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FOR TODAY'S DYNAMIC AND CHANGING WORLD, BUSINESS SIMULATIONS NEED TO BE EXPANDED TO ENCOMPASS MUCH GREATER COMPLEXITY (A DEMONSTRATION)

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ABSTRACT

Strategic thinking is advanced as the process necessary to better cope with accelerating complexity and change. With the arrival of the Internet and a global society, it is now necessary to emphasize development of strategic thinking. The paper holds that these skills remain neglected in contemporary business school programs, but must be developed. A program model and process steps are presented for facilitating strategic thinking. To help the learner develop the skills of questioning and strategic thinking, the authors outline a unique program that makes possible holistic thinking and its practice. The computer-driven simulation portion of the program consists of a Query Engine and Situations (Cases) database for scanning, searching and probing, together with hardcopy of the responses.

INTRODUCTION

A goal of the schools of business is to produce students capable of effectively managing, achieving and filling the role as global citizens in the complex world of organizations

Perceptions in Industry

Industry and society have voiced dissatisfaction with the products of our business schools. Students are perceived as either unable or unwilling to assume the roles of leaders. There appears to be some disenchantment with and confusion about the benefits of a business

education. Graduates should be skilled in a range of disciplines and be able to adapt quickly to new and unfamiliar conditions.

Further, social interactions on a global scale have created need for managers who have vision and perception. With world conditions changing so rapidly, current graduates are seen to be too specialized, rigid and quickly obsolete requiring retraining.

The rising standards of living and education in both industrialized and emerging countries have given rise to a global need and competition for superior managerial resources -leaders and visionaries.

Perceptions in Academe

The expanding intensity of organizational research is giving rise to a rapidly, growing number of theories and concepts of managing; e.g., teams and multi-discipline constructs.

Political and technological forces have again reasserted their powerful influences in the domains of managing.

As emphasized by AACSB, the business world is being changed by a stream of capable foreign countries entering into the world's free markets. A significant portion of their students have been educated in industrialized nations and are now applying the latest knowledge in new and innovative ways, thus raising the level

of global management performance and competition.

Given the above sizable shifts in the composition of our global societies, perhaps no one event is currently producing and foreshadows more change than the explosive arrival of **the global Internet with its infinite sources of information and data for today's and tomorrow's managers.**

In summary, these few exemplars are precursors for our managers of future burgeoning complexity and accelerating speed of change and yet, for whom **attainment of goals** still remains the purpose.

Academe's Response

The above perceptions constitute a challenging set of intellectual hurdles for academe, but especially for schools of business, administration and organization where the objectives are to lead, take action and accomplish. A commensurate response to these imposing dynamics is still far off. Nevertheless certain re-directions and changes in a reengineering of education are visible and are attracting initial support and acceptance:

- design and introduction of multidisciplinary courses integrating the principles and concepts of allied disciplines
- wider use by faculty of "hands-on" materials and facilities; e.g., cases and experiential challenges
- aggressive use of teams and groups in planning and executing assignments
- expanding contact with groups and organizations outside of academe by means of partnerships and internships
- extended faculty involvement within the organizations they study

A Reality Check

Managers are well provided with knowledge data and skills by our schools of business. But, thus far, **they have** been given very little **help with an expanding need for integrated application of these skills in real (typically messy) Situations¹** (Ackoff. 1979)..

The erupting world of organizations, education and information does not allow the business school to continue to sidestep some of the "realities" of coping and managing in the real world. Given the compelling precursors outline above, it is time to look at the some of the obstacles encountered when trying to solve or improve today's and tomorrow's Situations.

- Information relevant to a Situation is not limited by artificial knowledge boundaries (disciplines). Acquisition must contemplate securing relevant information from all disciplines - Technology, Economics, Systems, Sociology, Philosophy, Culture, Psychology, Art, History, Politics, etc.
- Large amounts of information of differing quality and differing degrees of relevancy are usually available.
- We still lack vast amounts of information about our world and its peoples. Information that will be discovered 100s, maybe 1000s, of years from now. Information that may be needed now is just not known.
- The advent of the Internet has placed an infinite array of our information at the disposal of the manager. Now, all she has to do is to select what is **relevant and determine what it means.**

¹ A Situation is a condition, problem, incident, case, happening, negotiation, conflict, decision. etc.

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- We only have our perceptions, not reality. While one may have information, it is its interpretation that is important.
- ! We possess hundreds, even thousands of theories, laws, hypotheses, concepts, and beliefs, **but as yet, no organized process or methodology for selecting which to use and when, nor a method for using them simultaneously**
- The combinations and permutations of even a very sparse subset of critical factors that may be related in a given Situation are beyond the processing capabilities of the largest and fastest computers **and the cognitive capacity of the Mind.**
- The most telling challenge when solving **messy, real problems** is that we will live and act only in the **FUTURE** and our ability to forecast the future for any significant horizon is quite weak.

The existence of these conditions bring the authors to the central reason for this paper.

A Conclusion

In order to better meet the complexities of the future, students and managers must be helped to develop their skills in holistic thinking, often termed as strategic and critical thinking. Academe has already given recognition to this need in forms referred to above - teams, multidiscipline courses, hands-on experiences, team teaching, etc. It is the authors' intention to build upon these advances.

We submit the following pedagogical philosophy and methodology for consideration.

A PROPOSAL

The Proposal consists of two parts:

- 1) Content - A Cognitive Model outlining the strategic thinking process and identifying the key components and phases -Goal, Situation, Strategy and their relationships
- 2) Process - A Program enabling the student or manager to directly practice the process of strategic thinking

**FIGURE 1
MODEL OF THE STRATEGIC
THINKING PROCESS**



Content: Pedagogical Model and Philosophy for meeting the future needs of Business and Organization Education.

Depicted above is a disarmingly simple model of the strategic thinking process. A Process that has not received adequate attention in the past and a process that is central to the progress of humanity in its future. This proposal and program is directed at clarifying and enabling organizational members to practice the process of strategic thinking along with its embedded skills. A more comprehensive expression of the Model is presented in Appendix I – SAGA, which portrays the relationships in more detail than in the following summary.

Process: This cognitive model identifies the essential components of the strategic thinking process and their simultaneous interactions as follows: in the real world, the individual (group or organization) 1) selects a Goal(s)² she wishes to achieve, 2) searches to determine the nature of the Situation³ she has to influence if the goal is to be achieved, 3) creates Alternative ways (paths) by which she may achieve the Goal, 4) chooses the Alternative that is the most promising, which is called **the Strategy** and 5) prepares a Plan to carry out the Strategy **successfully** to attain the Goal(s). The Model represent a reasonable expression of how the individual et al cope and manage in their world and can serve as the foundation of managing.

Within this Model, schools of business have allowed certain, significant difficulties to remain transparent:

1. Setting of Goals (missions, objectives) is frequently addressed much too simplistically.
2. The difficulty encountered when trying to determine of the “real” Situation is not realistically developed

Cognitive research indicates that the individual, student or manager (learner) can become more adept at strategic thinking if a more effective setting could be provided in which to practice strategic thinking (Item 2, above). **Thus, within the process of strategic thinking, this paper and program focuses on the very critical Item 2., The Situation.**

² A Goal is an objective, mission, purpose, result, state, solution, etc

³ A Situation is a condition, problem, incident, case, happening, negotiation, conflict, decision, confrontation, issue, etc.

Strategy and Asking Questions

Unexpectedly, to determine the real nature of the Situation invokes extensive use of **the skill of Questioning and its resultant Discovery** (Wallas, 1932) which, fortuitously, is a powerful learning experience. The authors now realize that determination of what the Situation actually is can be developed only by **ASKING QUESTIONS** - of self, peers, literature, databases, experts, libraries, etc. Insufficient pedagogical attention has been given to asking questions by student or manager (Langston, 1993).

The Model displays the reality that the Situation plays a key role. It would be a significant step forward if improved methods could be developed to improve the quality of our perceptions of Situations? Questions and answers are a possibility, but they are inherently an interactive phenomena regardless of methodology. If questioning is to be realistic, then the process has to be interactive and the Situation should be complex. The opportunity to ask questions must also be large. Given these characteristics, the use of computers became a serious consideration.

The Program Responds To The Need to Question

As these process conceptualizations evolved, it became apparent that coping realistically with the pedagogical needs for accommodating expanded complexity and actively searching Situations could be facilitated by the use of the computer (Halpern, 1994). Toward this end, the process for strategic thinking and goal-achievement (the SAGA Process) was examined to determine at which stages the introduction of the computer could be beneficial. Initial benefits appear to be concentrated in the generation of questions and answers, which, in turn, will allow the learner to

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“discover” the nature of the Situation. Fortunately, the utility of the computer for learning has been sharply increased by the availability of high performance, economical multimedia computers, and in particular, by the wide availability of the Visual Basic programming language by Microsoft. This combination permits the use of the cognitively reinforcing attributes of text, audio, graphics, animation, pictures and video.

Current educational and cognitive research has begun to focus on the significance of questions in critical and strategic thinking. Effective and efficient questions actually may be relatively more important than their answers (King, 1995). As examination of the questioning process proceeded, it was accompanied by a growing appreciation of the more than central role played by the Mind in strategic thinking (Flammer, 1981). Despite considerable scientific progress, machines have not yet approximated the adaptive capabilities of the Mind (Graesser, 1991). The Mind’s capabilities are not fully described by IQ or SATs.

If one accepts the trends outlined in Perceptions above and the authors’ realizations, the need for modifications in organizational pedagogy becomes visible and worthy of consideration. In this vein, the following elements become desirable for inclusion in a process for practicing strategic thinking:

- A process that is clearly goal-oriented: aimed at achieving affect.
- Use of intensive multi-disciplinary content. Social, technical, political, psychological, cultural, economic, philosophy theory and concepts have to be a part of the process.
- Complex situations and related information and data are required for the robust practice of managing.

- **Development and application of holistic, critical and strategic thinking has to be integral**
- **Development of the skill of questioning Situation to discover Situation content**
- Access to information on the Internet is made a requisite part of the process.
- Both the analysis and synthesis of data and information is called for.
- Individual and team participation is possible.
- Situation (Case) writing by the student and manager is necessary.

How can the pedagogy for managing be expanded to include the above elements in an improved process for strategic thinking?

A PROPOSED SOLUTION: USE THE MULTIMANAGER PROGRAM ©

The authors’ proposal is to use a specially designed computer program that operationalizes several of the five (5) phases of the strategy process described earlier, as well as incorporating the content and process elements described above.

The Prototype Program consists of three Parts:

I. A Query Engine:

The Inquiry Engine that drives the “Questioning” capability of the system presently comprises a library of approximately 900 concepts embedded in seven disciplines -Philosophy, Culture, Psychology, Sociology, Technology and Science. Economics. Business and Political Science.

II. The Situation Database(s)

Complex Situations (Cases) that resides in the computer memory for probing, questioning and scanning by the learner. Responses are feedback to the learner from the database by a hypothetical staff of experts, consultants, academics, senior functional members. In the prototype, the Situation is the Automobile Industry and is equivalent to approximately 150 pages of conventional text.

The learner can obtain information about the Situation (Case) only by asking questions of a hypothetical staff of advisors, company officers, professionals, etc. via the computer.

Very importantly, multimedia computer and software now permit the introduction of animation, pictures, video, audio, charts, graphics as well as text into the content of the Situation, thereby motivating the learner and capturing and holding his/her attention

III. Output

Answers are returned by the learner's staff experts and consultants. The replies consist of combinations of the following information media:

Pictures	Animation
Audio	Video
Graphics	Text

All information is available in hardcopy.

The Report Program - Organizes and Provides disc and hardcopy to the learner to review, extract and simplify in order to:

1) finalize his/her perception of the Situation (Case Report).

2) based upon this perception. determines his/her Strategy and Action Plan.

The authors wish to emphasize that at this point in the proposed pedagogy, the learner is confronted by **the need to write his/her own** version of the Situation or, in other words, his/her own Case - which, in the past, has normally been provided. The learner becomes The Case Writer.

Operation of the Program

Operation of the program is straightforward except for the THINKING that is required of the learner. Several screens of the computer program lead the learner through the philosophy of the program and the strategic thinking process involved. In the case of this prototype, the learner is given a printed introduction to the Situation she will be dealing with. The introduction provides some historical background and data concerning ECONO-MOTORS CORP. the hypothetical company the learner will be managing. The senior managers and company experts have been summoned to the Boardroom for a "skull-session". In order to determine the Situation, she must query this staff and obtain the critical information. The learner has to pose penetrating and productive questions. The program enables him to do this quickly and efficiently, limited only by the inquisitiveness of his/her MIND!

To posit questions in the program, the learner proceeds as below:

- the learner selects a **Discipline** that represents the general body of information that she wishes to use to define his question
- the learner selects that portion of the Situation Environment, she wishes to explore

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- the learner selects the **Concepts** that reflect the attribute(s) about which she is interested in acquiring information
- Using a digital media, one can readily provide a wide range of new, current Situations. Supplementing, updating and distribution can be accomplished more rapidly and more economically relative to the printed case.

These three inputs by the learner constitute the structure of the Question.

Specific Educational Provisions and Expected Benefits

- Hands-on, cognitive, interactive drills which show the learners how individuals and groups **can and must use their minds** to cope with the complexities present in the Situations they will encounter
- Help the learner **to develop the ability to question and probe** in an organized manner in order to determine as completely as possible “what the Situation is”
- The information developed by questioning the Situation focuses the learner upon the disciplines, concepts and education acquired. The program shows the learner how to use education and experience to **“question and think strategically to accomplish.”**
- Establishment of a need both to gather information by query, then qualify (filter) the information and extract significant factors from a collection of complex information..
- Use of longer, more complex, realistic business cases that with multimedia data sources can **still retain interest** and motivation and more closely simulate reality
- By hands-on interactive practice, the learners encounters the difficulties associated with trying to determine what information is relevant and important
- The learner prepares a viable, integrated action plan for goal attainment based upon the learner’s own perception of the Situation

- A multicultural tools where groups with diverse backgrounds, preparation and interests can explore cooperative searching of complex Situations
- Provision of a means and the requirement for the student and manager **to write their own cases**

The learner alone operates the Program and generate the Questions used at his or her own pace with as much or as little deliberation as believed necessary by the learner to develop an understanding of the Situation. Psychologically critical, the learner is not facing a critical, combative, evaluating audience while he or she practices and refines questioning skills.

The Learner’s Final Phase

Using the Forces and Factors perceived as critical, the learner prepare his/her description (perception) of the situation (**the case**) - a need for holistic thinking. Heretofore, the learner has been denied of the opportunity to efficiently and comfortably conduct his/her own inquiry and produce his/her own Case Statement. On the basis of his/her perceived Situation, the learner prepares:

- A Set of Goals
- Develops a Strategy
- Prepares a Plan for Implementation

Evaluation of the learner’s work is performed by the Program Administrator and the learner.

**FUTURE PROGRAM DEVELOPMENT
DIRECTIONS**

At present, the computer program is used as a short standalone seminar exercise that builds upon the accumulated education and experience of the managers, supervisors, leaders and students. It is applicable to a number of scholastic levels including undergraduate, graduate and post-graduate.

Several steps are necessary to bring the prototype to full, productive application.

The prototype uses a database built upon the Automobile Industry using a database of approximately 150 typewritten pages. Additional databases need to be prepared for other Industries and incorporated in the program's "library" of Situations. The computer program was developed using the widely accepted and supported Visual Basic programming language, but in 3.0 - Version 5.0 is coming out in 1997. This Version will further increase the program's versatility.

The power of multimedia is made available to the learner through Visual Basic. It is this multimedia environment that promises to accelerate learning, particularly, when associated with the more productive hands-on, participation approach. Optimum incorporation of graphics, audio, animation, pictures into the prototype will require discussion with both academics and software specialists to obtain the maximum results for the learner.

The present prototype is being run upon slower and smaller computing machines. The more powerful multimedia computers becoming available plus Internet text and graphics access permit refinement of the Search Engine and construction of much richer, and more realistic Situations (databases).

REFERENCES

- Ackoff R. (1979) "The Future of Operations Research is Past" *Journal of the Operations Research Society*, 30, 93
- Flammer A. (1981) "Toward a Theory of Question Asking," *Psychological Research*, 43, 407-420
- Graesser, A. (Eds.) *Questions and Information Systems 11-29* Hillsdale NJ: L Erlbaum Associates.
- Graesser, A., Langston, M., & Lang, K. (1991) "Designing Educational Software Around Questioning," *Journal of Artificial Intelligence and Education*.
- Halpern D. (Ed.) (1994) *Changing College Classrooms: New Teaching and Learning Strategies For An Increasingly Complex World* San Francisco: Josey-Bass.
- Hinton, N. (1994) "The Pyramid Approach to Reading, Writing, and Asking Questions," *Science-Scope*. 17(5) pp 44-49
- King, A. (1995) "Inquiring Minds Really Do Want to Know: Using Questioning to Teach Critical Thinking," *Teaching of Psychology*, 22, 13-17.
- LaFrance, M. (1992) "Questioning Knowledge Acquisition," in Lauer, T., Peacock, E., & Graesser, A. (1992) (Eds.) *Questions and Information Systems pp 29-45*. Hillsdale, NJ: L Erlbaum Associates

APPENDIX I

THE SAGA PROCESS

STRATEGY FORMULATION

WHAT'S THE PROBLEM?

TENTATIVE GOALS

PURPOSE, REASON, MISSION, WHY

THE ENVIRONMENT

EXTERNAL

INTERFACE

INTERNAL – RESOURCES

NOW, WHAT IS THE "REAL" SITUATION??

THE FUTURE ENVIRONMENT IS WHAT?

FORECASTS, SCENARIOS, FUTURES

SHOULD THE TENTATIVE GOALS AND OBJECTIVES BE REVISED?

WHAT ARE OUR ALTERNATIVES? OUR OPTIONS?

THE KEY IS: CREATIVITY, INNOVATION, IMAGINATION

EVALUATIONS -

ALLOCATION OF RESOURCES

CHOICE OF STRATEGY

LEADERSHIP

SECURING ACCEPTANCE

STRATEGY IMPLEMENTATION

KEY TASKS

THE 7 S's

CULTURE/POWER

POLITICS

CONTROL OF STRATEGY

KEY PERSONALITIES

ORGANIZATION

INCENTIVES

FEEDBACK

LEADERSHIP

By Analysis: Extract The Key
Strategic Factors and The Key
Strategic Forces

By Synthesis: INTEGRATE THE
Interactions and Results of the
Key Forces

Presentation
Image