

University Program Review

Key Questions Using Systems Techniques

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Abstract

This essay addresses the issue of how to review university programs by a) stressing the importance of asking key questions, b) characterizing these programs as complex human activity systems for which simple solutions are often not possible, and c) proposing an approach to accomplish program improvement.

We focus primarily upon programs offered by universities and colleges that modify their educational and research programs on a regular basis in response to changes in our society, e.g. the "professional groups" such as agriculture, forestry, engineering and business.

Key Questions

We propose that the review process be structured around the questions "What?" "Why?" and "Who?" Too often reviewers and those conducting self studies begin instead with "How?" They stress the resources available and how program improvement tasks can be accomplished. They recommend "solutions" before any meaningful analysis of goals and objectives and of societal situations is accomplished.

Our thesis is that the question "How?" should be the last one asked rather than the first. A review that begins with "How?" constrains itself to such an extent that it becomes almost impossible to address the larger questions which could result in meaningful change or revision. Using the "How?" approach first is, we admit, very popular. It is a technique some faculty and administrators use to resist or make minimal change and, when used as such, may be a negative management tool.

We propose an approach to reviews that will help reviewers avoid overemphasis on the "hows" at the expense of the "whats" and "whys" and "whos". This approach reviews programs as complex human activity systems and uses systems concepts and inquiry approaches in the review process. We emphasize the need to understand the human activity being analyzed. The components, their interactions, and the various "actors" in the system are considered. We assume that those conducting a programmatic review should be concerned more with the adequacy of the program than with the actual or instinctive objective of resisting change.

Program Reviews:

Complex Human Activities

Situations of people interacting with their environment are complex ones. A university program is just that. And it is complex. Simple solutions to problems in complex systems are impossible to achieve.

A programmatic review is particularly complex. The reviewers must deal with people interacting within an environment of higher education. Roles are very different and

SIMERLY (continued from page 13)

Conclusion

There are a number of emerging environmental forces that encourage the use of new approaches and unprecedented levels of commitment to the preparation, support and development of agricultural faculty:

- the increasing cultural diversity of students, the internationalization of the curriculum,
- the exponential growth of knowledge,
- further integration of the curriculum with economic development interest,
- expansion of the agricultural curriculum into new areas due to the demands and opportunities associated with new technologies,
- increasing demands for public accountability, and
- the impending retirement of many faculty members in the next 15 years.

Strong faculty development programs can make a significant contribution to preparing agricultural colleges and faculty to meet these challenges. The payoff to colleges of agriculture for investing in faculty development is that it will enable them to direct the forces of society and technology in order to create a stronger, more highly competitive U.S. agricultural system which will work toward the betterment of humankind.

References

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Chudzinski, Leszek Z., Simerly, Coby B., George, William L. 1988. Faculty Development Programs: A Literature Review. College of Agriculture, University of Illinois at Urbana-Champaign.

Both reports were sent to all land grant and AASCARR agricultural deans. Additional copies may be obtained for \$10 by writing to the Associate Dean for Resident Instruction, College of Agriculture, University of Illinois, 104 Mumford Hall, Urbana, IL, 61801.

institutional structure often ambiguous. Each person in a system like this may have a different view of their mission. This situation forces the reviewers to dissect a given academic program into its most reduced parts (e.g. grading profiles, course titles, numbers of students, cost per unit, etc.), develop and test hypotheses based on the reviewers' and influential insiders' views, and then try to construct a meaningful picture of the whole from these reduced bits and pieces of information.

System based Tact

Rather than using this approach to inquiry we suggest that a systems-based approach to review is more useful in dealing with programmatic or institutional review and possible programmatic change. Its goal is to improve a programmatic situation, with the understanding that highly complex human/environment problems are difficult, if not impossible, to "solve" in the same way one would go about solving a puzzle or a mathematical equation.

The process we propose builds heavily upon experiential learning theory, in particular the work of Lewin (1), Dewey (2), Piaget (3) and Kolb (4), and upon soft systems analysis procedures, in particular the work of Checkland (5) and associates. In order to evaluate programs, reviewers must gather appropriate information in an unbiased fashion and from those involved at various levels in the organization. This presumes that the selection of reviewers creates a minimum of inadvertent bias. The information obtained from interviews with those concerned with the program and from written materials must be reflected upon, synthesized, and evaluated. The program is viewed from various perspectives and highlights themes of concern and opportunities. These are all based upon clearly defining the limiting parameters, addressing the questions about why the program was established, what are the programmatic goals, what constraints exist, who is involved and how, what are their views on the situation, their agendas and how programs might be redesigned that will result in improvements.

Scenarios for Improvement

Next, this information is used to develop different scenarios of possible improved programmatic environments so that the institution's programs would meet both current and future societal needs. These scenarios may include altered organizational patterns, changes in plans of work, or redesigned curricula. Decisions must then be made on the desirability and feasibility of the various change proposals by those who "own the program" -- the faculty, the boards of trustees, administrators. The development of a strategic plan to implement the proposals is the final step in the review process. This is the "how?" question, ("How can they go about implementing change which will result in an improved situation?").

The Review Process

The review process begins with developing as complete a picture as possible. The nature of the questions guiding the reviewers is who is involved and what are they doing with what results and according to whom? Reviewers determine the views of those concerned with the program. Each person may describe the situation differently. These differing views

may be described as their "worldviews". (By worldview we here mean the value and beliefs and ways of looking at things that a particular group uses to make judgements of a program's mission, worth, direction, functions, structure, correction, and ideals.) The reviewers note these descriptions and should not take sides. It is very easy for external reviewers to hear only the view of the group paying the bill or for a faculty group to ignore the value of others such as employers, government agencies, concerned public organizations, students.

If the review team has been called in by an accrediting association, the review process usually begins with a self-study that is supposed to answer key questions. While there is a difference in the nature of these questions across the different professional disciplines, generally the accreditation review guidelines start with questions such as: "Does the institution clearly define its' goals and objectives? Are these goals and objectives available in a published form? Does the institution appear to be meeting these goals and objectives? Faculty may describe goals as on-going professional activities, but not the result of these activities, which should result from a meaningful review.

Additionally, the review ought to include some method of evaluation by peers external to the institution. To some extent peer review is provided by the reviewers. But the self-study might be so organized also to gather external evaluations.

The Groups Involved

The review first determines what identifiable groups (Who?) are connected with the program, the qualities and characteristics of their interaction, and what results and impacts are observable. Several different kinds of groups need to be contacted in order to obtain a complete picture of the situation in which a given program operates. The reviewers want to know who benefits, who is adversely affected by, who manages and who operates the present program, who is involved in making final decisions about altering the program, by custom, law and/or regulations, and finally who is significantly associated with the program either directly and indirectly.

It is very important to understand how persons affected by a program view the program and its effectiveness. All too often reviewers ignore this aspect and speak only to the faculty, administrators, the governing boards of the college offering the program, rather than to those whom the program also serves, i.e. employers, government officials, clientele groups, former and current students and non-academic employees.

Another significant group may be the accreditation body with which the program faculty are affiliated. Most have set standards which influence, to one degree or another, the use and kinds of resources that a particular faculty say they need, the content of the program, the learning philoso-

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phy of the program, the intended audience for the program, the minimum competencies to be developed by the students of the program, etc. This group's picture of an effective program must be accounted for as significant, particularly if the standards of the accrediting association are voiced by faculty as standard to which they are "bound."

Finally, another key group are the "owners" of the program. By owners we mean those who appear to have the authority to alter features of the program or terminate the program. The owners may be faculty within the program and/or within the college or university environment, a dean(s), president, unions, governing board, legislature. It is also important to understand as much as possible the "agenda" of these people.

The Context

Programs exist in a context. During the first phases of the review, the principal features of this context must be described and understood. For example, the program may be the result of legislative action. Public institutions, particularly those with specialized and professional programs, were typically established by acts of the legislature.

A starting point in addressing what the program is all about and why it was established would be to review the legal documents establishing the institution or program. Also, one would review other restrictive covenants or regulations established by local or regional legislation, regulations or customs. These would provide the parameters within which one could look at what the institution or program was established originally to do and why.

For example, if a college was established by the legislature to provide teaching, research and extension programs to improve the quality of renewable natural resources and there were three other colleges in other regions of the state which also had the same legislative authority and state funding, then a regional mandate would probably be in effect. If the institution is part of a larger state-wide system, additional restrictions and regulations might also be in effect. For example, the academic programs may be offered only to students in the upper half of the high school graduating class, or only 20 percent of the students may be from another state or country, etc. These restrictions would be additional limiting factors on what the institution was suppose to do.

Employment Situation for Students

Other contextual features may be the nature and demands of the employment base for which the program is preparing students. Are there active associations among faculty, students and employers? Do employers influence the nature, direction and changes in content and learning experiences that students receive? What do faculty say about employers? What do employers say about the program and its graduates? Reviewers must develop a summary picture of what a given situation is like and what people anticipate it might be like in the future.

As groups are approached, most will give their view of what the situation and program should be like. These are expressions of improvement based on their particular view. Reviewers should note these views of an improved program. Also, people may offer what they believe are the constraints

to change, such as the physical restrictions, budget limits.

If time permits, in addition to talking with as many of the groups associated in one way or another with the program, appropriate written material must be reviewed, minutes of legislative meetings, newspaper articles, former evaluation reports, planning documents, etc.

First Output

The output of the first phase of the review process is a report that synthesizes the present context in which a given program resides. This synthesis features the major themes of concerns and primary contextual (functional and structural) relationships that are present. There should be a conscious attempt to avoid taking sides or to slant the report towards the view of the reviewer(s).

The report should concentrate on the current structural and functional features of the program. By structural features we mean the way people are organized to manage and communicate with each other and the way information and resources are managed and shared? What primary human functions are being done and by whom? What organizational and functional areas are cause for concern and for whom?

Mindmap and Cartooning Analysis Techniques

Two techniques useful to reviewers in creating and communicating such an analysis is what Buzan refers to as a composite mindmap technique which is very popular in the business community now (6), and the cartooning technique (7). The composite mindmapping technique is particularly useful in analyzing the primary issues and functions that are of concern from varying viewpoints. Cartooning may also be useful in helping to visualized the structural and functional relationships and significant emotional climates that seem to exist between and among various groups. It helps people visualize the dynamics of the "human activity" system under study.

Improvement Focus

Once such a synthesis and analysis of the current situation is done, the review continues by conducting sessions to discuss improved conditions. These should be done with people representing diverse views. Whether the discussions are conducted in a workshop format, or whether the reviewers must approach each group separately will depend upon the nature of the conflict exiting in the situation and time available. The key is communication and constant feedback so that all begin to develop an increased perspective on the ways others are thinking about the present programmatic situation and scenarios of potentially improved ones. Therefore, this next crucial phase of the review process moves from thinking about the present program and context to thinking about what could be done to improve it.

Time to Dream

The reviewers identify major themes of concern from the information gathered and begin to explore changes to improve situations. The role of the reviewers switches to helping people take a few moments to dare to dream dreams without having to fear that one or another of the dreams created will actually be implemented. Decision comes later!

The fear of changing in an undesired direction often stops people from attempting to consider the way things could be. These sense of limits people currently have ("Oh, we could never get them to do that!" or "We can't do that!") often stops creative thinking about what could be. The reviewers' role is to help people generate creative ideas which may, if implemented, result in improved programs.

Establishing "Themes of Concern"

Using the major themes of concern, discussions are pursued about ways these may be grouped together to form a synthesis. For each major cluster of concerns a one-sentence statement is created which indicates a change or transformation that would result in an improved situation. The statement conveys an envisioned changed activity environment (what) at a future point in time and not a strategy (how) for bringing about the envision change.

The discussion centers upon describing an improved condition related to each theme. In systems thinking what you are asking people to do is to think of a future point in time and describe what they would be doing at that time. Two kinds of discussion have to occur. First there must be discussion on the outcomes and outputs that are desired in an improved state for each theme of concern. Next, there must be a discussion on describing the nature of the human activity needed to produce what is desired.

For each major theme of concern (with its transformation statement) it is possible to develop a corresponding proposal of an improved program work environment. An effective technique which can be used to develop such a proposal is to draw conceptual models. The features of a conceptual model include:

- the key functions that must happen in order to accomplish the desired outcome,
- the flows of materials, resources, and information among these functions;
- the flows of materials, information, resources that must come from outside the system to a unit within the system;
- clarification of who will be responsible and accountable for and have authority to operate each unit;
- who will "own" the improved system, i.e. have the power to alter and terminate the program in an improved state; and finally,
- what environmental constraints (physical structures, outside influentials, regulations, etc.) will be taken as given even in an improved state and which will have to be managed in specific ways by the various functional units identified.

Typically, two or three alternative proposals or models of envisioned improvement are developed.

How these discussions occur varies. We have conducted them by creating an ad hoc group comprised of appointed representatives from the various groups to be a part of the idea generation process. Another variation, used in a situation in which groups had formed an unfriendly relationship, was a "shuttle diplomacy" approach in which groups were approached separately.

We suggest starting with faculty of the programmatic unit under review. Help them envision an improved state of

being. Then using their proposals/model(s) of change ask others to add, modify, etc; each time returning to the faculty group and perhaps back to the other groups (i.e. administrators or students) until some form of satisfactory convergence occurs.

Another variation that has worked well is a workshop format with representatives from the various groups present. Small work groups, through a facilitated process, are assigned the task of developing one or more transformation statements that adequately address concerns.

This process allows several proposals for improvement to be worked on simultaneously and often helps people understand that the review objective during this phase is simply to dream dreams and stimulate creative thinking at a useful level of detail. Learning how to construct transformation statements and corresponding models, and how to facilitate the discussion of their development is described in *Systems Approaches for Improvement in Agriculture and Resource Management* (8).

"What If" Phase

The next phase in the review process involves estimating what kinds of changes would be required if any one of the proposals were actually put into operation. The essential task here is for people to evaluate:

- what current features in the present situation could carry over into the future;
- what features of an improved model are missing in the present situation; what costs could be anticipated in terms of the need for new resources or the need to reallocate resources;
- what changes in managers and actors would be required
 1. new faculty needed?
 2. different students recruited?
 3. a chair required?
 4. a new unit formed?
 5. units merged and reorganized?
 6. an employer-faculty committee created?

The role of the reviewers is to assist in discussion and debate about the desirability and feasibility of a proposal or what kind of changes would be required if the proposal were adopted. Ideas about doing things in the future are compared with how they are done at present, and the costs of change (human and material) are accounted for and evaluated.

Computer-based decision aids may be required at this stage in order to think through the ramifications of various kinds of changes. Some universities have an operations office or office of planning for this purpose. An example might be a spread sheet with enrollment figures, cost of program per student (undergraduate and graduate), employment openings, number of faculty, faculty teaching load, faculty productivity statistics such as number of publications, amount of contracts and grant money brought in by each, number of advisees, etc. Questions could then be asked such as, if we reduced the teaching load what would be the results? If we increase the teaching load what would be the results? If the number of majors in the program were decreased what would be the increased per unit costs relative to the average on campus?

We mentioned earlier that the focus of discussions needs to be on the "whats" rather than the "hows." The same principle applies during this stage of discussion. Focus the groups' attention to what would be changed and not how things would be changed.

Revised Proposal

Based on the comparison and evaluation discussions, revised proposals are created which account for the concerns addressed. The revised proposals need to be understood by those who will be doing the changing before moving on to the last part of the process of review. If endorsement is achieved, then a plan of how to operationalize model(s) of improvement can be created.

Operational Plan

The final phase of the review consists of helping those who will be involved in implementation to create a step-by-step set of action plans. Several universities now have university strategic plans. These are often most useful to system-wide administrators. The action plan discussed here is its equivalent but at the programmatic unit level. A time frame is identified for each major development step and those who are responsible for each step are identified. Now is the time for the "how" discussions. Discuss alternative possibilities before deciding which particular way to implement. For example, a typical way a new activity is handled is to say "we need another employee", rather than thinking how current work may be revised or dropped in order to do new work. Often an ad hoc group is appointed to develop a first draft of the planning document. This draft is then reviewed by all concerned parties and adjustments made as recommended.

Applying The Process

We will now apply this process to an example, the review of a program in a college. The reviewers begin by developing a picture of the situation in the region of which the college program is a part. This they do by gathering information from users and managers outside the institution under review. The reviewers attempt to understand how persons affected by the situation in this region view the current situation and the program under review. The same discussions are then conducted with faculty, governing boards, deans and others most actively concerned with the institution as well as with students and others whom the institutional programs serves. What emerges are differing perspectives of the worth and directions of the program, of program mission, of effectiveness and impact. There are also differing senses of what the faculty should be doing in order to fulfill their role relative to improving the situation in the state that their educational, research and public service activities focus upon.

Writing First Phase Summary

Each group is then asked to comment on what an improved situation for the region and for their program unit would look like. Through interviews with those affected and reviews of written materials, an initial idea of improved conditions emerge and a first phase summary report written and discussed.

Next the reviewers determine what department faculty and the college were doing to meet their mission and mandate. This is done by asking faculty managing the program, other faculty, students and employers of the graduates, non-academic employees, etc.

For many programs the college and department program usually have multiple tasks: the informal and formal education and training of professionals who would work for local, regional, state and national government agencies and private industries, as well as conducting research programs to resolve regional, state and national problems.

Some people interviewed may be concerned that the way they are organized and functioning are not appropriate for what they feel they should be doing to meet the demands of the present situation in the state. Some may identify needs in the region that may require new kinds of training; areas of continuing education needed to upgrade current employees; specific kinds of public service; and key areas of basic and applied research needed to address pressing societal and environmental concerns.

Synthesizing and Review

All the information gathered is synthesized in a report that highlights the current situation and the views of various groups about (a) what was needed to improve the situation, and (b) the ability of the program under review to contribute.

The report is presented and discussed at a meeting of all faculty within the program being reviewed plus representatives of all key groups. The reviewers present their view of the situation, with all the contradictions and differences they have discovered. They emphasize that the point of the presentation was not to choose or reject one perspective, but to see and consider differing perspectives on the value, worth, directions, strengths and weaknesses of the program and its contribution to the improvement of state or regional situations. Viewing things from many angles helps people think through improvements.

The report identifies themes of concern, noting differences and similarities among perspectives. Organizational features that appear not to be working well are noted as are functions that various groups see as inadequately addressing the state or regional situation. For example, the routine process used by the department to assess needs of industries in the state may not have been done in a timely fashion, from one groups perspective results were not being shared with those who gave the information, and priorities of work were established by a small group of people who apparently were not considered to represent adequately the industries' concerns. In addition, differences in sense of the mission of the program were noted. Formal groups are asked to appoint representatives to work closely with each other to articulate the viewpoints of members of the group.

Developing Themes of Concern

As a result of discussions of this report, persons begin to view the program and the differing perspectives on its mission, mandates and functioning. An important outcome of the initial review should be identification of themes of concern. A possible scenario of the kind of discussion which may occur might be that the industry groups thought that the faculty should be handling development needs in a more

timely manner. The faculty, deans, and industry groups had a different sense of priorities of research and development efforts. Both students and employers were dissatisfied about how well the students were trained for their jobs. Lack of communication between the department and the administrators of the college combined with differing senses of the mission of the department resulted in resource allocation decisions that faculty and some business groups thought were negatively impacting the quality and quantity of the work done by the department staff. The Vice President's office and the Dean's office disagreed about the mission of the department. The adequacy of the program relative to marketplace needs was unclear, and had no meaningful mission statement or on-going planning and monitoring function.

Developing Transformation Statement

The next task of the reviewers is to develop ideas about what an improved program would be like. A workshop may be arranged for delegates from each of the relevant groups. During the workshop, the reviewers again highlight the major themes of concern and differences in viewpoints they had identified.

Participants are assigned to small groups, each made up of representatives of all significant groups involved. Through a step-by-step process, several of the themes of concern may be used to develop statements about improvement (called "transformation statements" in the systems literature) and work through proposals of how things could function in order to produce improved outcomes.

The purpose of the session is to be creative. It is not to decide what corrections are to be made, voted on, or prioritized. In addition, participants are told that they should not be limited by the constraints of their current situation or resources, but to think about what constituted an improved condition.

Drafting a Strategic Plan

The results of the small groups are next discussed. Similarities in features are noted and discussed. Proposals addressing all of the themes of concern are identified, and the creative features from some of the others incorporated. Before the close of the workshop, an ad hoc group may be appointed to develop the first draft of a strategic plan to implement the proposals for improvement. This is the first formal attempt to address the "How" question, and is undertaken only after a thorough exploration of "What?" outcomes were desirable from a variety of perspectives. The reviewers meet with this ad hoc group to explore how best to display and communicate their ideas. The reviewers end their involvement during this stage by writing a summary of what was done and how, and who would be doing what next.

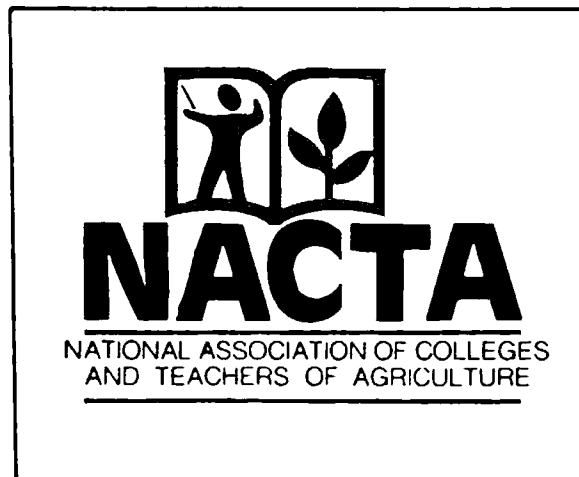
Summary

This essay briefly summarizes a program review process that ends with the question "How?", not begins with it. It is a process which follows closely soft systems analysis to improve highly complex human systems, such as are found in college and university programs. The process can be done in a positive, non-threatening way and should result in improved collegiate programs.

Footnotes

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- ⁴ Kolb, D.A. (1986) *Experiential Learning: Experience as the Source of Learning and Development*. N.J.: Prentice Hall, Inc.
- ⁵ Checkland, P. (1981) *Systems Thinking, Systems Practice*. N.Y.: John Wiley and Sons.
- ⁶ Kolb's book describes in detail the competencies connected with each of these thinking styles and links processes of thinking about things with processes one uses to take action on things. A number of different work environments are discussed including agricultural and natural resource business and academic settings.
- ⁷ Buzan, Tony. (1983) *Use Both Sides of Your Brain*. N.Y.: E.P. Dutton and (1984) *Use Your Head*. London: Ariel Books.
- ⁸ Wilson, Kathleen and George Morren (1989) *Agriculture and Resource Management: A Systems Approach*. New York: MacMillan Publishing Company.

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