## Bibliometric Analysis as a Tool in Predicting the Trends of the Discipline

**Dr Ahmed Shahid, Editor**

Bibliometric analysis is a powerful quantitative research approach which can help evaluate and analyse academic literature and scholarly communications through statistical methods to understand current knowledge and predict the future trends of research in a given discipline area. This useful research technique captures and examines patterns in publication data, including citations, authorship, research impact, and collaboration networks in a targeted field. Such analysis can provide valuable insights into research trends, influential authors, and the evolution of the field of study over a period of time as well. As a quantitative approach, bibliometric analysis applies mathematical and statistical methods to analyse the nature and types of publications, to help researchers and institutions understand the structure and dynamics of scholarly publication.

While the use of bibliometric analysis among Maldivian researchers is still not very common, this practice has been gaining momentum among university-based researchers, who are interested to map out the knowledge terrain and identify emerging and often the most promising research niches. At its core, bibliometric analysis relies on various indicators and metrics to measure research impact and productivity in a given field of study. Common metrics include citation counts, h-index, impact factor, and altmetrics, all of which can help measure attention to and impact of research outputs. The level of influence of individual researchers, institutions, journals, and specific publications within their respective fields can be measured with the help of these indicators. In addition, through co-citation analysis and bibliographic coupling, the nature of interconnectivity between different research fields and disciplines can also be discerned.

With increasingly powerful academic software, databases and tools such as Web of Science, Scopus, and Google Scholar, conducting a rigorous bibliometric analysis has become much more practical as compared to an earlier era without access to such computational power. With extensive access to journal articles and books and powerful search algorithms, coupled with sophisticated statistical analysis capabilities, researchers can now conduct a high-quality bibliometric analysis with ease. Furthermore, other software tools such as data visualisation and mapping tools, interpretation and communication of complex bibliometric patterns can be achieved more efficiently.

Notwithstanding the positive contributions of bibliometric analysis in mapping the research terrain, it is essential to note that the quality of the analysis will be highly dependent on the nature and quality of sources included in the analysis. One of the biggest limitations of bibliometric analysis is its reliance on 'accessible' sources, which can be biased towards a particular discipline or language of publication. We tend to have easier access to materials in English and also those that are freely available or subscribed by our institutions. The methodological reliance on quantity over quality can be another limitation, since bibliometric analysis often do not fully capture the quality of the scholarly work.

An important question for new researchers venturing into this methodological arena is how bibliometric analysis can help them driver their research agenda or build their careers as researchers. The application and usefulness of bibliometric analysis can span across academia, policymakers as well as funding agencies and even students. Bibliometric analysis can be an indispensable tool in identifying emerging trends in research and deciding on research priorities through a comprehensive research agenda. This could be enormously beneficial to academic institutions and policymakers in redirecting staff and student research into more promising research areas and in allocating more resources to emerging areas with higher expected knowledge returns.

## In this Issue

# Utilising Generative Artificial Intelligence for Research Productivity

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Generative Artificial Intelligence (AI) is becoming more popular in academic research, yielding benefits and challenges. For students working on their research, AI tools can be helpful. Generative AI can facilitate research, enhance productivity, and provide novel insights. However, utilising Generative AI tools per ethical standards and maintaining academic integrity is imperative. This paper examines how new researchers can use Generative AI tools effectively and ethically in research.

## Understanding Generative AI in Academic Research

The use of Generative AI in research is a popular subject of academic debates. Some say Generative AI can change the way research is done, from reviewing literature to analysing data and even helping with writing (BaHammam et al., 2023). Others express concern that excessive dependence on Generative AI may result in biases and ethical dilemmas in academic work (Carobene et al., 2023; Tomlinson et al., 2023). Even with these concerns, more and more people in the scientific community are using Generative AI in their work (Carobene et al., 2023).This indicates that individuals are recognising the advantages of Generative AI in enhancing research efficiency, productivity, and the ability to reveal new insights.

## Productive Applications of Generative AI Tools in Research

### 1. ChatGPT for Research Design

Generative AI tools like ChatGPT can be helpful for students doing research. These tools can assist in brainstorming research questions, refining topics and search strategies. Students can have a back-and-forth conversation to figure out the big picture and type of their research project. This teamwork helps students carefully think about the best way to answer their main research questions and find important information (Deng & Lin, 2023). By talking with ChatGPT, students can get clear guidance on how to shape their research project to meet their goals and make a valuable contribution to the field.

When students start with broad ideas, ChatGPT can suggest how to focus their research and find gaps in what has already been studied (Deng & Lin, 2023). For instance, a student studying how working remotely affects employee productivity could use ChatGPT to look deeper into mental health, work-life balance and technology challenges. This can help the student find different perspectives and new ideas for their research, making it stronger and more impactful.

### 2. SciSpace for Literature Review

The AI-powered tool SciSpace facilitates comprehensive literature reviews for research. Rather than investing excessive time searching through several research articles, which can be time-consuming, SciSpace employs modern technologies to assist students in swiftly and efficiently locating essential information. This tool assists students in locating the best sources and keeping everything organised (Jain, et al., 2023). Utilising SciSpace enables students to conduct a more efficient and thorough literature review, ensuring the incorporation of the most significant research for their projects.

SciSpace is also compatible with Zotero, a widely used reference management application. Students can connect SciSpace to their Zotero accounts, enabling the automatic export of all essential citations and metadata. This feature saves time and minimises errors during manual data entry. The direct Zotero connection enables students to maintain a tidy and systematic record of their study sources (Devi, et al., 2024). Consequently, students can establish a strong foundation for their research, significantly contributing to their discipline.

### 3. Jenni.ai for Writing

Another helpful AI tool for students doing research is Jenni. ai. It is a platform that uses natural language processing to improve academic writing. Jenni. ai has many useful features that can help students with their research. One important benefit of Jenni. ai is that it can give feedback and suggestions in real-time on how well-written and clear a student's work is. By analysing language Jenni. ai can find ways to improve a student's research drafts and

give specific advice to improve the overall quality and flow of the writing (Aeni et. al. 2024). This leads to student's greater confidence and preparedness in presenting their work and defending their research methodology and findings.

Research students may gain advantages from utilising Jenni.ai in their writing process. Firstly, it can enhance the quality and clarity of their writing, ensuring effective communication of their thoughts. Furthermore, the functionalities of plagiarism detection and citation management can uphold academic integrity, diminishing the likelihood of unintentional plagiarism. Ultimately, by streamlining the technical components of writing, Jenni.ai enables students to concentrate more on critical elements such as data analysis and the generation of innovative concepts (Aeni, et al., 2024). Overall, Jenni.ai can assist students in producing high-quality and impactful research.

### Using Generative AI Ethically

Students must recognise the importance of considering the ethical implications of utilising Generative AI in their research. Students must show caution while integrating AI into their academic work, as it may occasionally lead to problems such as plagiarism or lack of originality. Students should learn to utilise AI responsibly and ethically. The objective is not to use AI to perform all tasks but to utilise technology sensibly to enhance students' creativity (Panda & Kaur, 2024). Finding a balance between AI's help and students' critical thinking skills can create high-quality, original and important research without compromising academic integrity.

Furthermore, there are valid concerns regarding the potential for Generative AI to reinforce biases in research. Students must exercise caution and thoroughly verify the material and procedures employed by AI technologies to ensure they do not inadvertently disseminate harmful biases or compromise academic integrity (Panda & Kaur 2024). This necessitates that students understand the functionality of AI systems and critically evaluate the limits and potentials of these technologies

### Conclusion

Using Generative AI in academic research brings many advantages. AI can help with tasks like developing research questions, narrowing down topics, reviewing literature and managing references. Students can also spend more time analysing data, understanding scholarly works and developing new ideas. This can result in well-written and impactful research that contributes to their fields. However, students need to be aware of ethical concerns when using AI in research. They should be cautious of relying too much on AI, which could lead to plagiarism or lack of originality. To avoid these issues, students should use AI responsibly and maintain a balance between AI assistance and their own critical thinking. By combining AI tools with their intellectual capabilities students can benefit from AI while upholding the values of academic integrity.

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The roots of education are bitter, but the fruit is sweet
– Aristotle

## FROM THE WORLD OF RESEARCH

# The development of global environmental concern during the last three decades

*Axel Franzen, Sebastian Bahr*

## Abstract

*The environmental concern of a country's population is an important prerequisite for addressing environmental problems, foremost reducing CO2 emissions and limiting global warming. In this paper, we analyze the development of environmental concern by using the newest wave of the environmental module of the International Social Survey Programme (ISSP) for 29 countries. First, we discuss the measurement of environmental concern and construct a ranking of countries according to the 2020 survey results. Second, we analyze the determinants of environmental concern by employing multilevel models that take individual effects as well as context effects into account. The results show that environmental concern has increased in almost all nations since the last measurement in 2010. The country ranking is headed by European nations such as Switzerland, France and Germany. The USA takes a middle position and China ranks number 20. We observe more variance within countries at the individual level as compared to the differences between countries. At the individual level, environmental concern is closely related to education, post-materialistic values, political attitudes, and individuals' trust in the news media and in science. At the country level, the average environmental concern increases with the wealth of nations.*

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*https://doi.org/10.1016/j.crsust.2024.100260*

# Workplace Wellness: Standing Up to Sitting Down

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## Introduction

In today's fast-paced, technology-driven world, many workplaces have shifted the nature of occupations from active to sedentary, where individuals are required to spend extended periods seated at desks, often in front of computers. According to Daneshmandi et al. (2017), the leading cause of this change is the transition from paper-based to paperless work. Research reveals that prolonged sitting is associated with several poor health outcomes, which can lead to severe physical, mental and social consequences ( (Warburton, 2022). This article explores the health risks associated with prolonged sitting hours in the workplace. Examines the underlying mechanisms and suggests actionable strategies for mitigating these effects.

## The Prevalence of Sedentary work

Approximately (31.3%;1.8 billion) of the adult global population engaged in insufficient physical activities in 2022, highlighting the widespread nature of sedentary behaviour and its associated risks (World Health Organisation [WHO], 2024). Further elaborated this by stating that there was a 5-percentage point increase from 2010 to 2022, and if this trend continues, there is a high chance that this may increase to 35% by 2030.

The highest rates of physical inactivity were observed in the high-income Asia Pacific region (48%) and South Asia (45%), with levels of inactivity in other regions ranging from 28% in high-income Western countries to 14% in Oceania. However, despite the worrying results, some countries have shown major improvements, with 22 countries identified as reaching the global target of reducing physical inactivity by 15% by 2030 (WHO, 2024).

## Health Risks

Prolonged sitting is associated with numerous physical health risks, many of which are chronic and debilitating and are identified as risk factors for cardio-metabolic disease, type 2 diabetes, obesity and metabolic syndrome, coronary artery disease, musculoskeletal disorders, premature death and sometimes cancers such as s colorectal, ovarian, prostate, and cancer (Daneshmandi, Choobineh, Ghaem, & Karimi, 2017; Ellington, et al., 2018)

## Mental Health Impacts

Ellington et al. (2018) state that excessive sedentary time is related to poor mental health, such as increased risk for anxiety, depression, and a lower level of emotional well-being. According to research, prolonged sitting and excessive screen time can affect sleep patterns, leading to fatigue and stress (Leger, Cardoso, Dion, & Albert, 2022).

## Mitigation Strategies

Considering the risks associated with prolonged sitting, it is essential to implement strategies that promote movement and reduce sedentary behaviour in the workplace. These strategies can be categorised into individual actions and organisational interventions to bring positive change and foster a culture of wellness.

### 1. Individual behaviour changes

Active commuting, such as walking or cycling to work where feasible, can significantly reduce daily sitting time. Integrating physical activity into daily routines by promoting staircase use is a simple yet effective way to encourage daily physical activity, helping employees integrate movement into their routines effortlessly. Taking regular breaks, where employees aim to stand, stretch, or walk for a few minutes every 30 to 60 minutes, is also crucial; setting reminders or using apps can help establish this habit. Incorporating desk exercises, such as seated leg lifts, shoulder rolls, and chair squats, can improve circulation and reduce muscle tension (Commissaris, Huysmans, Mathiassen, & Srinivasan, 2015; Shrestha, et al., 2018).

### 2. Workplace Innovations

Ensuring ergonomic adjustments in the workplace, such as properly setting up desks, chairs, and monitors, is essential for preventing musculoskeletal issues (Lee, Be Barros, De Castro, & Sato, 2020). Introducing active workstations, like treadmill desks (Scisco, Meyers, Miceli, & Powell, 2023), and under-desk pedals (Odhiambo, et al., 2024), can promote movement without disrupting workflow. Alternating between sitting and standing by

adopting standing desks can help alleviate the strain caused by prolonged sitting and enhance energy levels. According to Whitsel and Richards (2023), implementing flexible work policies that encourage walking meetings, standing breaks, and stretching sessions can foster an active lifestyle culture. Conducting workshops and seminars to educate employees on the health risks of sitting and the benefits of movement can motivate them to adopt healthier behaviours. Offering on-site fitness facilities, such as yoga classes or subsidised gym memberships, and hosting walking meetings or step challenges can encourage employees to stay active. Fostering a supportive environment through workplace wellness programs prioritising inclusivity and support is also crucial. Employers can create wellness committees, recognise employees who adopt healthy habits, and provide resources for education on the risks of sitting and the benefits of activity (Shrestha, et al., 2018; Leger, Cardoso, Dion, & Albert, 2022).

### 3. Technology-Assisted Solutions

Wearable fitness devices like smartwatches and fitness trackers can monitor activity levels and remind users to stand or move periodically and Mobile apps that track sitting time and suggest breaks can seamlessly integrate into daily routines. Additionally, the computer prompts that instruct users to stand and reduce sitting time at work at regular intervals can be highly effective in promoting movement and mitigating the effects of prolonged sedentary behaviour (Shrestha et al., 2018; Shei, Holder, Oumsang, Paris, & Paris, 2022).

### The Role of Employers

Employers play a pivotal role in addressing the sedentary nature of modern work. Organisations can improve productivity and reduce healthcare costs by fostering an environment that prioritises employee health and well-being. Key actions include:

- Designing workspaces that encourage movement.
- Subsidising gym memberships or fitness programs.
- Recognising and rewarding employees who adopt active lifestyles.
- Incorporating wellness initiatives into corporate policies.

### Conclusion

Prolonged sitting in the workplace is a silent but significant threat to public health, with far-reaching consequences for individuals and organisations. While the challenges posed by sedentary behaviour are substantial, they are not impossible. Combining individual efforts with organisational initiatives makes it possible to create a work environment that promotes movement, enhances productivity, and safeguards health. Standing up to the sedentary epidemic is not just a matter of personal responsibility; it is a collective imperative that can transform workplaces into healthier, more dynamic spaces.

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Smooth seas do not make skillful sailors
~ Proverb

## FROM THE WORLD OF RESEARCH

## THE WEALTH DISTRIBUTION IN A PRECAUTIONARY SAVINGS MODEL WITH CAPITAL INCOME RISK

*Hoang Khieu, Roberto Leon-Gonzalez*

### Abstract

*Explaining the evolution of the wealth distribution requires understanding the dynamics of consumption and savings. We analyze the dynamics of consumption and savings under uncertainty in labour income and the rate of return on wealth, which are two-state continuous time Markov processes. The rate of return is persistent and has a right-skewed distribution. We show that the wealth accumulation process has a stationary distribution if the (unconditional) expected change in the rate of return is sufficiently small or large. In particular, when the expected change in the rate of return is moderate, the wealth accumulation process is non-stationary.*

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# Promoting Local Tourism to Align with Sustainable Development Goals (SDGs) in Island Nations like the Maldives

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## Introduction

The promotion of local tourism has emerged as a critical approach for advancing the United Nations' Sustainable Development Goals (SDGs). Local tourism encourages sustainable economic growth, protects cultural heritage, and supports environmental conservation. For instance, the Maldives, which rely heavily on international tourism, promoting local tourism is crucial for economic diversification, climate resilience, and sustainable development. This paper explores how promoting local tourism in island nations can align with key SDGs, specifically SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), and SDG 13 (Climate Action).

## Local Tourism and SDG 8: Decent Work and Economic Growth

Local tourism produces employment opportunities and promotes inclusive economic growth . In the Maldives, where tourism is one of the main economic drivers, encouraging local tourism can reduce dependence on international tourism, which is vulnerable to global crises like pandemics or economic recessions (UNWTO, 2021). Community-based tourism initiatives like local guesthouses, and guided tours, generate incomes for local communities.

Investing in local tourism infrastructure boosts the economy. Community-based tourism models have shown to increase income for marginalized groups and promote equitable growth (Scheyvens & Biddulph, 2018). In the Maldives, the guesthouse tourism model has enabled locals to offer accommodation services. This allowed local businesses to benefit directly from tourism revenues, stimulating economy as this integrates into the tourism value chain. Hence, locals contribute to and gain from the construction of guesthouses, the supply of goods and services, and the employment generated in hospitality.

## Local Tourism and SDG 11: Sustainable Cities and Commnities

Local tourism supports the development of sustainable island communities by promoting cultural preservation, supporting local entrepreneurship, and reducing the environmental footprint of tourism. Unlike large-scale or foreign invested resorts, which often operate as independent entities, local tourism initiatives engage the local communities directly, encouraging unique cultural exchange and heritage preservation (Richards, 2020). Local tourism, and cultural and heritage tours showcase traditional practices, unique crafts, and cuisines, creating authentic tourism experiences that promote the identity of the local communities.

Developing sustainable local tourism requires investments in eco-friendly infrastructure, such as eco-friendly transport or proper waste management systems. For island nations, sustainable local tourism helps to overcome overtourism . It helps to reduce the pressure on spoiled tourist hotspots, diverting tourists to less visited areas. Thus, local tourism promotes fair distribution of tourism revenue, and improves community well-being. Goodwin (2017) highlights how community-based tourism models in Bali, Indonesia, have reduced overtourism in urban areas by directing visitors toward rural areas. Similarly, in the Maldives, promoting tourism on less visited local islands can reduce pressure on famous or overly visited islands or spots, distributing economic benefits more evenly.

## Local Tourism and SDG 13: Climate Action

The tourism sector is both a contributor to and a victim of climate change. However, for island nations like the Maldives, which are vulnerable to sea-level rise and weather crises, promoting local tourism supports climate action. Encouraging domestic tourism reduces reliance on international flights; a significant source of tourism related carbon emissions (Gössling et al., 2019). Additionally, domestic tourism often prioritizes eco-friendly tourism models, such as nature-based tourism, which have a lower environmental impact.

Local communities play a crucial role in climate-resilient tourism. Community-based tourism initiatives actively engage locals in the protection of natural resources and promoting biodiversity conservation. In the Maldives, marine tourism projects involving local communities in coral reef restoration and marine conservation align with SDG 13 (Ali & Abdurrahman, 2020). Such initiatives not only mitigate climate impacts but also create educational tourism experiences, fostering environmental awareness among visitors along with the locals. For island nations that are heavily dependent on marine ecosystems, coral reef conservation efforts are crucial to sustain tourism and for protecting biodiversity.

**Challenges in Promoting Local Tourism for SDG Alignment**

Despite its potential, promoting local tourism to support SDGs in island nations faces several challenges. Limited access to finance, inadequate infrastructure, and capacity-building gaps hinder community involvement in tourism. Small island nations like the Maldives with its dispersed atolls, often lack the resources to develop essential tourism infrastructure, such as transport networks, renewable energy systems, or waste management. Additionally, communities may lack the skills needed to manage tourism enterprises, making training and technical support critical (UNWTO, 2021).

Another challenge is balancing tourism growth with environmental protection. Without proper planning, local tourism can lead to overtourism, destruction of habitats, and increased waste production. Therefore, it is essential to implement sustainable tourism schemes, such as eco-labels and "green tourism" certifications, to encourage responsible tourism practices (Goodwin, 2017). For island nations like the Maldives, encouraging guesthouses and local tourism providers to implement renewable energy, waste segregation, and sustainable procurement practices can significantly reduce tourism related environmental impacts.

**Recommendations**

To increase the contribution of local tourism toward SDGs in island nations, policymakers should implement a multi-stakeholder approach that includes local communities, the private sector, and government agencies. Some recommendations include:

1. Capacity Building and Training: Provide locals with the skills and knowledge to manage tourism enterprises, including training in hospitality, marketing, and financial literacy.

2. Access to Finance and Grants: Facilitate micro-loans and financial support for small-scale tourism businesses, especially for women and youth led enterprises.

3. Engaging Local Communities: Empower local communities and support social enterprises to develop local tourism and tourism related initiatives.

4. Infrastructure Development: Invest in sustainable infrastructure, such as renewable energy, eco-friendly transportation, and waste management systems, to support the growth of eco-tourism.

5. Policy Alignment with SDGs: Ensure that tourism development plans are explicitly aligned with national SDG targets, integrating sustainability principles into policy frameworks.

6. Monitoring and Evaluation: Implement monitoring systems to track the social, economic, and environmental impacts of local tourism initiatives, using SDG indicators to assess progress.

**Conclusion**

Promoting local tourism offers a pathway for aligning with the SDGs, particularly SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), and SDG 13 (Climate Action). For island nations, supporting community-based tourism initiatives creates inclusive economic growth, protects cultural heritage, and fosters climate resilience. However, to realize the full potential of local tourism, policymakers must address challenges such as financing, infrastructure development, and capacity building. Through sustainable planning, community engagement, and policy alignment with the SDGs, local tourism can become a powerful approach for sustainable development.

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## FROM THE WORLD OF RESEARCH

# An overview of the psychological complexities in sports performance

*Yair Galily, Roy David Samuel, Gershon Tenenbaum*

## Abstract

*Our special issue comprises a diverse collection of ten research and review articles, each offering unique insights into the psychological dimensions of athletic performance. From studies examining the role of resilience in overcoming extreme score shifts to explorations of the mental toll caused by external crises like the COVID-19 pandemic and geopolitical conflict, these papers provide a broad spectrum of perspectives. The issue digs into critical topics such as the influence of crowd dynamics, athlete-coach relationships, and the psychological challenges of breaking long-standing records, all while highlighting innovative methodologies like ecological approaches and creative non-fiction. Together, these ten papers underscore the complexity of the psychological factors that impact athletes' success and well-being, offering both theoretical advances and practical applications for the sporting world.*

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*https://doi.org/10.1016/j.ajsep.2024.10.003*

> The wisest mind has something yet to learn.
> –George Santanaya

# The Impact of Tools on Human Evolution

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This report explains three events that paved the way for humans to evolve into the homo sapiens that we are today. Starting from the use of the first tool, "Oldowan," by Homo habilis, which helped them butcher carcasses for meat and to extract marrow from bones, followed by the great discovery of the fire by Homo erectus, which led to the Invention of the Ancheulean hand axe by Homo ergaster and the beginning of the expansion of brain in Homo line. Lastly, the report examines how Homo sapiens advanced their crafts to dominate the world, surpassing Neanderthals, which led to the extinction of a massive brain species. This report aims to expand our understanding of the connection between the evolution of tools and the development of modern humans through a scientific lens.

## Introduction

Evolutionists argue that primates descended from mammals. These large-brained primates later developed hands and feet with nails, which enabled them to grasp and manipulate objects (Buss, 2019; Pouydebat & Bardo, 2019). One of the primates' most critical developments that led to modern humans' development occurred when they learned to walk, stride, and run on two feet instead of four. (Buss, 2019; Lieberman, n.d.). Buss (2019) suggests that the liberation of hands from the work of walking opened the pathway for these primates to use their "free hands" to develop and use tools. Therefore, many scientists believe bipedalism paved the way for human evolution, leading to toolmaking, hunting, and creating the "wise man" brain.

## Oldowan- The Earliest Stone Tools Developed

The Oldowan stone tools, sharp-edged stone flakes used by the Homo habilis or "handyman" around 2.5 million years ago, mark a significant milestone in human evolution. These tools, belonging to the earlier Stone Age, emerged in eastern Africa near lakes and rivers. (Buss, 2019). They belong to the earlier Stone Age, which appeared in East Africa near lakes and rivers (Favreau, 2023). According to an article published by the Museum of Anthropology University of Missouri (2023), the oldest samples of the Oldowan artifacts were recovered from Gona, Ethiopia. After careful observations of these tools, their findings suggest that Oldowan sharp tools were used for cutting, chopping, and scrapping. Furthermore, during the microscopic analysis of Oldowan stone tools, the researchers observed that these tools were used to cut plants and butcher animals. Buss (2019) suggests that, although the Oldowan stone tools are simple and crude, from a modern perspective, making such a tool requires a certain level of skills and technical mastery that a well-trained chimpanzee cannot replicate. Oldowan stone tools were so successful that they remained unchanged for over a million years.

## The Discovery of Use of Fire- The Greatest Tool?

After almost 1.8 million years since the discovery of Oldowan stone stools, the bipedal toolmaking primates evolved into Homo erectus. The fossil evidence founds in both Java and China suggests that Homo erectus species has moved out of Africa into Asia (Buss, 2019). The earliest traces of controlled fire date back to 1.6 million years in Africa. According to Buss (2019), it is uncertain whether the migrating Homo erectus group knew how to control fire. Clear evidence of fire in Europe only emerged a million years later, although the earliest traces of controlled fire date back to 1.6 million years in Africa. Therefore, the discovery of the use of fire is credited to Homo erectus.

Wrangham (2009), in his book "Catching Fire: How Cooking Made Us Human" proposes a new hypothesis: the cooking hypothesis. According to the cooking hypothesis, the control of the fire and the use of fire for cooking led to the development of modern humans (Wrangham, 2009). However, in an evaluation of his theory in the journal of the University of Chicago Press, Wrangham (2017)

rejected his previous idea and argued that fire and cooking food had relativity little influence on the behavior and adaptation of Homo erectus. Therefore, much recent literature on human evolution omits any content of the cooking hypothesis.
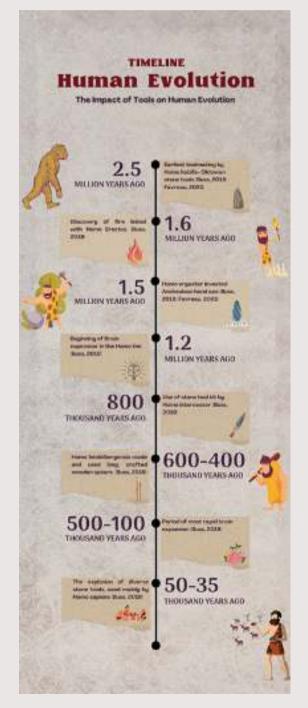
**The Explosion of Diverse Stone Tools and the Wise Man**

The beginning of the expansion of the brain in the homo line can be dated back to 1.2 million years, about a thousand years after the Homo ergaster invented the Ancheulean hand axe. However, the most rapid brain expansion in the homo line occurred between five hundred to hundred thousand years ago. Eight hundred years before this sudden change in the brain, Homo intercessors used stone tools, and Homo heidelbergensis made long, crafted wooden spears. Therefore, Buss (2019) highlights speculations suggesting that some of the sudden brain size increase can be attributed to this rise in tool crafting, using them, and communicating while hunting and during large hunting games.

The Neanderthals, an extinct species of humans, lived alongside Homo sapiens in the world until thirty thousand years ago, and modern Homo sapiens appeared about a hundred and sixty thousand years ago Australian Museum (2023). This unique coexistence, with both species contributing to the evolution of tools and human development, continues to intrigue and fascinate researchers, sparking new questions and avenues of exploration. Neanderthals were advanced in tool making with muscles that were more robust than modern humans, and they buried their dead, which was unique to them and modern humans (Buss, 2019). The reason for their extinction has baffled scientists today (National Geographic, 2023). When human DNA was studied, researchers found remnants of Neanderthals in the genetic materials of modern humans (National Geographic, 2023).

**Conclusion**

Since the evolution of primates from mammals, primates started developing requirements such as a larger brain, hands with nails, and bipedal locomotion, which led to the evolution of the modern human that can write this report. With these new abilities, primates learned to make and use tools, and humans learned to hunt, cook what has been hunted, and get enough nutrients for the development of the brain that we use to make great discoveries today. However, the evidence also suggests that evolution is not limited to tools and hunting abilities (the extinction of Neanderthals). Therefore, several aspects of human evolution must be studied further better to understand this complex connection between tools and human evolution. Perhaps with the help of the "wise man" brain, tomorrow we can answer all the questions that we could not answer yesterday.



TIMELINE
Human Evolution
The Impact of Tools on Human Evolution

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# FROM THE WORLD OF RESEARCH

## Social Cognitive Career Theory From Theory to Practice: A Model for STEM Career Development for Justice-Involved Learners

*Heather Griller Clark, Ally Hunter, Annee Grayson, Michael Krezmien, Sarup R. Mathur, Clayton Hall, Karen Sutter-Lorson*

## Abstract

*Improving the transition and reentry success of youth involved in the juvenile justice system requires comprehensive career development that offers access and exposure to real-world careers, builds self-efficacy, and provides instruction in skills and competencies aligned with labor market needs. This paper describes a STEM (science, technology, engineering, math) specific model of career development that uses the tenants of Social Cognitive Career Theory (SCCT) to enhance STEM self-efficacy, career goals, and outcome expectations for justice-involved learners. Using design-based research (DBR), the curriculum was developed to provide instruction and virtual STEM career exploration and employment activities in a tablet-based Universal Design for Learning (UDL) framework. Examples of student work are provided alongside teacher and researcher interpretations of student learning and visible SCCT constructs. Implications for practitioners to enhance the career readiness and employment success of justice-involved learners are offered.*

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## FROM THE WORLD OF RESEARCH

# Addressing the Transition Needs of Justice-Involved Youth With Intellectual and Developmental Disabilities

*Olivia R. Hester, Ashley V. Taconet,*
*Allison Lombardi*

## Abstract

*Justice-involved youth with intellectual and developmental disabilities (IDD) are at an increased risk of recidivism compared to their peers with and without disabilities. Due to the complexity and unique needs of youth with IDD served in the juvenile justice system, transition supports and services must be individualized and youth-centered throughout a youth's programming. However, transition services are often overlooked in juvenile justice facilities, and staff often lack the background knowledge needed to implement transition practices for these youth. The authors present the challenges juvenile justice facilities face in providing effective transition practices to youth with IDD. They refer to the IDD and juvenile justice literature to outline transition practices that could be embedded into programming to better prepare youth for reentry. Participation in transition practices (e.g., vocational training, transition/reentry planning) while incarcerated has been shown to reduce recidivism rates for youth with IDD.*

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