

Research Article

# Sociobiology Approach in Educational Sociology and Animal Ecology Courses: Learn Social Behavior and Character Building from the Nature

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**Abstract.** Sociobiology is a science that studies the biological basis of social behavior of animals and humans. The field of sociobiology is closely related to moral education which is important and crucial in the learning process at all levels of education. This research is aimed: (1) to implement the sociobiology approach in educational sociology and animal ecology courses; and (2) to describe the social behavior values that acquired by the students after participating in learning with a sociobiology approach. This research is a descriptive qualitative research. The participants involved in this study consisted of 30 undergraduate students from the Department of Sociology and 25 undergraduate students from the Biology Education Study Program of University of Palangka Raya. Data were collected using questionnaires which were distributed to participants/students during lectures. The social behavior values that acquired by the students are beyond expectations. They are able to have a social perspective on the given animal behavior videos. The values of social behavior obtained by students include: sharing happiness; taking care of each other; tolerance; adaptation; team work; solidarity; friendship; independence; and leadership.



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## 1. INTRODUCTION

Sociobiology is a science that studies the biological basis of the social behavior of animals and humans (Daly, 2015; Griffiths, 2001; Lumsden, 2011; Machalek & Martin, 2015). The term sociobiology was introduced and popularized by the American biologist Edward O. Wilson in his book *Sociobiology: The New Synthesis*. Sociobiology attempts to understand and

explain animal (including human) social behavior in the light of natural selection and other biological processes. The scope of sociobiology includes all patterns of social living, including human social life (Adams, 2004; deLaplante, 2008; DellaSala, 2018; Foster, 2008; Lumsden, 2011; Mueller, 2020; C. Wilson, 2007; E. O. Wilson, 2000). Sociobiology has contributed several insights into understanding social behavior

in animals. Overtly altruistic behavior in some animal species has been explained as actually being genetically selfish. This is because such behavior usually benefits closely related individuals who have genes similar to those of altruistic individuals. This insight helps explain why soldier ants sacrifice their own lives to protect their colony, or why hive worker bees refrain from breeding to help their queens thrive. Sociobiology can explain differences in male and female behavior in certain animal species. This is due to the different strategies that sexes must employ to pass on their genes to posterity (Wexler, 1981).

According to Wilson (2000), sociobiology is different from ethology which is another similar field of science. Ethology focuses on the organization of social populations as a whole, while sociobiology examines hypotheses regarding social life that emerged as a result of Darwinian evolutionary adaptations. Sociobiologists criticized ethology because it lacked a theoretical framework with which to predict how humans would behave, accusing it of being little more than descriptive natural history (Barash, 1977; Barkow, 1978). Sociobiologists argue that many social behaviors have been formed by natural selection and they seek to reconstruct the evolutionary history of a particular behavior or behavioral strategy (Holcomb & Byron, 2005). Natural selection pressured animals to develop useful ways of interacting with the natural environment led to the genetic evolution of beneficial social behaviors (Machalek & Martin, 2015; Rohall, 2015). Genes influence the behavior and psychological characteristics of individuals including intellectual abilities, personality, and other social behaviors. It is believed that these genes are passed from parent to offspring influencing behavior and

psychological characteristics with the influence of parenting patterns and social environment (Baker, 2007).

The field of sociobiology is closely related to moral education which is important and crucial in the learning process at all levels of education (Jeong & Han, 2010). This makes the learning approach with sociobiology have the potential to teach subjects related to moral education and social behavior. In higher education, sociobiology can be used as an education in basic courses at the beginning of a student's study period as a form of character education. Character education is a broader personal development of students outside of academic education by equipping students to recognize the importance of commitment, relationships, roles, and world views as social beings. Taking this into account, it is necessary to conduct a preliminary study to determine whether sociobiology is effective and feasible to be applied.

Character Building consists of 2 syllables, namely to build which means has the properties of repairing, fostering, and establishing; and character which means a character that distinguishes one person from another. In the context of education, character building is a process or effort that is carried out to foster, improve and or form character, character, psychological nature, morals (character), human beings (society) so that they show good character and behavior. Character is useful in developing human qualities, so character has the meaning of a fundamental value to influence all thoughts, actions and actions of every human being in the life of society (Lickona, 1991). According to the Ministry of Education, Culture, Research, and Technology of Indonesia, the point of character building is to make strides the

quality of usage and results of instruction in shaping students' character or ethical as a entirety, coordinates, and adjusted. Through the implementation of character building, the students are anticipated to be people who live in line with Indonesian belief system, Pancasila. Character education leads to the foundation of scholastic culture, that underlines the states of mind, conventions, propensities, and images practiced by all partners of the school, college and college and its encompassing communities.

There are three principles employed in implementing character building in education so that the students know and accept the character values as theirs and they become responsible for the values. The first principle is continuity which means the process of implementing character values is a long-term process, starting from the very beginning to the very end of an education stage. The second principle is that character values are integrated into all subject matters, self-development activities, and educational cultures. It means that character values are integrated into every subject, in every intra-curricular and extra-curricular activity. The third principle is that character values are not concepts that should be taught discretely. Those values will also not be asked in the test. They are integrated into the class activities. However, the students need to be aware that they are in the process of developing character values (Lickona, 1991). Tantra (2012) stated four reasons for character building in education, e.g., (1) education is an effective process for character development; (2) education is a long-term process; and (3) with character building it is believed that bad character can be avoided.

Sociology education and animal ecology are courses from two faculties at

the University of Palangka Raya with different fields of science that are relevant to sociobiology. Educational sociology is the study of the social factors that influence and are influenced by all educational structures and processes, both within and between societies (Saha, 2001). Animal ecology studies the interactions of animals with their environment including their social behavior. Social behaviors can involve any intraspecies interactions and include communication, allo-grooming, aggression, mating behavior, and parental behavior (Beaver, 2019; Brown & Gordon, 2008; Gammie, 2010; Rubenstein & Rubenstein, 2013; Whishaw et al., 2006; Wilczynski, 2017). With their characteristics, these two courses have the potential to be used in preliminary studies to implement sociobiology in education, especially in character education.

This research is aimed: (1) to implement the sociobiology approach in educational sociology and animal ecology courses; and (2) to describe the social behavior values acquired by the students after participating in learning with a sociobiology approach for character building.

## 2. METHODS

This research is descriptive qualitative research to describe the social behavior values acquired by the students after participating in learning with a sociobiology approach. The participants involved in this study consisted of 30 undergraduate students from the Department of Sociology and 25 undergraduate students from the Biology Education Study Program of University of Palangka Raya. The implementation of the sociobiology approach is carried out in the relevant

courses for each group of students which are detailed in the following table.

**Table 1.** Courses carried out with a sociobiology approach

No.	Department/Study Program	Courses
1	Sociology Department	Educational Sociology
2	Biology Education Program	Animal Ecology

Data were collected using questionnaires which were distributed to participants/students during lectures. The questionnaire instrument was created using the Google Forms platform to facilitate the distribution of questionnaires during the Covid-19 pandemic. Through a questionnaire instrument that was distributed, students were asked to describe the values of social behavior that they learned from videos of animal social behavior. There were 8 videos of animal

social behavior used in this study which was collected from various online video-sharing platforms. The URL of each video is distributed together with the questionnaire instrument.

### 3. RESULT AND DISCUSSION

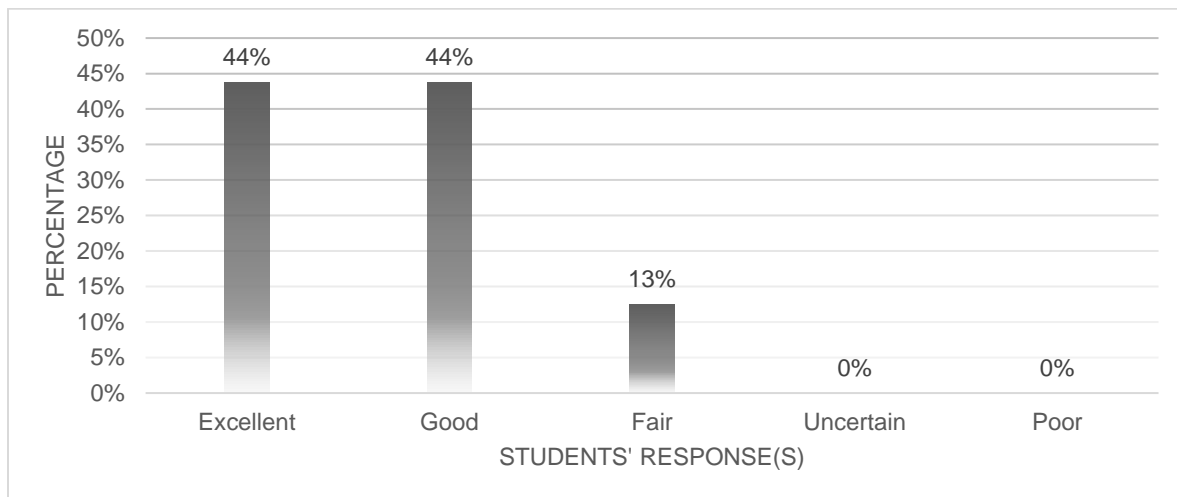
#### 3.1. Sociobiology Approach Implementation

The results of the technical analysis of the implementation of sociobiology approach in Educational Sociology and Animal Ecology courses can be seen in Table 2. The implementation of the sociobiology approach begins with a brief description of sociobiology and its relation to each subject taught. Lecture activities are fully carried out online using a video conferencing platform to support social distancing in an effort to break the chain of corona virus transmission.

**Table 2.** technical implementation of the sociobiological approach

No.	Implementation Stage	Description(s)	App(s)	Checklist
1.	Introduction	technical explanation by the lecturer regarding the implementation of the lecture.	Zoom Cloud Meeting	Well done
2.	Core Activities	1. the lecturer explains the general social behavior material related to the subjects in their respective study programs and relates it to the videos they will watch for analysis;	Zoom Cloud Meeting	Well done
		2. Students are instructed to open a web page that provides a video of animal behavior that has been provided and start watching to analyze the values	Zoom Cloud Meeting & Google Forms	Well done

	of social behavior that can be learned, then input the results of the analysis on a questionnaire instrument;	Zoom Cloud Meeting	Well done
3.	5 students were randomly selected to explain the values of social behavior learned from animal behavior videos that they had watched;	Zoom Cloud Meeting	Well done
3. Closing	4. Discussion Lecturers and students conclude what they have learned during lectures;	Zoom Cloud Meeting	Well done



**Figure 1.** The Distribution of Students' Response Answers

Students show positive responses to social behavior learning from animal social behavior videos with a percentage of 86.25%. The distribution of students' response answers is presented in Figure 1. They argue that there are interesting things in studying animal behavior to observe the values of social behavior, especially social behaviors that are related to what they have encountered in their lives and there are many new things and knowledge for them.

Student responses indicate that they find learning with a sociobiology approach using animal behavior video media very interesting. They stated that this learning provides new knowledge related to social behavior lessons from nature. They learn how to behave in a community from the behavior of animals. They also argue that this sociobiology approach is related to lecture material for sociology and animal ecology courses.

### 3.2. Social Behavior Values

The social behavior values acquired by the students are beyond expectations. They are able to have a social perspective on the given animal behavior videos. The values of social behavior obtained by students include: sharing happiness; taking care of each other; tolerance; adaptation; teamwork; solidarity; friendship; independence; and leadership (Table 3).

Students noticed these values mostly from the behavior of animals that live in groups, such as Chimpanzees, Bonobos and Wolves. Animals that live in groups usually have stronger bonds between individuals than do animals that live solitary. Social behavior consists of a series of interactions between individuals of the same species, and animal sociability is diverse. Some animals rarely interact with each other, even in matters of parental care. Highly social organisms often live together in large groups and work together to complete many tasks (McGlynn, 2010). In fact, animals that live in groups have strategies to reduce their risk of disease and avoid disease exposure. These strategies show the social behavior of animals that live in groups to care for others in terms of maintaining health and survival. According to Hart & Hart (2021), groups of animals may use different strategies to reduce or control their exposure to disease. Most of them have been little studied in nature in terms of disease: (1) Coordinating exposure to disease conspecifics or contaminated areas; (2) Caring for sick group members; (3) marginalization and hostile behavior towards non-group conspecifics; and (4) Employ special strategies at birth when the newborn is healthy but vulnerable.

Groups of Bonobo and Chimpanzee are called troops with as many as 70 members, but the most common are 15 to 30

members (Stanford, 1998). Wolves also live in groups called packs with an average of 8 members and are led by an alpha male (van Kerkhove, 2004). Their social community exhibits complex interactions that teach us to behave like social beings, such as Sharing Happiness, Taking Care of Each Other, Leadership, Teamwork, Tolerance, Friendship, and Solidarity.

Sharing happiness acquired by the students from the social behavior of Bonobo (*Pan paniscus*). The students noticed that Bonobos are animals that like to share with the others including happiness. Bonobos are less aggressive than their closest relatives, Chimpanzees (Hamlin, 2018; Prüfer et al., 2012; Rilling et al., 2012; Somit, 1990), this makes bonobos more peaceful and love to share happiness (Wrangham, 2019). The latest study even stated that Bonobos are willing to share food with animals outside their own family groups (Fruth & Hohmann, 2018).

Taking care of each other means there is a strong bond between individuals in a community, they care about each other and will not let them down. Group leaders (alpha wolves) will tend to protect their group members from intruders or enemy groups and make sure the members are safe (van Kerkhove, 2004). In a bonobo group, a bonobo mother will support her grown son in conflicts with other males (Surbeck et al., 2011).

Animals that live in groups must have a leader, such as chimpanzee troops and wolf packs led by a dominant alpha male. Their behaviors can teach us how to be a leader in a community and how to organize the community efficiently. The alpha male of the wolf pack always engages their members in meaningful communication through barks, howls, and minor adjustments in their body language, wolves

convey messages, excitement, and warnings (Mech, 2000; Miklosi, 2008; Packard, 2003; Peterson et al., 2002). Chimpanzee alpha males exhibit the similar behavior, they establish communication to manage their group such as to ensure their members are safe from intruders by giving warnings with certain vocal signs (Stanford, 1998; Sugiyama, 1969; van Leeuwen et al., 2018). It is these behaviors that make students learn the value of social behavior leadership and teamwork from this learning

activity. Other social behavior values that students get from the behavior of animals that live in groups are tolerance, friendship, and solidarity. Students pay attention to all of these values from interactions between members of the animal group. In addition, students also learn how to adapt to environmental changes (adaptation) and live independently (independence) from the behavior of the animals they study, where these behaviors are natural behaviors that animals must have in order to survive.

**Table 3.** The Social Behavior Values acquired by the students

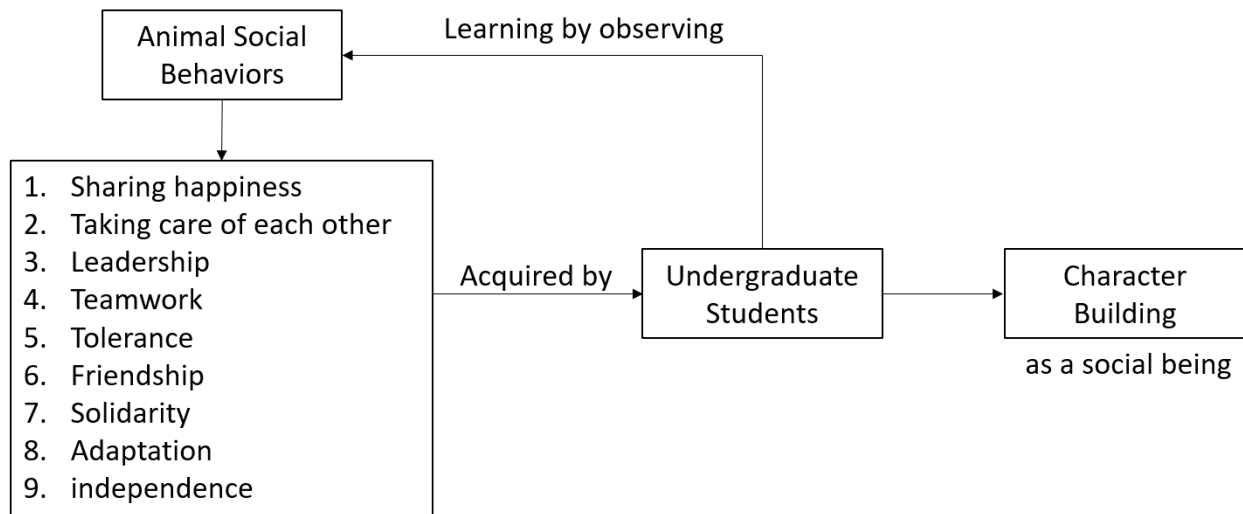
No.	Social Behavior Values	Animal Social Behavior
1	<i>Sharing happiness</i>	Bonobo ( <i>Pan paniscus</i> )
2	<i>Taking care of each other</i>	Bonobo ( <i>Pan paniscus</i> ) Chimpanzee ( <i>Pan troglodytes</i> ) Wolf ( <i>Canis lupus</i> )
3	<i>Leadership</i>	Chimpanzee ( <i>Pan troglodytes</i> ) Wolf ( <i>Canis lupus</i> )
4	<i>Teamwork</i>	Wolf ( <i>Canis lupus</i> )
5	<i>Tolerance</i>	Chimpanzee ( <i>Pan troglodytes</i> ) Bonobo ( <i>Pan paniscus</i> )
6	<i>Friendship</i>	Chimpanzee ( <i>Pan troglodytes</i> )
7	<i>Solidarity</i>	Wolf ( <i>Canis lupus</i> )
8	<i>Adaptation</i>	Chimpanzee ( <i>Pan troglodytes</i> ) Orangutan ( <i>Pongo spp.</i> )
9	<i>Independence</i>	Bonobo ( <i>Pan paniscus</i> ) Orangutan ( <i>Pongo spp.</i> )

### 3.3. Character Building

These results indicate that sociobiology approach in the learning process, especially in sociology and animal ecology courses, can be implemented to teach the values of social behavior to students for character building. This activity of learning is an important part of character building through character education by utilizing phenomena of animal social

behavior in nature. All the social behaviors that students acquired from observing animal behavior in this study reflect exemplary social behaviors for socializing in society, such as adaptation, teamwork, caring for others, and solidarity. This can have a positive influence on the formation of student character as social beings (Figure 2).





**Figure 2.** The process of Character Building by studying the social behavior of animals

These results reflect the character education as the process of learning common attitudes, beliefs, and behaviors that are important to humans as social beings. Accordingly, [Lickona \(1991\)](#) stated that character education is a conscious effort to educate someone by integrating character values as an element of enlightenment for them. Based on the definitions that have been explained, the main point can be drawn that character education has the goal of directing students to improve the quality of education and morality in accordance with what was conveyed by [Jeong & Han \(2010\)](#) that the sociobiology approach can be used and applied in education, especially moral psychology and moral education.

Character education has an important role in character building because of the positive benefits for students, such as (1) helps students to develop important human qualities such as justice, diligence, compassion, respect, and courage, and to

understand why it is important to live by them; (2) it promotes character development through the exploration of ethical issues across the curriculum; (3) it develops a positive and moral climate by engaging the participation of students, teachers and staff, parents, and communities; and (4) it teaches how to solve conflicts fairly, creating safer schools that are freer of intimidation, fear, and violence, and are more conducive to learning ([Pala, 2011](#)).

#### 4. CONCLUSION

Based on the results it can be concluded that sociobiology approach in the learning process, especially in sociology and animal ecology courses, can be implemented to teach the values of social behavior to students for character building. They are able to have a social perspective on the given animal behavior videos. The values of social behavior obtained by



students include: sharing happiness; taking care of each other; tolerance; adaptation; teamwork; solidarity; friendship; independence; and leadership. All the social behaviors that students acquired from observing animal behavior in this study reflect exemplary social behaviors for socializing in society and can have a positive influence on the formation of student character as social beings.

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