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**RESEARCH PAPER****Smog and Individual Responsibility: A Transitivity Analysis of  
'Environmental Education' in PCTB English 7**

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**ABSTRACT**

This study aims to analyze the language of the 'environmental education' concerning the issue of smog in the PCTB Grade 7 English textbook and argues that a sense of individual responsibility can be imparted at an early age through educational texts. Halliday's systematic functional grammar (SFG), particularly the transitivity system, as the analytical lens reveals that the first section of the text provides comprehensive information about the issue. While the second section heavily emphasizes human safety from harmful environmental forces and suggests practical measures, as evidenced by the frequent use of relational and material clauses. However, the essential message regarding individual responsibility and the negative impact of human activities on the environment is omitted. Hence, the text perpetuates an anthropocentric narrative, entirely focusing on and prioritizing personal safety over environmental protection. The study concludes that educational texts must address the issue of smog from all aspects to raise eco-sensitive and responsible individuals. Future investigation can analyze environmental discourse in Pakistani textbooks of various academic levels.

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**KEYWORDS** Anthropocentrism, Ecocentrism, Climate Change, Environmental Education, Individual Responsibility, PCTB English 7, Smog, Transitivity

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**Introduction**

The current study conducts a transitivity-based Ecolinguistic investigation of the issue of smog as represented under the theme of environmental awareness in grade 7 PCTB English language textbook. Environment is everything that surrounds us and refers to all parts of nature, living and nonliving. Environmental awareness broadly refers to spreading consciousness about the impact of human activities on the environment, subsequently motivating the targets to adapt their lifestyles in favor of the ecosystem. Global Vision International (2022), an award-winning organization working for environment conservation, defines *environmental awareness* as "being informed about our natural surroundings and understanding how our actions affect the well-being of our local and global environments." The organization highlights imparting environmental awareness in school children at an early stage of development and through practical measures such as adding discourse in education and teaching the use, reuse, and recycling of resources to develop a sense of environmental responsibility. Similarly, Chawla (2008) argues that environmental education is essential for encouraging young children to protect the diversity of ecosystems by knowing, valuing, and caring for them. The author signifies the need to develop a theoretical foundation rooted in establishing a link between human agency and the ecosystem. Hassan et al. (2010) identify three dimensions of environmental awareness, including emotional response, attitude, and practice, which are essential for imparting a sense of individual responsibility. Emotional affiliation and mental model

(psychological makeup) stimulate environment-friendly attitude and actions. An effective environmental awareness conveyed through language can develop positive behavior and lead to practical actions for the safety of the ecosystem and environment, as well as climate change mitigation.

The term 'climate' refers to "global environmental situation which can be observed through variations in temperature, precipitation, pressure, and humidity in the atmosphere" (Hussain et al., 2019, p. 47). Hence, the term 'climate change' can be understood as the alteration in the environmental situation due to natural phenomena or human interventions. NASA (2018) defines climate change in terms of global warming, irregular weather patterns, and several other long-term environmental changes across the globe. Smog is one of the severe issues of climate change, in scientific terms, 'smog' (smoke+fog) is mainly caused by pollutants termed as fine particulate matter (PM<sub>2.5</sub>), which include "inorganic ammonium salts, nitrates, sulfates, sodium chloride, mineral dust, black carbon, organic matter, and water" (Raza et al., 2021, p. 2). The primary sources of these smog-causing pollutants are several human activities such as burning agricultural waste, vehicle emissions, power plants, dust from construction sites and roads, mining, and other industrial activities. (Matus et al., 2012). WHO reports that 7 million people worldwide are killed by air pollution annually (Naz & Abedullah, 2021). Also, in Pakistan, the level of smog has reached an alarming situation. According to IQAir (December 7, 2023), Lahore is the most polluted city and its current Air Quality Index (AQI) ranges from 206 AQI US to 255 AQI US, while the satisfactory AQI is considered less than 100 US. This critical condition regarding the hazardous impacts of smog and other environmental problems on the nation demand practical measures at all levels. At macro level, governmental policies and awareness campaigns have been playing their role in this regard. For example, the government has negotiated with kiln and industry owners to adopt modern technology. It has also initiated campaigns such as planting trees and using water resources sustainably. Moreover, the National Climate Change Policy (2021) mentions many initiatives, such as the "Ten Billion Tree Tsunami Programme, 'Urban Forest Project,' 'Clean Green Pakistan Movement,' and 'Protected Areas and National Park Initiatives.'" NCCP (2021) has devised various policies and measures for all sectors of the country to deal with the issue of climate change.

Nevertheless, the issue also needs to be addressed at the micro level, involving individual citizens who need to adapt their behaviors and actions to climate change demands (Heyd, 2010). Because an individual holds some shared responsibility for protecting his/her environment, which is a basic unit of the larger sociocultural construct (Banks, 2013). Individual actions add up to form group activities, and the collective impact becomes significant. If each person at an individual level does not take and understand their responsibility, a collaborative and positive attitude cannot be accepted by the whole society. Therefore, the issue of climate change demands that environmental awareness be provided at the individual level so that every citizen considers himself/herself a significant part of the ecosystem. Consequently, each individual will develop a sense of responsibility to protect the environment and observe his/her personal actions and attitudes that may cause harmful impacts on the environment. This awareness can start from the school level; educational discourse can play a vital role in this regard. A socio-demographic study regarding environmental concerns in Pakistan conducted by Rasool and Ogunode (2015) reports that education has a pronounced effect on people's perceptions of environmental problems. The researchers highlight the importance of education "as facilitator of environmental awareness and concern" (p. 291). They state that the inclusion of environmental education into the curriculum can make cohort differences in ecological concerns.

Hence, pro-environmental behavior can be effectively promoted by providing awareness of the adverse impacts of no action (Masud et al. (2013). In this regard, a careful and positive use of language is crucial to negotiate environmental issues as encouraged by Ecolinguistics. Ecolinguistics is an interdisciplinary field of study and area of research that has particular concerns for the use of language to talk about the various kinds of ecosystems; natural, social, cultural, political, etc. Because language choices greatly influence people's perceptions, beliefs, ideologies, and broader sociocultural behavioral patterns, as noted by Stibbe (2015), "Language influences how we think about the world...how we think has an influence on how we act" (p. 1). Thus, Ecolinguistics aims to analyze and criticize environmental discourses in order to reveal their impact on discourse-consumers' perspectives and beliefs (Stibbe, 2015). A constructive discourse can promote a healthy attitude toward the environment, thus encouraging people to protect their ecosystem and show a serious concern about environmental issues. Ambivalent discourses can partially promote environmental concerns. At the same time, destructive discourse can develop attitudes in such a way that people do not feel a sense of responsibility for protecting their ecosystem but rather are encouraged to exploit it in various ways. So, question may arise about fostering the sense of responsibility. Cultural and social discourses are known to play a very significant role in this regard. One of the most influential discourses is the educational or academic discourse that claims to impart environmental awareness to young brains. Therefore, it is crucial to analyse the language of the educational discourse to examine its scope in encouraging or discouraging environment-friendly behavior. The current study fulfills this aim by investigating whether the language of the selected text provides comprehensive awareness about the environmental issue of smog and from which ecological perspective (ecocentric or anthropocentric) the text communicates the issue.

### Literature Review

The term 'responsibility,' in the Oxford Dictionary refers to two concepts; "a moral obligation or duty to deal with something" and "being accountable or blameworthy for something." However, in this paper, the term 'individual responsibility' has been taken as a moral and ethical duty to deal with the issue of smog by observing the impacts of one's activities on the environment. Fragnière (2016) identifies two essential individual duties toward mitigating climate change: reducing one's carbon footprint and supporting and promoting collective action. Since the individual is the basic unit of society, climate change mitigation is the ethical responsibility of all individuals. The present study argues that if the individual is not given the responsibility of mitigating climate change by minutely observing his/her harmful activities, none will feel the moral or ethical duty to take small steps toward protecting the environment. Several scholars (Jamieson, 1992; Hiller, 2011; Hourdequin, 2011; Banks, 2013) emphasize that the prevalence of the perception "my actions are too small to be significant" is harmful and that individuals must critically observe his/her behavior and actions in order to check their long-term hazardous impact on the environment.

Following a normative approach at all societal levels is an essential step toward mitigating climate change as proposed by Ecolinguistics that argues against anthropocentrism and supports a balanced or ecocentric approach. Anthropocentrism literally means 'human-centered'; it is a theory that puts human beings at the center of the universe (Goralnik & Nelson, 2012). The philosophy behind anthropocentrism is that man is the supreme creature, and every other creature exists to serve human interests. Furthermore, it identifies humans as distant creatures from nature and regards nature as a resource available for human exploitation. The criticism of anthropocentrism regards it as an ideological cause of environmental crisis: "anthropocentric view that humans dominate

over and rule nature encouraged human exploitation of nature" (Yu & Lei, 2009, p. 247). This philosophy is criticized because it creates separation and tension between humans and nature, ignores the intrinsic value of non-human elements of nature, promotes unethical behavior toward the environment, and emphasizes utilitarianism, selfishness, and possessiveness in human beings (Yu & Lei, 2009). Therefore, Ecolinguistics discourages and criticizes discourses that convey an anthropocentric view and promotes a balanced relationship between humans and nature, as well as between language and the ecosystem.

In the field of research, Ecolinguistics has captured the attention of many scholars who analyzed children's literature, educational discourses, course materials, and textbooks from an environmental perspective underlining the growing concern for environmental literacy and individual responsibility. Educational material is not entirely objective but is constructed on underlying power ideologies, therefore, needs to be scrutinized. One of the earliest studies by Jacobs and Goatly (2000) examined second language learning materials, mainly focusing on environmental education in ELT textbooks. The researchers advocated the inclusion of social issues in ELT material so that students can better connect and develop concerns for real-world issues in the process of second language learning. Similarly, Kirova, S., & Stavreva Veselinovska (2004) emphasized the role of language and educational material in imparting awareness about global issues because the teaching material holds great responsibility for the ideological construction of young brains. Amalsaleha, Javidb, and Rahimic (2010) investigated the ecological themes in Iranian EFL textbooks and found that they promote a hegemonic and anthropocentric ideology by representing human beings as the ultimate authority over nature.

Bhalla (2012) argues that in the face of a global ecological crisis, children must be provided with an awareness of their responsibility to protect and preserve their ecosystem so that they may not contribute to the destruction of nature in the future. Hauschild, Poltavchenko, and Stoller (2012) also emphasized that incorporating environmental education in Content-Based Instruction (CBI) is very useful in ELT contexts, and teachers can make the students do various activities that enhance their knowledge and concern about environmental responsibilities. Likewise, Akcesme (2013) proposed that global ecological enlightenment can be imparted through educational material that has great potential to develop ecological selves. Through a CDA analysis of ELT textbooks, the researcher concludes that ecological sensitivity is undermined and anthropocentric ideology is the general tendency in educational material. Moving ahead, Adugna (2015) conducted a transitivity analysis of the Ethiopian Children's literature and found that, except for a few ambivalent stories, most narratives are based on an anthropocentric approach, thus lacking ecological concerns and guidance for children regarding their ethical responsibilities for nature. Similarly, Brown (2017), referring to English language learner's dictionaries, argued about the role of Ecologically-aware English and lexicogrammatical choices in educational material that can contribute to determining the status of animals in the human world.

Al-Jamal and Al-Omari (2014) scrutinized Jordanian EFL textbooks to identify the global ecological themes and concluded that only a few books reflected ecological knowledge. The scholars suggested the revision of textbooks and emphasized the role of teachers in adapting their teaching strategies to impart ecological awareness among students. Zahoor and Janjua's (2020) study is the most relevant; they found that English textbooks (taught at the primary level in Pakistan) promote an anthropocentric worldview in constructing human-nature relationships. A transitivity-based Ecolinguistic and pedagogical appraisal of the environmental texts revealed that textbooks undermine ecological awareness; the researchers suggested revising the textbooks to include eco-

pedagogical elements. Hence, an overview of existing scholarship suggests that ecological awareness and ethical responsibility in children's literature and ELT textbooks have been the concern of scholars all over the world. Because educational material has a significant role in the construction of mental models, ideologies, worldviews, attitudes, and conducts which determine the nature of human-nature relationship. Therefore, the researcher has selected the English language textbook taught at the elementary level in Punjab; the purpose is to examine the selected content to find out its ideological construct.

### **Material and Methods**

The current study conducts a qualitative analysis of the data together with providing quantitative evidence. The analysis is rooted in Ecolinguistic inquiry and aims to investigate the theme of individual responsibility regarding smog and the protection of the ecosystem by analyzing the educational text that is supposed to raise awareness about environmental issues. For the current paper, the Ecolinguistic analysis tool is the Transitivity system of the Systemic Functional Grammar (SFG) as proposed by M.A.K Halliday and Matthiessen (2004). SFG deals with the interrelationship of language and the different functions it performs in various social contexts. Halliday regards language as a social process focusing on the form and function of the language in a particular discourse event. More specifically, Transitivity explains how language users express their ideas and encode their experiences through the experiential metafunction of language. Transitivity identifies three main constituents of a clause: process, participant, and circumstance. The process is the action or happening and is realized by a verbal group. Halliday identifies six types of processes, including material, relational, verbal, mental, behavioral, and existential. The experiential metafunction of language reveals the role of six types of transitivity processes in establishing the particular themes in a discourse. The participant carries out or is affected by the process and is realized by a nominal group. Labeling the participants such as actors/goals, carrier/ attribute, token/value, sensor/phenomenon, and sayer/receiver reveals their particular roles. Furthermore, in transitivity analysis, circumstantial elements answer when, where, how, why, about what, and under what conditions the process is happening. The circumstance is realized by prepositional or adverbial phrases and gives additional information about the process (Halliday & Matthiessen, 2004). Halliday identifies further categories of extent and location, including spatial and temporal. The spatial element of 'extent' informs about the intensity or level of the process, while the temporal explains how often the process happens. Similarly, the spatial elements of 'location' answer where the process is happening, and temporal elements refer to the point of time of the happening.

Hence, the Transitivity lens magnifies the hidden aspects of the text, which can provide complete information about the story being created. This analytical lens has the potential to provide a complete picture of the interaction between humans and the environment, as constructed through the text. Furthermore, this tool also highlights the mutual influence of participants on each other and how they participate in the action process. By analyzing the form of language in the selected discourse, the researcher investigates the function of language in dealing with the issue of smog. The researcher purposefully selected the chapter on 'Smog' from the PCTB (Punjab Curriculum and Textbook Board) English textbook for Grade 7. Because the primary audience for this educational text are adolescents between 11 and 13 years of age. The adolescent stage is regarded as a critical period for rapid mental, physical, and psychological development (WHO). Therefore, educational texts has a critical role in providing appropriate information to these young Pakistani individuals who should develop positive attitudes toward the ecosystem.

## Results and Discussion

The book chapter 'Smog' (Abbas & Awan, 2022, pp.41-44) is constructed on two main concepts and for the purpose of thematic analysis, the researcher has divided the text into two parts; the first section introduces and explains the problem and the second section suggests solutions and gives instructions. The whole text has been divided into clauses and then into clause components namely; process, participants and circumstance. The identification, quantification, evaluation, and interpretation of various types of clause constituents helped understand the message conveyed. Table 1 summarizes the distribution of processes, participants and circumstances and table 2 compares the frequency of processes in two sections of the selected text. The transitivity analysis of the text reveals that material process is the most abundant and its frequency of occurrence is eighteen and seventeen respectively in section one and section two. In the first section of the text, material clauses give general information about the issue of smog while in the second section, material imperative clauses guide students how to protect themselves from the harmful impacts of smog.

Underlining the participants of the material clauses reveals that the text frequently uses environment and environmental elements/factors as the actors. Human activities also occur several times as actors of the material process. This implies that large scale human activities cause environmental degradation and smog, for example, *Air pollution in Lahore (goal) is caused (pr; mat) by a combination of vehicle and industrial emissions, smoke from brick kilns, the burning of crops residue, general waste and dust from construction sites (actor)-(p.43)*. However, these activities involve broader ones, at commercial and industrial level. The text does not mention any 'individual' activity that contributes to smog formation. This removes the responsibility from individual's shoulder thus making the smog an unresolvable phenomenon in which an individual citizen has no role to play. The human agency 'we' have been used only once and refers to the actions on human's end, e.g. *How can (pr; mat-) we (act) safeguard (-erial) ourselves (goal) from the detrimental effects of smog (circ)? (p.43)*. Likewise, the human actor 'you' has been used only one time explicitly and almost 16 times implicitly as in; *Wash (pr; mat) hands, face and any exposed part (goal) every time (circ) | you (act) come (pr; mat) indoors (range) after being outside (circ)-(p.44)*. These clauses give instructions and precautions to protect 'selves' from smog. This finding suggests that the individual is the direct victim of the smog but not the direct contributor to the smog formation. Further evidence comes from goals which include four major types; personal pronouns/humans/human health, locations, general entities and environmental factors. The goal is the receiver of the action and victim of the harmful effects of smog. The impact of pollutants have been described at minute level such as human mental health, organs and body cells, for instance, another clause says *Invisible particles [act] penetrate [pr; mat] every cell and organ [goal] in our bodies [circ)-(p.43)*. Other goals include some general entities such as life, everything and problem which have been represented as the victim. Moreover, the smog, the fog and air quality are also the goal of material process implying that the text identifies environmental factors as both actors and goals of the material action, e.g. *The pollutants from the surface [act] add [pr; mat] to the fog [goal] | and thicken [pr; mat] it [goal] to create the smog [circ)-(p.42)*. The physical impact of smog have been explained by assigning the role of goal (victim) to World, cities, province and then Lahore. There is a complete hierarchy in the text starting from the largest level that is "the world" and reaching to the smallest level that is human cell. The issues starts at global level and then reaches down to the individual level. Further emphasis has been put by the choice of circumstances such as temporal in, *The problem [goal] has intensified [pr; mat] during the past few decades [circ)-(p.42)*, stresses on the extent of the issue.

**Table 1**  
**Abbreviations and short forms: Key to read the analysis**

Short form	Full form	Short form	Full form
pr	process	val	value
mat	Material process	carr	carrier
rel	Relational process	att	Attribute
men	Mental process	IFD	Identified
ver	Verbal process	IFR	Identifier
ex	Existential process	sen	sensor
act	actor	phen	Phenomenon
tok	token	circ	Circumstance

**Table 2**  
**Summary and frequency of Process, Participant and Circumstance types**

Process Type	Material		Relational		Verbal		Mental		Existential	
Frequency (section 1+2)	18+17=35		21+2=23		4+3=7		1+1=2		1+1=2	
Participant Types	Actors	Goals	Carrier	Attribute	Sayer	Receiver	Sensor	Phenomenon	existent	
<b>Common nominal groups</b>	We, you environmental problems/issue, Smog, The pollutants, Industrialization, vehicle addition, the burning of crops	We, Health, World, Cities, province of Pakistan, Lahore, Everything, Life, Problem The fog, The smog, Air quality,	Smog, Issue/problem, Air/air quality, Cities, Pakistan, Lahore, Province, Vision, Our mental health	Human activities, environmental phenomenon, air pollution, intense, the most affected/polluted city/province, poor mental health, disastrous	I, we, you	You, us	we	A lot, it	Smog, heavy smog	
Circumstance Types	Extent	Location	Accompaniment		Cause		Matter		Manner	
Frequency	7	14	2		5		4		6	

A close analysis of the selected text reveals seven types of circumstances: extent, location, manner, matter, cause, contingency, and accompaniment. Analyzing circumstantial elements helps understand the story, the selected text conveys by identifying at what point, how long, and at what intervals actions are happening. Moreover, it has informed how the process is occurring and the reason, purpose, and cause. For example, three circumstantial elements in; *During December and January [circ] smog [act] slows down [pr; mat] everything [goal] | and on some occasions [circ] brings [pr; mat] life [goal] to a standstill [circ]- (p.42)*, give complete information about the severity of the climate change by answering where, when and at what intervals smog operates. Another clause, *One [act] can calculate [pr; mat] the negative impact [range] on the physical health of people [circ] due to smog [circ]- (pp.42-43)*, contains two successive circumstantial elements and presents human beings as victims of the impact of smog. In the next clause, the spatial circumstance 'in our bodies' tells about specific location of the material actor 'pollutants'. The material impact of smog on the mental health of people has been explained further by circumstance of manner in; *smog (act) can (pr; mat) significantly (circ) influence (-erial) the mental health of our population (goal)- (p.43)*. So, these clauses provide sufficient information about the extent, location, cause as well as manner in which the climate change affects human health and body. Hence, the text deals effectively with the issue of smog by explaining its adverse impact on all levels of ecosystem and readers (students) get profound awareness.

The list of precautions in the second section of the lesson makes the individual directly responsible for his own safety. The material clause, *How can (pr; mat-) we (act) safeguard (-erial) ourselves (goal) from the detrimental effects of smog (circ)?* (p.43) nominates environment as matter and expresses that the action is happening in reaction to the environmental forces. Another clause, *Blow (pr; mat) your nose (goal) regularly (circ) to clean out contaminants (circ)*-(p.43), suggests taking practical steps recurrently by including two circumstantial elements; circumstance of manner (regularly) emphasizes continuous action against the problem and circumstance of cause refers to purpose of taking the action that is to protect the individual from hazards of smog. Temporal extent and temporal location both refer to material processes and imply that individuals need to be very alert in the face of the issue and should not ignore it. The manner in, *Avoid (pr; mat) going out (goal) unnecessarily (circ)*-(p.44), restricts human interaction with the environment only in case of the needs and declares the immediate natural ecosystem as a hazardous force. The manner in next two clauses *drive (pr; mat) carefully (circ) | Do not stop (pr; mat) suddenly (circ)*-(p.44), talk about personal safety while navigating through the smog-heavy environment.

The scrutiny of material clauses highlights that the text effectively conveys severity of the issue and suggests practical measures for personal safety but it does not raises concerns about environmental protection. No suggestions have been given to the students on how to observe their individual actions which may contribute to environmental destruction. For example, the unwitting use of aerosol, spray paints, snow spray, electrical toys and the burning of domestic waste and fire crackers are all social activities, being a form of social action, language plays a key role in the promotion of such behaviors. The repeated and collective activities on the part of the young children can add up to contribute significantly in the environmental pollution. If this issue is seen in Pakistani socio-cultural context, the burning of fire crackers by one child stimulates others to burn their own fire crackers because it becomes a social trend. Consequently, the chain goes on involving a large number of children who collectively contribute to the pollution. Therefore, they need awareness to develop a sense of protection for the ecosystem by observing their actions and behaviours. Although the curriculum cannot give full awareness and cannot prevent such activities entirely due to its limited scope yet it can take an initiative. Further awareness can be imparted through activities and campaigns at school level as well as societal level.

The second most abundant process is Relational-used to define a participant, its identity, attributes, value or meaning. The participants include token/identified/carrier or value/identifier/attribute. The first section of the text contains 21 relational processes and the participants refer to the issue of smog, its causes and effects. Two relational processes and the temporal location in the clause, *It [carr] was [pr; rel] first [circ] described over decades ago [circ] as a mixture of smoke and fog [att] hence the name "smog"* (p.42), inform that smog is a long-standing issue that has been affecting ecosystem for a significant amount of time. The clause, *Once (circ) termed (pr: rel) the city of gardens (att)*, contains temporal location that refers back to history and origin of smog in Lahore. Smog has been described as a long-standing issue which has adversely affected the beauty of Lahore. Similarly, the relational clause, *The provincial capital city Lahore (carr) has been called (pr; rel) one of the most polluted cities (att) in the world (circ) with hazardous levels of air quality (circ)*-(p.43) emphasizes the intensity and severity of the climate change in Lahore. The extent of the issue is further emphasized by the use of spatial in *'the air quality of Lahore (actor) has been continuously falling (pr; mat) to hazardous levels (circ)'*. While *This (carr) therefore can be (pr; rel) disastrous (att) to citizens' health (circ)*-(p.43) refers to the specific spatial extent to which the climate change can impact people. So, the text clearly describes the situation of air pollution, smog and climate change in Lahore by answering where, when, how, why and to what extent. While the second part uses only 2 relational processes as this section is mainly concerned



with human protection from environmental forces. The lesser number of relational process and greater number of material process implies that practical actions are required for personal safety and the issue is severe enough. The relational clauses serve to provide comprehensive information about the problem, its origins and effects on various parts of the ecosystem. Hence, like material, relational process has also been used to discuss the issue at all levels of ecosystem as evident by the token/carrier choices.

The third prominent transitivity process is Verbal which occurs 7 times in the whole text and serves the function of conveying the message from the teacher to the students. The sayer includes 'I' referring to teacher; 'we' referring to teacher+student; and an implied 'we' for students. The receiver is 'you' referring to students and the teacher as they communicate with each other while the verbiage is the issue of smog. In clause 1 *Today [circ] I [sayer] will not teach [pr; ver] you [receiver] a lesson from the book [verbiage]*-(p.42), the temporal circumstance of extent refers to the time the verbal process is happening. In the subsequent clause, the repetition of the temporal location 'today' emphasizes the urgency and current existence of the issue, the circumstance of matter in the same clause, *today [circ] I [sayer] will talk [pr; ver] to you [receiver] about smog covering our cities [circ]*-(p.42) links to the verbal process *talk* and highlights the need to negotiate the large scale impacts of smog. Two other processes including mental and existential have been found, each only 2 times, once in each section of the text. The mental clause, *as we [sen] see [pr; men] it [phenomenon]*, in the first section refer to 'we' as sensor and 'smog' as phenomenon. While in the second section, *Sir, we (sens) learned (pr; ment) a lot (phe) today (circ)* again uses 'we' as sensor and teacher's suggestions as phenomenon. It is notable that mental process expresses consciousness, thinking, inclination and emotional response. But, its contribution is very little in the lesson which ignores involvement of the students at cognitive level. Without reflecting on environmental issues, students cannot; understand their contribution, make conscious efforts and devise small-scale solutions for addressing the issue of smog. Hence, mental processes could invoke an emotional response and incline attitudes toward ecocentrism. In addition to imparting consciousness about the severity of the issue, another purpose of awareness discourse is to offer solutions. The second section of the text recommends solutions but focusing on personal safety and disregarding environmental protection. Similarly, the two existential clauses; *Does smog [existent] exist [pr; ex] in Pakistan [circ], sir? | If there is (pr; ex) heavy smog (existent)*-(p.42) refer to the existence of smog and heavy smog. They further emphasize the issue by referring to the physical existence.

The transitivity analysis of the text reveals that it imparts environmental awareness on the issue of smog by using five types of processes (material, relational, verbal, mental and existential) and seven types of circumstantial elements (extent, location, manner, cause, matter and accompaniment). Material processes are the most abundant, they encourage the students to take practical actions for protecting themselves and their families from the harmful consequences of smog. Moreover, the actor or the agency is mainly the environment or its elements while the goal or the victim are various components of the ecosystem (see table 2). Moreover, there is a significant difference in the first and second section of the lesson in terms of process types as shown in table 3. The abundance of relational process followed by material in the first section refers to elaboration and awareness about severity of the issue and dangerous actions of smog on various parts of the ecosystem. While the dominance of material processes in the second section refers to practical measures that must be taken for personal safety. Similarly, verbal process emphasizes the significance of the message. Mental and existential processes are only a fraction referring to the absence of emotional response, critical thinking and conscious reflection on the issue.

Circumstances in transitivity give additional information about the process or action. In the selected text, the temporal (extent and location) elaborates the issue of smog at all levels—from history to the current point in time, emphasizing the urgency, increment, continuous activities and long-term impacts of climate change over entire human life. Likewise, the spatial extent identifies both larger (Pakistan) and smaller entities (our bodies) as the victim of environmental forces the circumstance of location explains where and at what point the process is happening. The circumstance of manner suggests how and by what means smog is affecting human beings and how they should fight against the environmental forces. The circumstance of cause describes the reasons of climate change and smog as well as motives to take actions. The circumstance of matter highlights the discussion is about smog and its impact on human beings. Accompaniment refers to the increasing level of smog as it worsens with each passing year. The analysis of the first section suggests that the text effectively introduces, explains and addresses the issue of smog and climate change in Pakistan, particularly in Lahore. Hence, it meets the purpose of imparting awareness regarding smog that is a prevalent environmental issue. While the analysis of the clause components in the second section reveals the anthropocentric nature of the text. It emphasizes human safety from environmental forces and ignores the protection of environment from human actions. It does not seem to fulfil the main purpose of environmental awareness which is to impart a sense of responsibility and care for our ecosystem.

**Table 3**  
**Relative and comparative percentage frequency of process types in section one and section two**

Process Type	Percentage frequency in section one	Percentage frequency in Section two
Material	40%	71%
Relational	47%	8%
Verbal	9%	13%
Mental	2%	4%
Existential	2%	4%

In addition to explaining the impacts of environmental forces on human beings and life, the text must also elaborate on the negative impacts of human activities on the environment. Thus, practical solutions should be recommended to safeguard the individual as well as the environment because both are essential components of the ecosystem. In contrast, the analysis of the educational text taken from the PCTB English textbook of grade 7 reveals that it promotes an anthropocentric perspective and invokes the readers to think about their own protection but ignores the impact of human activities and the role of human beings in sustaining the ecosystem. It creates the story, **'humans are the victim of environmental forces'** and **'environment is a distant entity'**; therefore, **'humans must protect and defend themselves from the hazardous impact of the environment.'** These findings affirm the outcomes of the existing research data that English textbooks promote an anthropocentric worldview (Zahoor & Janjua, 2020). The precautionary measures and solutions suggest that humans have to defend, shield, and safeguard themselves from the forces of the environment, implying that **the 'environment is an enemy.'** The text misses the other side of the picture and creates an anthropocentric story. It conveys incomplete information on environmental awareness by solely emphasizing the protection of human beings and ignoring the environment that requires human attention, affection, and action for its healthy existence and sustainability.

## Conclusion

Ecolinguistics advocates an inclusive approach to the ecosystem and also highlights the importance of creating harmony between individuals and the environment. The

pioneer Ecolinguist, Arran Stibbe, encourages individuals to respect, care, and protect their physical, social, and biological environment, thus negating an anthropocentric approach. Taking action and following precautions for personal protection while ignoring one's responsibility for the environment leads to anthropocentrism and, consequently, to environmental problems such as climate change or smog. Sustaining a healthy ecosystem demands the protection of the environment at the individual level. The immediate victim of climate change and environmental pollution is a human being who, in turn, contributes to environmental changes through their anti-environment activities. Therefore, the text on environmental awareness needs to promote a sense of individual responsibility rather than just addressing the impact of climate change, smog, and pollution on human beings. Because such an approach can further emphasize the anthropocentric perspective toward the environment and ecosystem. The study concludes that the selected text effectively imparts awareness about the severity of the smog issue in Pakistan and suggests protection measures. Nevertheless, the text ignores the most crucial message of individual responsibility; every citizen has to play his/her role in protecting the environment from the harmful impacts of personal activities.

### **Recommendations**

The study recommends further investigation on environmental discourse included in school textbooks taught at various educational levels by different educational boards and publishing bodies. The span of Ecolinguistic investigation can be extended to the intermediate and undergraduate levels. Ecolinguists can also survey the influence of current educational discourses on Pakistani students' environmental attitudes.

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