to lead the child to understand and revere our past and present society. There are those who emphasize the good features of our national history and status, just as there are those who emphasize our national defects. Perhaps this fact has led many educators to stress that each child should set his own values, given the factual information base needed

in order to reach values on a rational basis. Thus both "information" and methods of "inquiry" are needed to develop values that can be defended in some rational way.

Due to the nature of the information in this module, we have not stopped to present pencil and paper exercises or self-tests. Rather, three group activities are suggested:

1. A seminar discussion centered around the closing section, Orientation to the Future.

2. A group effort with school personnel on Re-Appraisal of Needs.

3. A "case study" in an actual school setting on needs analysis for a specific school problem situation.

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