

# Occupational therapy role in enhancing creativity and intelligence development—A review study

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**ABSTRACT:** This article provides a comprehensive review of the impact of occupational therapy (OT) on the development of creativity and intelligence, areas of growing interest within the field of cognitive and developmental psychology. Through a systematic examination of the literature, this review aims to elucidate the role of OT in enhancing cognitive functions that underpin creativity and intelligence, including problem-solving skills, cognitive flexibility, and executive functioning. The methodology employed involves a rigorous search of peer-reviewed articles, employing inclusion and exclusion criteria designed to capture relevant studies, followed by a qualitative synthesis of findings to identify common themes and insights. The review reveals that OT interventions, particularly those incorporating creative activities and tasks targeting executive functions, can significantly contribute to cognitive development. Studies highlighted within the review demonstrate improvements in cognitive flexibility, problem-solving abilities, and overall intelligence quotients (IQ) among participants engaging in OT. Theoretical frameworks, such as Cognitive Stimulation Theory and Environmental Enrichment Theory, provide insight into the mechanisms through which OT may foster creativity and intelligence. In conclusion, this article underscores the potential of OT to enhance creativity and intelligence, suggesting that OT interventions could be a valuable component of educational and developmental programs. By fostering engagement in meaningful and challenging activities, OT not only supports the rehabilitation and adaptive capabilities of individuals with various needs but also contributes to the cognitive and emotional growth of a broader population. This review advocates for the integration of creative and cognitively stimulating activities within OT practice, highlighting the importance of further research to expand our understanding of these relationships.

**KEYWORDS:** OT; creativity; intelligence; cognitive development; executive functioning

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## **1. Introduction**

Occupational therapy (OT) is grounded in the belief that participation in meaningful activities is crucial to health and well-being<sup>[1]</sup>. It is designed to assist individuals across the lifespan to perform the tasks they want and need to do through the therapeutic use of everyday activities (occupations). This includes a wide range of interventions, from working with children with disabilities to support their participation in school and social situations, to assisting older adults experiencing physical and cognitive changes<sup>[2]</sup>.

The purpose of conducting a comprehensive review on the role of occupational therapy (OT) in enhancing creativity and intelligence development is to systematically explore and evaluate the existing literature and evidence regarding the impact of OT interventions on cognitive abilities, creative expression, and overall intellectual development across various populations and contexts. First and foremost, it is essential to understand the growing recognition of the multifaceted role of OT beyond traditional rehabilitation settings. OT has evolved to encompass a wide range of interventions aimed at promoting participation, independence, and well-being across the lifespan. By focusing on the intersection of occupational engagement, cognitive function, and creative expression, this review seeks to highlight the unique contributions of OT to enhancing intellectual development. Furthermore, as creativity and intelligence are recognized as critical components of human development and success in various domains, understanding how OT interventions can support and enhance these aspects is of paramount importance. By synthesizing current research findings, theoretical frameworks, and practical applications, this review aims to elucidate the mechanisms through which OT interventions influence cognitive processes, problem-solving abilities, and creative thinking skills. Moreover, given the increasing emphasis on personalized and holistic approaches to healthcare and education, exploring the role of OT in enhancing creativity and intelligence development aligns with current trends in interdisciplinary collaboration and person-centered care. By examining the effectiveness of OT interventions across different populations, including children with disabilities, older adults, and individuals from diverse socio-cultural backgrounds, this review seeks to identify best practices and areas for future research and innovation. Additionally, by highlighting the potential benefits of OT interventions in fostering creativity and intelligence, this review can inform policy-makers, educators, healthcare professionals, and the general public about the importance of integrating OT services into various settings, including schools, community centers, and mental health facilities. Recognizing the value of OT in promoting cognitive enrichment and creative expression can lead to greater support, funding, and resources allocated to OT programs and services. Conducting a thorough review of the role of occupational therapy in enhancing creativity and intelligence development is warranted to advance our understanding of the complex interplay between occupation, cognition, and creativity. By synthesizing empirical evidence, theoretical perspectives, and practical insights, this review can contribute to the ongoing dialogue on the importance of holistic approaches to human development and well-being.

## **2. Review methodology**

The methodology for this review on the impact of OT on the development of creativity and intelligence involves a systematic approach to identify, select, and analyze the relevant literature. This section outlines the steps taken to ensure a comprehensive and unbiased review of existing research findings.

Search strategy:

A structured literature search was conducted across several electronic databases, including PubMed, PsycINFO, Scopus, and Google Scholar. The search aimed to identify peer-reviewed articles, books, and conference proceedings published in English. The keywords used in the search included “occupational therapy”, “creativity”, “intelligence”, “cognitive development”, “executive function”, and “neurodevelopmental disorders”. Boolean operators (AND, OR) were used to combine search terms and expand the search scope.

Inclusion and exclusion criteria:

Studies were included based on the following criteria:

- Peer-reviewed articles published in English.
- Studies that specifically evaluated the impact of OT interventions on creativity, intelligence, or related cognitive functions.
- Research involving participants of any age who received OT for the purpose of enhancing cognitive functions or creativity.
- Quantitative, qualitative, and mixed-methods studies.
- The exclusion criteria were as follows:
- Articles not published in peer-reviewed journals.
- Studies that did not specifically focus on OT interventions.
- Literature reviews, theoretical papers, and opinion articles without original research data.

Data extraction:

Data were extracted from each selected study using a standardized form to ensure consistency. The extracted information included:

- Study design and methodology.
- Participant characteristics (age, gender, diagnosis).
- Details of the OT intervention (type, duration, frequency).
- Outcome measures are used to assess creativity, intelligence, or related cognitive functions.
- Key findings related to the impact of OT on the development of creativity and intelligence.

Quality assessment:

The quality of the included studies was assessed using appropriate appraisal tools, such as the Critical Appraisal Skills Programme (CASP) checklists for qualitative research and the Jadad scale for randomized controlled trials. This assessment helped to evaluate the reliability and validity of the findings.

Synthesis of findings:

The data were synthesized using a narrative approach, given the heterogeneity of the studies in terms of methodologies, interventions, and outcome measures. The synthesis focused on identifying common themes and patterns across the studies, as well as noting any discrepancies or unique findings. The impact of OT on creativity and intelligence was analyzed in the context of various theoretical frameworks and the potential mechanisms underlying these effects.

Limitations:

The review methodology acknowledges potential limitations, including publication bias, the variability in the quality of the included studies, and the challenges of comparing results across diverse research designs and measures. These limitations were considered in the interpretation of the findings.

Ethical considerations:

Although this review did not involve primary data collection from human participants, ethical considerations related to the responsible use of published research were upheld. This included accurately representing the findings of the included studies and acknowledging the work of other researchers through proper citation (**Figure 1**).

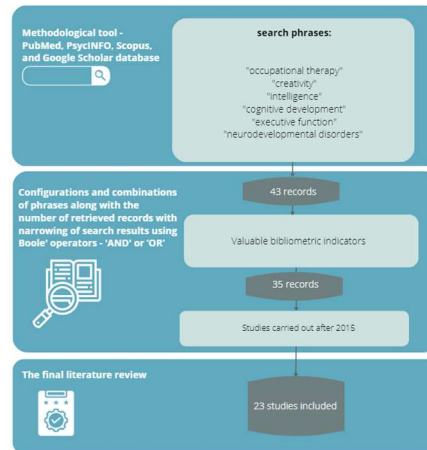


Figure 1. Sources selection.

### 3. Occupational therapy role in enhancing creativity and intelligence development

Creativity in this context refers to the ability to generate new ideas, solutions, or products that are both novel and useful<sup>[3]</sup>. OT interventions often aim to foster a creative mindset by engaging clients in creative activities such as art, music, and creative problem-solving tasks. These activities can stimulate cognitive processes related to creativity, including divergent thinking, problem-solving, and the ability to synthesize information in new ways<sup>[4]</sup>.

Evidence suggests that engagement in creative activities through OT can enhance cognitive flexibility, one of the key components of creativity. A study by Scott et al.<sup>[5]</sup> demonstrated that participants engaged in a program of creative activities exhibited significant improvements in tests measuring cognitive flexibility compared to a control group.

Intelligence is a complex construct, often defined as the ability to learn from experience, solve problems, and use knowledge to adapt to new situations<sup>[6]</sup>. OT interventions, particularly those focused on children and adolescents, can have a profound impact on the development of cognitive skills that underpin intelligence.

For instance, activities designed to enhance executive functioning, such as planning, organizing, and completing tasks, can contribute to improved performance in intelligence tests. A longitudinal study by Thompson et al.<sup>[7]</sup> found that children who participated in an OT program focusing on executive functions showed greater improvements in IQ scores over time compared to those who did not receive such interventions.

### 4. Theoretical perspectives on the relationship between occupational therapy, creativity, and intelligence

Several theories support the relationship between OT interventions, creativity, and intelligence. The Cognitive Stimulation Theory posits that engaging in a wide variety of activities provides mental

stimulation that can enhance both creativity and cognitive functions<sup>[8]</sup>. Meanwhile, the Environmental Enrichment Theory suggests that environments that offer a range of stimuli and opportunities for engagement can foster the development of cognitive abilities and creative potential<sup>[9]</sup>.

The table below presents an overview of the main studies discussed in the article, focusing on the impact of OT on the development of creativity and intelligence. It includes references to specific studies, characteristics of the study populations, descriptions of OT interventions, outcome measures used, and key findings. The aim is to provide the reader with a concise summary of how various OT programs can contribute to enhancing cognitive functions and creative abilities in individuals of different ages and with diverse needs (**Table 1**).

**Table 1.** Overview of key studies on the impact of OT on creativity and intelligence development.

Reference	Population	Intervention	Outcome measures	Findings
Thompson et al. (2019)	Children with a focus on executive functions	OT program focusing on executive functions	IQ scores and executive function tests	Children in the OT program showed greater improvements in IQ scores and executive function over time compared to those who did not receive such interventions.
Diamond (2019)	Review on environmental enrichment	Analysis of environments that offer diverse stimuli	Review of cognitive and emotional development literature	Environments with a range of stimuli and opportunities for engagement were found to foster cognitive abilities and creative potential.
Scott et al. (2020)	Participants engaged in creative activities	Program of creative activities including art and music	Cognitive flexibility tests	Participants showed significant improvements in cognitive flexibility compared to a control group.
Kaufman & Sternberg (2021)	Broad review, not a single study	Theoretical exploration of creativity-enhancing interventions	Conceptual analysis of creativity and intelligence	Highlighted the importance of engaging in diverse and meaningful activities to stimulate creativity and intelligence.
Sackett et al. (2022)	Children receiving OT for cognitive and motor skills	Longitudinal study of OT's effects	Cognitive and motor skill assessments	Long-term effects of OT on cognitive and motor skills showed significant improvements in participating children.

Sources: Contents of the table.

OT plays a crucial role in fostering creativity and intelligence across various age groups, particularly in children with disabilities and older adults experiencing physical and cognitive changes. The application of OT to these populations aims to enhance their participation in educational, social, and daily life activities<sup>[10-15]</sup>.

For children with disabilities, OT interventions focus on facilitating their engagement in school and social environments. By addressing barriers to participation, such as motor or sensory challenges, OT helps children develop the skills necessary for creative expression and problem-solving. Through activities tailored to their individual needs, children can explore different ways of thinking and interacting with their surroundings, thus fostering their cognitive development and creativity<sup>[16]</sup>.

Similarly, in older adults, OT interventions aim to maintain or improve cognitive function and promote independence in daily activities. By addressing physical limitations and cognitive changes associated with aging, OT helps older adults adapt to new challenges and maintain a sense of purpose and engagement. Through activities that stimulate cognitive function and encourage creative expression, such as art therapy or reminiscence therapy, OT supports the overall well-being and quality of life of older adults<sup>[17,18]</sup>.

It is important to distinguish between different levels of creative magnitude, as creativity can manifest in various forms and contexts. Smaller “c” creativity refers to everyday creative activities and subjective expressions of creativity, while Larger “C” creativity involves significant contributions to a particular field or domain. OT interventions can enhance both levels of creativity by providing individuals with the tools and support they need to engage in creative activities and problem-solving tasks. By addressing barriers to participation and fostering a supportive environment, OT empowers individuals to explore their creative potential and express themselves in meaningful ways<sup>[16–20]</sup>.

The improving effect of OT may vary across different social strata due to factors such as access to resources, environmental influences, and cultural beliefs about disability and creativity. In lower social classes, where access to educational and therapeutic resources may be limited, OT interventions can play a crucial role in addressing disparities in cognitive development and creativity. By providing tailored interventions that take into account the unique needs and challenges of individuals from diverse social backgrounds, OT can help bridge the gap in access to creative opportunities and promote equitable outcomes<sup>[21]</sup>.

Early childhood interventions, including OT, have been shown to have significant effects on academic achievement and life outcomes. By addressing developmental delays and providing early intervention services, OT can support children’s cognitive development and academic success. Through play-based activities and structured interventions, OT helps children develop the foundational skills they need to succeed in school and beyond. Additionally, OT interventions can promote social-emotional development and foster resilience in the face of adversity, further enhancing children’s long-term outcomes<sup>[22]</sup>.

The impact of cessation of OT on intellectual development and creativity can vary depending on individual factors such as the severity of the disability, the duration of therapy, and the availability of alternative supports. In some cases, discontinuing OT may result in a decline in skills or abilities that were previously supported through therapy. However, the long-term effects of cessation may be mitigated by factors such as ongoing support from family, school, or community resources. It is important for individuals receiving OT to have access to continued support and resources to maintain and build upon the gains achieved through therapy<sup>[23]</sup>.

In the field of cognitive and developmental psychology, OT assesses and improves people’s physical functions and abilities through a holistic approach that considers the interplay between biological, psychological, and environmental factors. Through comprehensive evaluations and individualized treatment plans, OT addresses functional deficits and promotes independence in daily activities<sup>[18,19]</sup>. By incorporating evidence-based practices and therapeutic techniques, such as sensory integration therapy or cognitive rehabilitation, OT helps individuals optimize their physical and cognitive functioning. Additionally, OT collaborates with other professionals, such as psychologists and educators, to provide holistic care that addresses the diverse needs of individuals across the lifespan<sup>[20–22]</sup>.

## **5. Challenges and limitations in research**

While there is promising evidence regarding the impact of OT on creativity and intelligence, research in this area faces several challenges. These include the diversity of OT interventions, making it difficult to isolate the effects of specific activities<sup>[10]</sup>, and the subjective nature of creativity, which complicates the measurement of outcomes<sup>[11]</sup>. Furthermore, most studies are short-term, and there is a need for longitudinal research to understand the long-term effects of OT on creativity and intelligence<sup>[12]</sup>.

## 6. Conclusion

OT has the potential to significantly impact the development of creativity and intelligence, particularly through interventions that engage individuals in creative activities and tasks that challenge cognitive functions. While further research is needed to fully understand these relationships, the evidence suggests that OT can be an effective means of enhancing cognitive flexibility, problem-solving abilities, and overall cognitive development. The influence of OT on the development of creativity and intelligence is a promising area of research with significant implications for practice. Through targeted interventions that foster engagement in meaningful and challenging activities, OT can contribute to cognitive and emotional growth. As the body of evidence grows, the role of OT in enhancing cognitive functions and creative capacities will become increasingly clear, offering new pathways for intervention and supporting the holistic development of individuals in their care. The intersection of OT with cognitive and creative development offers a rich field of study and practice. As research continues to unfold, it is anticipated that the strategies and interventions employed by occupational therapists will evolve, further contributing to our understanding of how engaging in meaningful occupations can influence human potential. The promise of OT lies not only in its capacity to aid those with physical, emotional, or cognitive challenges but also in its potential to unlock the creative and intellectual capacities that reside within all individuals.

## 7. Future directions and practical implications

Future research in OT should focus on longitudinal studies to better understand the long-term effects of OT interventions on creativity and intelligence. Additionally, developing standardized measures for creativity within the context of OT can help quantify the impact of interventions more accurately. Collaborative research that integrates neuroscientific approaches could also provide deeper insights into the mechanisms through which OT influences cognitive and creative processes.

For practitioners, incorporating activities that promote creativity and cognitive development into OT programs can enhance therapeutic outcomes. This may involve designing interventions that are tailored to the individual's interests and strengths, thereby maximizing engagement and the potential for cognitive growth. Furthermore, creating environments that stimulate exploration, problem-solving, and creative expression can support the developmental needs of clients across all ages.

## Author contributions

Conceptualization, MG and KKK; methodology, MG; resources, MG and KKK; writing—original draft preparation, MG and KKK; writing—review and editing, KB; supervision, AY; project administration, MG. All authors have read and agreed to the published version of the manuscript.

## Conflict of interest

The authors declare no conflict of interest.

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