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ABSTRACT

The collaborative consultancy role proposed for the educational technologist requires moving beyond the linear model of the systematic approach. Instructional developers need to operate on the conceptual level, to see themselves as problem solvers within a dynamic system in which there are no straight paths, but instead, many paths and many solutions. The new role requires them to enter the instructional process at the planning level, not at the development level. Above all, it requires instructional developers to work well with other people, and to be able to establish and maintain good relationships. Those who aspire to such a role must be both leaders and followers, speakers and listeners, learners and experts, and information-givers and information-seekers. (17 references) (GL)

Instructional Development: A Conceptual Approach

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INSTRUCTIONAL DEVELOPMENT: A CONCEPTUAL APPROACH

Introduction

Ivor K. Davies (1978) describes two archetypes which encompass the activity known as instructional development: the engineering archetype and the problem-solving archetype. The engineering archetype is reflected in the numerous instructional development models, exemplified by a series of boxes and arrows with a feedback loop, indicating a step-by-step approach to instructional development activity (Davies, 1978, p. 22). It is this type of instructional development, taught in most introductory or basic courses, which Romiszowski refers to as algorithmic, and which I call functional instructional development. Students emerge from such courses able to follow, in generally linear fashion, the process indicated by the boxes and arrows, in order to design something.

The problem-solving archetype, according to Davies (1978) can be thought of in terms of a chess game.

> Players engage in an intellectual activity for which there is no one set of appropriate moves. Intense concentration, ability to foresee future consequences of current actions, flexibility, and the skills of observation, analysis, synthesis, and evaluation are prerequisites to success.
>
> (p. 22)

In the problem-solving archetype there is no one best means, and neither is there necessarily one best solution. Rather, everything is dependent on the situation, and the skills and expertise available. Romiszowski refers to the problem-solving archetype as heuristic. It is, to me, conceptual instructional development.

Differentiating between the functional and conceptual levels of instructional development is not easy. The differentiation is not related to the size or scope of the instructional development activity, nor is it related to the number of people involved in the activity. Rather than discrete levels, functional and conceptual instructional development lie along a continuum. The differentiating variable is the mind-set which the instructional developer brings to the activity.

Romiszowski (1981) notes that many problems can be solved by either approach.

> The motor mechanic may be taught a step-by-step procedure for fault-finding. This logical procedure guarantees that he locates a fault in a reasonable time, as compared to random checks. But as his experience grows, he develops a heuristic (conceptual) approach. He forms conceptual models of certain types of cars, made up of sets of principles such as 'in this car this type of symptom generally

> means this fault.' These heuristics do not guarantee a solution. But once a sufficient number of heuristic principles have been learned, the mechanic jumps to conclusions and more often than not is correct, thus reducing the average fault-finding time. Although step-by-step procedures are easier to learn and apply initially, heuristic (conceptual) procedures are more efficient in the long run.
>
> (p. 23)

To propose that educational technologists approach educational problems from a conceptual instructional development framework is not to propose anything new. In fact, the instructional development paradigm was originally that of systems approach, or systems thinking, as delineated by James Finn in the late 1950s. The early conceptions of educational technology were not algorithmic but heuristic. Emphasis was on the development of the total system, rather than its component parts. Davies (1973) notes:

> Isolated parts can rarely provide adequate information about a system, but a system can provide valuable information about the functions fulfilled by each of its components. Such an approach is nothing more than an application of the Gestalt concept that the whole is more than a simple summation of its constituent parts.
>
> (p. 13)

In the case of education, the implication of a systems approach is that instructional development activity should not be done on a piece-meal basis. Too often instructional development activity is considered to have a beginning and an end, and once one 'instructional development project' is completed another can be started. Each project, or set of activities, is viewed as a discrete entity, having little relationships to the other and little 'system impact.' Sir Brynmor Jones (1969) explicates:

> We often pride ourselves in our analytical ability, on our precise habits of thought, and on our disciplines, which are at once rigorous and humane, and which together we assume enable us to construct programmes which present ideas, concepts, and information in the most logical order to the student.... We are now in a position where we take for granted the instructional function of programmes, and should bend our efforts increasingly to establish a climate in which teachers both create and themselves participate in learning systems in which <u>they</u> are a

> resource: the senior resource, it is true, but nevertheless <u>one</u> resource among several others, which include buildings, equipment, and ..... media of all kinds.
>
> (p. 20-21)

Conceptual instructional development is, then, the logical application of the notion of systems approach. Davies (1973) in his description of the third educational technology, understands the capacity of this conceptual level of instructional development to build a bridge between educational theory and classroom practice. The framework of the bridge is modern organizational theory "and its associated systems approach, [which] makes possible a science and an art of teaching with a technology of its very own" (Davies, 1973, p. 15).

Organization Development and Systems Thinking

March and Simon, working in industrial management, delineated three propositions about organizations as follows:

1. Classical theory of organization (task-centred).
2. Human relations theory of organization (relationship-centred).
3. Modern theory of organization (task-and relationship-centred).

(Davies, 1973, p. 9)

Modern organizational theory has its application in organization development. Organization development is defined as a planned organization-wide program of team-building for the purpose of implementing planned change. It is a process which institutionalizes and legitimizes the examination of the system's processes for decision-making, planning, and communication (Burke and Hornstein, 1972, p. xi).

Argyris (1964) contends that the effectiveness of any organization depends upon its ability to accomplish three essential aims, as follows:

a) achieve its goals;
b) maintain itself internally;
c) adapt to its environment.

The conceptual instructional developer might do well to meet Argyris' essential aims in evaluating the effectiveness of his/her effort. Davies (1973) notes "If an organization fails to realize these aims, it is "unhealthy" or steadily ineffective; if an organization realizes them, it is 'healthy' and it is flexible, able to learn through experience, free to change, and free to respond to new circumstances" (p. 4-5). The latter provides an apt description of the ideal instructional developer.

The key notion in the application of organization development is one of on-going system development and change - change that is anticipated, planned for, and implemented with provision for the requisite

support system. Organization development "views change, innovation and growth as the natural result of a concerted response to a new situation" (Davies, 1973, p. 16). Conceptual instructional development, with its focus on the total system rather than discrete components of that system, improves the capacity to adapt and manage change.

Whether the organization is the small, tightly bound system of a single school, or the large loosely integrated system of the provincial educational network, development and change is essential in today's world. Schein (1965) notes that the argument for a systems concept of organization is that "the environment within which the system exists is becoming increasingly unstable as a result of the growth of technology and the changes in social and political mores" (p. 20).

Faris (1968) states "Instructional development is the term used in knowledgeable circles in higher education to describe attempts to enter the instructional process at the level of .... planning ..... instructional development seeks to design instruction rather than to supplement it" (p. 971). While the focus of instructional development is admittedly instruction, there must be the realization that instruction is simply one component, or sub-system, of the total educational system. And implementation of change or ongoing development within that sub-system has an effect on the whole system: much as throwing a stone into a still pool will cause ripples throughout the pool. Schein (1965) notes "Because the various parts of an organization tend to be linked, a proposed change in one part must be carefully assessed in terms of its likely impact on other parts" (p. 123).

For too long instructional development has been functional in practice. The promise of educational technology, according to Beckwith (1988) lies with "the systemic approach [which] enables us to serve as the problem-solvers of the learning process, the dreamers and creators of new and more effective learner systems ..... Since operating systemically requires control over all system components, ours is the responsibility for management of learner and learner transformations" (p. 15).

The conceptual instructional developer, then, is one who is constantly operating at two levels and with two different thrusts. The two levels are akin to the engineering and problem-solving archetypes. Romiszowski states:

> Step-by-step procedures exist for certain activities (e.g. task analysis) but these are only at the level of collecting and organizing information. <u>What to do</u> with the information is not governed by an immutable algorithm. Creative solutions pop up as sudden flashes of insight (and one then backtracks to check them out for viability) rather than as a result of plodding carefully and completely through each step in the sequence..... This is where systems concept and systems thinking play their

> role. The systems approach is one part of methodology to five parts of systems thinking.
>
> (p. 24)

The two thrusts of conceptual instructional development are notably different. While the conceptual instructional developer is involved in the usual identification of problems and seeking of solutions through the implementation of a chosen instructional development model, (s)he is also concerned with the ongoing functioning of the system. The conceptual instructional developer is concerned with maintaining the climate for change - energies are focused on continuous monitoring of the system so that potential problems may be anticipated. The conceptual instructional developer is proactive rather than reactive. In addition, the conceptual instructional developer is concerned with maintenance of the relationships established during the instructional development activity. Davies (1978) notes:

> ... in doing instructional development we are involved in a cycle of task-oriented activities or steps which are descriptions of the duties and responsibilities performed. But parallel with this task-oriented cycle is another cycle involving the successive phases of the relationships between instructional developer and client .... It is this relationship which helps to prevent instructional development being directed only at solving immediate problems.
>
> (p. 112)

The Giving and Taking of Advice

Davies (1978) suggests that instructional development and evaluation activities may be viewed as the giving and taking of advice. The linking of instructional development and evaluation roles is intriguing, in that both are strategies that share a common purpose - that of increasing the effectiveness of the total instructional system. For the past five years one of the authors has acted as a consultant on a number of occasions; sometimes involved in instructional development activities and sometimes in evaluation activities. It is interesting to note that the skills and competencies required in both roles are practically identical.

This notion is not surprising, given that in both circumstances - the instructional developer and the evaluator - what is really happening is consultancy. While the tasks which the consultant performs might differ, the relationship related activities are essentially the same. Davies (1978) notes

> Instructional development and evaluation in a vacuum would be fairly simple and rather mundane processes. Fortunately, development and evaluation

> only make sense in the context of people, and yet - in an almost desperate attempt to realise the task - we sometimes tend to ignore the relationship side of the instructional situation. No matter how pert our development and evaluation procedures, no matter how sophisticated .... our techniques, little will be achieved if the quality of our human relationships is overlooked or ignored.
>
> (p. 121)

The literature on consultancy is rich indeed, and there have been many attempts to pinpoint skills and competencies required by the consultant. Generally we can think of consultancy skills and competencies in three categories: (a) knowledge-based, (b) interpersonal communication-based, and (c) process - based. (Block, 1981).

Knowledge-based skills and competencies are those which provide us with expertise in a given field. The instructional developer has expertise in theories of learning and instruction, in communication and perception theory, in instructional development and evaluation. This expertise is brought to the consultancy role.

Interpersonal communication skills and competencies, which are crucially important in consultancy, include oral and written language facility, listening, empathy, and the numerous skills which are required to build and maintain a relationship.

Process skills are those required to perform competently each phase of the consultant relationship. These include team-building skills employed in the problem definition phase, creative thinking and problem-solving skills employed in the generation of alternative solutions phase. diagnosis, analysis and synthesis skills employed in the solution development phase, and decision-making and documentation skills employed in the implementation and evaluation phase (Romiszowski, 1981).

Being a consultant is not easy. Professional competencies are extensive. Lippitt and Lippitt (1978) compare the list of competencies to "a combination of Boy Scout Laws, requirements for admission to heaven, and essential elements for securing tenure at an Ivy League College" (p. 94).

SUMMARY

Consultants in Instructional Development

Systems managers, producers, instructional designers, media specialists for school districts or community colleges, human resources developers in business or industry, teacher-librarians or learning resource teachers in schools - consultants in instructional development come under many different labels and perform many different functions. They do, however, have things in common. All of them, as instructional developers, attempt to plan effective instruction for designated learners, whether these learners are students in the classroom or adults in industry or educational institutions. They also are optimists with a dream that teaching, learning, and training can be improved; that educational technology can help any organization, whether it be a school or a factory, design effective instruction. As Beckwith (1988) points out, it is a dream that "within educational technology resides the potential for better schooling, better learning, better transmission of information, better interactive communication, better worlds" (p. 3). However, Beckwith (1988) also hastens to add, "the dream, while ever present, remains only a dream. The power, promise and potential of educational technology have not been realized" (p. 4).

If we want to realize this dream, this paper maintains that the time has come for educational technologists to move towards educational technology 3, or as we refer to it, conceptual instructional development. It views the systematic approach as functional instructional development, useful and effective but limited, and suggests that if dreams are indeed to come true, then there is need for educational technologists to go beyond it, to operate as problem-solvers within the system, to adopt the systemic approach, or to work towards "the creation of unified and dynamic wholes to effect the transformation of learning" (Beckwith, p. 4).

A focus on conceptual instructional development will require competencies and skills which, although always recognized as important, have not always been emphasized. If educational technologists, in whatever role they find themselves, are to be successful, they must identify these skills and master them. As pointed out earlier in this paper, instructional development may be viewed as the giving and taking of advice (Davies, 1978b), with the instructional developer operating as a consultant in the learning process. It is essential then, that the conceptual constructional developer be aware of consultancy skills.

The Role of the Consultant

This raises the interesting question of what type of consultancy role the conceptual instructional developer should choose. In the past, educational technologists were quick to play the role of the expert. As professionals on the leading edge of their profession (whether in education or industry) they could win instant recognition

and prestige by becoming the expert on the latest technical device to hit the market; or else, they could limit themselves to being A-V producers upon demand. Such a person becomes the expert in the performance of a certain designated task, but often are not seen as having anything to contribute outside that area of expertise. The danger is that their work becomes piecemeal. Rather than being involved in the system as a whole, the instructional developer is called upon to work on particular projects. Usually, this calls only for functional instructional development, tied to the design of a product.

There are disadvantages in the instructional developer assuming the role of expert. The main one is that the problem is usually diagnosed by the organization and the instructional developer is called in <u>after</u> the diagnosis has been completed, to develop the solution (whether it be a slide/tape show or a videotape). For example, a provincial department of education may have trouble with the offering of senior courses in small rural schools. The senior department officials may analyze the problem, decide to offer these courses by using a distance education delivery system, and only then call in an instructional developer to design the distance education courses. There has been no opportunity for the instructional developer to aid in the diagnosis of the problem, or to suggest other alternatives as solutions. This is serious disadvantage, for the perceptiveness and accuracy of the diagnoses of the problem is crucial to the eventual success or failure of the project or plan.

The consultant could choose the role of servant in a servant/master relationship, or, as Block (1981) describes it, act as "an extra 'pair of hands'" (p. 20). The example used with the expert role may also be used here. The organization decided on the solution (distance education) and then looked for someone to do all that was necessary to deliver this solution. In both cases, the diagnosis of the problem, the deciding on a solution, and the control of the project, rests with the organization. Rather than involving the educational technologist at the diagnosis stage, thus allow him or her to dream new solutions and suggest alternative solutions, the diagnosis is complete and the solution is determined before the consultant arrives. The instructional developer in this role acts a servant in a purely functional manner, planning and delivering someone else's solution. In both cases the organization can play an inactive role, and can hold the consultant responsible if the solution won't work. In both cases "the consultant who provided the 'service' becomes a convenient scapegoat" (Block, p. 20).

The third role that the instructual developer can choose is the collaborative role. Schein (1965) refers to this as process consultation, in which reither the organization, or system, "knows what is wrong, or what is needed, or what the consultant should do. All that is needed for the process to begin is some interest on the part of someone in the organization to improve the way things are going" (p. 4). The consultation process itself is quite different from the cases referred to earlier, for now "The consultation process itself ....

helps the manager to define diagnostic steps which lead ultimately to action programs or concrete changes" (p. 4).

The collaborative approach requires a collegial model, as the consultant and the members of the organization join their specialized knowledge, and together try to solve the problem. The consultant is not called in as an expert or servant to solve the problem for the organization. Instead, as Block (1981) states, "They apply their special skills to help managers solve problems. The distinction is significant" (p. 21). The problem solving becomes a joint responsibility. The members of the organization and the instructional developer work together at all stages, from defining the problem, to generating alternative solutions, to developing the solution, to finally implementing the plan. All share in the planning and diagnosis, all share responsibility for success or failure.

The advantages are obvious. The instructional developer is called in at the very beginning of the process so that his/her talents can be pooled with those from the organization in the initial stages of diagnosing the problem. There is shared responsibility, shared decision making, shared knowledge. Conflict is expected as different individuals provide different perspectives, but collaboration is considered essential. There is a recognition that there must be argument and understanding before a solution can be arrived at. There is respect for the responsibilities and expertise of all those involved. The whole process becomes one of growth, where each person learns from the other. There is also a greater change of success, for the members of the organization will have the inside knowledge to know what is possible and be in a position to follow it through.

The role of the modern teacher-librarian is an excellent example of a consultant working in a collaborative role. Current standards and models in both Canada and the United States stress the need for a partnership:

> An effective school library media program depends on the collaborative efforts of all those who are responsible for student learning. .... In effect, all members of the educational community, including teachers, principals, students, and library media specialists, become partners in a shared goal - providing successful learning experiences for all students (AASL & AECT, 1988, p. 21-22).

The Skills of the Collaborative Consultant

The collaborative consultants' success or failure may depend on how well they can work in such a collaborative process. The research on school library media specialists leave little doubt but that good communication skills and interpersonal skills are a necessity. Norman Beswick (1977) noted that the school librarian "must be able to show

firm, out-going interest and competence, encouraging the trust of his clientele" (p. 79). It is, he concluded, "no job for a shy mouse" (p. 80). Yet, all too often, in schools and in industry, interpersonal skills, and process skills have been ignored in the training and the hiring of instructional development consultants.

Those who wish to be instructional consultants must develop the interpersonal skills needed to work in the collaborative role. They must learn to listen without interrupting, to suggest without dominating, to help without threatening. They must be able to work as part of a team, must be willing to encourage others to lead as well as lead themselves. Rather than shining as the experts, or being depended upon as the servants, they must be willing to be involved as colleagues willing to share their knowledge and skills in the solving of the problems.

Those who wish to be instructional consultants must also develop process skills, so that they can analyze problems, generate alternate solutions, and formulate effective implementation plans. They must understand and use the systematic process, but also operate at the systemic level, aware that the system as a whole must be considered. To do this well, they must also understand the process of educational change.

The Consultancy Role and Educational Change

The instructional developer, under any label, is usually called in to bring about planned educational change - a better unit of instruction, a training package, an in-service program, a solution to an educational problem. To be effective, they must understand the process of educational change and their role in it.

The literature on educational change supports the collaborative role for consultancy. Fullan (1982) provides a comprehensive review of the research on educational change. Citing various sources of research, Fullan notes that large school districts are not good prospects for external consultants, that school districts are not easy systems to understand, that to understand them takes a long period of observation. He concluded:

> Most research shows that external consultants are effective only when there is an internal consultant or team which supports their activities. All the major research we have been reviewing shows that effective educational change occurs when there is the <u>combined</u> involvement of internal and external members (p. 191).

Important, then, if instructional developers want to succeed, is the need to establish a strong relationship with the members of the organization. If these members are willing to pool their knowledge, to become actively involved, then there will be a much greater chance on

their following through on the intended change. In other words, there is a necessity for collaborative consultancy.

Conclusion

The collaborative consultancy role will require moving beyond the linear model of the systematic approach. Instructional developers need to operate on the conceptual level, to see themselves as problem solvers within a dynamic system, in which there are no straight paths but instead many paths and many solutions. It requires them to enter the instructional process at the planning level, not at the development level. Above all, it requires instructional developers to work well with other people, to be able to establish and maintain good relationships. Those who aspire to such a role must be both a leader and a follower, a speaker and a listener, a learner and an expert, an information-giver and an information-seeker. As well as being on the leading edge of technology (and edges are never comfortable places to be!), the instructional developer as collaborative consultant will often be standing on very thin ice where interpersonal and process skills will determine either success or failure This role is certainly not a comfortable or easy one, but if the promise of educational technology is ever to be realized, it is where the instructional development practitioner must be found.

There really is little choice if the dream educational technologists hold is to come true. A poem by Langston Hughes stresses the need of holding on to dreams:

Hold fast to dreams
For if dreams die
Life is a broken-winged bird
That cannot fly.

Hold fast to dreams
For when dreams go
Life is a barren field
Frozen with snow.

Being on the leading edge, on thin ice might be a risky business but it's still better than being lost in the barrens!

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