

## Sowing seeds of wisdom for a greener future

**Janelle Hatherly**

McMahons Point, New South Wales, Australia

### Abstract

Many cultural institutions use terms such as ‘inspiration’ and ‘engagement’ in their mission statements to articulate the need to make meaningful connections with their visitors and local communities. This paper deconstructs ‘inspiration’ and isolates the very essence of personal fulfilment and collaborative mindfulness. It identifies the unique qualities of botanic gardens that foster inspiration and public engagement despite increasing global disconnection from nature and urbanisation.

The deep affiliation humans have with nature, and the ubiquity of plants in our everyday lives, sets botanic gardens apart from other cultural and recreational venues as ideal learning environments. By constructing meaningful ‘learnsapes’ within public gardens and empowering those who work in them to ‘go beyond the walls’, awareness of the importance of plants and the need for their research and conservation can be raised.

Outreach programs (such as community gardening) undertaken where the people live, enables local environmental issues to be addressed and resolved, and public attitudes and behaviour modified to promote lifestyles compatible with the sustainable and equitable use of resources. In this way, people realise that botanic gardens are interesting, involving and relevant ... and a great source of inspiration!

### Keywords

Community capacity building, communal gardening, education, inspiration, learning, outreach programs, public engagement.

### Introduction

I recently retired as a full-time professional educator. I had a rich and rewarding career involving school teaching, museums and botanic gardens education and exhibition development, as well as writing textbooks and popular scientific literature.

With more time on my hands, I am now in a position to reflect on the role of education in informal learning environments and the challenges facing our cultural institutions – botanic gardens, museums, zoos, libraries, art galleries, historic houses etc. This is highly relevant at a time when society is experiencing a technology revolution that is changing our world, faster and with greater impact, than the agricultural and industrial revolutions before it. In efforts to remain economically viable and popular, those who work in museums, art galleries, botanic gardens and historic houses are being pulled in all directions and are finding it difficult to answer the question: *What do we stand for?*

I formulated my ideas on paper to try and explain the essence of ‘inspiration’ to myself and isolate the very essence of personal fulfilment and collaborative mindfulness in a botanic garden context. My ideas were first in the March 2013 issue of the *BGANZ Newsletter*. As the BGCI 5<sup>th</sup> World Congress is a joint collaboration with BGANZ (and is also the 6<sup>th</sup> Biennial BGANZ Congress), what follows has evolved from that article.

## Learning and self-actualisation

Learning is both the process and a product of thinking. When humans take it to its highest level we are rewarded with 'a-ha' moments of self fulfillment and creative output. Thanks to those who have learnt before us, today we have reasonable explanations for why we learn, how we learn and, with advances in neurobiology, what happens in our brains when learning occurs.

A familiar and useful explanation for why we learn is provided by Maslow's Hierarchy of Needs (Fig 1). This hierarchy was postulated as long ago as 1954 by the psychologist Abraham Maslow, who suggested that humans are motivated to learn in order to satisfy needs, a condition that has evolved over tens of thousands of years.

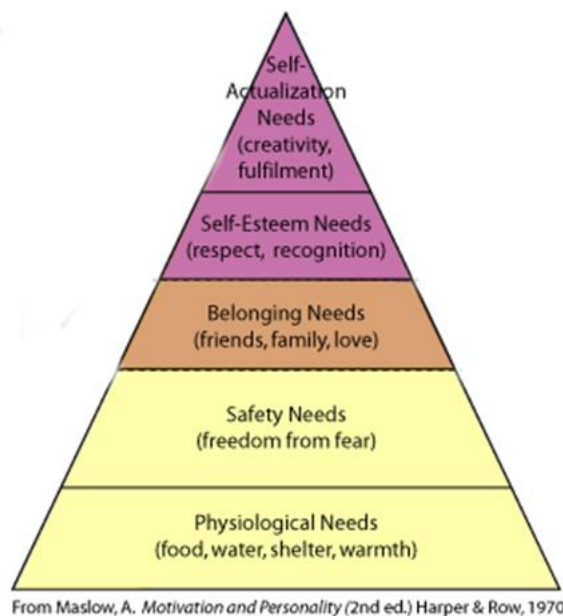


Figure 1 Maslow's Hierarchy of Needs provides a familiar and useful explanation of why we learn

The highest level of Maslow's hierarchy is 'self-actualisation' – being fulfilled and creative. This requires a commitment to thinking, learning and education. People have been musing about the nature of learning and knowledge for centuries. The relationship between mind and brain continues to fascinate us, yet remains a holy grail.

Maslow noted that very few people become fully self-actualised, because our society tends to reward motivation based on money, status, love and other social needs. Although we are all, theoretically, capable of achieving our full potential as persons, most of us are unlikely to do so because we are satisfied with less. Yet our contemporary world is the product of centuries upon centuries of such individualistic and collaborative mindfulness. Humanity's creative achievements are all around us. And for many artists, poets, architects, scientists and other creative thinkers, the natural world has been their primary source of inspiration.

As children, we learn from everything we do. Children are naturally curious; they want to explore and discover. If a child's efforts receive the right support and encouragement at home and at school, they experience pleasure or success. This makes them want to learn more and sets them on the path to becoming creative, adventurous life-long learners.

## The purpose of education

The primary purpose of education is to foster a love of learning. Most of us can think back to a teacher or adult who made a difference in our lives, opened our minds to new ideas and possibilities, helped us believe in ourselves and pushed us to excel and get the best out of ourselves.

Great educators/teachers bring their own passion and joy for learning to others. They help us learn by revealing relevance and relationships and encourage us to apply rigour – the ‘99% perspiration’ that brings self-actualisation. Those ‘a-ha’ moments produce creative objects and ideas for others to enjoy and use as scaffolding for their own learning. By communicating openly and working collaboratively, an environment where it’s safe to take risks is created and a learning community evolves. The age-old African proverb “it takes a whole village to raise a child” reinforces the importance of this methodology.

As far back as 1896, the Russian philosopher Lev Vygotsky showed the importance of dialogue and social interaction in cognition. His theory of a ‘zone of proximal development’ explains how, with assistance and instruction, we scaffold knowledge and modify our world views. This laid the foundation for many advances in pedagogy over the next century. For others, it provided a useful framework to interpret the role of informal learning environments – our cultural institutions. Freeman Tilden’s *Interpreting Our Heritage* and John Falk and Lynn Dierking’s *Learning from Museums: visitor experiences and the making of meaning* are two highly relevant references that have stood the test of time for readers wanting to learn more about this (Tilden, 1967; Falk & Dierking, 2000).

## The physiology of ‘a-ha’ moments

Optimum learning occurs when we take the time or make the effort to be observant and interested in the world around us; when we take on tasks or try to understand issues that extend us. It’s important that these are just beyond our comfort zone but within our achievable challenge-level. We can fail many times over but, as long as we get accurate feedback and positive reinforcement along the way, we will strive to master the challenge. When we do, we are rewarded with an ‘a-ha’ moment and are very pleased with ourselves.

Physiologically, performing such cognitive tasks causes an increase in dopamine release in the human amygdala (in the mid-brain) and we feel happy. This feeling of happiness motivates us to try again until we learn more ... and more. Learning promotes learning and, with practice, every individual can experience a degree of self-actualisation and identify with something bigger than themselves. (Fig 2a & 2b)

This explains the addictive power of video games and, while they are basically unproductive, their mode of interaction makes computers and the internet wonderful aids to teaching and learning. The brain is programmed to pick up patterns and humans use patterns to make links, infer and experiment until a positive result is achieved.

Yet, with technology moving so fast, our very ability to think is being curtailed. Information bombards our senses and our brains can only process so much. When individuals feel overwhelmed and ‘out of their depth’ (or more accurately, beyond their achievable challenge-level) stress-induced functional and structural changes in the amygdala are manifested as anxiety, frustration, boredom and often anti-social behaviour. Our brains are being rewired for quick bytes of information and we find it harder to slow down and build focusing capabilities. Negativity to learning caused by stress is becoming a global problem.

While we can’t hold on to our youth, we can hang on to the sense of wonder we had as children. Our cultural institutions (museums, botanic gardens, art galleries, zoos, historic houses etc.) are

optimal environments for lifelong learning, provided that education is their primary focus. These public places are human constructs: the collections within them represent what we as a society value. As such, they provide the ideal context for aesthetic appreciation and the deepening of understanding: places where we can reflect on the past; contemplate the present and imagine our



Fig 2. (a) With accurate feedback and positive reinforcement from artist Colley Whisson, I produced this oil painting. (b) The learning community (staff and Friends' volunteers) of Albury Botanic Gardens celebrate the successful completion of their Children' Garden

future.

### The botanic gardens context

Botanic gardens might be about plants, but they are defined by what people do in them.

Plants and gardens touch us in many different ways and meet so many of our needs. It requires teamwork to create environments in which a diversity of plants can grow and thrive, so that when staff and volunteers in a botanic garden pool their wide-ranging expertise and evolve their own learning community, they can create inspiring environments which are *highly* conducive to learning in the general public.

The American naturalist and scientist E.O. Wilson coined the term 'biophilia' to describe the deep affiliation we have with nature. Botanic gardens have a role to play in providing safe environments where our spirits can be rejuvenated and we can reconnect with nature in our rapidly changing world. Good education programs in botanic gardens can muster concern about the loss of biodiversity by drawing on their diverse plant collections. Visitors experience an 'a-ha' moment when they come to understand that loss of biodiversity is the most important environmental challenge we face, as it is the only irreversible one.

Many students experience an 'a-ha' moment in botanic gardens when they realise that all of the products we use come from plants or rocks. Thus begins their lifelong connection with conservation of Earth's natural resources.

Where we are also affects how we think and behave. In the peace and tranquillity of a botanic garden all our senses are stimulated and we find time to think. We attempt to make sense of our surroundings and make meaningful connections. We all learn differently and, more than any other cultural institution, botanic gardens can cater for all preferred learning styles.

The information from each of our senses is stored in different parts of the brain, but they are all interlinked by dendritic extensions of neurons. When a similar interest is triggered, often later and in another environment, multiple neurological pathways fire at once and memory making is

strengthened. Brain imaging studies show that every time we learn a new task, we're changing our brain and growing more neuronal extensions. Neuroplasticity has replaced the formerly-held position that the brain is a static organ.

### **Conclusions: community outreach and beyond**

Outreach education programs involving communal gardening have empowered many botanic gardens to address environmental and social responsibilities 'beyond their garden walls'.

Gardening is hands-on and truly interactive and can be done by people of all ages, backgrounds, social status, interest levels and abilities. The rewards and sense of achievement are instant (the satisfaction of successfully planting something) and ongoing (watching it grow and produce flowers or fruit). If the key to education for sustainability is to be 'futures focused', then undertaking a garden project which is underpinned by a learning ethos ticks all the boxes for sowing seeds of wisdom and self-actualisation. (Fig 3)

Our society is experiencing a technology revolution that is changing our world, faster and with greater impact, than the agricultural and industrial revolutions before it. More challenging, but within the reach of the staff and volunteers that make up a botanic gardens' learning community, is to help today's society learn what they need to know in order to be able to tackle today's complex social issues and environmental dilemmas. This challenge might be great but so are the rewards, for the individual, our botanic gardens and society in general.



Fig 3. Community gardeners at the Oasis Community Garden in Toongabbie, a suburb in Greater Western Sydney

### **References**

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