

Education in Cambodia during the prehistoric period: Education started from instinctive senses to creative senses

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Abstract

Cambodian education began as soon as people settled in this region during the prehistoric period. Making tools out of wood, bamboo, horn, stone, and other materials, prehistoric men in Cambodia showed that they were skillful at dealing with a range of materials. Prehistoric stone tool sizes and types changed over time, reflecting the evolution of prehistoric people's knowledge and abilities. This article illuminates the education of prehistoric Cambodians by following their path from primitive instinctual knowledge to the development of their senses via religious beliefs and inventive holiday celebrations, all based on earlier studies and documents from the remains. The article's purpose is to examine the types of education that were prevalent at the time, the importance of teaching and demonstration, and the influence of religious convictions on educational policies. Positive educational improvements relied on natural senses and self-avoiding behavior, whereas sensory development stagnation hindered educational advancements. The analysis various documents both Khmer and other languages revealed both positive and negative effects on the educational growth of Cambodian ancestors. Thus, to maintain the nation's historical identity, the article attempts to comprehend and investigate the educational strategies of prehistoric periods by drawing on people's previous experiences for future growth.

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1. Introduction

The early inhabitants of Cambodia were responsible for shaping the culture and traditions of the land, creating a civilization based on moral principles that emphasized kindness and compassion towards the natural world (Ironsides, 2022). Evidence suggests that prehistoric Cambodian people existed during the prehistoric period, answering questions about their existence. It shows evidence of early forms of education and learning. As we delve deeper into the prehistoric period of Cambodia, it becomes apparent that education was a fundamental aspect of society (Chin et al., 2023). During the prehistoric period, it evolved from instinctive senses to creative senses, shaping the minds and skills of the early inhabitants. Education in

Cambodia took on a unique form that focused on developing the instinctive senses of the early inhabitants (Berthon, 2021). During the prehistoric age in Cambodia, the education system significantly emphasized survival skills and practical knowledge (Gutman & Hudson, 2004).

Anthropology posits that education serves as a medium for transmitting cultural heritage from one generation to the next (Ha Thuc, 2022). As a result, from the beginning until now, the Cambodian people have engaged in educational activities to ensure the transmission of their cultural heritage to the next generation (Nanetti, 2021). Initially, there was no formal organization of the educational process; instead, it emerged through spontaneous experiences tailored to everyone's life needs and tasks (Kidron, 2020). Over time, as the need for survival increased, people's abilities developed in various ways. Later, educational activities took place in chaotic organizational structures, predominantly utilizing religious institutions, the chaotic situation lasted for an undetermined number of centuries which only thorough examination and analysis of education data can clearly order the chaotic situation (Em et al., 2023).

Education in Cambodia predates the discovery of any inscriptions or concrete evidence (Stewart & Ratner, 2022). Even though there is no evidence of any kind available, it is believed that if a human being exists, education always exists because learning stems from inherent forces (Jeong et al., 2021). To support this, the article explores the development of education in Cambodia, from its instinctive beginnings to the emergence of creative senses, stated about foundation of prehistoric education, "Primitive Brain" or "Triune Brain" referred to the most basic and ancient part of the human brain, responsible for instinctual and survival functions which is used as a metaphor to represent the foundation of prehistoric education, emphasizing the instinctual and survival-based nature of early human learning by MacLean Paul (1990).

Based on MacLean Paul's Theory (1990) and Pogliano's research (2017), the study demonstrates the functions that start with instinctual sensitivity, the primary of seven basic senses, allowing us to react to our surroundings and survival instincts. Another key aspect can build emotional bonds and understand the feelings of others. Additionally, creative sense involves the capacity to create and think outside the box using artistic expression, imagination, and problem-solving skills. Next, curiosity about the unknown is investigated, leading to the discovery of fresh perspectives and information. Altruistic sense is the inclination to put others' needs and well-being before one's own interests, as the fifth trait.

Lastly, while scholastic sense involves a desire to grasp and dissect intricate concepts and ideas, cultural sensitivity involves the capacity to value, honor, and navigate various cultural norms and values. Furthermore, the following stage in evolution of prehistoric education is characterized by five essential features of the earliest period in human history, defined by basic tools and a focus on survival learning. The next step involves the advancement of educational methods, focusing on the progressive evolution of teaching approaches and techniques over time. Thirdly, educational materials and instruments are tools and resources used to enhance learning, including caves, natural objects, and ancient writings. In addition, differences in sharing wisdom are about the varied ways prehistoric cultures transmitted knowledge, skills, and values to their members with beliefs utilized by ancient societies. Limitations and challenges faced by early educational systems, such as environmental factors and resource scarcity, are constraints of prehistoric educational systems (see fig. 1).

The article also examines the impact these changes had on the society and culture of the time. Education began with instinctive senses and progressed to creative senses (Biswas, 2021). Education in Cambodia during the prehistoric period began with instinctive senses, a term that

refers to internal inherent forces; these inherent forces play supreme and imperative roles in driving humanity towards actions for internal and external equilibrium in such a way that, without these forces, the world and humanity would become extinct which many educationists support this belief, for instance, Plato believed that education has existed for a long time because it is inborn, imperishable, and eternal; Jean Jacques Rousseau emphasized that it begins at birth and continues till death (Mukherjee, 2020), and Swami Vivekananda firmly pointed out that spiritual integration of the word comes with inherent powers (Bhuyan, 2003)

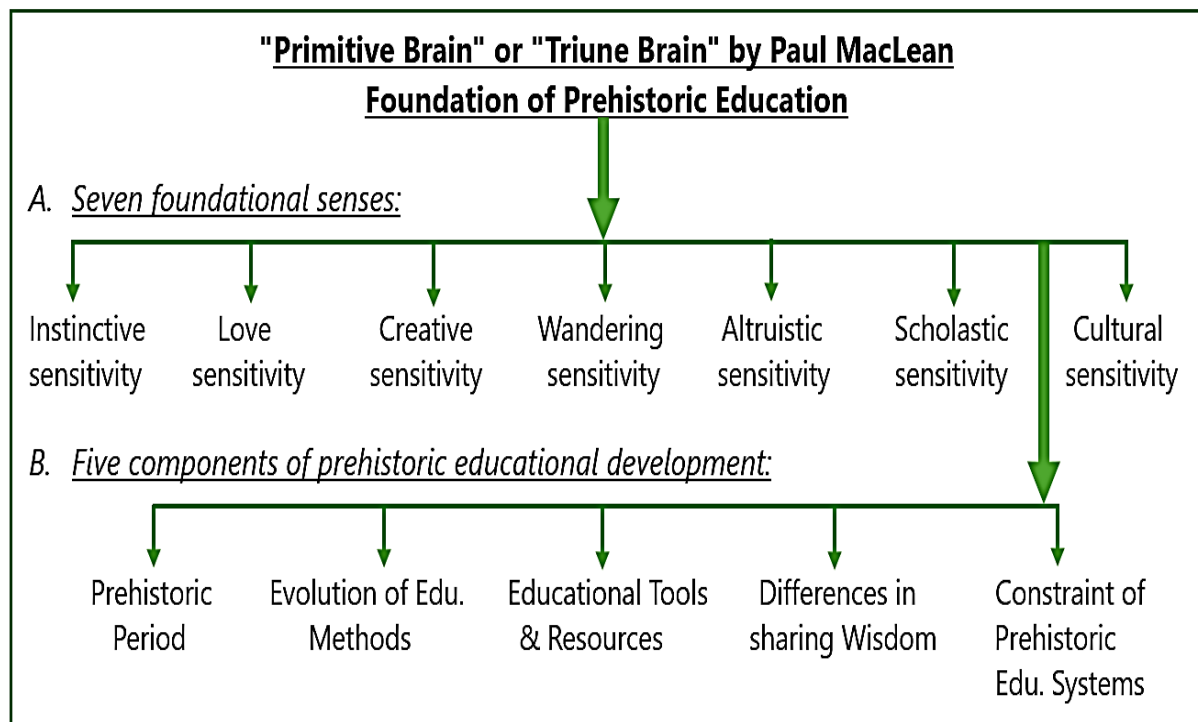


Figure 1. The foundation senses and aspects of prehistoric education (see MacLean, 1990)

The prehistoric period of Cambodia encompasses the time from the emergence of humans till the late 9th century (Moore, 2020). There is a wealth of crucial evidence of advancements from this period, including stone tools that indicate the early use of both physical and mental skills in shaping stones, leading to the ability to craft and utilize tactical knowledge for defense and assaults (Iovita et al., 2021). This suggests that humans' capabilities during this time were like those in other regions. It is widely believed that the environment, society, and education during this period were incredibly significant, intriguing, and mysterious. The Pre-Angkor Ages succeeded in the use of ceramics and metals (Silva-Gago et al., 2021).

Dwellings transitioned from tiered-ground foundation human homes to stilt-framed houses with thatched roofs. The simultaneous development of an animal and non-animal economy and specialized agriculture supplanted traditional trading and subsistence farming. The struggle for autonomy led to the establishment of the gendarmerie (Muller et al., 2022). With the decline in rice farming and increased wealth, there was a need for convenient and durable cooking utensils, leading to the rise of ceramic technology. This marks the beginning of the use of ceramics, with studies starting with cooking utensils and the discovery of pottery. Independent researchers found that a spinning wheel could churn wool fiber, transform cotton fiber into thread, and complete the weaving of cloths (Key et al., 2021).

1.1. Background of prehistoric education in Cambodia

Studying education in Cambodia during the prehistoric period may be considered a useless task due to the lack of sufficient documents for a comprehensive analysis (Miller, 2021). However, there is a belief that education began as a more advanced activity during the historic period, which is a more logical perspective on this issue. Knowledge and education began with the most instinctive human senses and gradually advanced to higher levels. Education has gone through a certain process in which hatred, violence, and other negative activities found within man's instinctive senses gradually decrease (Snyder et al., 2022).

The development of creative senses increased positive activities, leading to Plato's concept of the love of education (Maher & Macdonald, 2020). These changes occurred over many long eras in prehistoric times, before education became a deliberately organized activity within an institution or school. Since the prehistoric period, education has aimed to build a perfect life, pave the way to finding truth and beauty, and aid in the development of a multitude of souls (see Muller et al., 2022).

This paper aims to outline the evolution of education in Cambodia. The author will then present specific points from the available data to support this assertion. The first phase, known as prehistoric education, refers to the natural act of family or environmental learning and is believed to have originated from the very beginning of the first family unit, consisting of a father, mother, and children (Chevance, 2021). Education at this stage involved creating conditions for exploring and understanding the environment, identifying areas for food and rest, and being wary of wildlife hazards. While studying education in Cambodia during the prehistoric period may seem challenging due to limited documentation, it is widely held that learning became more sophisticated during the historic period, which is a reasonable assumption (Carleton & Collard, 2020).

Human civilization, from the earliest family units to the global family, is believed to have incorporated education from the dawn of creation that the core of this family civilization lies in the ability to understand and coexist harmoniously (Em, 2023; Gutek, 2022). To comprehend the various stages of educational development from prehistory to the present, we must consider that individuals are born physically when they enter the world, educated as they develop their instinctive senses, cognitively as they process experiences, and creatively as they strive to surpass developmental gaps that have preceded them (Berthon, 2021). Cambodia, in Southeast Asia, boasts a rich history. Understanding the origins and educational systems of the prehistoric period is essential before analyzing the education system, as per George Santayana's famous quote: Those who cannot remember the past are condemned to repeat it (Miller, 2020).

French scholars such as Louis Malleret and Kinkossoux have studied about Cambodia, situated in the Mekong sub-region, and have found evidence dating back to 8000–4000 BC (Cohen, 2023). The research focused on the ethnography of various cultural origins, emphasizing prehistoric civilization that the community living and learning were comparable to other countries for Cambodian scholars, understanding the current education system, it is important to delve into the origins and educational practices of prehistoric period (Loughran et al., 2004). Education is critical to personal and national development, as well as society's solidarity and prosperity that the knowledge and skills acquired from educational institutions not only promote self-reliance and independence but also contribute to the long-term development and prosperity of society and the country (Shonstrom, 2020).

1.2. Understanding prehistoric education

The primary aim of this paper is to explore the history and development of education. It will examine the origins of education, starting with the Stone Age. The paper will use Cambodia as a case study to understand the historical changes in education (see Miller, 2021). In prehistoric times, education primarily focused on survival skills and basic communication, relying on observation, imitation, storytelling, and oral traditions. As tools, techniques, and agricultural practices developed, education expanded to include practical skills (Reavill, 2022). Despite the lack of written records from prehistoric times, archaeological excavations and anthropological studies provide valuable insights into early educational practices. It is a complex issue to distinguish between education and innate learning in a prehistoric context, but through these studies, one can interpret and reconstruct early education in a broader sense (Baxter, 2022). However, as far as we know, there is a lack of research on this issue in ancient Cambodia. This study aims to provide an understanding of potential forms of prehistoric education through ethnographies. It is crucial to emphasize an emerging issue in these ethnographical studies, which is to demonstrate the continuity of prehistoric populations with those at the beginning of history (Claire, 2020). Further investigation and discussion are necessary to address the issue of education in ancient Cambodia. The range of thoughts and practices in prehistoric education worldwide justifies this concern.

The archaeological studies of written documents and methodological innovation reveal reasonable diversities and similarities in tradition, evolution, and continuity of teaching interests and practices. These studies trace the transition from instinctive to creative senses in education (LeVine, 2021). We must first understand the word education in its broad sense to fully comprehend prehistoric education, before examining its narrow meaning. Education encompasses the act or process of educating or receiving education, the outcomes or products of this process, and the concepts, skills, and knowledge it imparts (Bjorklund, 2022). In this context, we recognize teaching and schooling as forms of education. However, education in a broad sense means something more than the concepts, skills, and knowledge found within teaching or schooling.

Human senses and innate learning from birth, along with life experiences, contribute to the education of intelligent beings, not solely through schooling (Bleakley, 2020). Moreover, since it solely pertains to concepts and skills from teaching, colonial and missionary periods, or the periods and sources of the Khmer Empire, Angkor, and beyond, which exploited and annexed the lands while the colonialists civilized the monarchs and elites (see Shonstrom, 2020), under the colonizing laws of the West, the missionary schools developed people's skills in the arts and sciences (Isiani et al., 2021). The descendants of the elite were primarily interested in written records, past civilizations, and learning, with a narrow focus on these aspects. They can only delve into and impart a limited understanding of the true learning experiences that humanity has to offer. The descendants of the elite were more interested in written records, past civilizations, and learning, concentrating solely on these aspects (Bagby, 2022). They are only able to penetrate and provide a limited understanding of the real learning experiences that constitute humanity. However, the common people relied on instinctive senses to understand the world around them, developing their education through practical skills and observation (Chin et al., 2023).

In a narrow sense, many people associate the word education or educated with having a formal education, being literary and knowledgeable, and engaging in a particular job or profession as a result that some associate the word with teaching or education (Padwe, 2020). Still, others

associate the word with concepts and skills acquired through teaching, such as reasoning, language, writing, and the classic arts and sciences (see Cohen, 2023). Consequently, most people misunderstand education in the Prehistoric Period as lacking formal teaching, being uneducated, and lacking concepts and skills.

2. Definition and characteristics of prehistoric education

The term prehistoric includes any historical documents. Therefore, prehistory encompasses all eras before the invention and presentation of the first closed writing system in a readable format of a specific size (Em et al., 2022; Martin, 1994). Periodically, people reinvent and disseminate writing, but sometimes, it takes centuries for people to embrace its role and potential (Yeo, 2021). Philosophically, we can assert that education and teaching have always interacted closely with life and society, originating in the prehistoric era (Various, 2021). There is a connection between a human's initial acquisition of language and their engagement in increasingly sophisticated cognitive processes (Em, 2024). Prehistoric human origins, for any specific entity in prehistory, also indicate the initiation of education during the transition from instinctive to creative senses (Berthon, 2021). Since the prehistoric period, be it in any country, people have been using techniques for building and developing beliefs, knowledge, wisdom, and skills with which to live in a certain area, technology, and time (Em, Chin, et al., 2024; Em, Mok, et al., 2024). Education is the art and science of development. People have systematically engaged in the creation of education, making it their responsibility to develop and pass it on to the next generation (Moghtader, 2023).

The significant events of the past reveal the elements of education in human life, regardless of their location in the world that the education during the prehistoric period primarily focused on survival skills and practical knowledge for daily life, which was informal and based on the needs of the community, and adults taught children skills and knowledge through observation and imitation (Darnell, 2020). Activities such as hunting, gathering, and toolmaking primarily focused on practical skills and survival techniques, relying on the instinctive senses of observation and imitation (Phirom et al., 2022).

3. Evolution of educational methods

Generally, educational methods vary across civilizations and eras (Huot et al., 2024); however, humankind has not learned to cook rice or meat (Byrd & Dunn, 2020). A skilled Stone Age man would often discover his talent by cooking meat. Since that, various nations have invested many resources in improving their respective methods for cooking their food, and they have been experiencing trial and error among themselves (Kenrick & Lundberg-Kenrick, 2022). On the other hand, the work done by the Aborigines in technical production, which began as a proficient activity to make implements and process techniques for the necessities of life during the hunting age, evolved step by step to an advanced stage. As the hunting period waned, the Aborigines began to gather and hunt various species of fish (Willison, 2020). Up until the era of food planting, also known as agriculture, the majority of the Aboriginal people engaged in land cultivation. This practice allowed us to live as ordinary people, cultivating a variety of eatable vegetables, as well as breathing air, water, and fruits. These days, some specialists have experimented with land exploitation, aiming for high quality by cultivating dry vegetables systematically and straightforwardly for their use (Stark, 2023).

They use their production capabilities to continuously manufacture farming tools for centuries. The specialists who held full responsibility for farming land and husbandry specified the

methods implemented and recognized in certified measures to achieve a higher yield (Pariyatwisutthikhun et al., 2021). Since prehistoric times, people have tried to draw something that the numerous types of pictures adorned the walls of caves in Europe and Africa which these pictures represented people's ideas. At first, they drew pictures of animals, then geometric forms such as circles and straight lines. After that, they tried to draw pictures of people's faces (Dehouve, 2019). People in Cambodia drew animal and fabric images on the plaster of archaic temples, recently unearthed. These pictures revealed the animals and plants that existed at that time. They also reflected the differences in the culture and the abilities of each artist to express their ideas (Erlich, 2022). These senses have undergone an evolution in educational methods, transitioning from a period of education through instincts to a period of education through creative senses, for hundreds of thousands of years, instincts have educated people (Ker et al., 2020). A person's instincts shape them to adapt to natural phenomena, seek food, protect themselves from harm, and create items for specific purposes (see MacLean, 1990). Since the world began, a person's instinct reflects the cleverness of creation. Additionally, an adult could teach a small child how to make a string from plant fibers, making a needle to sew clothes from animal skins, or how to make cutting tools by sharpening rocks (Ennos, 2021).

3.1. From instinctive learning to creative learning

During that time, these items were distinct to people, even without the use of any formal art. With their finger punches, they could point to a worm and mimic the sound of a water buffalo. These actions and expressions demonstrated that education was born from instinctive learning and evolved into a creative process (Habidin et al., 2020). As humans evolved, their cognitive abilities improved, leading to the development of more complex forms of creative learning. More complex forms of creative learning allowed for the cultivation of innovation and critical thinking skills and this shift marked a significant advancement in the education system of prehistoric Cambodia (Kwangmuang et al., 2021). It allowed for the development of critical thinking and problem-solving skills. This shift from instinctive to creative learning marked a significant advancement in the education system, as well as the development of critical thinking skills and problem-solving abilities (Fadilla et al., 2021). This shift from instinctive learning to creative learning also promoted a deeper understanding of concepts and ideas that the people did not yet understand the importance of education or the significance of cumulative knowledge (see Habidin et al., 2020).

They had not yet delved into the interrelationships between each piece of knowledge, nor had they studied the relationship between knowledge and skills. They lacked encyclopedic skills to integrate their scattered knowledge into a cohesive whole and progressively enhance their capabilities (Lin et al., 2024). So that the collective community played a significant role in the preparation or adaptation of the environment for the child to easily and effectively learn (Didham & Oftei-Manu, 2020), which not only provided help for the child but also protected the child from danger, illness, and death. Individuals from the same community coexisted and worked together to overcome challenges when the people understood the importance of the environment and the child's behavior, they lived near each other and developed a method to help the child understand their surroundings, birth, warmth, change, laughter, tears, and mimicry. The children served as the children's first teachers, and their knowledge of geography, geology, climate, and environment was closely related to the regular physical activities and animal emergencies that shaped the thinking of educators during that period (Higham, 2021).

Animal observation helped develop the philosophy of the people who devoted their lives to life. The environment played an important role in shaping the philosophy and the first steps of

education. Everything has been interconnected and had an impact on the lives of individuals, families, and the community. There was a sense of invisible hands linking and supporting each other. People in the community recognized the overall relationship and its impacts (Colombino, 2023). However, these actions applied to everyone who capitalized on their shared necessities, demonstrating that mutual help was a characteristic of the prehistoric era.

3.2. Educational tools and resources

The cave served as a crucial resource for preserving the subject matter's content. During prehistoric socio-political, economic, and civilizational emancipation, and the dynamic cultural course of learning, ancient people could draw pictures, patterns, symbols, or letters on the cave wall (Allegro, 2024; Folgerø et al., 2021). Educators first developed instructional tools to support them in building an adequate education. These tools are diverse and widely used, including pictures, textbooks, films, radios, videos, televisions, telephones, computers, the internet, and multimedia featuring three-dimensional images. Prehistoric people advanced in developing tools to enhance their learning effectiveness and creativity, even before they used these supports (see Snyder et al., 2022).

In the very early period, such as the Stone Age, people created the earliest tools or implements to facilitate learning that the mountain, the cave, the rock, the skin, the charcoal, the water, the tree bark, the branches, and the soil were the learning resources commonly used by prehistoric people (Parsons & Brickell, 2021). They could utilize each object as an instructional resource for a specific educational purpose, for instance, Nleya and Siqabukik (2020) used shells and stones for counting and basic arithmetic skills.

They slowly developed their senses from instincts to creative senses with the help of these tools and resources, processing of utilizing simple tools for educational purposes, students developed strong constructive senses towards tools and resources themselves (Kozulin, 1998). It indicated that gradually, in the process of education, young students' characteristics gained shared values and concepts, as had appeared in the prehistoric period which the physical characteristics of those tools and resources revealed their own logically sensed elements, which are important to recognize as influencing the thinking and behaviors of the students (Proßowsky, 2020).

4. Utilization of natural environment

In theory, if there was no way of utilizing the knowledge from natural thinking, people of the same generation would have to spend aristocratic amounts of time and think the same things with the same efforts (Strevens, 2020). People at this level fractionated the work, lacking the ability to divide it and assign responsibilities. As a result, they experienced a rapid increase in mutual exchanges, transforming natural knowledge into practices, with each community assigning representatives (see Cohen, 2023). Natural thinking not only led to an increase in mutual exchanges among them but also boosted the level and quantity of human knowledge about craftsmen's skills and their proficiency. Therefore, people who had been benefiting from and were proud of their craftsmanship shared this and that with neighbors. This sharing helped increase the community's prosperity. When the neighbors saw it, they took away a part of the prosperity, while others moved into this community, ultimately leading to the development of a large and powerful community (Prastowo, 2023).

During this period, education began with the development of instinctive and creative senses, intuitive education occurs naturally and unintentionally that it is true saying that early human

children, young scientists, are most interested in the phenomena of the environment around them (Fleer & Pramling, 2015). The things that they learn from their parents or other members of the community they are in, as well as their direct experiences with the environment, including the flora and fauna, the physical conditions that they face, and how they use the discovered things, are considered instinctive education, serving as the foundation for all human education in the future (Topoonyanont, 2023). They performed acts of propitiation for the divinities presiding over those fundamental natural laws. Consequently, Cambodian agriculture became linked to a deeply rooted religious belief in souls and deities. They believed in a Supreme Being, the preserver of all creatures. They worshipped other beings who controlled the primeval cosmic forces governing the birth and death of all things (Le & Nguyen, 2021).

4.1. Impact of prehistoric education on society

Pigments were educated about the natural features of iron dust, malachite, charred wood, and animal oil in the shell bowl. It therefore gives us modern people a chance to study the roots of educational work in the present era, from the emergence of habits to its present advanced knowledge. Pigments gradually made his life more meaningful (Im et al., 2023). And the life without pigments gave him a chance to live wholesomely, with social values conforming to good trends. They could certainly describe the roots of their education, and the study of the history of education that described in practice. Pigments demonstrate an individual's level of ability. And in order to meet the nutritional needs of our ancestors, educators today require a clear level of educational self-awareness to implement various educational practices (Hendrickson & Leroy, 2020).

Education begins as soon as a child is born, and even before birth. There is no age limit. No one forces children to sit down and read a book. A child's senses already develop in the womb (Biesta, 2021). Immediately after birth, they absorb the necessary values from adults. This value-based education can take place both during the day and at night. For example, when adults need attention, they can use a game that the child enjoys playing. Through such play, the child acquires a real education. When a child begins to crawl, they see something attractive and try to stand up and move forward. Taking a heavy step is instinctual training in progress, developing balance, coordination, and caution. Therefore, impressions begin to discern beneficial things that improve instinctual senses (Singkaslit et al., 2021).

Each period's education inherits specific objectives that shape and sustain various social relations. During the prehistoric period, education aimed at enhancing the senses. As education focused solely on this goal, Cambodia developed a society with a strong foundation of senses, leading to the creation of outstanding works in both art and architecture. History has recognized art and architecture as the primary aspects of Cambodia. It represents Cambodians' inward senses, thoughts, and beliefs (Sam et al., 2024). The prehistoric people's well-established inward senses served as the foundation for those great works.

4.2. Cultural and social development

The social development of the people went through different epochs, from a matriarchal society to a patriarchal one (Andersen et al., 2013). At each type of societal epoch, the prehistoric people founded different manners of religion, history, traditions, and cultures, as well as the forms of education, from the education of the ancestors to the education of others for the selfish individual, from empathy, speaking, writing, listening, thinking, inventing, cooperating, and communicating of the creators who received love from their subjects. The evolution of

prehistoric education led to the establishment of temples of knowledge, while the Egyptian temples of creativity became the first official universities in history (Joseph, 2020).

Scribbled writing depicted significant battles, rivers, rice fields, and other landscape features. Abstracts from crosses arranged in an ornate foolish idea, beautifully calligraphy writing, and books in gold leaf, candlelight, ink, and of the diversity of human life made of engraved writing techniques on gilded palm leaves (Coffill, 2022). We could refer to this period as the era of inventive writing, a creation of humankind. It was also during this period that the modern Khmer invented their writing system, a tool capable of storing vast amounts of information and transmitting their experiences to their descendants. The writing and word narration of our ancestors and elders, both in oral and written form, marked the beginning of life, inspiring those who lacked the knowledge to guide their grandchildren towards the right path and avoid mistakes (Metro & Brehm, 2022). Each word holds significance and imparts lessons on human behavior, morality, and social solidarity during the Spirit's era (see Parsons & Brickell, 2021), and this early idea serves as a treasure trove for the Khmer ancestors.

4.3. Comparison with modern education

Physical education has the apparent ability to form the physical factor, and music and art education have the apparent ability to form the aesthetic factor (Sang & Xu, 2022). However, these three can indirectly meld the physical factor and the aesthetic factor. How do the subjects of math and science integrate the ethical element? The answer is that because human products are reasonable individuals, they possess not only physical and aesthetic characteristics, but also logical ones (Howes, 2021). It may seem like the conclusion of humanistic education. But that is not correct. The foundation of American liberal-humanistic education came from the basic structure of mathematics and physics, which existed before written history and the philosophical era. If one discusses this matter in this way, one will realize that this is the way to construct the direction of educational history (Dana-Picard et al., 2021). There are very few philosophical discussions that try to find educational shaping by synthesizing the paths from sense education.

It is known that fingerprints contain biological information (Cole, 2020). The fingerprint datasets from life activities can direct or guide the observer through the brain. Each person has a unique, individual, or different brain (Bonci et al., 2021). In pursuit of education, brain enhancement manages the interaction of the observer and the picture. These references are required to manage an interactive process and lead to qualified observations or interpretations (Balée, 2021). The PG's representation of the viewer enables the observer to recognize the necessity without any prior notification. The direction of an exhibition with a picture involves a set of rules that have become part of the practice to ensure the observer does not fall into biases, lapses, or errors in understanding the creator's brain and what the creator depicted. The sequence incorporates the initial fingerprint dataset and the location of the viewer's eyes when the observer needs them. The result shows that the viewer's left eye is capable of scrutinizing the FAN object from the most apparent or obvious position (Cherry et al., 2021).

5. Differences in pedagogical approaches

Ancestors in any culture always foresee bright futures for their children (Huberman, 2020). However, seeing this anticipative image among descendants was quite unlikely during the prehistoric era. It is fascinating to observe the differences in educational aspects between Greeks and Cambodians during the prehistoric period in semi-civilized communities. This is

because it interests us to explore the disparity between parental attitudes and their anticipated children. The purpose of screening is not to determine accuracy, but to demonstrate the psychological connection and relationship between demographic expression in a sociological setting, and to identify variations in educational methods (Pawson, 2022).

Pedagogical foundations today link cognitive development. The analysis of Cambodian archaic writings, which is believed to have stemmed from the learned teachings of the prehistoric period, can help modify new learning or teaching strategies, techniques, or methods that are more congruent with Cambodian culture, learning styles, and ways of thinking. This encoding of earlier epistemes can facilitate the necessary re-decoding, thereby bringing forth coherent cultural legitimating factors that will benefit future generations (Burgess, 2020). People use archaic inscriptions as drawers to preserve the valuable early beliefs and teachings that shaped Cambodian civilization (Shewan et al., 2020). Among the important aspects that Cambodian civilization developed are skills, histories, social studies, stories, lessons of literature, and beliefs. These skills, histories, and other teachings took shape during the prehistoric period.

6. Constraints of prehistoric educational systems

The primary limitation of prehistoric education stems from the paucity of accumulated knowledge among the prehistoric people. This is due to the limited number of literacies and the ineffectiveness of their teachings in producing significant changes in knowledge (Migliano & Vinicius, 2022). Furthermore, the prehistoric folk struggled to retain these teachings over extended periods due to a lack of material for their writing, and they found teaching to be an extremely exhausting endeavor (Oliveira et al., 2021). As a result, the prehistoric people had difficulty retaining and recalling the vital information that they had experienced and witnessed during their lifetime; since then, they taught their posterities to rely upon their instinctive and perceptual senses to find solutions for imminent problem-solving (Puccio & Modrzejewska-Świgulska, 2022).

Young individuals, nearing adulthood, frequently needed others to focus their attention on them, necessitating an educational adaptation to assist their juniors in meeting the requirements. This required training in skill and stamina, with knowledge imparted only when necessary (Ingold, 2017). The prehistoric educational systems faced constraints due to limited resources and harsh environmental conditions that the people in the prehistoric period indeed received real education from their traditional patterns of life, including hunting, gathering, fishing, and shifting cultivation of wild plants. These were functional activities, and the people learned their functions (Bond, 2021). During the prehistoric period in Cambodia, education faced significant challenges and limitations, lacking formalized systems made it problematic to provide extensive education to the population. As consequence, access to education was limited and uneven across different regions of Cambodia (see Phirom et al., 2022).

7. Conclusion

As previously mentioned, ancient education in Cambodia existed both above and below the ground. Wild creatures and natural conditions were the learning objects. The learning process was based on instinct. 5000 years ago, people used sea scales and symbols as advanced tools to understand concepts and estimate phenomena. Educational visions and philosophies existed from the primitive age through the periods of the four major Theravada, Mahayana, and Tantrayana, and were inferred indirectly through traditional cooperation and prudence. Education started with instinctive senses and progressed to creative, advanced senses. One

could classify the unique ancient Cambodian educational culture as both respectful and developmental. This culture also used culture-dominated education as its educational approach. We can conclude that during the prehistoric period in Cambodia, education transitioned from instinctive to creative, with a primary focus on culture-dominated education.

The purpose of this article was to study Cambodian education during the prehistoric period. During this period, the research studies revealed the foundations of education. According to the studies, education during the prehistoric period in Cambodia was based on seven types of foundational senses: instinctive sensitivity, love sensitivity, creative sensitivity, wandering sensitivity, altruistic sensitivity, scholastic sensitivity, and cultural sensitivity. These foundational senses were virtues that prehistoric people learned and used to guide their lives. The primitive brain gradually developed and enlightened these senses, forming connections with the navel, heart, and head.

During prehistoric times, although there was no social organization, a basic social structure had already started to flourish. The main occupation during this period was gardening, gathering forest products, and hunting. This research focused on the education of people who had instinctive senses and were filled with wisdom during the prehistoric period. The findings of this study were valuable in reestablishing the prehistoric education system's foundation. These theories and concepts played a crucial role in enhancing the field of historical social science. People witnessed the evolution of the education system during the prehistoric period. This research revealed educational concepts enriched with problem-solving strategies, which were crucial for society.

Finally, we have recently learned that educated life has had its start and developed since the creation of human beings on earth. Since the emergence of educated life, the senses of life have evolved in tandem with mankind's material existence, drawing from the lifestyles of the prehistoric era and the cultures of the people. We have learned that the origins of education can be traced back to the prehistoric period, a time when instinctive senses began to develop and evolve into creative senses. This evolution led to the development of educated sense beings, such as the self, family, society, nation, and the world. This evidence bolsters the notion that education began in the prehistoric era, laying the groundwork for individuals, their offspring, grandchildren, and future generations. It has established and developed the way of life for the Khmer people until now and has further developed and advanced the lives of intelligent beings.

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References

- Allegro, J. M. (2024). *The people of the Dead Sea scrolls: In text and pictures*. Taylor & Francis. <https://doi.org/10.4324/9781003466413>
- Andersen, S., Ertac, S., Gneezy, U., List, J. A., & Maximiano, S. (2013). Gender, competitiveness, and socialization at a young age: Evidence from a matrilineal and a patriarchal society. *The Review of Economics and Statistics*, 95(4), 1–6. https://doi.org/10.1162/REST_a_00312
- Bagby, P. (2022). *Culture and history: Prolegomena to the comparative study of civilizations*. University of California Press.
- Balée, W. (2021). *Inside cultures: An introduction to cultural anthropology* (3rd ed.). Routledge. <https://doi.org/10.4324/9781003081685>
- Baxter, J. E. (2022). *The archaeology of childhood*. Rowman & Littlefield.
- Berthon, M. A. (2021). *Silk and post-conflict Cambodia: Embodied practices and global and local dynamics of heritage and knowledge transference*. The Royal College of Art.
- Bhuyan, P. R. (2003). *Swami Vivekananda: Messiah of resurgent India* (1st ed.). Atlantic Publishers & Distributors.
- Biesta, G. (2021). *World-centred education: A view for the present*. Routledge. <https://doi.org/10.4324/9781003098331>
- Biswas, T. (2021). Who needs sensory education? *Studies in Philosophy and Education*, 40(3), 287–302. <https://doi.org/10.1007/s11217-021-09763-y>
- Bjorklund, D. F. (2022). Children’s evolved learning abilities and their implications for education. *Educational Psychology Review*, 34(4), 2243–2273. <https://doi.org/10.1007/s10648-022-09688-z>
- Bleakley, A. (2020). *Educating doctors’ senses through the medical humanities: “How do I look?”*. Routledge. <https://doi.org/10.4324/9780429260438>
- Bonci, A., Fiori, S., Higashi, H., Tanaka, T., & Verdini, F. (2021). An introductory tutorial on brain–computer interfaces and their applications. *Electronics*, 10(5), 1–42. <https://doi.org/10.3390/electronics10050560>
- Bond, E. (2021). Archaeology of human consciousness: An integrated narrative of cognitive evolution from the preanthropomorphic mind to humanity’s contemporary, academia-centric culture. *Advances in Anthropology*, 11(03), 201–248. <https://doi.org/10.4236/aa.2021.113013>
- Burgess, A., Cappelen, H., & Plunkett, D. (Eds.). (2020). *Conceptual engineering and conceptual ethics*. Oxford University Press. <http://111.93.204.14:8080/xmlui/handle/123456789/655>
- Byrd, M., & Dunn, J. P. (2020). *Cooking through history: A worldwide encyclopedia of food with menus and recipes*. Bloomsbury Publishing USA.
- Carleton, W. C., & Collard, M. (2020). Recent major themes and research areas in the study of human-environment interaction in prehistory. *Environmental Archaeology*, 25(1), 114–130. <https://doi.org/10.1080/14614103.2018.1560932>
- Cherry, B., Hills, M., & O’Day, A. (2021). Introduction: New dawn, new moment. In B. Cherry, M. Hills, & A. O’Day (Eds.), *Doctor who—new dawn* (pp. 1–24). Manchester University Press. <https://doi.org/10.7765/9781526151889.00010>

- Chevance, J. B. (2021). Heritage and history in Cambodia: Localizing and empowering communities through archaeology. In S. Acabado & D. Kuan (Eds.), *Indigenous peoples, heritage and landscape in the Asia Pacific* (pp. 139-150). Routledge.
- Chin, P., Em, S., Phann, S., & Seng, S. (2023). Education in Cambodia before Angkor Empire: Prehistory, Nokor Phnom, and Chenla periods. *Journal of General Education and Humanities*, 2(4), 323–336. <https://doi.org/10.58421/gehu.v2i4.153>
- Claire, S. (Ed.). (2020). *Encyclopedia of global archaeology*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-30018-0>
- Coffill, N. (2022). *Photography in Cambodia: 1866 to the present*. Tuttle Publishing.
- Cohen, W. I. (2023). *East Asia at the center: Four thousand years of engagement with the world*. Columbia University Press. <https://doi.org/10.7312/cohe20832>
- Cole, S. A. (2020). Individual and collective identification in contemporary forensics. *BioSocieties*, 15(3), 350–375. <https://doi.org/10.1057/s41292-018-0142-z>
- Colombino, A., & Bruckner, H. K. (Eds.). (2023). *Methods in human-animal studies: Engaging with animals through the social sciences*. Taylor & Francis.
- Dana-Picard, T., Hershkovitz, S., Lavicza, Z., & Fenyvesi, K. (2021). Introducing golden section in the mathematics class to develop critical thinking from the STEAM perspective. *Southeast Asian Journal of STEM Education*, 2(1), 151–169. <http://urn.fi/URN:NBN:fi:jyu-202102031406>
- Darnell, A. (2020). *Transnational escape: Migrations of the Khmer and Cham peoples of Cambodia (1832–2020)*. University of California, Riverside.
- Dehouve, D. (2019). The “Law of the Series”: A proposal for the decipherment of Aztec ritual language. In K. Mikulska & J. A. Offner (Eds.), *Indigenous graphic communication systems: A theoretical approach* (pp. 95–122). University Press of Colorado. <https://doi.org/10.5876/9781607329350>
- Didham, R. J., & Ofei-Manu, P. (2020). Adaptive capacity as an educational goal to advance policy for integrating DRR into quality education for sustainable development. *International Journal of Disaster Risk Reduction*, 47, 1–9. <https://doi.org/10.1016/j.ijdr.2020.101631>
- Em, S. (2023, March 22). *Education in Cambodia during the Funan Period*. Cambodianess. <https://cambodianess.com/article/education-in-cambodia-in-the-funan-period>
- Em, S. (2024). *A brief history of education in Cambodia: From the early ages to the present* [PowerPoint slides]. Guiyang, Guizhou, China.
- Em, S., Chin, P., & Pen, D. (2024). COVID-19 and school closures: Transformation of shadow education in the Cambodian context. In Md. B. Alam (Ed.), *Shadow education in Asia: Policies and practices* (pp. 136-159). IGI Global. <https://doi.org/10.4018/979-8-3693-2952-8.ch009>
- Em, S., Chin, P., Khan, S., & Nun, N. (2022). Teacher education in Cambodia: Formulae, challenges, and suggestions for improvement. *Jurnal As-Salam*, 6(2), 90-104. <https://doi.org/10.37249/assalam.v6i2.401>
- Em, S., Khan, S., & Nun, N. (2023). Education system in Cambodia: A brief review from the prehistoric period to the present, and an education strategic plan for the future. *FIRE: Forum for International Research in Education*, 7(3), 141–164. <https://doi.org/10.32865/fire202273320>
- Em, S., Mok, S., Sam, R., Kurniawan, G. F., & Pen, D. (2024). History of education in Cambodia: A review of literature from past to present. *SSRN Electronic Journal*. <https://ssrn.com/abstract=4901095>
- Ennos, R. (2021). *The age of wood: Our most useful material and the construction of civilization*. The Gale Group, Inc.

- Erlich, A. (2022). Children in need: Evidence for a children's cult from the Roman temple of Omrit in Northern Israel. *Religions*, 13(4), 362. <https://doi.org/10.3390/rel13040362>
- Fadilla, N., Nurlaela, L., Rijanto, T., Ariyanto, S. R., Rahmah, L., & Huda, S. (2021). Effect of problem-based learning on critical thinking skills. *Journal of Physics: Conference Series*, 1810(1), 1–6. <https://doi.org/10.1088/1742-6596/1810/1/012060>
- Fleer, M., & Pramling, N. (2015). *A cultural-historical study of children learning science: Foregrounding affective imagination in play-based settings*. Springer Netherlands. <https://doi.org/10.1007/978-94-017-9370-4>
- Folgerø, P. O., Johansson, C., & Stokkedal, L. H. (2021). The superior visual perception hypothesis: Neuroaesthetics of cave art. *Behavioral Sciences*, 11(6), 81. <https://doi.org/10.3390/bs11060081>
- Gutek, G. L. (2022). *A history of the Western educational experience* (3rd ed.). Waveland Press Inc.
- Gutman, P., & Hudson, B. (2023). The archaeology of Burma (Myanmar) from the Neolithic to Pagan. In P. Bellwood & I. Glover (Eds.), *Southeast Asia* (pp. 149–176). Routledge.
- Ha Thuc, C. (2022). Beyond the artist's discourse: Implicit and sensuous knowledge in Khvay Samnang's Preah Kunlong. In C. Ha Thuc, *Research-based art practices in Southeast Asia* (pp. 177–209). Springer International Publishing. https://doi.org/10.1007/978-3-031-09581-8_7
- Habidin, N., Ong, S., Chik, T., & Muhamad, U. (2020). *The revolution in social research and education*. Kaizentrenovation Sdn Bhd Tanjung Malim.
- Hendrickson, M., & Leroy, S. (2020). Sparks and needles: Seeking catalysts of state expansions, a case study of technological interaction at Angkor, Cambodia (9th to 13th centuries CE). *Journal of Anthropological Archaeology*, 57, 1–20. <https://doi.org/10.1016/j.jaa.2019.101141>
- Higham, C. F. W. (2021). The later prehistory of Southeast Asia and southern China: The impact of exchange, farming and metallurgy. *Asian Archaeology*, 4(2), 63–93. <https://doi.org/10.1007/s41826-021-00040-y>
- Howes, D. (2021). Hyperesthesia, or, the sensual logic of late capitalism. In *Empire of the senses* (pp. 281–303). Routledge.
- Huberman, J. (2020). *Transhumanism: From ancestors to avatars*. Cambridge University Press. <https://doi.org/10.1017/9781108869577>
- Huot, S., Hok, C., Kumar, P., & Heng, L. (2024). Exploring the benefits of teacher involvement in guiding high school students' orientation toward personal and educational growth. *Cambodian Journal of Educational and Social Sciences (CJESS)*, 1(1), 49–66. <https://doi.org/10.69496/cjess.v1i1.9>
- Im, R., Iwayama, T., & Osa, M. (2023). Development of acid–base indicators from natural pigments in agar gel. *Journal of Chemical Education*, 100(12), 4707–4713. <https://doi.org/10.1021/acs.jchemed.3c00131>
- Ingold, T. (2017). *Anthropology and/as education*. Routledge. <https://doi.org/10.4324/9781315227191>
- Iovita, R., Braun, D. R., Douglass, M. J., Holdaway, S. J., Lin, S. C., Olszewski, D. I., & Rezek, Z. (2021). Operationalizing niche construction theory with stone tools. *Evolutionary Anthropology: Issues, News, and Reviews*, 30(1), 28–39. <https://doi.org/10.1002/evan.21881>
- Ironside, J. (2022). Localizing global concepts: An exploration of indigeneity in Cambodia. *Critical Asian Studies*, 54(3), 374–397. <https://doi.org/10.1080/14672715.2022.2076249>

- Isiani, M. C., Okonkwo, U. U., & Anthonia Obi-Ani, N. (2021). Socio-economic transformations in Nigeria: The role of Church Missionary Society (CMS) schools and social stigmatization in Onitsha Province, 1904–1975. *Cogent Arts & Humanities*, 8(1), 1–18. <https://doi.org/10.1080/23311983.2021.1922154>
- Jeong, S., Sherman, B., & Tippins, D. J. (2021). The Anthropocene as we know it: Posthumanism, science education and scientific literacy as a path to sustainability. *Cultural Studies of Science Education*, 16(3), 805–820. <https://doi.org/10.1007/s11422-021-10029-9>
- Joseph, F. (2020). *Ancient high tech: The astonishing scientific achievements of early civilizations*. Simon and Schuster.
- Kenrick, D. T., & Lundberg-Kenrick, D. E. (2022). *Solving modern problems with a stone-age brain: Human evolution and the seven fundamental motives*. American Psychological Association. <https://psycnet.apa.org/doi/10.1037/0000286-000>
- Ker, Y., Chotpradit, T., O'Connor, S. J., Soon, S., Abdullah, S., Nelson, R., Campos, P. F., Taylor, N. A., Mahamood, M., Chua, L., Miksic, J. N., Clark, J., Say, J., Tajudeen, I. B., Singhalampong, E., Sambrani, C., Villaruz, B. E. S., & Wright, A. (2020). Teaching the history of modern and contemporary art of Southeast Asia. *Southeast of Now: Directions in Contemporary and Modern Art in Asia*, 4(1), 101–203. <https://doi.org/10.1353/sen.2020.0005>
- Key, A. J. M., Farr, I., Hunter, R., Mika, A., Eren, M. I., & Winter, S. L. (2021). Why invent the handle? Electromyography (EMG) and efficiency of use data investigating the prehistoric origin and selection of hafted stone knives. *Archaeological and Anthropological Sciences*, 13(10), 162. <https://doi.org/10.1007/s12520-021-01421-1>
- Kidron, C. A. (2020). The “perfect failure” of communal genocide commemoration in Cambodia: Productive friction or “bone business”? *Current Anthropology*, 61(3), 304–334. <https://doi.org/10.1086/708843>
- Kozulin, A. (1998). *Psychological tools: A sociocultural approach to education*. Harvard University Press.
- Kwangmuang, P., Jarutkamolpong, S., Sangboonraung, W., & Daungtod, S. (2021). The development of learning innovation to enhance higher order thinking skills for students in Thailand junior high schools. *Heliyon*, 7(6), 1–13. <https://doi.org/10.1016/j.heliyon.2021.e07309>
- Le, D. T. N., & Nguyen, T. N. (2021). Spiritual ecology and environmental protection: The hidden discourses of the sacred pond. *Current Politics and Economics of South, Southeastern, and Central Asia*, 30(1), 1–39.
- LeVine, P. (2021). Ritualcide under the Khmer Rouge in Cambodia: Animism, genocide, and war crimes. In S. E. Beck, S. S. Moses, & T. A. Simms (Eds.), *The Routledge handbook of religion, mass atrocity, and genocide* (pp. 161–173). Routledge. <https://doi.org/10.4324/9780429317026-19>
- Lin, B., Bolton, K., Khan, B., & Bacon-Shone, J. (2024). English-medium instruction in higher education in Cambodia. In K. Murata (Ed.), *The Routledge handbook of English-medium instruction in higher education* (pp. 429–449). Routledge. 10.4324/9781003011644-35
- Loughran, J. J., Hamilton, M. L., LaBoskey, V. K., & Russell, T. (Eds.). (2004). *International handbook of self-study of teaching and teacher education practices*. Springer Netherlands. <https://doi.org/10.1007/978-1-4020-6545-3>
- MacLean, P. D. (1990). *The triune brain in evolution: Role in paleocerebral functions*. Springer Science & Business Media.

- Maher, L. A., & Macdonald, D. A. (2020). Communities of interaction: Tradition and learning in stone tool production through the lens of the epipaleolithic of Kharaneh IV, Jordan. In H. S. Groucutt (Ed.), *Culture history and convergent evolution* (pp. 213–243). Springer International Publishing. https://doi.org/10.1007/978-3-030-46126-3_11
- Martin, H.-J. (1994). *The history and power of writing*. University of Chicago Press.
- Metro, R., & Brehm, W. (2022). The UNESCO shared histories curriculum. In W. Brehm & Y. Kitamura (Eds.), *Memory in the Mekong: Regional identity, schools, and politics in Southeast Asia* (pp. 23–46). Columbia University.
- Migliano, A. B., & Vinicius, L. (2022). The origins of human cumulative culture: From the foraging niche to collective intelligence. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 1–11. <https://doi.org/10.1098/rstb.2020.0317>
- Miller, A. (2020). Development through vocational education: The lived experiences of young people at a vocational education, training restaurant in Siem Reap, Cambodia. *Heliyon*, 6(12), 1–10. <https://doi.org/10.1016/j.heliyon.2020.e05765>
- Miller. (2021). *In the hands of the Khmer mother: Gender and decolonization in Cambodia* (Doctoral dissertation, University of Wisconsin-Madison). asset.library.wisc.edu
- Moghtader, B. (2023). *Schooling, human capital and civilization: A brief history from antiquity to the digital era*. Routledge. <https://doi.org/10.4324/9781003363736>
- Moore, M. W. (2020). Hominin stone flaking and the emergence of ‘Top-down’ design in human evolution. *Cambridge Archaeological Journal*, 30(4), 647–664. <https://doi.org/10.1017/S0959774320000190>
- Mukherjee, H. B. (2020). Educational Writings 1918–1941 (Cont.). In *Education for Fullness* (pp. 157–214). Routledge, India.
- Muller, A., Shipton, C., & Clarkson, C. (2022). Stone toolmaking difficulty and the evolution of hominin technological skills. *Scientific Reports*, 12(1), 5883. <https://doi.org/10.1038/s41598-022-09914-2>
- Nanetti, A. (2021). Defining heritage science: A consilience pathway to treasuring the complexity of inheritable human experiences through historical method, AI, and ML. *Complexity*, 1–13. <https://doi.org/10.1155/2021/4703820>
- Nleya, S. M., & Siqabukik, N. (2020). Chapter four: Audit of mathematical concepts in pre-colonial Africa. In H. B. Mukherjee & A. M. Ndlovu (Eds.), *Decolonising science, technology, engineering and mathematics (STEM) in an age of technocolonialism: Recentring African indigenous knowledge and belief systems* (pp. 125–150). Labga Research & Publishing Communication Initiative Group.
- Oliveira, G., Grenha Teixeira, J., Torres, A., & Morais, C. (2021). An exploratory study on the emergency remote education experience of higher education students and teachers during the COVID-19 pandemic. *British Journal of Educational Technology*, 52(4), 1357–1376. <https://doi.org/10.1111/bjet.13112>
- Padwe, J. (2020). *Disturbed forests, fragmented memories: Jarai and other lives in the Cambodian highlands*. University of Washington Press.
- Pariyatwisutthikhun, P., Suphon, P. P., Saengthong, S., & Sa-ard-iam, T. (2021). The sustainable development of Sub-Khao Phanom Dong Rak with special reference to the Sangha’s education. *Turkish Journal of Computer and Mathematics Education*, 12(8), 2550–2557.
- Parsons, L., & Brickell, K. (2021). The spirit in the machine: Towards a spiritual geography of debt bondage and labour (im)mobility in Cambodian brick kilns. *Transactions of the Institute of British Geographers*, 46(1), 44–58. <https://doi.org/10.1111/tran.12393>
- Pawson, D. (2022). *The normal Christian birth: How to give new believers a proper start in life*. Anchor.

- Phirom, L., Phyrom, E., & Sothy, K. (2022). Cambodian post-secondary education and training: Conceptual scope, historical context, present realities, and new discourses. In E. Phyrom, L. Phirom, K. Sothy, & S. Sopheak (Eds.), *Cambodian post-secondary education and training in the global knowledge societies* (pp. 4–28). CDRI – Cambodia Development Resource Institute.
- Pogliano, C. (2017). Lucky triune brain. *Nuncius*, 32(2), 330–375.
<https://doi.org/10.1163/18253911-03202004>
- Prastowo, F. R. (2023). The folk belief and cultural heritage in the syncretic Theravada Buddhism: The cases of human-spirits relationship in Indonesia, Cambodia and Myanmar. *International Journal of Education, Language, Literature, Arts, Culture, and Social Humanities*, 1(3), 101–123. <https://doi.org/10.59024/ijellacush.v1i3.308>
- Puccio, G. J., & Modrzejewska-Świgulska, M. (2022). Creative problem solving: From evolutionary and everyday perspectives. In T. Lubart, M. Botella, S. Bourgeois-Bougrine, X. Caroff, J. Guegan, C. Mouchiroud, J. Nelson, & F. Zenasni (Eds.), *Homo creativus* (pp. 265–286). Springer International Publishing.
https://doi.org/10.1007/978-3-030-99674-1_15
- Reavill, K. (2022). *Cambodia-culture smart! The essential guide to customs & culture*. Kuperard.
- Sam, R., Jamil, H. B., & Md Zain, A. N. (2024). Cambodia's higher education development in historical perspectives (1863–2012). *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.4850855>
- Sang, F., & Xu, Y. (2022). Research on the current situation and improvement strategies of aesthetic education in music classrooms in primary and secondary schools in China. *Modern Economics & Management Forum*, 3(1), 14.
<https://doi.org/10.32629/memf.v3i1.648>
- Shewan, L. G., Armstrong, R. A., & O'Reilly, D. (2020). Baseline bioavailable strontium isotope values for the investigation of residential mobility and resource-acquisition strategies in prehistoric Cambodia. *Archaeometry*, 62(4), 810–826.
<https://doi.org/10.1111/arcm.12557>
- Shonstrom, E. (2020). *The wisdom of the body: What embodied cognition can teach us about learning, human development, and ourselves*. Rowman & Littlefield.
- Silva-Gago, M., Fedato, A., Hodgson, T., Terradillos-Bernal, M., Alonso-Alcalde, R., & Bruner, E. (2021). Visual attention reveals affordances during Lower Palaeolithic stone tool exploration. *Archaeological and Anthropological Sciences*, 13(9), 145.
<https://doi.org/10.1007/s12520-021-01413-1>
- Singkaslit, T. S., Pingkhanont, P., Pantongruk, P., & Komkhum, N. (2021). A qualitative study of grandparents' lullaby: Wisdom of the elderly for early child development through Northern-Khmer child-rearing cultural transmission process in community way of life. *Asian Journal of Arts and Culture*, 21(2), 15–26.
- Snyder, W. D., Reeves, J. S., & Tennie, C. (2022). Early knapping techniques do not necessitate cultural transmission. *Science Advances*, 8(27), 1–13.
<https://doi.org/10.1126/sciadv.abo2894>
- Sark, M. T. (2023). Pre-Angkorian and Angkorian Cambodia. In P. Bellwood & I. Glover (Eds.), *Southeast Asia* (1st ed., pp. 31–44). Routledge.
<https://doi.org/10.4324/9781003416609-6>
- Stewart, F., & Ratner, V. (2022). *Out of the shadows of Angkor: Cambodian poetry, prose, and performance through the ages*. University of Hawaii Press.
- Strevens, M. (2020). *The knowledge machine: How an unreasonable idea created modern science*. Penguin UK.

- Topoonyanont, W. S. (2023). *Nature, nurture and nation in folk oralities in Thailand and beyond* [Doctoral dissertation, SOAS University of London].
- Various. (2021). *Routledge library editions: Education mini-set N teachers & teacher education research 13 vols.* Routledge. <https://doi.org/10.4324/9780203125526>
- Willison, J. (2020). *The models of engaged learning and teaching: Connecting sophisticated thinking from early childhood to PhD.* Springer Singapore.
<https://doi.org/10.1007/978-981-15-2683-1>
- Yeo, G. (2021). *Record-making and record-keeping in early societies.* Routledge.
<https://doi.org/10.4324/9780429054686>