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ABSTRACT

Some possible futures in higher education are explored with an emphasis on organizational planning and organizational technology perspectives. The focus is on "soft" organizational technologies rather than "hard" equipment-based technologies. Attention is directed to the way that the two perspectives could affect higher education organizational design as a policy issue in post-industrial society. After discussing the role and context of higher education, consideration is given to organizational goals and how these can be reified. It is argued that goals cannot be value-free, and that a key values issue in higher education institutions is the extent of voluntarism/determinism for staff and students. Various possible higher education futures are outlined, including some that involve an increase in decentralization or a reduction in "overload." The impact of time horizons and uncertainty on higher education systems are also assessed. Examples from the Canberra College of Advanced Education in Australia are cited. It is concluded that both the organizational technology and planning perspectives have a role in the analysis of higher education futures. (SW)

HIGHER EDUCATION FUTURES - ORGANISATIONAL PLANNING AND ORGANIZATIONAL TECHNOLOGY PERSPECTIVES.

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1. ABSTRACT

This paper explores some possible futures in higher education with an emphasis on organizational planning and organizational technology perspectives.

The focus is on "soft" organizational technologies rather than "hard" equipment-based technologies.

The paper includes an exploration of how the two perspectives could impact on higher education organizational design as a policy issue in post-industrial society.

Where appropriate examples are taken from my experiences as a student at the Canberra College of Advanced Education.

It is concluded that both the organizational technology and planning perspectives have a role in the analysis of higher educational futures.

2. INTRODUCTION

In this introduction an outline is given of the approach taken in this paper, a brief introduction is given to the concept of a "post industrial society", and technology is defined.

2.1. Approach taken in paper

In this paper an attempt is made to integrate the organizational planning and organizational technology perspectives into the analysis of higher education organizational design as a policy issue in a post-industrial society. The perspectives are not considered seperately - rather each is brought to bear as it appears relevant to different aspects of this issue.

2.2. Post industrial society

One of the key writers on the theme of post-industrialism is Daniel Bell. "Bell's thesis is that in the next 30 to 50 years "the post-industrial" society will emerge. It will be characterized primarily by changes in the social structure. The social structure includes, according to Bell, the economy, technology and the occupational structure." (Bell, 1983; 17).

A key feature of post industrial societies is the predicted expansion of the service and information sectors of the economy. This is highly relevant for higher education which is a key component of the information sector of the economy. However, in Australia provision of higher education services is not responsive to consumer demand (because it is fully government funded), as it is for example in the United States. If there is a growing, unsatisfied demand for tertiary education, this would tend to result in either demands for the introduction of private tertiary institutions, or lobbying for the expansion of fee-paying by students. This has been occuring in Australia. The equity, or broadly-defined technological implications of such demands, are rarely considered in any detail.

2.3. Definition of technology

"There is no general agreement on the meaning of "technology". Definitions range from a quite narrow emphasis on "tools" to Ellul's "technique", which encompasses all methodological or rational activity." (Taylor, 1975: 79). Perrow has opted for a broad definition in which he defines technology as "...the actions that an individual performs upon an object, with or without the aid of tools or mechanical devices, in order to make some change in that object. The object, or "raw material", may be a living being, human or otherwise, a symbol or an inanimate object." (1967: 195). In this paper a broad orientation to technology shall be pursued.

Assuming the broader definition it is still true that "A new technology must be embodied in one of two forms: either in humans or in machines." (Taylor, 1975: 86).

3. DISCUSSION

This portion of the paper starts with a discussion of the role and context of higher education. Consideration is then given to organizational goals, and how these can become reified. It is argued that goals cannot be value-free, and that a key values issue in higher educational institutions is the extent of voluntarism/determinism for staff and students.

Various higher educational possible futures are outlined, including some which involve an increase in decentralization, or a reduction in "overload". Analysis of the impact of time horizons and uncertainty on higher education systems then occurs.

The final sub-sections of this section focus on contingency theory, systems approaches, and futures techniques.

3.1. Role of higher education

For Durkheim, unlike many more modern educational theorists, "...education is a way of inducting a person into a world he has not made and cannot substantially alter." (Wilson, 1975: 316). Such a view would have been out of place in a situation of student radicalism of the 1960s and 70s, but may be more closely linked to the reality of student conservatism of the 1980s. It is possible that students now have a more "realistic" view of the world - "For Durkheim,...knowledge of social reality has the effect of powerfully limiting man's sense of freedom, and it should be sought for that reason." (Wilson, 1975: 317). An alternative view would be that in a period of resource restraint students do have less potential to "change the world", and conservatism is rational (from a resource-gaining point of view) in such a context.

3.2. Higher education context.

According to Thompson and Bates, higher education has relatively vague goals and adaptable technology (in comparison with, for example, a mine). (1976:10). The abstract purpose of higher educational institutions is relatively fixed, but there is "...wide latitude for interpretation of the general into more specific objectives." (Thompson and Bates, 1976: 9). Such a perspective is consistent with Perrow's view that "types of organization - in terms of their function in society - will vary as much within each type as between types. Thus, some schools, hospitals, banks and steel companies may have more in common, because of their routine character, than routine and nonroutine schools, routine and nonroutine hospitals, and so forth." (1967: 203). A major focus is gaining consensus on what to do, and how to do it (for example, in a routine or nonroutine fashion) and this is a challenge in a context where "...power to determine or veto objectives in the university is widely diffused." (Thompson and Bates, 1976: 9). "If the product is abstract and the technology adaptable, the organization...has great adaptability to its environment, and the major policy-formulation problem will be achieving agreement on goals and on the appropriate application of technologies in pursuit of them." (Thompson and Bates, 1976: 10).

3.3. Goals

Technocratic approaches to planning are being increasingly introduced in the Australian Public Service (of which the education bureacracy has responsibility for overviewing higher education in Australia). These approaches focus on definition of specific goals for different program areas (this is reflected in the Financial Management Improvement Program). However, "...most social problems are not, in the technical sense, well-defined; declaring and attaining a single goal seldom result in satisfactory problem solution." (Brewer and deLeon, 1983: 110).

However, it should not be ignored that "Various iterative techniques can involve decision makers in exploratory definition of objectives within the context of particular problems..." (Langendorf, 1985: 425).

3.4. Reification

Organizational goals, bureaucracy, and procedures are often reified and presented as non-negotiable by the powerful. "...the Marxist approach to bureaucracy makes the highly pertinent point that bureaucratic activity, which is presented as above politics, as neutral, expert administration, is essentially and irredeemably political." (Salaman, 1978: 531).

"The major result of...reification is that it limits the horizons of possible political action by circumscribing the area within which one can act politically." (Fay, 1975: 60). An example of such reification in the higher education sector is that of the student in the College of Advanced Education sector as purely a learner rather than as a potential creator of knowledge. Additionally, it has been found that "There is sharp differentiation between student, clerical, and professional ranks in the university, as well as little opportunity within a given university for a member to move from one level to another." (Thompson and Bates, 1976: 11).

In the context of Canberra College of Advanced Education, reification occurs, for example, by (without debate) only allowing academic staff and not students to apply for small-scale grant monies for research (a formal decision - the assumption seems to be that students could not be engaged in research worthy of College funding), and by not including student publications, and conference paper presentations in the annual listing of the College's contributions in these areas (this results from the informal decision not to request listings from students via the student publication CCAEsarian - the assumption here seems to be that it would be unlikely that students publications and conference presentations are inherently inferior to those of academic staff [if they occur at all]).

Phenomenological approaches have a tendency to dereify, and engender meaning. Higher educational school reviews can have a phenomenological orientation - if a diverse range of viewpoints can be taken into account, and if there is time for review teams to gain an appreciation of the perspectives of all participants. A phenomenological perspective can be avoided by giving the less powerful a limited opportunity to input (using pre-structured

questionnaires is ideal for this purpose), by giving review teams very tight deadlines, and by limiting the range of persons with whom the review team meets. This, whether intentionally or not, appears to be the focus of the current reviews of Schools at the Canberra College of Advanced Education. The result is predictable:- the reports will tend to reflect the values of the powerful - in this case that would involve an efficiency focus, and an increased orientation towards applied "Institute of Technology"-type programs.

3.5. Values

One of Fay's central points is that science is rarely value-neutral. (Fay, 1975). For example, Fay feels that "...the concept of efficiency, when employed in the way envisioned by the policy scientist, is a value-laden concept." (Fay, 1975: 50). An efficiency orientation is increasingly becoming the focus of higher educational administration in a period of restraint. If higher educational administrators are to be reflexive, they need to be aware of the value-laden nature of such an orientation, and of alternative orientations. Such an increased sensitivity would partly relate to the control orientation of efficiency - "...the search for greater efficiency is inherently sectional, or political, irredeemable interrelated and involved with the search for more reliable and efficient forms of control and exploitation." (Salaman, 1978: 532 - 533).

However, it is also important to realise that "...to call for decentralization, representative bureaucracy, collegial authority, or employee-centered, innovative or organic organizations...is to call for a type of structure that can be realized only with a certain type of technology, unless we are willing to pay a high cost in terms of output." (Perrow, 1967: 204). I am not arguing for no orientation towards control and efficiency - what I am indicating is that a non-reflexive application of such an approach may well be counter-productive - both in terms of employee satisfaction and of output if the situation is not appropriate. In higher education, especially in relation to higher degree programs, this is generally the case.

"As the number and diversity of values in question increase, so, too, do opportunities for select participants to be indulged or deprived." (Brewer and deLeon, 1983: 93). This can occur in higher education by creating structures which allow for student input, but which also require both time and articulateness. This will tend to result in the participation of full-time, financially better-off students (for whom time is less valuable) and more elite students (who have experience in articulating their viewpoints) and thus replicate structures of domination rather than allow for a diversity of student input in tertiary education planning.

I feel that this could be partly overcome by greater use of referendums of students on such issues as, for example, whether a College should become a "Nuclear Free Zone", or in relation to the donation of student funds to non-educational outside bodies which perhaps only a minority of articulate politically-active left wing students might support.

3.6. Voluntarism/determinism.

A key values related issue is that of the extent of voluntarism versus determinism in organizations.

"The important research issue of voluntarism versus determinism is the relationship between them and how their interactions and resultant tensions culminate in changes over time." (Hrebiniak and Joyce, 1985: 337).

It is often thought that determinism and choice are mutually exclusive. However, "If high organizational power suggests greater choice, while higher power of stakeholders results in greater environmental determinism, the occasion of a powerful organization confronting equally powerful stakeholders indicates that high choice and high determinism may co-exist." (Hrebiniak and Joyce, 1985: 337).

Using the typology put forward by Hrebiniak and Joyce (1985) it is clear that in higher education the amount of environmental determinism is increasing at a rapid rate. There are cuts in the input side, and expectations of more output from less input. Many tertiary institutions have spent a considerable amount of time in a situation of low environmental determinism and low strategic choice. In the changed context, some tertiary institutions are attempting to increase their focus on strategic choice, and moving to a situation of being a "prospector" - in which they adapt by design. The aim in such a context is that "Strategic choice determines organizational domain or task environment, so that autonomy and control are the rule rather than the exception." (Hrebiniak and Joyce, 1985: 340).

3.7. Overload

The prospector orientation also has some potential for assisting with the reduction in organizational overload. However, a danger is that only a small range of perspectives will be taken into account (in particular the private enterprise perspective) when such a strategy is utilised.

"Loading a system's decision-making apparatus with numerous, diverse perceptions and recommendations may reduce the prospects for consensual processes to operate." (Brewer and deLeon, 1983: 96). A danger is that in order to avoid this, a hierarchy of barriers to the putting-forward of demands in higher education will be established. This creates the illusion that goals are agreed on, and the only differences are of a process nature. It is assumed that students do not have process analysis expertise to assist with the analysis of procedures. This situation is consistent with an "agreed goal/unknown technolog," situation as defined by Christensen (1985). In reality, it is probable that if all interests are taken into account, many higher education planning situations are more like "non-agreed goal/known technology" situations, (as educational technology becomes more established as a discipline) which according to Christensen require bargaining strategies for resolution, rather than collegial models. (Christensen, 1985: 65).

3.8. Decentralization.

Decentralization is sometimes proposed as a way of overcoming overload. "In the university, traditionally dominated by professional persons, authority on educational matters must be highly decentralized, since knowledge rather than title or seniority is recognized as the basis for authority..." (Thompson and Bates, 1976: 12).

A number of features of a higher education structure are "naturally" decentralised. For example, "The ability of the instructor to inspire and motivate the student cannot be centralized..." (Thompson and Bates, 1976: 17).

3.9. Some possible higher education futures

Many possible higher educational scenarios involve increased decentralization. It has been argued, for example, that work and study from home are likely to expand. Jones argues that "...with the increasing use of technologies...a great deal of work which is now performed in offices can just as easily be performed at home - at far lower cost, and with enormous saving of time and transport costs." (1982: 71).

"Compared to voters, MPs are information-rich: compared to the bureaucracy they are information-poor." (Jones, 1982: 175). Consideration should be given to how new technology could increase the information "wealth holding" of citizens. There may be a need for a much broader orientation in public library services to such matters as funding information services in the home - particularly for the less well-off.

"Formal education is a form of social Darwinism in which a minority flourish and the majority drop out." (Jones, 1982: 169). Serious consideration should be given to how new technology might be used to reduce this. At lower levels the technology has particular relevance in assisting with the development of basic numeracy and literacy skills. Computer technologies' ability to allow students to progress at their own pace is a real confidence booster, and emphasises mastery rather than deficiencies in students.

"In the present distribution of wealth and power in Australia, the new technology is often used as an instrument of the strong against the weak and the rich against the poor." (Jones, 1982: 109). Higher education institutions need to seriously consider whether they are increasing inequalities of power with their new high technology programs. Also, the question of how students from technology-oriented disciplines could increase their reflexivity in relation to such questions as power and wealth inequalities should be considered.

Jones has argued that "Educational qualifications have become rationing devices for entry into secure and satisfying employment, and failure imposes heavy social and economic penalties." (1982: 5). This emphasises the need for higher education institutions to focus on a life-long education philosophy - so that persons who failed in younger life have the opportunity for later re-entry. With demographic change, and with fewer young students available, this should become easier to

accomplish.

Linkages between communications and computing technologies will develop further. "Information can now be disseminated in microseconds. The relationship between computers and telecommunications multiplies the power of both, and the capacity for instant, universal communication is unprecedented." (Jones, 1982: 37). This will involve tertiary institutions needing to have more awareness of the potentialities of such technologies as computer conferencing (Freeman, 1984), the use of loud speaker telephones (Freeman, 1979 and 1980), and Videotex (Freeman, 1983). Less expensive technologies for international networking should also be considered, particularly if third world campuses are to be incorporated. One technique, which is slower than computer conferencing, but which has a similar conceptual approach, is Brainstorming on Microfiche (BOM). (Freeman, 1981).

"Human capacity is limited by one inflexible factor - time." (Jones: 1982: 43). This highlights the necessity for tertiary institutions to increasingly see student time as a scarce resource. Techniques such as the inclusion of library catalogue numbers in reading lists, more extensive use of classes in workplaces (with the use of loud speaker telephones to "bring" academics to students), and computer conferencing where the student chooses the time to interact which most suits him or her, need to be more widely utilised.

3.10. Time horizon

"For most organizations there is a time horizon which consciously calls for positive action, all longer plans receiving lip service." (Goodman, 1973: 215).

It has been found that "An organization suddenly faced with a major loss tends not to see very far into the future." (Goodman, 1973: 216). This is consistent with a perception that Colleges which were proposed for amalgamation in the last decade in Australia tended to focus their resources on the immediate-term future (and in particular, opposition to amalgamation).

Idealistic organisations are "...not knowledgeable of the present but are reasonably knowledgeable of the long run. In their behavior they are always preparing for the future without appropriate reference to the present. Their survival is based upon, somehow, having a guaranteed present...[The university department with tenured faculty is a good example of such an organization]." (Goodman, 1973: 221).

3.11. Uncertainty

"A critical planning task is to discover, assess, and address uncertainty." (Brewer and deLeon, 1983: 63). There is major uncertainty in Australian higher education - relating to both external (such as funding constraints) and internal factors (such as a lack of skills in modelling).

Downey and Slocum have argued that "Given the central role of uncertainty in modern organization theory, it is imperative that organizational research become introspective regarding this

concept." (Downey and Slocum, 1975: 562).

Also, "Individuals perceptions of uncertainty can be expected to affect their task performance." (Downey and Slocum, 1975: 568).

3.12. Contingency theory

Contingency theories attempt to take a more sophisticated view of uncertainty than do universalistic theories.

Much modern organisation theory is contingent. Comparative analysis attempts to develop a sensitivity to nuances. A problem with contingent approaches is their difficulty in measuring less tangible variables such as conflict and organisational time. Such variables are critical in the analysis of systems which are highly abstract, such as higher education systems.

"Intuitively, contingency approaches represent a rather sensible and intriguing theoretical development." (Moberg and Koch, 1975: 109). However, "Given the present developmental stage of contingency research, it is clear that integrated treatments of contingency findings are highly tentative." (Moberg and Koch, 1975: 110).

Universalistic models are often argued to be the opposite of contingency models. However, "When underlying assumptions are considered, universalistic models assume a form which is very close to a contingency approach; and when the assumptions of certain sets of universalistic models are taken together, these models in fact define contingencies." (Moberg and Koch, 1975: 112).

3.13. Training

If sophisticated organizational analysis techniques such as contingency analysis are to be used rigourously in higher educational institutions, it is crucial that higher educational administrators be given training in them. Also, "...efforts aimed at practitioners should focus considerable attention on the process skills which are required to effectively apply contingency models - skills like situational diagnosis, self awareness, and problem solving." (Moberg and Koch, 1975: 120).

The need for training of administrators in higher education, in contexts where skills are lacking, is also highlighted by Hrebiniak and Joyce who state that "...it is reasonable to argue that an inappropriate mix or insufficient number of internal capabilities will prevent organizational from acting, despite the benignity, munificence, or lack of threat of the environment." (1985: 342).

3.14. Transferability of technology

Training is often seen as playing a key role in the transfer of technologies.

Dubin has argued that "...[A] feature of machine technology is that skills tend to be less and less transferable from one kind of operation to another." (1959: 176). The transfer of skills-

based technologies in higher education is also becoming more difficult as disciplines become more and more specialised. This was not such a problem traditionally, but in a context where the development of new disciplines and the decline of established ones is occurring at a much more rapid rate than previously, this is becoming a concern. The concern is compounded in a situation where higher education funding is stable, and where any expansion in provision in one discipline requires a commensurate contraction in another. One response in Australia has been to place more and more academics on contract appointments. This tends to lead to less security for academics, and an orientation towards speedy results and an emphasis on areas of work which are readily measurable (such as publication quantity rather than quality of published work) to assist with renewal of contracts.

Such an organisational context can easily lead to alienation amongst staff who subscribe to a philosophy of producing quality work using internally-set standards to measure, rather than large quantities of work which is judged by non-rigourous externally set criteria (such as numbers of time work cited in the Social Science Citation Index).

3.15. Alienation

Blauner has argued that "Alienation exists when workers are unable...to become involved in the activity of work as a mode of personal self-expression." (1964: 15). Such a context is clearly the case for many academic staff on contract appointments who have very limited autonomy or self-direction.

The potential for such alienation is increased when one takes account of the high educational attainment of such academic staff and that "One factor which is most important in influencing a man's aspirations in the work process is education. The more education a person has received, the greater the need for control and creativity." (Blauner, 1964: 29).

As tertiary institutions find it more difficult to cope with resource cuts, the level of alienation amongst all staff tends to increase. This is because the amount of dependence between staff increases, often in a coercive context (such as involving decisions on allocation of resouce cuts). "Coercive dependence alienates persons (including persons in impersonal institutions) from each other; each views the other as an object." (Wilson, 1975: 286).

3.16. Information and data

It is possible that, other things being equal, alienation will be reduced amongst academics if they are given access to information and data relating to institutional planning (in particular in relation to their own disciplines) and the opportunity to input should they feel that the conclusions being drawn from the data and information are invalid.

It has been argued that "The view of organizations which is taken is grounded in the experience of data." (Pugh and Hickson, 19).

However, it needs to be noted that "..."information" has

qualitative aspects that are not taken into account by information theory's quantitative emphasis." (Taylor, 1975: 82 - 83).

"There is a vast increase in the volume of accessible information - and as the time available to individuals to read, consider and understand does not expand correspondingly, knowledge is becoming fragmented." (Jones, 1982: 5). In future a key emphasis in higher education might be to reduce the fragmentation of knowledge. This could be assisted by using computing technology to identify linkages between different areas of knowledge, as well as searching for information (as at present).

3.17. Systems approach

There is increasing interest in the use of systems approaches in higher educational administration and the structuring of teaching. Such an approach can be limiting for administrative contexts in that it fails to deal with conflict. Salaman has argued that "...while it is true that the systems approach is not entirely blind to the existence of conflict within organisations, it exaggerates the degree of consensus, and conceptualises the origins of intra-organisational struggle in excessively parochial, i.e. internal, organisational, terms." (Salaman, 1978: 523).

This does not imply that systems approaches are of no use. "In general, problems involving fewer ambiguous or conflicting values and fewer variables with better understood relationships are more likely to benefit from systematic analysis." (Langendorf, 1985: 423).

Systems approaches can be assisted with decision-support systems which involve such features as "...an "interface"...that isolates the user from the technicalities of the computer and fosters a dialogue based on the user's concepts...a systems design approach that allows quick and easy extensions and alterations...an interface that enables the user to examine the decision probelm from a variety of perspectives..." (Langendorf, 1985: 425).

The uses of ADP/decision support-augmented systems approaches may be expanded in a context where "...changes in [ADP] technology permit...a style of interaction with the computer described by Simon, Morton, Keen, and others as appropriate to semi- and unstructured, or nonprogrammable, problems - a style that is highly interactive with, adaptive to, and under the control of the user." (Langendorf, 1985: 426).

3.18. Complexity

"Institutional complexity...refers to a condition of many different roles which are highly interdependent." (Wilson, 1975: 283). Higher education systems incorporate many different roles, a number of which are highly interdependent.

"A system becomes more complex as the number of interconnected elements (variables and parameters) increases; most social problems and the systems in which they are embedded are both large and highly interconnected." (Brewer and deLeon, 1983: 88).

These factors pointing to increasing complexity exist in the higher education system in Australia. Increased interconnecting elements include an ageing population, calls for privatisation, increased federal government controls over in particular the non-University sector, and demands for the tertiary education sector to assist with the solving of broader social problems (such as inequality of access to learning).

The analysis of higher education systems needs to take account of the fact that "...modern social systems are complex." (Brewer and deLeon, 1983: 87) and that "...human beings have only a limited capacity to deal with complex systems as wholes." (Brewer and deLeon, 1983: 87 - 88).

Many futures researchers have hoped for a holistic analysis of educational system futures using such techniques as non-quantitative scenario generation.

3.19. Futures research

There is a wide range of futures research techniques which could be used more extensively in higher futures exploration. "Such methods include expert panels, extrapolation techniques, individual "expert" forecasting, statistical models, brainstorming, scenario building, simulation, historical analogy, probabilistic forcasting, Delphi techniques, operational models, cross-impact analysis, causual modelling, network analysis, relevance trees, gaming and contextual mapping." (Bell, 1983: 28 - for a broad introduction to futures techniques also see [Freeman, 1980 (a)] and for some analysis of their potential in higher education Australian contexts see [Freeman, 1978]).

3.20. Modelling

Brewer and deLeon have argued that "More appropriate data, interpreted in ways that produce useful information for analysis and estimation, have to improve a present condition too often marked by short or no lead-time decision making." (1983: 97). This is true; however, it does not take account of the shortage of personnel with the skills required for such future options analysis. Increasingly, such analysis requires modelling skills which are in short supply amongst educational administrators who have tended to be trained more heavily in qualitative rather than quantitative disciplines. A major danger without such modelling skills being available is that decisions may be made purely on ideological grounds rather than on sensitivity to the impact of changing key variables.

Lack of skills by practitioners (particularly in a context where computer technology is becoming less expensive and more powerful) could partly explain why "...for many years now observers have noted that even when computer models have been available, they have not been used often in decision making..." (Langendorf, 1985: 422). Langendorf gives one reason for non-use the fact that "...decision makers do not understand...the models..." (1985: 422).

Another difficulty is that "Most computer models used by planners have been developed for structured problems. Most decision making

in planning, management, and policy addresses semistructured or unstructured problems." (Langendorf, 1985: 424).

4. CONCLUSIONS

The organizational planning and systems perspectives can be very useful in exploring positivistic aspects of futures in higher education. However, such an approach should be complemented by the more broadly oriented perspective which comes with an organizational technology analysis of organizations.

The organizational technology perspective is particularly useful in terms of exploring the reification of so many technologies currently used in higher education.

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