

# *The Interaction Between Cumulative Culture and Gender*

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**Abstract:** In a society characterized by rapid technological and social advancements, we inherit knowledge from our predecessors while simultaneously building upon it to forge new cultural developments, and such process contributes to the Cumulative culture, the continuous and interactive process of adding innovations to a socially heritable unity of knowledge. Considering the prevalence of gender inequality background in our cultures, this academic article explores the intricate relationship between gender equality and cumulative culture. This paper posits that gender, as defined within the constraints of male and female due to various limitations, plays a pivotal role in this cumulative cultural process. As the results, the examination reveals a clear and positive association between cumulative culture and gender equality. Cumulative culture wields a significant influence over children's choices of gender role models, consequently impacting knowledge transmission and children's labor allocation. Simultaneously, fostering gender egalitarianism offers a pivotal avenue for advancing the evolution of human cumulative culture. This paper aims to declare the benefits of gender equality towards cultural evolution and humanity and proposes the potential ways to foster cultural societal thriving.

**Keywords:** Cumulative Culture, Gender, Gender Equality, Hunter-Gatherer Society

## 1. Introduction

Our society has been developing rapidly with all sorts of technological and social innovations, which are impossible to start from zero and be accomplished by any individual in a lifetime. While we benefit from the knowledge inherited from our predecessors, we are also building upon them to create a new culture. Cumulative culture is a continuous and interactive process of adding innovations to a socially heritable unity of knowledge [1]. In the context of gender equality not been fully achieved, it is vital to see the associations between cumulative culture and gender, which is defined as male and female in this article due to all kinds of limitations. Think of the cycle that has happened throughout history: stating females are less intelligent than males and thus rejecting females from receiving education can cause uneducated females to be less academically competitive than educated males, which will reinforce the stereotype and keep females further away from education. The pre-existed cumulative culture can generate gender differences in the social learning process, the generated gender differences can reciprocally magnify certain aspects of the cumulative culture, and the reinforced cumulative culture will start the cycle of reinforcing itself.

This article argues for the positive association between gender equality and cumulative culture and will start from the created gender differences during cultural transmission processes and end with

gender equality and its associated benefits towards human cultural evolution. The following empirical studies are hard to generalize to the vast population because all of them took place in certain hunter-gatherer societies. However, they can show us the possible directions that we can go for in order to achieve a better society in the perspective of gender.

## **2. Case Study**

### **2.1. Study 1: Aka & Chabu: Innovator and Transmission of Knowledge**

The first study examines the process of transmitting innovations among adolescent populations of two distinct hunter-gatherer communities from the perspective of gender and found that the inclination of adolescents to seek out adult male or female innovators as their instructor is influenced by cultural context and teaching showed a bias towards individuals of the same sex [2]. The study has its participants from Aka of Central Africa and Chabu hunter-gatherers in southwestern Ethiopia. The study dedicated to figuring out what kind of people will be identified as innovators and the specific process of innovative knowledge transmission towards adolescents in order to enhance the living standard of individuals in different contexts. After obtaining consent from parents of participating adolescents and adolescents themselves, researchers recruited 20 adolescents from the Aka community and 12 adolescents from the Chabu community (male: female=1:1). 10 adults from Aka community were interviewed and the Chabu adult sample consisted of 7 adults. The researchers collected data through casual and loosely organized interviews with detailed native expressions. The consensus of the concept for innovation from the participants was assured, and all informants were interviewed in their own languages. Finally, every participant was instructed to generate a list of individuals that they identified as innovators. Bystander contamination was prevented through providing private setting for participants. The study result shows that while there was a male-biased pattern in Aka community, more adult females were mentioned as innovators in Chabu groups because they made high-valued artifacts. Adolescents from both communities tend to prefer teachers of the same sex as themselves. These findings play a great role in showing the association between gender and the learning process of cumulative culture. The adolescents' choice of innovators can be determined by cultural context, and same-sex-biased teaching is notable. This study supports the thesis that gender equality can support the formation of a better cumulative culture: By making innovators of a certain gender more preferred, they will have more opportunities to transmit their knowledge. As a direct result, limited transmission of knowledge from another gender will conceivably occur. The next study will discuss the cultural transmission and sexual division of labor, which will continue the topic from the perspective of preferred same-sex teaching in cumulative culture and discuss its possible causes.

### **2.2. Study 2: Aka Forest Foragers & Ngandu Farmers: Gender Model and Work**

The second study examined the process of generating cumulative culture in the Aka forest foragers and Ngandu farmers of the Central African Republic and found out the cultural transmission of work skills within the same sex is linked to the sexual division of labor that varies across cultures [3]. The researchers conducted this study to provide new insights into the transmission of culture and support the formation of a better characterization of the dynamic relationship between childhood and culture in human adaptability. They conducted field work with the Aka and Ngandu community with participant observation, systematic behavioral observations, and semi-formal interviews from 2008 to 2010. The participants were Aka and Ngandu children aged 4-16, and the observational data were collected through focal follows. Participants were all randomly selected, and researchers had obtained parental consent and child assent before the observation began. In 2008, researchers chose to observe children during roughly the same daytime hours and each on a single day. In 2010, in order to

eliminate potential biases, children were randomly assigned to three 2-hour groups between 6am and 6pm. The 2008 sample included 35 Aka children aged from 4-17, 47% of them were female, and the average time of observation of each was 272.3 minutes. The 2010 sample had 50 Aka children, 52% of which were female, and 48 Ngandu children, 50% of which were female. Kids in the 2010 sample aged from 4 to 16, and they were observed for 233.6 minutes on average. The results display a positive association between the time spent on observing same-sex models and the time children spend on working. The lack of a same-sex model in society is associated with a direct result of less working time of children of a certain sex, which supports the thesis of the article. If a certain field lacks workers of certain sex, it could be a discouraging message to children of that gender and thus create loss of the culture. The results of the two studies that we have observed indicate the importance of having balanced gender models in community to ensure children can learn equally sufficient knowledge in social learning with the consideration of same-sex preferred transmission and receive equal influence upon their work in the future. The third study will further discuss the possible gains of cumulative culture when gender equality is achieved.

### **2.3. Study 3: Agta & Mbendjele BaYaka: Egalitarian and Prosociality**

The last study observed patterns of co-residence among Agta and Mbendjele BaYaka hunter gatherers and found out increased sex egalitarianism is associated with the societal features that are proposed to provide the specific context for the development of cumulative culture [4]. The researchers dedicated to figure out how a distinctive social system of having mobile hunter-gatherers with low within-camp relatedness and fluid meta-groups emerged, which can have great positive impact to human evolution. They collected data from 191 adults across 11 camps among the egalitarian Agta, with a total of 4055 dyadic relationships; 103 adults across 9 camps among the egalitarian Mbendjele with a total of 1863 dyadic relationships; and from male-biased farming community Paranan with 1049 dyadic relationships. The researchers established and ran two models of co-residence patterns across observed populations: egalitarian and non-egalitarian. For the egalitarian population, both husband and wife have equal influence; for the non-egalitarian, only one sex has the influence. The results of the two models showed similar graphs with those of actual collected data, and the modeled egalitarian camps showed a notably higher proportion of unrelated dyads compared to the non-egalitarian, single-sex dispersal camps. This study has its great importance of showing the future possibility of having the evolution of hyper-cooperation and prosociality. If gender equality can be achieved, communication and cooperation between unrelated individuals will evolve and thus promote information exchange, which is essential for cumulative culture. The strength of this study is the generalizability of its models, which were verified by actual data collected from three communities. Its weakness can be that the actual data were only from a few communities. All three studies show the interaction between cumulative culture and gender and indicated that focusing on gender equality through the perspective of same-sex teaching preference can be a great starting point of generating better cumulative culture.

## **3. Conclusion**

In conclusion, the studies of the association between cumulative culture and gender point out the positively associated relationships between cumulative culture and gender equality. The cumulative culture can indirectly or directly influence children's decision of gender of their innovators and thus affect the transmission of knowledge and children's working time, while gender egalitarianism can create a chance for the evolution of human cumulative culture. Due to the cumulative nature of our cultures, it cannot avoid rigidity towards the rules in order to ensure it can be passed down properly [5]. While we can only have association studies because of the traits of the constructs, these studies

are still significant in pointing out the possible solutions of the current state of sexism. From the standpoint of contributing to cumulative culture, having a more balanced gender ratio in workplaces can be a good start to begin the evolution of human society.

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