

Schools, Organisational Learning and the Use of 'Scenario Analysis': Some Research Results

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Abstract

For organisations to anticipate the future in a rapidly changing, volatile environment requires more than systematic analysis of the present. It demands creativity, insight and intuition about possible futures. Scenarios - stories about possible futures - combine these three elements into a foundation upon which robust planning and development strategies aimed at change can be implemented. A good scenario enables an organisation to learn and plan for change.

This paper outlines the findings of research carried out in several large independent schools in Sydney where scenario analysis was used to stimulate participants to think about the future and how they could plan for change. It demonstrates how the concept of scenarios and scenario analysis were operationalised. The reactions of various participants to the process of scenario analysis are also reported. Based upon the research findings some guidelines for developing and using scenarios and scenario analysis are presented.

Introduction

From its inception school education has been called on to transmit core knowledge and cultural values, provide custodial care, and prepare students for life after school, the most important aspect of which is critical thinking for problem solving and decision making (Betts, 1992). Schools have been very successful in the first function, generally successful in the second, but much less successful in the last. School education has been one of the prime sources of stability in our society. The success of schools as institutions which are concerned with cultural maintenance is at the centre of their failure to perform effectively and efficiently in relation to rapidly changing societal expectations (Betts, 1992).

Schools have tended to operate during this century within a reductionist/functionalist, individualistic, moral relativist organisational paradigm that expects good organisation to be naturally evidenced in controlling, bureaucratic type structures. It is therefore not surprising that schools have difficulty becoming 'learning organisations' that can anticipate change and respond to the rapidly changing and ever increasing demands made on them (Barrett, 1997).

Over the past decades much educational reform has been focussed upon refining existing organisational structures through the targeted application of ever narrower versions of the old paradigm. However, no amount of fine tuning of the old system will produce significant improvement. If schools are to really change in response to the new demands the issue of how to encourage these institutions and those who work in them to learn new ways of working and structuring themselves becomes paramount. The underlying problem is that a century of school management practice has buried, in the general organisational cultural unconsciousness, the values, attitudes, and beliefs that are needed to bring about such a transformation.

The solution is in a widespread reawakening amongst education professionals, of holistic/interpretative understandings of knowledge, learning and organisations in order to bring about cultural regeneration. Such systemic change will necessitate the creation of learning communities where the aim will be to serve the needs of these communities and the needs of the nation by promoting and supporting learning at all levels.

This perspective is taken a step further by Fullan (1996) who suggests that what is required is a fundamental redefinition of teaching and learning that includes radical changes in teacher preparation, in the design and culture of schools, and in the teachers' day-to-day work. The role of the teacher of the future will be both wider and deeper, involving at least six domains of commitment, knowledge and skills including: a greater focus on teaching and learning for specific outcomes; working collegially; understanding the context; lifelong learning; understanding and modeling moral purpose; and the ability to manage the change process (Fullan 1996, p. 422). He adds the rider that it is impossible to improve student learning for all or most students without improving the learning of all or most teachers. It is clear that to improve this learning process and achieve all the other requirements for cultural change a new management paradigm has to be established in schools. What is needed is systemic reform involving strategies (such as reculturing) in order increase the capacity of educational systems to manage change effectively on a continuous basis.

Consistent with the adoption of corporate management models and the prevailing climate of economic rationalism in which such models operate, current educational change policy activities focus on issues of accountability, assessment monitoring, performance indicators, quality assurance, and school effectiveness. Such practices are widespread both within Australia (e.g. Chapman, Angus, Burke & Wilkinson, 1991; Commonwealth Schools Commission 1985; Cuttance, 1992) and elsewhere (e.g. Cuttance, 1992; Organisation for Economic Cooperation and Development, (OECD), 1992). In light of the high level of public expenditure on school education, this is not surprising (see, for example, Goodlad, 1982,1983; Department of Education and Science, 1984; Dawkins, 1988, 1990; Rowe, Hill and Holmes-Smith,1995; Coleman et al., 1996). However, such practices do not ensure, nor necessarily contribute to continuous improvement. The need for a new management paradigm which requires schools to be constantly adaptive, and able to create new dynamic patterns is essential (Middleton, 1985, p.3). Change in schools requires a management paradigm that is participative rather than autocratic; gentle and adaptive rather than brutal and traumatic. Middleton's insights indicate the need for a 'philosophy of change', rather than a 'changing philosophy'.

In Australia the concept of organisational learning was strongly supported in the Karpin Report (1995) which identified organisational learning as the standard philosophy to be adopted by all organisations in Australia by the year 2010 (Karpin Report 1995, p.12). The question worthy of consideration is how suitable is organisational learning to schools and, if it is found to be appropriate, how might schools be encouraged to adopt such a philosophy.

The core business of schools is teaching and learning. Unfortunately, it is the students who are expected to do most of the learning. Those who work in schools are also involved in learning, but frequently this learning occurs within a fragmented and individualistic culture and does not have the positive and constructive impact upon the whole organisation that it could. The suitability and effectiveness of some of organisational learning methodologies has been reported previously (Laws & McLeod, 1996, 1997, 1998). The suitability and effectiveness of a further methodology, namely 'scenario analysis', to school education, is the focus of this paper.

Schools and Organisational Learning

Organisations need to develop new ways of evaluating information and ideas and then find new ways of translating them into action (Bounwen & Fry, 1991; Shiba & Graham, 1993). Learning in organisations needs to focus on 'double loop' or 'generative' learning that allows causal factors associated with problems and new initiatives to be identified (Argyris, 1990; Senge, 1990). In this way learning organisations may be created.

In N.S.W. over the past few years initiatives have been taken by the Department of School Education (now the Department of Education and Training), that encourage schools to become learning organisations. The first initiative was the release of a discussion paper on 'Quality Teaching, Quality Learning' (1994) which highlighted ten key characteristics of quality teaching. This was followed by a second discussion

paper on 'Schools as Learning Communities' (1995) which focused on linking individual and organisational learning, based on the principles espoused by Senge in the five disciplines of personal mastery, shared vision, mental models, team learning and systems thinking. A further paper ('Building Learning Communities in Primary Schools', 1996), emphasised the importance of building communication and interpersonal relationships and developing a positive school culture that incorporated effective change, leadership and management.

The desirability of developing schools as 'real' learning organisations in which everyone in the school community was involved in learning has also been raised elsewhere. For example, in the United States, Peter Senge (in a discussion with O'Neil, 1995, p.20), while advocating the advantages of schools as learning organisations, admitted that this would be difficult. He pointed out that the complex, stratified, and fragmented structure of schools made innovation difficult and suggested that in many cases teachers felt oppressed by the rules, goals and objectives that were imposed on them. Frequently, educators displayed the characteristics of disempowerment, where decisions were imposed, and participants did not perceive that they had any leverage to make any difference in their work situation. These isolated, fragmented, and 'balkanised' staff members, however, were usually very dedicated to their tasks, and Senge recognised that these characteristics could be harnessed as a strength, if they could be directed towards organisational learning.

Although the culture of schools is such that the immediacy of the situation within which teachers work is emphasised, the skills associated with scenario analysis are likely to become more important to schools of the future. According to Snyder et al. (1996) and Dalin and Rust (1996) it is essential that many of the deep-rooted traditions of schooling become extinct and that new dynamic and energetic work cultures emerge to take their place. Schools of the future, and those associated with them, will need to possess knowledge and skills that allow them to share a vision and work towards achieving that vision over time. In such schools principals and other members of the school community, will build cultures that centre on student needs for 21st century life. School leaders will operate as designers, teachers, and stewards of the school culture (Snyder et al., 1996, p.19). In schools of the future teachers will be continuously motivated to learn themselves and to share their learning. Schools will develop toward becoming learning organisations where the standard is that the entire staff participates in investigations, does research, works together and creates results together (Dalin & Rust, 1996. pp.150-156). Schools will become organisations emphasising collegiality and collaboration.

When the nature of learning in the workplace is investigated it usually brings reference to adult learning theory which is often characterised by a situation in which the learners are self-directed, the learning draws directly from life (and presumably work) experience, the readiness to learn is self-determined, and there is a strong problem-solving orientation to the learning (Mai, 1996). Despite this very positive picture of adult learning, within any school or organisation there will be individuals who will be reluctant to participate in learning situations which challenge their zone of comfort. One important role for leaders of future schools will be to provide a climate of support for those who are eager to learn and develop, and to encourage those who are more reluctant to understand the personal as well as the organisational advantages that can arise from learning in a collegial situation.

The concept of schools as learning organisations remains an exciting prospect that provides a new focus for those responsible for educational excellence. The application of organisational learning methodologies such as 'dialogue', 'learning histories', and especially 'scenario analysis' can be used to assist schools to meet the challenges of the new millennium, and indeed help them to create their own futures (Senge 1992).

What is Scenario Analysis?

For school communities to anticipate and plan for the future in a rapidly changing, volatile environment requires far more than systematic analysis. It demands creativity, insight and intuition. Scenarios - stories about possible futures - combine these three elements into a foundation upon which robust change strategies can be developed. The test of a good scenario is not so much whether it portrays the future with extreme accuracy, but whether it enables a school community to learn and adapt through analysis and reflection of the issues raised.

Scenarios have been described as sets of alternative environments in which decisions are played out. They are not predictions, nor are they strategies. Instead, they consist of descriptions of different futures specifically designed to highlight the risks and opportunities inherent in specific strategic issues. Alternative scenarios provide a way of focusing on the future without locking in on one forecast to the exclusion of others. Scenario analysis is therefore a tool for ordering perceptions about future environments. In practice scenario analysis resembles a set of stories, written or spoken, that are built around carefully constructed plots. Scenario analysis presents alternative images, instead of merely extrapolating current trends. Leithwood (1996) suggested that exceptional accuracy in predicting the consequences of current trends is not essential. The only prediction required is the acceptance of the fact that organisations such as schools will continue to face a steady stream of novel problems and ambitious demands in the future. He did maintain that these demands and problems most certainly will generate considerable pressure, for both individuals and groups, to learn new and more effective ways of going about their core business.

Scenario planning differs from other planning methods. Whereas contingency planning examines only one uncertainty and presents a base case plus one exception (contingency), scenarios explore the joint impact of various uncertainties, which stand side-by-side as equal possibilities. While sensitivity analysis examines the effect of a change in one variable, while keeping all other variables constant, scenarios on the other hand change several variables at a time. Thus scenarios go beyond analysis that includes subjective interpretations and organised possibilities, into narratives that are easier to grasp than great volumes of data. Perhaps the most important characteristic of a scenario is that it challenges the prevailing 'mindsets' of those in the organisation (Schoemaker 1995, pp.26-27).

Successful scenario analysis sessions require participants to observe certain protocols. Firstly, it is necessary to put aside any assumptions about norms, politics and structure in order to provide an open, non-threatening environment. Secondly, a communication structure must be established in which the underlying norms and values of the existing organisational culture can be examined openly and freely. In

this communication structure the opinions of all participants must be accepted and viewed as appropriate and equal. Later in the process it is likely that decisions will need to be made about competing viewpoints and value positions, but in the first stages the skills of dialogue need to be utilised. Usually the process of scenario analysis is facilitated by a person who ensures the dialogue stays focussed on the future and the communication remains open and non-threatening (Hosley et al., 1994).

The purpose of scenario building is two-fold: to challenge an organisation members' present perceptions, and to enable leaders to decide ahead of time what they would do in any of a possible range of futures. The first purpose is just as important as the second. It forces members to realise that their current perceptions may be blinding them to possible better futures. A scenario can present situations in which participants are encouraged to rethink their underlying assumptions about their work and to search for new and better ways of doing things. These new perceptions will not be achieved by traditional predictive tools such as forecasts or trend analyses. They will be achieved by understanding the forces that create alternate desired outcomes.

The perceptions of individuals in an organisation such as a school are all important because it is from these that strategies for the future are conceived. The tool of scenario analysis enables people to become aware of their own perceptions and the perceptions of others. Predictions are of little value when considering the importance of perceptions of future realities. Perceptions are not changed through better predictions. Perceptions are changed by considering a range of possible futures. This visit into the future makes people better prepared to face uncertainties because they have already visited those uncertainties.

To build a strategy that will assist an organisation meet future challenges a shared view of the future is required. The quicker organisational members see the ways in which the world and their organisation is changing, the faster they will create a new shared vision. Once a shared view of the future is developed within an organisation the more relevant any forthcoming strategies will be. For any learning within an organisation to take place, however, an interface is required. Scenario analysis uses the scenario itself as the interface. Scenarios can be viewed as all-encompassing interfaces because they take participants' views, outline them in a story, wrap it with well researched possibilities which then help participants critically analyse their views and effect a learning process.

Scenario Analysis in Schools

During the past four years we have been working with a network of over forty senior leaders from about 35 schools (Laws & McLeod 1996, 1997, 1998). All participants are interested in how they could assist in recreating their schools as learning organisations through the use of specific methodologies. Two large independent schools became involved in our work and requested that we work with them on a 'whole school' basis. These schools became the prime research data collection sites for the application of scenario analysis reported in this paper. For purposes of confidentiality they shall be referred to as College 1 and College 2.

Our first efforts to operationalise the concept of scenario analysis occurred during learning organisation workshops held with the leaders from the 35 schools and at College 1. Participants were challenged to look at four possible future scenarios of schooling crafted from Ogilvy's (1996) work in the United States on 'Education and the community: four scenarios for the future of public education'. Ogilvy (1996) suggested that the scenarios demonstrated that community-related dimensions of uncertainty were at the core of educational issues. He indicated that two clear dimensions could be identified. One dimension of uncertainty concerned the level of involvement of various stakeholders. Ogilvy presented this dimension as a continuum with 'hierarchical' at one end and 'participatory' at the other. This continuum presented a contrast between various kinds of down-from-the-top, authoritarian approaches to education on the one hand, and up-from-the-bottom, grassroots approaches (captured, for example, in the enthusiasm for site-based-management) on the other.

The other dimension for describing different types of community Ogilvy again presented as a continuum labelled 'inclusive' and 'exclusive'. He argued that universalistic ideologies are inclusive to the extent that their guiding principles, whether politically or religiously inspired, are shared by, or can be imposed upon, everyone. But when these principles are not universally shared, they become sectarian, and their followers create exclusive communities. In reality these community related dimensions of uncertainty are in fact close to the core of all educational issues (Ogilvy, 1996). Ogilvy's model for four possible future scenarios are illustrated in Figure 1. The four scenario narratives developed from the model were labelled Orthodoxy (hierarchical- inclusive); Orthodoxies (hierarchical-exclusive); Wired for Learning (participatory- exclusive); and The Learning Society (participatory-inclusive).

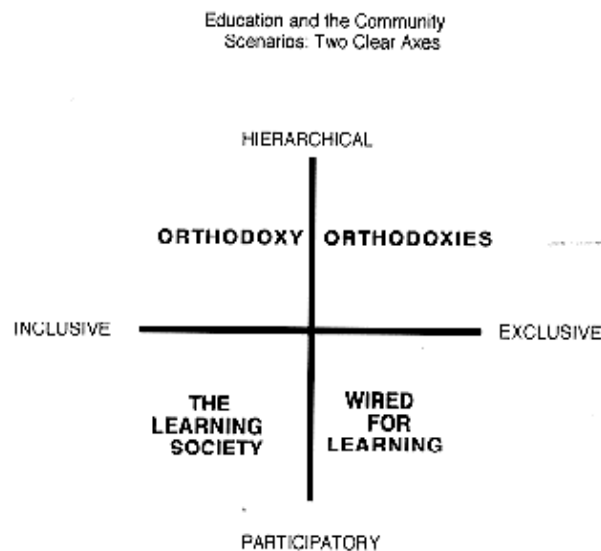


Figure 1. Adapted from Ogilvy (1996)

Looking at the set of scenarios as a whole, values played a very important role in three of the four scenarios: Orthodoxy was driven by the imposition of one set of

values on all; Orthodoxies was driven by the way strong attachments to different sets of values pushed different communities apart; and the Learning Society was driven by a transformation in values resulting from dissatisfaction with the present situation. The fourth scenario emphasised the increasing role new information technologies would play in changing the nature of schooling. The scenarios suggested that values were important but that new information technologies were highly likely to be the most influential feature over the coming decades, and these would alter the way in which people lived, worked, thought, and learned. An example of one of the scenario narratives is provided in Table 1.

Table 1

**A Scenario Analysis Transcript
The Learning Society Participatory (radical) Inclusive.**

In this scenario the pieces come together. Technology moves faster than in the first two scenarios, making this a radical change scenario. But the technology serves the ideals of inclusive community by facilitating a more participatory process than in the last scenario. Technology is a tool, not a driver. Technology is designed to enhance humanity rather than to make money.

The end of the twentieth century was difficult for many. Massive economic restructuring had left people nervous about their own welfare. Workers from all segments of the labour force had experienced the pangs of transition to new jobs and new industries. Many were still looking for work. Those who had jobs saw the demands on them multiply. Everything began to look like a fast-motion film.

Somewhere in the middle of all this, people lost touch with one another. Their lives permitted little interaction with those around them. Husbands lost contact with wives. Children rarely saw their parents. Many people lost contact with their neighbours. There was a collective realisation that society needed to grow back together again. Perhaps it was prompted by the social emptiness of those earlier years, which no degree of material well-being could ameliorate. At any rate, it signalled an enormous shift in focus away from oneself toward others. It can only be described as a revolution in values.

In their own ways and in their own communities, people began to reconnect with one another. It started out modestly, with activities like neighbourhood festivals in townhouse developments. Electronic networks created new forms of community, permitting congenial and convenient ways of meeting online. The concept of community was extended to include those with whom you were connected as well as your physical neighbours. In their own ways, these networks helped to extend local social networking by providing an effective way to share news and announce events.

Time was undeniably precious in a speeded-up world, but the expansion of social networks among people led them to creative solutions for problems they had previously been forced to deal with on their own, such as child care. As the ties that bound people to one another strengthened, violence was choked off at its roots. School curricula encouraged students to understand and respect one another. Children were taught strategies for managing aggression. Cross-cultural understanding was promoted. Within communities, members learned how to solve their conflicts peacefully.

Source: Adapted from Ogilvy, J. (1996) Education and the community: four scenarios for the future of public education. Deeper News, E-Mail version.

At workshops where participants were drawn from many different schools the four scenarios were selected because it was believed that they had relevance to teachers and their schools irrespective of the particular culture of specific schools. At these workshops participants actively discussed the scenarios and their implications and stated that they considered the scenarios as being relevant and thought provoking, although in a general sense.

The situation was quite different at College 1. Participating staff at this school were drawn from all sections, primary and secondary, and across all Key Learning Areas. They were asked to study the four scenarios and were invited to discuss how and why the scenarios might be relevant to the future of the college community. The resultant feedback from participants indicated that they were clearly uncomfortable in having to think about the future as a result of exposure to these possible scenarios. The scenarios certainly struck a chord with participants as they indicated that many of the features highlighted were already playing a large part in school life.

To ask participants to think about the world their students were going to enter in the future raised some anxieties about the effectiveness of how they currently were teaching their students. Some participants felt uncomfortable when they were faced with an exercise such as this that required them to engage in thinking about their current teaching methodologies and the future needs and possible worlds of their students.

The findings indicated that teachers generally did not perceive themselves as being able to set aside, in their normal working day, sufficient time for 'professional reflection' on whether they were adequately preparing their students for the futures that faced them. However, scenario analysis provoked all staff to be more reflective of their teaching practice, and to consider the future worlds that their students would be moving into. This opportunity to be reflective, allowed the teaching staff to become more perceptive of their own strengths and weaknesses, and thus be more effective in planning their day-to-day teaching tasks.

Critical reflection by the authors on the appropriateness of the above four scenarios revealed some distinct deficiencies. While the scenarios may well have been suitable for consideration by education administrators, policy makers and planners, they raised a number of concerns when they were used with classroom teachers, who found some of the concepts difficult to relate to. There seemed a need to create scenarios that related more closely to the specific culture of a particular school. The society-wide scenarios were a little too distant from the micro-worlds of the teacher participants at College 1.

As a result of this evaluation it was decided to use a different approach at College 2 where three specific scenarios were tailored to the specific culture of the college and its future vision and needs for the year 2010. A sample of one of the scenarios is presented below in Table 2. This workshop, attended by all teaching staff, commenced with a brief introduction to scenarios and scenario analysis and an explanation of the rationale underpinning the workshop. Each individual was then invited to read each scenario and list two advantages and two difficulties that they

perceived evolved from each scenario. They were then invited to join a small group consisting of around six to eight people to discuss their responses.

Table 2

A Scenario for College 2

Joanne has just returned from Chiba Keiai in Japan after her full Semester exchange with her Year 8 Form Class of 25 girls. This cultural exchange has been described by one of the students as the most exciting experience of her life. Joanne can now look forward to the return exchange of 25 Chiba Keiai students for the final Semester of the year.

Joanne has lived an exciting life. In 2009 during the first semester, Joanne took a Year 10 class to Assumption College in Bangkok. Joanne who has elected to be part of the International Program at College No2. can look forward to more travel in 2011 when she will take a Year 7 class to Woodward Academy in USA and in 2012 will lead a party of 100 students plus staff on a 2 Semester circuit of 6 or our 18 sister schools in China.

Joanne has a Masters Degree in Cultural Studies and is researching towards a PhD in International Education which is offered by the World IT University centred in Kennettbanks (formally known as Melbourne). Joanne is researching on the run and is in constant contact with her doctoral supervisor by super Email express (an up market version of the old Email that allows vision, sound, and written contact simultaneously).

Suzy Howard, a student in Joanne's class, is one of the Nationally recognised gifted at College No2. and will complete her Year 12 University entry later this year and will begin her under graduate studies at the College No2. University in July 2011. The first six months of 2011 will be spent with a research and mining company in Antarctica, where Suzy will be researching the methods and technology used to tap the world's largest natural gas resources.

In an interview on National Television Suzy stated that the reason College No2. was such a great school was the fact that all students enjoyed attending the school as they experienced a sense of self-worth, challenge and lasting achievement. Secondly at College No2. all children "learned how to learn" under self-motivated and self-managed conditions. Suzy paid tribute to the hard work of teachers like Joanne in the interview.

Joanne is also the creator and Director of the "College No2. Creating a Futures Village for the School Community" program which has been successfully operating under her direction since 2001. At the last "Futures Village" day more than 65 presentations were held throughout the day and all were then placed on the school web site. The "Creating Futures Program" encourages all members of the school community to voice their needs for the future and this allows the school management to dialogue in a special way, with all members of the school community, who wish to contribute their ideas.

Community ideas for the village of the future are most welcome and communication is normally sent by super Email. The village does not stop because the school year ends. In fact, the village is always creating itself and is available for all who want to be a part of it. The school community is asked for actions and activities that they would like to help design and participate in for the next year.

In 2008, the Prime Minister (former Cricket Captain Mark Taylor) awarded Joanne the prestigious National Excellence of Education Award for her work in fostering the "Creating Futures Program" at College No2. Joanne has also been active as a consultant to the National Education Board on the implementation of this methodology in all States of Australia.

Later, in the same groups, they were asked to assume that if anyone of three the scenarios or combination of three scenarios could come true in the future, then what plan(s) could they, as the professional teaching staff, put in place now, to prepare themselves, their students and the school community for this/those possible-scenarios. At the completion of this exercise each group was then invited to combine with another group and to distil their responses to the same questions, but this time reflecting the views of everyone in the combined groups.

Participants were challenged by the scenarios and were surprised by the impact that new information technologies might have on their work futures. The perceived advantages listed below were supported and highlighted in almost every one of the groups (see Table 3). The increased opportunities for student learning and independence were accompanied by wide exposure to globalisation and increased opportunities for both gifted as well as less able students to thrive in such a system.

Table 3

Advantages that evolve from the three Scenarios at College No2

1. The scenarios confirm that the school caters for pupil needs efficiently.
2. The system especially caters for the less able and the gifted and talented.
3. Globalisation and the "global village concept" are promoted by the scenarios.
4. The system is "individualist" rather than "social".
5. Technology was used but was not the "driver"
6. The system promoted a good marriage between moral values, technology, and the pastoral care of the students.
7. Co-operative learning was embellished.
8. Pupils faced an environment where there were increased opportunities to expand their performance.
9. There was continuing education for the teacher.
10. Students were positive about their experiences

The participants were also invited to present their perceived difficulties (see Table 4). Here participants clearly identified their mistrust in information technology to solve all student learning problems. The teachers clearly expressed a need for a balance to be developed between the use of computers and other information technologies and the social, moral and pastoral needs of the pupils.

Participants also expressed concern over possible lack of motivation by pupils as they saw that the success of many aspects of the scenarios as being largely dependent upon

student self-motivation. It would seem that some pupils would be involved in more independent learning situations and may be not so closely in contact with their teachers. Fractured communication lines and social isolation could lead to teachers not being able to identify learning problems as is the case when teachers and students are regularly placed in face-to-face contact. They considered appropriate strategies that could be set in place to overcome this problem.

Table 4

Difficulties that evolve from the three Scenarios at College No2

1. Isolation for both pupil and teacher.
2. Too much reliance on IT and severe problems if the system crashes.
3. Computers are only one way of learning... need for more social interaction.
4. Even more responsibility for teachers, especially overseas.
5. Concern for fractured pastoral care responsibility within the system.
6. Perceived need to change the present curriculum to adapt to the future system.
7. Motivation of the students would need to be high or else severe problems would develop.
8. Teachers felt pressured that more was expected of them in terms of their time and expertise.

Finally participants were invited to suggest strategies that could be put in place today to adequately prepare the school community for the future scenarios. These strategies are outlined in Table 5 below.

Apart from the expected concern from participants to ensure that the appropriate software and hardware was available to cope with the changes anticipated in the scenarios, it was refreshing to note participants expressed a deep concern for a 'balanced' approach to education be maintained and that information technologies should be used to enhance teaching and learning processes but not dominate the educational agenda.

Participants wanted a 'total and balanced education package' for their students. Attention was focused on the need to foster the development of social, artistic and sporting talents of the students along with their development in spiritual and humanitarian qualities. The need to enhance critical analysis skills and to assist students to develop adequate 'independence' skills was also a concern.

Table 5

Suggested strategies that can prepare the College for the future

1. There is a need to provide more computer hardware resources for staff now.
 2. More resources are needed now in staff training for languages and IT.
 3. Consideration needs to be given today to any planned future buildings, and other resources to ensure that they will be compatible to students future needs.
 4. Staff need to be conscious of the need to balance the learning needs of pupils with their pastoral care needs.
 5. Staff must not neglect the social interactions the school provides for the pupils and these include sport, art, music, drama, debating which are essential for a balanced maturation of the pupil.
 6. If pupils are be allowed to enter and leave the campus as they please then there will need to be a new and more sophisticated attendance monitoring system than is at present in place.
 7. The change for pupils to go from "dependence" to "independence" will require some preparation on the part of both pupil and teacher and teamwork will need to be enhanced.
 8. Teachers will need to develop new strategies to foster critical analysis in their pupils.
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The participants reported that the most important benefit derived from using scenario analysis was that they had to think about their new roles in the world of work that would be different from their present experiences. Some were challenged by the fact that they were given what they perceived as less 'control' over their students in the three scenarios, but, paradoxically, in some ways they accepted that they were likely more responsible for them. Some staff were clearly challenged by the provocative scenarios and felt inadequate to cope with the changes. The fact that staff were starting to talk about the need to be lifelong learners and to continue their own learning journeys was most encouraging.

Commentary

Six months after the completion of the workshops at College 2 it was decided to conduct a series of interviews with staff from a variety of different faculties in order to determine whether the process of scenario analysis had produced any lasting changes. Interviews were taped with the permission of the participants and transcripts prepared. These produced some most positive responses:

Let me say that the scenarios ... were very relevant to what we are doing as - teachers... particularly the internationality of the school ... multiculturally and from a marketing point of view.

When asked whether any changes or evidence of reflective behavior could be observed in staff after the workshop one Coordinator responded

Within meetings and certainly outside of meetings immediately afterwards within the first month or so, there was a lot of discussion going on. There was a lot of intellectualising about it. A lot of wondering about what the next ten years is going to be like.... both positively and negatively within themselves.

I guess with regard to my own teaching or the difference that the scenarios made to me would be a much greater interest and awareness of the role technology is going to play, and the need to stay updated in that field.

An analysis of other comments made by those who participated in the workshops indicates that their involvement in the scenario analysis process generally increased their awareness of the likely future of the school. They were able to relate to current developments and see where these might lead. The future increased use of information technologies was acknowledged, however, this produced a somewhat ambiguous and guarded response from some, and certainly raised the issue of the need for adequate resources in terms of hardware, software and staff training. There were those who could see advantages in using new technologies to help students learn. On the other hand there were those who refused to acknowledge that these technologies had any relevance to the subject areas in which they taught.

I think technology has its place, but not in my subject areas.

A further group thought that because they would retire within the next ten years that there was little need for them to bother with learning to use new technologies. Frequently the issue of changing teacher roles was raised, often in the guise of comments such as

One of the things I have had to develop as a teacher is to determine their (the students) individual needs and areas of difficulty they will encounter.

It was assumed that this could only be achieved through face-to-face contact with students. The possible loss of contact with students was seen as a negative result of likely changes. However other comments suggested that the group perceived the issues raised by the scenarios presented opportunities rather than problems.

There were some comments about pastoral care, contact dimensions ... but I did not sense an attitude of negativity ... it was more an attitude of well these problems could arise and it was important to accommodate them.

Generally, there was evidence of increased reflection about the future.

They (the scenarios) were certainly a stimulus to be reflective about our practice. ... At least we are now starting to think about it.

Another comment illustrates the positive outcomes of the workshop and the acceptance of changing teacher roles.

We did not feel intimidated, but were excited and stimulated ... the teachers had an attitude of 'OK, things might be changing, but I am going to change as well'.

There were some negative comments to the whole process of scenario analysis which reflected on a perceived inappropriate timing of the workshop (it was held on the first day of a new school year), and the difficulty that some group members had in thinking about the 'big picture' that was presented in the scenarios. Some were too preoccupied in thinking about what they would do tomorrow, not in what things

might be like in ten years' time. There was even a comment that questioned whether working in groups was appropriate for adult learners!

Generally, the comments made by the majority of staff indicated that the scenarios, which were specifically written to take into account particular cultural features present in the school, were considered by participants as most relevant. While not each one of the participants welcomed the questioning to their ways of perceiving their work roles, a sufficiently large group was identified to ensure that discussion of possible futures would remain on the school agenda. This critical mass of staff saw the scenarios as exciting opportunities to participate with colleagues in helping determine the future of the school.

Conclusion

Planning for the future enables an organisation to survive in a changing and uncertain environment. A deep understanding of the forces influencing this environment is needed if one is to successfully plan for uncertainties which can happen alongside predetermined events. The key is to be able to respond to changes fast enough in order to keep the organisation afloat and even profit from the turbulence by using its force to advantage.

Organisational learning can make use of individuals' learning abilities. A learning process takes place in this way which allows individuals to react quickly if a future which they have 'visited' comes about. Similarly, organisations can explore possible futures, record the actions which would be needed to deal with the situations and store these records for future use. This can be done through scenario analysis. A plan then develops from considering the possible uncertainties and influences. A greater understanding is gained and the strategy becomes one which is more in tune with its immediate environment.

Staff are a rich and precious resource that school leaders need to learn with and to learn from. To make changes to these mindsets requires extremely sophisticated and complex change agents. Scenario analysis investigated in this paper offers new hope in achieving this most difficult of tasks.

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