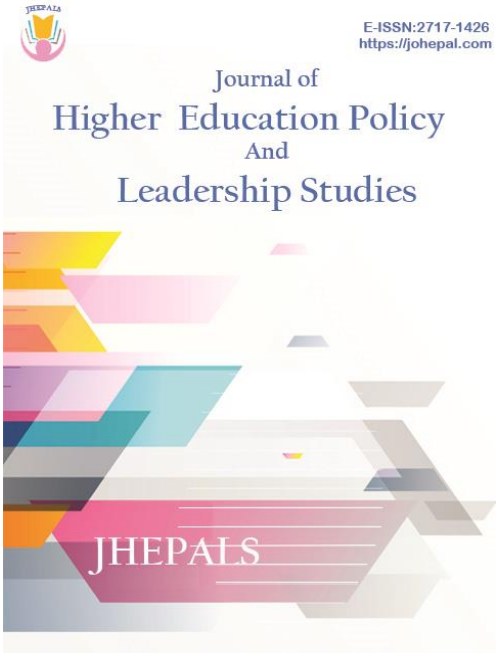
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How Do We Enhance Leadership, Collaboration and Communication Skills in Postgraduate Programs?

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Abstract

This reflection discusses how we can enhance higher level research skills through using the arts, humanities and philosophy. It describes strategies that can be adopted at different stages so that throughout the education process we can support and consistently develop questioning and curiosity. Additionally, it describes the importance of the subjective journey of being, becoming and thriving and how this is necessary alongside subject knowledge to build on research self-analytical skills. Further, it explores the philosophy of Bacon and the role of understanding nature both inside and outside for self-improvement and towards education for the enhancement of humanity and global social justice.

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Introduction

> "If a PhD program is only teaching research skills then it is not preparing students to be PhD level researchers". [Prof. Jen Heemstra*]

The above quote on twitter, inspired us to think and to write this piece which is not just a reflection but informed by personal experiences. In this article we are suggesting that the postgraduate, research skills journey and the ability to become an advanced researcher starts long before university. In considering this concept, I believe we need to make some attempt to define the difference between research skills and the ability to be a high-quality researcher. This cannot just be achieved by subject knowledge *perse*. It requires some attention as to how such a subjective journey of personal growth can be enabled to include the conceptual processes of 'being, becoming and thriving' from birth onwards. This does not stop with the attainment of a PhD. It should be a matter of the continual life-long effort of learning, questioning and feeding the mind.

As we move into the 21st century, society is changing at a rate of knots and the issues that students face as they enter University are different and changeable. There is an urgent need to rethink education and curriculum at all stages and before Higher Education (HE) is attempted. In particular ensuring that education strives to enable a fairer and more just society that encourages meaningful "self-reflection" and consistent transformation through "first-hand experience and immersion in living" that includes practices that support the improvement of self-awareness.

How can we ensure that education evolves to enhance global social justice and enable high level research communication and self critical thinking and analysis?

An advanced researcher requires the ability to bring together many ideas not just within one area but over a wide range of interdisciplinary subjects-making multifaceted and innovative connections. Most importantly is the need for consistent curiosity, questioning and the deep desire to accept that learning is life-long regardless of age and/or "status". Historically some of the great inventors were philosophers they had no formal education nor did they sit exams. Examples include Da-Vinci, Gregor Mendel and Einstein. However, what they did have was the capacity to question think and work out ways to answer their questions in creative ways e.g. Da Vinci was an artist, scientist and engineer.

The great researchers of the past had the ability to think critically, evaluate and analyse. Their work involved long periods of extended research over a lifetime. There are many examples of the persistence and resiliency of highly original innovators who are now famous, who overcame obscurity to eventually receive recognition of their ground breaking work. For example, Gregor Mendel, (1822-1884), investigated and compared large amounts of data from plant crosses to work out the inheritance of traits known as 'alleles' today. He established many of the rules of heredity, now referred to as the Laws of Mendelian Inheritance. When his findings were verified independently many years later they provided a basis for modern age of genetics The Polish-French physicist, Marie Curie (1867-1934) worked tirelessly throughout her life. Against the odds, she became the first woman to become a professor at the University of Paris in 1906 and the first person to win the Nobel

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Prize twice and in two scientific fields. She discovered radium, polonium and radioactivity. Her work has provided a basis for some types of cancer treatment.

Currently we urgently need to solve our world's problems by developing solutions right across the humanities and sciences. The following skills need to be encouraged and supported early through teaching strategies that develop these at appropriate key levels and stages. The ability to question, critically and think can then be extended to include analysis and evaluating skills along with supporting the formation of opinions i.e. Student voice and its development in collaboration is important not just within the relevant subject but in making connections across other areas. This enhances behaviour and emotional self-regulation in a safe conducive environment thereby developing respectful social communication skills.

This is key for excelling in research skills questioning and discussing ideas with others. It is why research conferences and presenting data are so important and part of the means to build and enhance high level research skills. As Paul Kalanithi states (2016, p. 45) "Human knowledge is never contained in one person. It grows from the relationships we create between each other and the world".

I would also argue that there is a need for 'Philosophy' to be reintroduced into the curriculum and have discussed its role in Challen (2020). Philosophy is a means to explore

> "the world through developing physical, spiritual and sensory methods that enable emotionally engaging experiences. This requires not just enriching creative curriculums but the ideology of Bildung wherein philosophy and education are linked in a manner that refers to a process of both personal and cultural maturation". (p. 52)

Deleuze and Guatarri (1994 as cited in Schönher, 2013, p. 49) define philosophy as "the art of forming, inventing and fabricating concepts" the attributes necessary for innovation and invention. Interestingly in their book Anti-Oedipus they extend philosophy to another form of 'becoming' in which, "there is no such thing as either man or nature now, only a process that produces the one within the other and couples the machines together" (para. 1). As early as the 1500s Frances Bacon was a firm believer that "we must understand nature both around us and within ourselves in order to set humanity on the course of self-improvement" Wilson (2016, para. 1). The works of Tove Jansson and in particular Nan Shepherd in her book The Living Mountain support the idea of man and nature in partnership, the full immersion of the human senses in the natural environment and the observational, reflective and stimulating experiences they bring. These are experiences and abilities required to support and enhance deeper research and critical thinking skills.

The Chambers Dictionary defines the word 'being' as "any person or living thing that exists (to have actual being)" whereas becoming is "to come to be, to arrive to have got to the place." While 'being' implies almost a constant continual phase, becoming is transient open to evolvement through a succession of developments. In some ways the idea of becoming being open to evolvement fits well with the rising and falling of intensities (Hickman, 2016) - the passionate self-reflection necessary to grow subjectively and holistically and to thrive. Further, the rising and falling could indirectly refer to what stimulates us what drives us to question research and to find out more. This is key to

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enhancing deep level research skills, even the word 'evolvement' implies the concept of changing and adapting to different circumstances and situations.

'Evolvement through a succession of developments' is a conceptual approach which supports not only the motivation to solve but to develop and anticipate additional problems likely to arise within a solution resulting from extensive research. If we want to achieve this we cannot do it solely through a subject based education or "exam factory based" model. The recent successful dramatic adaptation of Philip Pullman's Dark Materials (on television) highlights the importance of exposing children and students to a wide range of literature, philosophers and religious voices to enhance rich experiences and imaginative self-questioning. These are the skills that we need to embed and support in the foundation stages of education prior to Higher Education, to promote and confirm the status of research for the advancement of knowledge!

Interestingly looking back at my own PhD which was in pure science and combined the carrying out and analysis of experimental data towards a three year thesis. What did this teach me? Definitely research skills but the status of researcher came later, for me age and life experiences brought advantages and subjective learning growth. I was also a late reader this will surprise many but at a young age books never really enthused me. More recently I have found being exposed to a variety of literary voices truly enhances the research capability and level. It allows you the ability to let your imagination and questioning prowess take off and supports questioning conceptualisation by making interdisciplinary subject connections. This concept of broad subject overlap was advocated by Bacon who supported the idea that while scientific method was to investigate something new, this needed to be integrated with previous knowledge. This also is important to encourage advance higher level research skills being able to connect identify gaps and question how to overcome these problems/areas.

It is advantageous for writing skills both creative and academic to demonstrate accurate communication of research findings while coping with strict word counts and deadlines to make a better impact in peer reviewed journals. There is much to gain by interlinking the arts, humanities and sciences. Such research and exploration contributes to knowledge and thereby a consistent incremental increase in research capabilities, spatial awareness and critical thinking skills that reflect the level of the student Challen (2020). Additionally, it also allows both sides of the brain to be used in particular the right side which creates possibilities and enables free lateral innovative thinking creativity and risk taking so necessary for higher research capabilities.

So what ideas are available and how could this happen in practice across the stages?

A typical example at primary or elementary level might be a session based on the question 'What is a rainbow?' This can then build from prompts starting with the primary aspects of colours through its more complex and interdisciplinary associations with physics, maths, music history and literature. This encourages connections between, the sciences, arts, spiritual and musical humanities enabling critical thought analysis necessary for self-development and becoming as well as supporting research skills through questions and curiosity. For secondary or as a transition for Year 6 to Year 7 A session called 'The Beat of

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life' might involve getting pupils to make a clay heart and then research how the heart is related to literature, music, emotions and well-being. This type of teaching supports multifaceted connections to be made across a broad subject range.

The use of art, particularly Davinci's early anatomical sketches and using candy to build organ systems enables medical students to appreciate not just anatomy as a necessary subject for medicine but its wider tactile and visceral beauty. Further it enhances through the "messy state of art" embodiment, special kinds of awareness and cognitive skills that are all essential for self-transformative becoming (interoception through the senses). For example, an equally and powerful method of making anatomical structures accessible is the process of 'Plastination' invented in the late 1970s by Gunther Von Hagens (1945-). Originally developed to support the education of medical anatomy exhibitions of this work around the world have brought the organs and muscles to life showing them and how they are used in various poses. It has also visually demonstrated the effects of disease on the organs making this accessible to all and in some cases may actually support better health practices and caring for our physical and mental health.

The implementation and embedding of film making skills is a useful technique to build communication, expression and self-confidence/esteem as well as editing which are associated with developing high level evaluation and analytical skills attributes necessary in research (Zacks, 2015). These can be said to be closely associated in the translational process towards becoming. Interestingly Pullman in his Daemon voices discusses in *his "The Writing of Stories"* how David Mamet a film director asks *"Where do I put the camera?"* Pullman uses this question successfully in his story telling but it also has huge implications and associations not only with self-critical analysis as part of becoming but how we view our living experiences. These allow us to assess and reassess our circumstances, our "being" but more importantly transiently move us towards "becoming." Further they enhance the built- in skills to question research done and how it can be used or critiqued.

These types of examinations and explorations as we go through life's challenges allow us individually to evolve not only through academic research knowledge but socially as well. This in turn results in a greater ability to form closer and more equal social interactions towards a fairer and just society. These things are closely related. T.S. Eliot stated in 1934 "where is the wisdom we have lost in knowledge, where is the knowledge we have lost in information" (2019, para. 3). While knowledge is power it is nothing without the ability to apply it creatively to solve problems. However, the drive to do this and consistently build on developing advanced research skills comes from the motivation through teaching that enhances relevance questioning student self-reflection and voice. Society has moved more and more towards "box ticking" and accountability, education in particular has become a business pupils students seen as data rather than individuals.

The consistent bombardment of students with information and memorising information teaching for exams stifles not only curiosity but more importantly does not encourage high end research skills to genuinely want or desire to improve or solve a problem. Education has totally lost its joy and purpose it seems that all we want to do is create robots for a workforce conveyor belt. More worryingly is the idea that governments do not want or indeed enable people to question decisions and rather create a society of "brainwashed" individuals. Even at Higher Education/University (HE), academic freedom which at one time was the purpose of University is coming into question. The cutting of

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budgets and funding in the UK for the arts and humanities is going to exacerbate this even more and hinder the enhancement of advanced research skills. At this point the words of Nicola Benedetti resound "Music is the art of all things we can't see or touch. We need it in our lives" (2019, title) although her focus is music this applies to all arts/humanities. For some these are the core of how they can find out who they really are but allow them to express their feelings passions and voice. This can then result in an ability to express not only themselves but also their feelings and passions which can then result in specialising in specific research and the drive to develop this to higher status.

Education faces new challenges, the unexpected arrival of Covid has to be faced across the whole of society. The increase in mental health difficulties has meant requiring and creating methods and developing skills of rapid adaptability on the part of educators to engage students remotely and yet enable autonomy - not easy! If ever there was time for change it is now, educational 'reformation' and 'evolvement' necessitates the breaking down of societal divisions and class. This can only be done if we are proactive in the belief that the core of our education must rest in dynamic and appropriate research. This has to be taught by 'pracademics' who have demonstrated those skills, working to ensure subject and subjective connections are made through empathy and emotional regulation and expression on the ground, online and in the classroom.

The essential lockdown and remote learning during the pandemic have impacted on the social aspect of education. Many children, pupils and students have struggled with remote learning feeling isolated and missing the interaction and exchange sharing of ideas with others. While in some ways this should almost have enhanced advanced research skills and autonomy there is still the need for inspiring discussions. These can ignite the mind and fuel questioning curiosity and the desire to find out and research more. In some cases, lockdown measures have inhibited and/or prevented the joy and engagement of "social learning" through class project work and discussion, which fuel the establishment of high level research skills.

In spite of the impact Covid-19 has had on the mental health of both educators and students within the education sector and beyond, the sector continues to be underfunded and stigmatised. Rodgers et al., (2020) state in a study surrounding the psychiatric implications of Covid-19 that "there are several reasons why the current COVID-19 pandemic might have psychiatric consequences. Some of these reasons relate to the wider social impact of the pandemic and the governmental response, including physical distancing measures and quarantine" (p. 612).

However, as lockdown is eased and students return the long term impact and effect of these experiences on mental health continues and will inevitably do so long into the future. The need to evolve curriculums ideas and visions on education in all subjects and at all stages can not only build subject knowledge, but enhance the ability to be innovative in solving "real" global problems through higher thinking and research skills. It is the wisdom to be able to separate the "actual" knowledge from information and apply it as Eliot implies that is needed. The importance of sound mental health and well-being reflects on every aspect of our lives, not only through our 'apparent outward person and intellect,' but also through our own deep, personal, emotional and subjective growth encapsulated in the idea of the 'journey of being becoming and thriving.'

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It is a way of seeing the many ways we can cope personally with the challenges that life places us; engaging and looking to nature and the arts by immersing and understanding ourselves through our own nature as we adapt and evolve (Hawkins, 2021). Bacon himself was a firm believer in understanding nature not only within us but around us. This in turn can result in empowering us to consistently research and question thereby building on our subjective thinking skills. Further like Pullman, Bacon realised the power of stories was increased through the use of creative storytelling, dramatizing information and truly engaging the learners mind. In doing so you could communicate real truths of the world. It is also a way encourage the development of empathy and the practical regulation of emotions, key to effective well-being.

> "*The improvement of mankind's lot by means of philosophy and science does not start from a narrow utilitarian point of view, involving sheer striving for profit and supporting the power or influence of select groups of men, but instead emphasizes the construction of a better world for mankind, which might come into existence through the ascertaining of truths about nature's workings (Bacon III [1887], 242).*"

Reflecting on *individual and personal experience* is key not only to enhancing high level research skills but being able to learn the art of 'becoming and thriving' for ourselves as we experience our similar and yet *uniquely individual* lives. "Humans are immensely complex" and there is an even greater need not only to understand nature within and without, but to include the arts, philosophy and a consideration of all kinds of religion in education if we want to support high level research and subject multifaceted skills. In the words of Nicola Benedetti: "Ultimately our biggest challenge on this planet is to understand, empathise and elevate one another in pursuit of our common humanity. There is no greater challenge or reward" (2019, para. 18).

Global citizenship and the consistent building, strengthening and advancement of research at all levels cannot be taught without laying bare all the joyous relationships between nature, arts, sciences and humanities. It is exposure to these through literature, our world cultures and other emotionally enriching activities that we can provide learning experiences. They provide us with a strategic approach with which to re-energise the 'evolvement' of education and knowledge as we research beneficial, creative, innovative personal and global social tapestries. Such complex interactive research can ensure that humanity is set on a journey for self-improvement and recovery and towards educating the world for social justice and recovery

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Ms. Georgina Challen specialises in medical humanities. Her focus surrounds post modern ideas of medicine and further philosophy in order to advance knowledge rather than halt it. At the moment her research focusses on further ideas around science, particularly natural philosophy and how modern science integrates with old philosophical ideas.

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