Imagination:
A Child's 21st Century Super Power

A Literature Review of Imagination in Education and Learning

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First Phase Review

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ABSTRACT

This article reports on the first phase of a literature review focused on the areas of imagination and creativity in relation to children and young people, which has been set out to identify whether academic research has been addressing the topic of imagination in education and learning. In the first phase of this review, more than 100 sources were identified, 34 were accessible for review and 14 significant and relevant research papers published were selected for analysis. The review of the 14 articles led to the emergence of themes and sub themes. These themes we then developed into an 'Imagination Wheel', which calibrates the identified themes and demonstrates how imagination relates and leads to dispositions and competencies. In many of the articles, imagination in education and learning were only partially addressed. As a result, we emphasise the need to deepen the discussion and research on the possibilities imagination can open up for children and young people, and those supporting their learning, particularly from disadvantaged circumstances.

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INTRODUCTION

'Automation by Artificial Intelligence and machines has the potential to change our economy radically, meaning creative and innovative thinking skills will become highly valued.'
Vincent Lancrin et al. 2019
Educational Research and Innovation, OECD

We live in a rapidly changing world where disruption and change has become familiar and regular. While this has an impact across all of society, our younger generations are growing up in a world that will become increasingly uncertain, having an impact on the way they learn, live and work. Imagination, humanity's greatest faculty, has the potential to support and aid us as we navigate this changing world. Yet imagination in education and learning is being increasingly undervalued. In England the education system is heavily and overly assessed, creative subjects like art and design have been marginalised, school budgets have suffered from real term cuts, the curriculum has narrowed and the government measures success in education through targets, results, and league tables.

'Children are facing growing volatile economic, social, environmental, and political challenges. Imagination allows us to reimagine our society and circumstances.'
Education Inequalities Review
The Institute for Fiscal Studies 2023

To assess the power of imagination in education and learning, we need to better understand its potential and impact. This literature review, led by the Institute of Imagination in partnership with Bath Spa University and House of Imagination, begins a renewed focus on the research and evidence of the power of imagination and its capacity to support children and young people's learning about the world and how they respond to its emerging challenges.

Tom Doust

METHOD

For the first part of the literature review, we undertook a systematic review of academic research to understand the best available sources and to find the gaps in the literature that need to be discussed. With the support from Dr. Penny Hay (Bath Spa University and House of Imagination), we initially identified more than 100 articles to review. For improved refinement, we limited the search to articles which we could access via the Goldsmith University of London library and desktop research. This resulted in 34 articles to read and analyse. Following the initial analysis, we created a table listing the sources that have been published on the topic based on five category types (i.e., journals, published books, web pages, government publications, theses, and conference papers). This listing also included the information on the sources, key messages and abstracts of the articles and an additional filter with a focus on children and young people, education and learning. After reading the full texts, we organised our analysis by themes, which included supporting sub-themes and brief definitions of each sub-theme within the context of the literature review (please see Table 1). While creating the definitions to support the main themes, we wrote a brief critical synopsis of each article based on our analysis. We read the texts and identified the theme and keywords developed in each article. As a result, we organised the analysed sources in thematic groups as below (see Table 1).

Tugce Ovutmen

Table 1. Main Themes with Supporting Sub-themes

Main emerging themes	Sub-themes	Definition within the context of the literature review
Creative thinking and intelligence	Critical thinking and Questioning	Shifting the way to ask a child questions, encourages them to think and solve problems creatively. Thinking critically by analysing, evaluating, interpreting, or synthesising information and applying creative thought to form an argument, solve a problem, or reach a conclusion.
	Problem-solving	Creating the ability to see a different way to do something, generate new ideas and use materials in new ways. Finding creative ways to solve complex challenges.
	Process of reflection	Imagination is an interpretation and reflection on the world. Utilising imagination as a human faculty to be able to step outside of our current context or time travel backwards or forwards to reimagine the world.
	Collaboration / Collectiveness	Creativity and imagination can lead to collaboration between children, parents/carers, our communities, and institutions. 'Wondering together: Collective imagination'
	Divergent thinking	The ability to generate diverse solutions to open-ended problems (Thinking that goes off in different directions i.e., children using blocks or LEGO pieces in different ways)
	Original ideas/ originality	Thinking creatively allows you to come up with fresh, original ideas while discovering new territory. Creative thinking is also the ability to produce and test new ideas and come up with original solutions.
Formation of being	Consciousness	Imagination has a role in forming a being, which is the conscious observation of images.
Sense of agency	Decision-making	Agency gives children the ability to make choices which also gives them a sense of independence and empowerment.
Fertile ground/environment	Courage	Encouraging children to experiment with materials. Creating confidence for experimentation where children feel happy to make mistakes/are failure positive.
	Possibility of spaces/tools	The natural environment/ surroundings and its factors affect a child's creativity
Empathy	Being human, experiencing another person's emotions, considering another person's perspective to understand their thoughts and feelings	Imagination influences the perceived and actual likelihood an event occurs and improves intergroup relations. Imagination may contribute to a capacity for empathy. Imaginative play can offer opportunities for children to learn empathy.

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Individual/self-efficacy	Self-awareness	Self-awareness of one's imaginative disposition
Imagining hopeful futures OR Envisioning positive futures? Empathy	Optimism	Staying hopeful in an uncertain future. Imagination gives us hope for a better state of things (being able to reimagine circumstances).
	Aspiration	Imagining a world children want to inhabit while crafting new futures. Imagination allows us to understand and visualise ourselves in a place we want to be. Imagination allows us to think about our future selves and what we want to do in the world.
Ideation/Innovation	Making, crafting, and improving	Imagination can occur by reconfiguring the items of ideation that opened up. Imagination needs innovation.
Wisdom, inquiry	Failure positive mindset	Failure is a natural part of learning (through mistakes) and an opportunity to strive for improvement. Learning from failure requires inquiry and openness. The faster we fail, the faster we'll succeed. In an inquiry classroom, children learn from trying again, being wrong or failing, which are all normal. It is an important part of learning.
Wonder, mind-wandering/ daydreaming/	Memory	Daydreaming serves to improve/enhance memory. The role of memory has extended beyond remembering the past to include imagining the future.
	Invention	Through mind-wandering, children can invent and expand their horizons.
	Uncertainty/Unknown (Wonder)	The value of not knowing. It is the wonder that drives us to keep searching for the truth. An attitude of not knowing gives us freedom from limited views and increased curiosity. Ignorance?
	Knowledge	How does wonder lead to knowledge?
	Playfulness Openness	Children are more likely to be more open and joyful when the carer communicates with playfulness and fun.
Persistance	Resilience	Developing optimism / optimistic thinking might give control and confidence to the children, hence becoming less likely to give up in the face of challenge.
Experience	Process, rather than final product	Imagination is shaped by our experiences. The process of imagining invites the possibility of being transformed.
	Acceptance	Accepting the child's feelings and thoughts without judgement can enable the child's inner world.
	Role-playing / pretend-to-play	Interactions involving taking on roles in emotionally meaningful ways can broaden students' understanding of the learning experiences.
Curiosity, wisdom, questioning	Inquiry, intuition	Approaching the children with curiosity and inviting them to ask questions without lecturing or judging them.
Innovation	Experimenting	Playing with possibilities.

PRELIMINARY CONCLUSION

According to the objective of the literature review, we decided to narrow down the number of articles to better identify how research has been addressing the topic of imagination in education and learning. This resulted in 14 articles for holistic analysis. In the following, we present the preliminary results organised by main overarching themes which relate to the pedagogy and approach of the Institute of Imagination and House of Imagination. We reviewed and regrouped the main themes listed in Table 1 (above) to find connections between our sources and organise the reasoning of our main themes supporting imagination. As a result, we created an 'Imagination Wheel' based on our preliminary findings from the analysis. The Imagination Wheel has the underlying principle that our deep powers of imagination sit at the heart of what it is to be a human. We then apply our imagination through core themes like creativity. Informed by the literature, we chose to regroup the main themes under 4 categories: Creativity, Fertile Ground, Formation of Being and Wisdom. These pillars are defined in brief paragraphs with supporting background information in relation to the imagination as set out below.

1. Creativity: Unleashing human potential

Imagination and creativity are essential to human cognition and activities, influencing fields like psychology, education, and the arts. The All Our Futures report (NACCCE,1999, p.32) defines creativity as an imaginative activity to produce original and valuable outcomes, identifying four key characteristics of creative processes. Craft (2002) and Boden (2004) expand on the concept, highlighting its application across all human activities. Creativity is explored and defined in various ways, including creativity, problem-solving, and imaginative thinking. The dynamic interplay between imagination and creativity has been extensively explored from a developmental psychology perspective. Imagination goes beyond constructing fantastical worlds, shaping reality and setting it apart from mere fantasy(Paixão & Borges, 2018; Harris, 2018). Several studies found significant links between imagination and creativity, which lies in their ability to leverage reality for innovative changes. Imagination nurtures creativity, fuelling the construction of new ideas and perspectives, emphasising the need to foster creativity and imagination to support the holistic development of young children.

2. Fertile Ground

Fettes (2010) emphasises that "tools of imaginative engagement" (TIEs) are related to an underlying imaginative capacity and interactions involving taking on roles in emotionally meaningful ways which can broaden students' understanding of the learning experiences. We believe, as do Solnit (2019), that hope is the necessary catalyst for action. She claims that radicals and revolutionaries must hold onto hope to create a world they want to live in which is uncertain. She also refers to Black Lives Matter movement's mission in which hope, and inspiration united for collective action to build a collective power (Solnit, 2019). To create a fertile ground for imagination to flourish in children and young people, we believe there needs to be hope and inspiration that inspire actions.
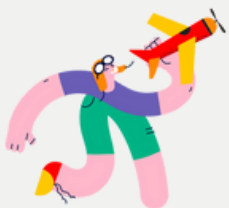
3. Formation of being

Dewey argues imagination is essential for living a meaningful life and without the capacity for intelligent imagination, which is the ability to transform oneself and one's world meaningfully, one could not be educated (Bleazby, 2012). Bandura (1977) claims self-efficacy is person's belief in their ability to exercise control over their own functioning or succeed in a particular situation.
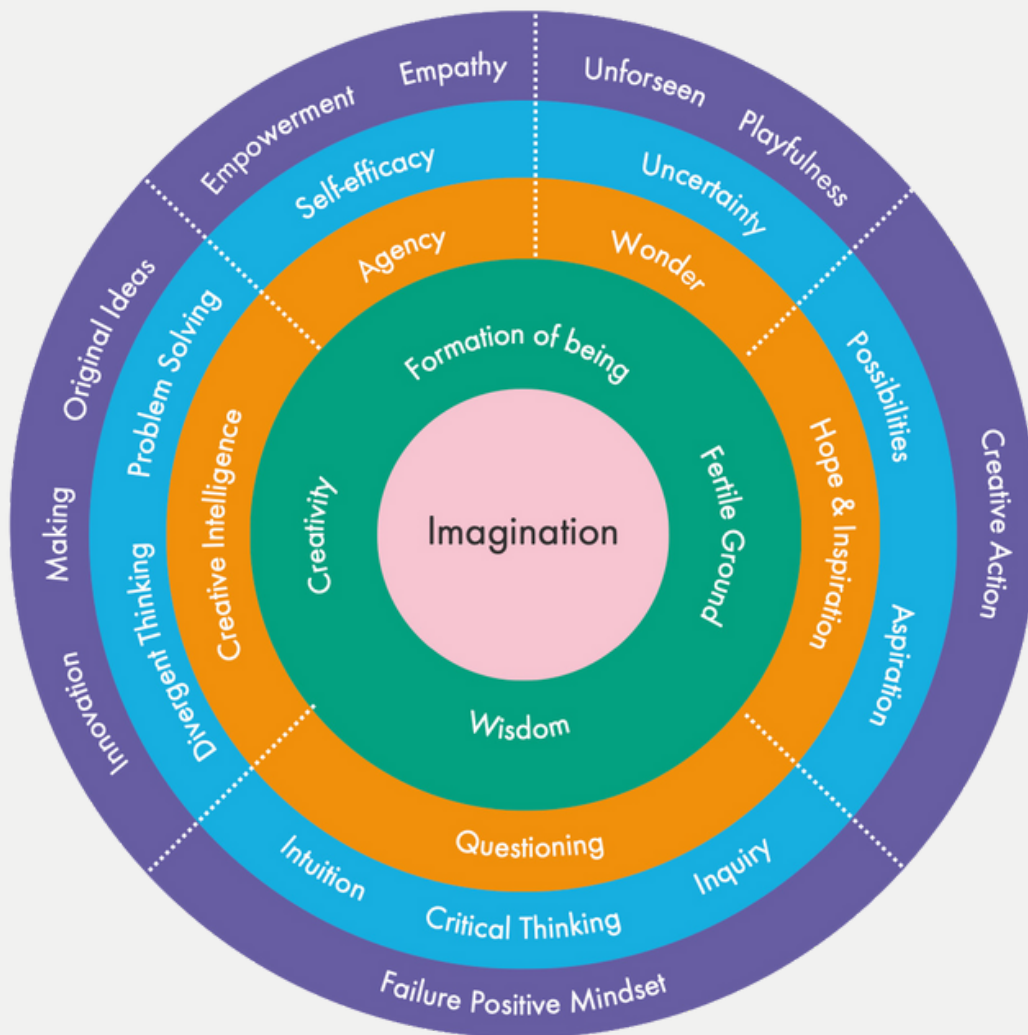
4. Wisdom

The key to wisdom is frequent questioning and using one's curiosity. Personal development can be formed by the power of questions. Sloan (2013) argues that using inquiry and place-based learning generate creative thinking and broadens imagination.

THE IMAGINATION WHEEL

The Imagination Wheel takes the emerging themes from the Literature Review and begins to arrange and align these themes. It is an interpretation by the authors which helps to connect the literature with the programmatic work with children and young people. For example, creativity or creative acts, is exhibited through a creative intelligence which leads to greater divergent thinking and problem solving. This is manifested through new and original ideas, innovations and constructs that have involved the creative exercise of making. This first iteration of the wheel will be developed to help inform evidence-backed practice.

The Imagination Wheel diagram:
- Centre: Imagination
- Four key pillars: Formation of being, Fertile Ground, Wisdom, Creativity
- Sub themes: Agency, Wonder, Hope & Inspiration, Questioning, Creative Intelligence
- Ways of thinking: Self-efficacy, Uncertainty, Possibilities, Aspiration, Inquiry, Critical Thinking, Intuition, Divergent Thinking, Problem Solving
- Outcomes: Empowerment, Empathy, Unforseen, Playfulness, Creative Action, Failure Positive Mindset, Innovation, Making, Original Ideas

Legend:
- Imagination at the heart of the Imagination Wheel
- Four key pillars of imagination
- Sub themes categorising characteristics of imagination
- Leading to ways of thinking
- Outcomes of imagination

Table 2. Main Themes Organised by Relevant Articles

Main theme	Sub-theme LEVEL 1	Relevant Articles	Sub-theme LEVEL 2	Relevant Articles	Sub-theme LEVEL 3	Relevant Articles
Creativity	Creative intelligence	• Imagination and Educational Curriculum: A Literature Review • Imagination: Creating alternatives in everyday life • Creative primary schools: developing and maintaining pedagogy for creativity	Problem solving Divergent thinking	The wake of imagination ideas of creativity in Western culture The PISA 2022 Creative Thinking Assessment	Innovation Making Original Ideas	• The Palgrave Handbook of Social Creativity Research • 'Creative primary schools: developing and maintaining pedagogy for creativity'
Fertile Ground	Hopes and inspiration	• Hope in the Dark: Untold Histories, Wild Possibilities • The Palgrave Handbook of Social Creativity Research • The TIEs that bind: How imagination grasps the world	Possibilities Aspiration	The Palgrave Encyclopaedia of the Possible Parental involvement, children's aspirations, and achievement in new immigrant families Transforming multicultural classrooms through creative place-based learning - Millenium Cohort Study (MCS) by UCL Child of the New Century	Collective action	• Hope in the Dark: Untold Histories, Wild Possibilities • Times Education Commission: How to transform education and unleash the potential of every child
Formation of being	Agency	• Self-efficacy: Towards a unifying theory of behavioural change • Dewey's Notion of Imagination in Philosophy for Children	Self-efficacy	Self-efficacy: Towards a unifying theory of behavioural change	Empathy Empowerment	• Imagination (Stanford Encyclopaedia of Philosophy) • Recreative minds: Imagination in philosophy and psychology.
	Wonder	• Exploring the imagination to establish a framework for learning • Wonder - the extraordinary power of an ordinary experience	Uncertainty	Imagination: Creating alternatives in everyday life	Playfulness Unforseen	• The Cambridge Handbook of Creativity
Wisdom	Questioning	• Transforming multicultural classrooms through creative place-based learning	Intuition Critical Thinking Inquiry	Dewey's Notion of Imagination in Philosophy for Children	Failure positive mindset	• Dewey's Notion of Imagination in Philosophy for Children

CONCLUSIONS

Our Recommendations
- This review is a preliminary piece of work and begins a process that should lead to more research being carried out in the area of imagination in education and learning.
- We recommend completing the review of the current literature but also broadening it further, enabling a deeper review to strengthen the evidence.
- We would also like to see further development of the Imagination Wheel, in line with a broader review of the literature, to help inform practice and pedagogy.

This Literature Review is just the beginning of a journey to gain a deeper understanding of imagination in education and learning through research . Our first conclusion is that there is further work to be done to review the full list of literature identified and to source further literature from a wider network within the imagination community.

The review has also led to the emergence of the Imagination Wheel, a constructive interpretation and classification of how we understand imagination in education and learning, particularly through the work of The Institute of Imagination and House of Imagination. We hope the wheel will help inform and inspire the activities of these charities and others working in the field.

We welcome further collaboration from others and invite readers to comment and input into the development of this review. One key conclusion is that we have found it challenging to locate research, sources, journals, or articles that focus particularly on children and young people, suggesting that further research is needed on the importance of imagination within education. As the late and great Sir Ken Robinson (founding patron of the Institute of Imagination and patron of The House of Imagination) said: 'The great irony of imagination is that it is often undervalued and misunderstood in the process that should cultivate it, particularly education'.

◆ **Tell us what you think: get in touch or partner with us in this important journey to better understand the role of Imagination in education and learning.**

The Institute of Imagination

The Institute of Imagination (iOi) is a pioneering education charity. We work with parents, teachers, youth and community leaders and academics. We design and deliver creative learning experiences across the arts, sciences and digital technologies for marginalised and disadvantaged children aged 5-11 years old. These experiences empower children today to believe they can build a just, fair and sustainable world tomorrow.
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House of Imagination

House of Imagination is a research organisation with a focus on children's and young people's creative and critical thinking, providing a range of spaces for children and young people to collaborate with creative professionals. It is a home for improvisation, creativity and innovation and a place to make those things visible to an international audience through research.
https://houseofimagination.org

Bath Spa University

Bath Spa University is where creative minds meet. They teach and research across art, sciences, education, social science, and business. They employs outstanding creative professionals who support its aim to be a leading educational institution in creativity, culture and enterprise.
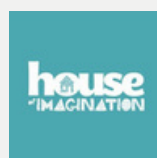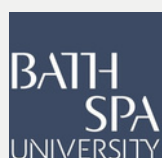Dr. Penny Hay
https://www.bathspa.ac.uk/our-people/penny-hay/
www.bathspa.ac.uk

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