Education for the Emerging Future

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The IAFOR International Conference on Sustainability, Energy & the Environment
Hawaii 2019
Official Conference Proceedings

Abstract
Educational leaders need a framework to lead schools fearlessly into the uncertain, emerging future. In our rapidly changing world there is growing concern around the suitability of an industrial revolution based education model and debate around the keys to educating students for an unknown world. Many educators want change but feel confined by the existing system. The challenge for educational leaders is to look towards and lean into emerging future possibilities. To develop a pathway that rewrites the role of education and co-creates education systems that support and prepare students for an uncertain future. We explore ongoing research into the following structural elements that support this shift and provide a framework for every educator, student and parent to reshape education:
Rethinking schools as businesses where client (student) engagement drives decision making.
Embracing Purpose-Led leadership, developing adaptive cultures and aligning all aspects of education towards a purpose of educating students for an emerging future.
Exploring the power of design and to promote creative, individual experiences.
Increasing engagement using experiential methodology centred around solving meaningful, real world problems.
Using student led project based experiential learning to shift the focus from a knowledge based curriculum to a skills based curriculum and strengthen cross curricular relationships
And reframing existing systems element – like standardised testing, to be opportunities to manage uncertainty, problem solve and fail forward, rather than summative evaluations to be prepared for and taught to

Keywords: education, emerging future, change, leadership,

Introduction

There is wide spread dialogue in the education world about whether the current education system is adequately preparing students for a rapidly changing world[1] and how to best equip students with the skills required by the emerging workplace. This conversation parallels one in the business world as businesses grapple with changing rules of engagement and strive to adapt to disruption and a rapidly changing world.

While we know the world is changing, to a large degree, that's all we know. As identified by (Japp & Kusche, 2008: 80), "the future is uncertain" and as such "human beings are fundamentally incapable of predicting it" (Simon, 1990: 7–8; Taleb, 2008). There are a multitude of possible scenarios.

According to Shah (2008), "Education comprises a lifelong learning system to cope with the changing needs and aspirations of society," and by default, should be responsive and adaptive to the changing needs of an evolving world.

And yet it doesn't seem to be. Having spent the past 20 years working in a variety of traditional and non-traditional contexts across four different countries, my experience mirrors research[1]: while there are pockets of exciting and hopeful innovation, for the large part we are still educating students with an industrial mindset with no clear answers about how to do it differently emerging.

The research reflects this: "Educational change is known to be challenging and therefore research exploring the conditions that seem to facilitate change is important." (Woolner, P, Thomas, U & Tiplady, L 2018).

And so this ongoing research began with my appointment as Director to a remote education campus in the remote wilderness of Australia that serves as a residential, off the grid, experiential campus.

Attached to a city based private school, approximately 80 14-15yr old girls spend a term (or 8 weeks) of their grade 9 year immersed in farm life, living independently with limited access to technology and exploring broad sustainability concepts.

The program had existed for 15 years prior to my appointment as Campus Director. By the time I arrived, big questions had been asked and answered about the College's willingness to invest significantly in the program and infrastructure or shut it down completely.

Having committed to that investment our team was tasked with transforming all aspects of the campus - physical, cultural and educational, so it became an international leader in holistic sustainability education.

And we were encouraged to experiment with different pedagogy and program elements that could contribute to a transformational framework. Our research and practice centred around the questions of "How could we do things differently and create a system that was adaptive to the changing needs of an evolving world?"

Our first step was to clarify the purpose of this standalone experiential program and the student outcomes we were hoping to achieve.

Through a consultative process, our big idea became: to have students "Explore their unique role in promoting a sustainable future".

And we became immediately aware of two different sorts of problems: Firstly related to student outcomes - how do we integrate the transformation into the rest of their schooling and their real life at the end of the program? And secondly related to organisational culture and leadership mindset, how do we overcome the fear and reluctance of leadership to embark on a new radical path without assured outcomes (which only come as a result of the experience of the new pathway). Classic chicken and egg problem!

This was the starting point for our research.

This paper outlines where and how we looked for solutions. It then explores a series of interconnected tools that together, support and prepare individuals and communities to journey on the pathway to an emerging, unknown, uncertain future. Elements which provide a pathway that facilitates *organisations* to be adaptive and constantly respond to a changing world. And outlines our findings related to how these tools work in different situations or might be applicable in different contexts.

Methodology

Two core beliefs shaped our methodology:

Firstly, John Elliot's belief articulated in 'Action Research for Educational Change' that "teaching and research are innately and inextricably connected, rather than two separate activities".

And secondly, the concept of Improvement Science as outlined by Langley et al (2009) and the idea that improvement emerges from developing, testing, implementing, and spreading change (Perla et al., 2013).

Our Action Research attempted to identify system elements that cataylsed transformation and promoted adaptation to the changing needs of an evolving world. The majority of the research was undertaken over 4 years and involved 1120 female students and 26 staff from two different campuses of the same K-12 school in Melbourne, Australia. Process and reflections accompanied student, staff and management interviews.

In addition, ongoing research in various education and business contexts across several industries is still being undertaken to identify the cross-industry relevance of these elements.

So far, across these different contexts, our findings are that there are at least 5 elements that support the capacity to build skills, schools and organisation primed to navigate change:

1.   Real world experiential learning - Increasing engagement using experiential methodology centred around solving meaningful, real world problems;
2.   Purpose-led leadership driving organisational values and decision making
3.   The practice of reframing assumption and structural elements
4.   Co-creative Design and genuine stakeholder engagement driving decision making
5.   Promotion of Adaptive cultures that value change and are action oriented.

While we initially expecting to find a framework, what we have uncovered is more of an interconnected web of elements. This finding mirrors the idea that multiple components interact to achieve a planned result (Lee et al, 2009) and underpins the work of Project Zero at Harvard[2].

As we do more research, it would seem there are possibly more than these five elements. Similarly, as we understand how they look in different contexts and the interplay between them better, elements we initially saw as two, have become one. This journey has been about uncovering something, embedding the theory in practice, realising it's not the whole answer and looking for something else, as advocated by idea of Improvement Science (Lemire et al, 2017) and the work of the Carnegie Foundation, Stanford[1].

Body

Element 1: Real world experiential learning

There are various experiential based pedagogies – project based learning, problem based learning, design thinking, and service learning, to name a few, can all be categorised as experiential and potential embedded within a real world context.

Our research mirrors other research (Jarrotul Khoiriyah, & Husamah (2018). Anderson, (2012); Watson, 2015; Scheer and Plattner (2011)) indicating that the value of real world, experiential based approaches is that they:
•   strengthen identity and connection to place,
•   increase relevancy and
•   provides opportunities to practice skill transference.

They also allow skilled facilitators to nurture and develop more sophisticated cognitive skills such as analysis, synthesis, critical thinking, systems thinking, creativity and design by designing them into projects or experiences.

One Action Research project centred around the journey of shifting a K-12 single gender, city based private school Community Service program to a Service Learning model. Looking to embed something more aligned with College values, we embarked on research to determine effective ways of delivering/embedding genuinely student led, contextually relevant, experiential, service projects that met a genuine need and worked within the existing school framework using year 9 as a starting point.

A year into the project, our results demonstrate greater collaborative problem solving in staff, increased creativity in the results, larger commitment to their agenda and yet interestingly a less fixed mindset about how to achieve that agenda.

Shifting to a problem-based learning model with no specific pathway or right answers challenged both staff and students in a variety of ways. And while we have by no means achieved our goal of developing a culture of service embedded throughout the College yet, our findings in terms of student outcomes mirror outcomes outlined by Vanderbilt University[3], Astin et al., (2000), Craig (2017) and Brail, S (2016)

- Engagement increased in student groups who were more genuinely involved in the ideation, design and execution of the service learning project.
- There were observed increases in student understanding of how skills could be applied in different contexts.
- The shift in the student teacher dynamic increased students reported experiences of autonomy, willingness to creatively problem solve and capacity to reframe failure as an essential tool in discovering solutions.
- Creativity, critical thinking, curiosity, and resilience markers increased

Unexpectedly, students in leadership positions reflected a shift in their leadership style from directive to more facilitative which has direct implications for students as they move beyond education and into the world of work.

Ongoing, the challenges we now need to overcome are:

- How do we create authentic experiences for our students embedded within our community within the perceived constraints of the curriculum, timetable, and standardised assessment?
- How can we effectively train teachers and leaders to seek to ask great questions and facilitate well? This is key if they are going to feel comfortable leading their student to uncover solutions to problems that are genuinely unanswered.
- And how do we bring parents and other key stakeholders on the journey of transformation.

Element 2: Purpose-led Leadership

Purpose led leadership starts with defining a purpose larger than any single individual, which inspires other to bring to fruition. Then striving to embed that purpose throughout every aspect of an organisation and holding steady to that anchor in the face of adversity, uncertainty and criticism.

Walker and Soule (2017)[4] outline, 'A good organizational purpose calls for the pursuit of greatness in service of others. It asks employees to be driven by more than personal gain. It gives meaning to work, conjures individual emotion, and incites collective action'.

Research by Hadfield and Ainscow (2018) theorises, 'The creation and maintenance of a strong political mandate' creates the conditions within the system that are supportive of change as is "requires new thinking, attitudes and relationships across education systems". This highlights the interconnection between element 3.

Implicit in the concept of Purpose-led Leaderships is a Transformational Leader, characterized as one who articulates a vision of the future that motivates people to go beyond their self interest for the sake of the shared vision. (Yammarino & Bass, 1990).

In our research we have found many organisations to lack clarity of purpose – schools and otherwise. Or perhaps it exists, but is not clear to all members of the team. And on the rare occasions it is clear, it is not embedded throughout the organisation and doesn't drive every decision.

One aspect of our work was to clarify and embed the purpose of the remote residential campus.

When this research began, the purpose of the campus's existence was murky. Obviously, it took girls out of school at a challenging time and put them in a beautiful environment where they lived and learned experientially all those important things we are often too busy to teach at a regular school. Such as, communication and conflict resolution and owning the outcome of actions and decisions. But I would argue that you don't need a world class sustainability focused campus to do that.

By co-developing a purpose larger than 'to learn lifeskills' with a variety of stakeholders (Wilson and Ortega, 2013), and deciding the campus existed to facilitate an "exploration of students unique role in promoting a sustainable future'' everything shifted.

While the scope of this paper is not to outline how this re-shaped purpose was embedded within this school context, we can outline the outcomes of the shift.
• With a clarification of the term 'sustainable' to extended beyond saving water or utilising renewable power sources, teachers stopped pushing everyone towards science based investigative projects if they weren't appropriate for the individual student.
• Students were provided the opportunity to more genuinely co-design projects (element 4).
• Staff focus shifted from "getting through curriculum" to bringing every experience back to what this would mean for them beyond their residential experience.
• Crucially, over 7 years the reported student experience shifted from something students did (often described as being 'the best thing I did while at school') to something that catalysed a shift in the way they saw themselves in relation to the world and their place in it.

These finding are mirrored in research undertaken in an architectural firm. Once leadership was able to identify organisational purpose and lead from that perspective, it resulted in a simple shift in communication process. The shift allowed team members to more clearly see how some specific aspects of their work connected to the larger purpose of the organisation which then increased compliance with that specific process by 423%.

Element 3: Re-Framing

Initially we identified **Rethinking Assumptions** and **Re-Framing of Structural Elements** as two different elements, but as we explore them more and draw on other research, we are coming to feel they are actually two flavours of the same idea.

According to Ellis (2018), reframing is about seeing things from a different perspective and involves perceptions, meaning-making, and change. Essentially, changing our thinking around something. Mezirow (2000) outlines how it requires underlying and often tacit assumptions to be uncovered, articulated, examined, and changed.

Thinking drives behavior and behavior causes results. As Einstein is often quoted, "The significant problems we face cannot be solved with the same level of thinking we used to create them". And yet we are trying to build a new system with the same thinking as we built the old system – in both the business world and the education world. When we start to rethink assumptions and system elements infinite possibility opens up. And this is reflected in research from the Cloud Institute for Sustainability Education[4] and their belief that "it all begins with a change in thinking".

We see evidence for the argument of rethinking and reframing in Cairney's (2018) work with Remote Australian Aboriginal communities exploring the need to understand the variables that affect behaviour change and not assume that culturally significant elements will shape behaviour in the same way in different cultures.

And in research from the FYA (2017)[5] outlines the value of rethinking how individuals can apply the skills they have to different situation and different contexts in order to be successful in the emerging future.

One aspect of our research was reframing the value of standardized testing in a Melbourne based kindergarten. In interviews, teachers expressed concern about the time preparation for these test was taking and leadership expressed concern about the subtle competitive culture growing among staff in terms of cohort results. Our research explored possible ways to reframe these tests and the value of various reframes.

Results indicated a shift in mindset. The standardized tests went from being a way to evaluate teacher performance (which had become a reported pervasive unintended outcome of these tests) to an opportunity for students to experience uncertainty, problem solve in new ways and get comfortable with not knowing. Staff attitude to work also changed, reporting increased satisfaction, feelings of competency and being part of the team.

Element 4: Co-creative Design where Genuine Stakeholder Engagement Drives Decision Making

There is much scope for co-design in both school and business settings and research suggests outcomes increase with practices such as building collaborative cultures, restructuring, building productive relations with stakeholders, and connecting the school to its wider environment. All of which allow individuals (staff, students, parents, stakeholders) to make a contribution more in line with their motivations and capacities. (Leithwood et all, 1996.)

Co-design requires the role of the leader to be change agent and they openly challenge the status quo and assumptions (Wilson & Ortega, 2013), which links to element 3.

Our Action Research focused on co-creating updated curriculum at the remote campus curriculum as a result of purpose clarity. And providing student more genuine co-design opportunities as part of their assessment, also as a result of purpose clarity. This highlights the essential role of element 1.

Once the curriculum vision was agreed on by key stakeholders, a framework for adaptive transformation (which links to element 5) and a forum for ongoing implementation review was provided and staff invited to be part of the process in any way that worked for them.

Results indicated:
• Increased staff buy in as their reported sense of flexibility and autonomy increased.
• Increased sense of collaboration and shared ownership of the program which led to average staff tenure increasing from 1.2 months to 4.2 years over a 7 year period.[6]
• Increased willingness to experiment and openly feedback about successes and failures due to encouragement and lack of reproach when things 'didn't work'.
• Increased student outcomes as a product of:
1. The continual iteration process encouraged if outcomes were not yet being met
2. Increased creativity of ideas due to the experimental culture which provided scope to meet the needs of varied learning types.
3. More focus on student needs and outcomes, as focus on 'delivering curriculum' decreased. Nesbit and Lam (2014) describe identify a client centric organisational culture as being a key element in developing an adaptive culture (element 5)

While we didn't set out initially to promote an adaptive culture, inadvertently the process of co-design promoted adaptive behaviours, which shows the inter-related nature of element 4 and 5. And led to further research focused on the creating of a culture that embraced experimentation without fear of reprisal.

Element 5: Promotion of Adaptive Cultures that Value Experimentation and Shared Process.

Closely linked to element 4, O'Reilly et al (2014) define "Adaptive" cultures to be those that encourage risk-taking, a willingness to experiment, innovation, personal initiative, fast decision-making and execution and the ability to spot unique opportunities. In addition, they minimise the behaviors of being careful, predictable, and avoiding conflict.

Research suggests adaptive approaches prioritise shared processes among stakeholders (Wilson and Ortega 2013) (which links to element 4), and require individuals and organizations to question values, assumptions, process and policies that dictate behaviour. A culture of avoiding risk discourages people from challenging basic assumptions embedded within existing systems and processes that are necessary for provoking effective learning and (Lee et al, 2008) which shows the interconnection to element 3.

Kenney[7] identifies the attributes of an adaptive culture to be threefold:

• The ability for all employees, departments, and groups within an organization to collaborate effectively.

• The ability for members at all levels to network with others outside the organization,

• The ability for all employees at all levels to innovate and experiment without fear of "reprisal" or marginalization.

Ironically, this research stemmed from experimentation with different pedagogy and system elements within a risk averse culture because the experiential program was fixed in time and standalone in nature. In the context of College wide culture, it was a significant experience to try and transform and yet wasn't significant enough academically that we couldn't make a mess of that exploration.

Our Action Research had three elements:

• The showcasing of innovative efforts of staff regardless of outcome

• The creation of structured opportunities for groups to collaborate more effectively

• The opportunity for staff to question assumptions about various program elements and critically evaluate their relevance to the larger purpose.

Our findings indicated that

• There was initial reluctance to share teaching pedagogy and ideas that was not completely formed outside of the formalised action research process. Early adopters felt simultaneously proud and ostracised by their peers. Creating opportunities for those most disengaged and sceptical to share ideas was the most effective method of creating a more experimental culture.

• A shift in mindset catalysed by challenging assumptions (element 3) was required in order for staff to access opportunities to collaborate outside of the campus due to the perceived limitations of the location and unique timetabling due to the residential nature of the program

• Fear of conflict and defensiveness in staff around the validity of particular program elements was high at the beginning of the research. Encouraging debate around how various elements related to the purpose was sound to be most effective in dismantling this defensiveness and attachment. This then led to increased flexibility about how outcomes could be achieved and a higher level of acceptance of others 'doing it differently'.

Conclusion

In conclusion, we have found there are at least five interconnected structural elements, which together, provide a design framework – a set of tools any intrepid leader can use to navigate and adapt to the changing needs of an evolving world.

The interconnected nature of the elements is key and we see them becoming more powerful when they work together and the interconnections are emphasized.

We believe it is unlikely these are the only five elements and we are not yet clear if starting with a specific element in different contexts is more effective. With the limited research we have undertaken, at this stage, in different context the ranking of their importance seems different:

- In our work in schools, project based, real world experiential learning seems to be a priority consistently across all the research and literature.

- In our work with communities, purpose-led leadership and opportunities to co-create within that purpose driven framework seem to be most impactful. But what is a school if not a community?

- In our work with business, purpose-led leadership and rethinking assumptions seems to foster a culture of innovation and creativity which then drives profitability and engagement in a changing world.

This research has led to more questions, such as, how do we best foster these elements as skills in our educators, our learners and our leaders? How can we develop stronger interconnections between the elements? How do we develop the courage to pioneer when we sometimes believe the outcomes are too important to experiment with, especially in schools? How do we promote practices of co-design and co-discovery and best dismantle competitive cross silo cultures so wicked type problems can be tackled with greater likelihood of success because of the diverse perspectives and more wholistic understanding of the system elements people can bring.

In reality, the conundrum facing leaders and education administrators about how to shift to a framework or system or model that better supports our young people developing the capacity to journey fearlessly into the unknown is inherently challenging.

Many leaders are never going to feel comfortable making changes without the reassurance of results they can't see until they implement those changes. And as educators, culturally we are intrinsically uncomfortable with the idea of trial and error, or getting it wrong on the way because we value our young people too much.

But we can only develop a framework that will lead us fearlessly into an uncertain future when we are willing to constantly rethink attitudes as this allows us to choose what and who we become within the system, rather than what the system makes us.

And it is our willingness to experiment, review and then iterate that will allow us to adapt to the changing needs of an emerging future.

My hope is that by understanding the value of these interconnected elements leaders are emboldened to use them as a framework and society can reap the rewards of that boldness.

Footnotes

1 - Carnegie Forum on Education and the Economy, A Nation prepared: Teachers for the 21st Century, Carnegie Foundation, Washington, DC, 1986

2 - http://www.pz.harvard.edu/sites/default/files/2017-2018%20Annual%20Report%20Final3.pdf
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3 - https://cft.vanderbilt.edu/guides-sub-pages/teaching-through-community-engagement/

4 - Cloud, J (2012) Education for Eustainability EfS Standards & Performance Indicators 2012 edition with enduring understandings as found at: http://static1.1.sqspcdn.com/static/f/424420/16021174/1386274120107/Cloud+Institute+EfS+Standards++Performance+Indicators+2012+CE.pdf?token=MCdRXJljvgx9dwGEXt/a5AUaa6o%3D

5 – The New Work Smarts (2017) Foundation for Young Australians as found at: https://www.fya.org.au/wp-content/uploads/2017/07/FYA_TheNewWorkSmarts_July2017.pdf

6 – It is unlikely that providing staff the opportunity to co-design the curriculum was the only factor contributing to increases in staff tenure given the transformation of other aspects of the campus, however our research methods did not allow us to effectively control for other mitigating factors such as changes in staff physical work conditions etc.

7 - https://www.amanet.org/training/articles/creating-adaptive-organizations.aspx

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