

## **For a scientifically conscious and environmentally aware generation: The role of KSSP and *Eureka* in Kerala**

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### **ABSTRACT**

In the present world of increasing environmental destruction, scientific awareness about the environment is very important. The capitalist giants in the world have been using science and technology to exploit nature. In such a scenario, it is necessary to develop awareness regarding the use and abuse of science in matters related to environment and other aspects of life.

The Kerala Sastra Sahitya Parishad (KSSP) has been working in Kerala since 1962 towards developing scientific thinking among the general public. More than mere popularization of modern science, the democratization of science for a better democracy is the prime objective of KSSP. It is from this vantage point of the social function of science KSSP intervened into other aspects of society.

Children's education is another important area of intervention of KSSP. In order to develop scientific aptitude among children and to change the traditional way of science teaching in educational institutions, KSSP organized programmes to incorporate informal education along with formal education. Its educational programmes encouraged children to observe their environment and study the destruction happening to it. *Eureka*, a children's magazine by KSSP, emphasizes science education for primary school children. It also devoted its pages for developing environmental awareness among children. Through *Eureka*, KSSP has contributed to the development of a scientifically tempered generation that is conscious about and responsible towards sustainable interference into the environment.

**KEYWORDS:** KSSP, *Eureka*, Children, Science, Environment

### **Introduction**

The Kerala Sastra Sahitya Parishad (KSSP) has played an important role in spreading scientific awareness about

environment and its destruction among children and general public in Kerala. As a People's Science Movement, KSSP's primary focus is on developing scientific thinking among people. Therefore, its environmental activities emphasise on scientific understanding of the environment and various ways it is being threatened and damaged – both in local and global contexts.

KSSP conducts a wide range of popular awareness programmes to educate people about environmental destruction. Along with public awareness programmes, KSSP focuses on science education for children to mould a generation that has scientific knowledge about the society and the environment they live in. With this objective, KSSP has produced children's books, magazines, and conducted many programmes.

It has also attempted to participate in the school education system aiming to change the teaching method, which is limited to textbooks and classrooms. According to KSSP, school education especially science education should be more activity-oriented. It has emphasised the need to incorporate informal education along with formal education.

*Eureka*, the science magazine for primary school children, is one of such attempt. *Eureka* aims to develop the quality of critical thinking and scientific analysis in children. Through contents such as stories, poems, articles, and activities, *Eureka* imparts scientific knowledge and encourages children to observe nature. The incorporation of factual data with imaginary stories makes the contents interesting and saves the children from over rationalisation. This conflation of facts and fiction nurtures the emotional attachment of children towards various creatures and also gives them information about the environment and its exploitation. As we are witnessing the increasing impact of environmental destruction, the contributions of *Eureka* in propagating environmental awareness among children is worth analysing.

Therefore, the present study analyses the environmental awareness programmes KSSP has been undertaking through *Eureka*. The paper argues that through *Eureka*, KSSP has made commendable contributions in spreading scientific awareness about the environment and its devastation among children in Kerala.

The analysis in the paper develops through three main sections. The first section briefly looks at the formation and evolution of KSSP and how it incorporated areas like science, society, and environment in its activities. The second section analyses KSSP's approach towards children, and their child-oriented programmes. This section leads to the next section that analyses *Eureka*. After an analysis of the salient features of the magazine, the paper moves to an analysis of the discussions on environment published in the magazine. The paper concludes by looking at the challenges *Eureka* faces in the society where Internet has become the main source of information.

### **Conflation of Science, Society, and Environment in KSSP**

The Kerala Sastra Sahitya Parishad was officially inaugurated in 1962 at Kozhikode to popularise science literature in Malayalam and thereby help the people to engage in a continuous dialogue with the modern scientific discourses. It was initially formed as a science writer's organisation in Malayalam with thirty science writers as its initial members (Varughese, 2017). However, later KSSP expanded its area of working along with an ideological change in their perspective towards the popularisation of modern science. Influenced by the writings of Marxist scientists like J.D. Bernal and J.B.S. Haldane, KSSP adopted the motto “science for social revolution” (*sastram samoohya viplavathinu*) and worked towards developing a scientific consciousness among people emphasising the social function of science (Ekbal and Isaac, 2013). The leading members like M.P. Parameswaran were the harbingers of this change in its perspectives towards science and its connection with society (Varughese, 2017). KSSP recognised the power of modern science to improve the quality of life of the people and to promote sustainable human development if used democratically. This change also indicates KSSP's realisation that, as Shiju Sam Varughese states, “...everyday activities of the Indian population who belonged to the working class had a scientific content, which had to be acknowledged and linked with the formal activity of modern science” (Varughese, 2017). With this change in perspective reflected in the motto, KSSP began to intervene in different spheres of social life.

It has conducted public awareness programmes and discussion forums on topics related to developments in modern science, eradication of superstitions, literacy, health, the critique of government policies and development projects, environmental protection and sustainable development, and many more. They have studied various issues of social concern, propagated it and joined with people in their protests. Kunjikkannan states that the existence of an organisation like Parishad became relevant only when it could work among the people for a social change based on reason and scientific awareness more than mere popularisation of science (Kunjikkannan, 2014). KSSP has produced many books, periodicals, pamphlets as well as used art forms as a medium of communication with the people. All these activities transformed KSSP into a mass movement with thousands of members. Shiju Sam Varughese, in his book *Contested Knowledge* observes that the activities of KSSP have contributed to the evolution of a scientific public sphere in Kerala (Varughese, 2017).

Environment has been an important area of intervention for KSSP since its early years of development. Through its publications and public lectures, KSSP imparted scientific knowledge regarding the complex web of relations within nature and the evolution of human beings interacting with the external nature. The involvement of KSSP in the discourses on environment is part of its broader agenda of creating a scientific consciousness among the general public about the need for an ethical and judicial intervention into nature for development. Following a Marxist ecological perspective, KSSP considers human society as a part of nature, or in other words, the physical and biological nature also includes the economic and socio-cultural environment of the human being.

The KSSP holds that everything in nature and society is in a continuous stage of change. But these changes are governed by law. The history of humankind is the progressive increase of the knowledge of these laws and practice informed by such knowledge. The scientific and technological revolution and the scale of contemporary man-nature interactions have increased the possibilities of unforeseen ecological imbalance manifold. The science of ecology helps us to understand them and take

preventive measures. The profit calculus of the capitalist does not and cannot take into consideration the social costs, neither in the long run nor short run. The claim that science can find a solution for all the imbalances springs from ignorance. The demand for the preservation of the ecosystem was not made "for the sake of nature" but "for the sake of man" (Mohankumar, 2010).

This above-mentioned statement of Kumar regarding KSSP's approach towards the contemporary environmental issues clarifies the reasons why KSSP emphasises the need for proper environmental education and social check of various interferences in our environment. KSSP has an environmental wing to study and interfere in matters related to environment called "Parisara Samithi." The constitution of a particular wing shows the importance KSSP has given to the discourses on environment.

### **KSSP and Children's Education**

KSSP recognised the importance of developing an interest in science and scientific aptitude among children in order to develop a scientifically tempered generation. Developing a scientifically literate citizen is internationally recognized as an important objective of science education for children (James J. Watters *et al.*, 2001). KSSP intervened in the school education system towards the end of the first decade of its formation. It observed that in order to make science learning enjoyable, it is necessary to change the existing textbook oriented and theoretical mode of teaching science. It is essential to reframe science education in schools to help children to connect science with the society and the natural environment they live in.

Due to this reason KSSP supported the introduction of DPEP method in the school education system. School education should develop scientific methods in children like critical thinking, questioning things, and observation skills, which will help them to understand the natural environment and the changes happening to it. With the objective of improving the mode of teaching KSSP conducted teachers training programmes as early as in 1965 (Muhammed Husain, 2015). KSSP emphasised the need to incorporate informal education with formal education for

an all-round development of children. Tuan Mastura Tuan Soh in her article observes that the integration of formal and informal methods is effective in increasing the interest of students towards learning science. Through teachers who are members of KSSP, it attempted to involve in the extra-curricular activities in schools (Ekbal and Isaac, 2013). Establishing school science clubs was another significant intervention of KSSP in the school education system to integrate the informal mode of learning with the formal. The campaign was started in 1973, within few years many science clubs were formed in schools in affiliation with KSSP (Ekbal and Isaac, 2013).

Publication of books and periodicals is a powerful means for KSSP to reach out to children and kindle their interest in science learning and environmental awareness. The two children's magazines *Sastrakeralam* (1969) and *Eureka* (1970) have contributed significantly in KSSP's activities to develop a scientifically equipped and environmentally aware generation. According to B. Ekbal and T.M. Thomas Isaac, *Sastrakeralam* and *Eureka* bridged KSSP with the school education system in Kerala (Ekbal and Isaac, 2013). The circulation of these magazines was closely connected to the school system, which helped the development of a close connection between student/teachers and KSSP.

In the 1971 January issue of *Eureka*, there was a circular from the Office of Public Instruction suggesting the schools to subscribe to *Eureka* for the school library. *Sastrakeralam* quiz and *Eureka* talent tests are also significant aspects of the informal education that KSSP attempted to conflate with the formal education in schools. These tests analyse the all-round development of students, along with knowledge in science, society, and environment. It analyses students' scientific knowledge about the environment, agriculture and so on. Another aspect of their education system is their incorporation of games, stories, songs, short plays, and small experiments that save the children from over rationalisation and transforms learning into an interesting activity. Therefore, an analysis of the methods and contents of *Eureka* will shed light on KSSP's role in moulding an environmentally aware generation.

### **Contributions of *Eureka***

*Eureka* is one of the early children's magazines in Malayalam and the pioneering science magazine for children in the language. *Eureka* was KSSP's unique attempt to popularise science among primary school children (children from 3<sup>rd</sup> to 7<sup>th</sup> standards) in order to prepare them to take part in the larger scientific public sphere. Before the publication of *Eureka*, the world of children's literature in Malayalam was comprised mostly of fantasies, mythical stories, and fairy tales. There were only very few children's magazines in Malayalam like *Poombatta* (Butterfly- a comic magazine started in 1964), when *Eureka* began to get published. Popular children's magazines in Malayalam like *Balarama* (started publication in 1972) and *Balabhumi* (started publication in 1996) mainly focused on illustrated stories and narratives from Indian myths, Arabian tales, stories related to ancient Indian history, and fantasies.

Unlike these magazines, in *Eureka* KSSP included contents related to modern science, knowledge about environment, and other matters concerning the lives of the people and society at large. The editorial of the silver jubilee special collection of *Eureka* (*Eureka Cream* – a collection of essays appearing in various issues of *Eureka*) states as follows:

*“Twenty-five years ago, science subjects were a nightmare for the children in Kerala. Eureka has played a significant role in changing this perception by acquainting children with these subjects. Until then, children's literature existing here was mostly dealing with themes that could instill unscientific things and blind faith in the thinking and imagination of children. Eureka appeared in such a context as a unique voice of dissent against these existing varieties of children's literature. This has resulted in the formation of a large group of people who are interested in science.”*

In order to attain its objectives to develop scientific thinking and environmental awareness KSSP has employed various techniques in the form and contents of *Eureka*. This section looks at the salient features of *Eureka* and its environmental education.

The intermixing of facts and fiction as a narrative technique helped *Eureka* to overcome the over rationalisation of children. The inclusion of activities such as observing the environment, small experiments like measuring the egg, and helping parents in household activities increases the curiosity of children to know more and raise doubts. As Balamani Amma, a renowned Malayalam poet, states the very name of the magazine *Eureka* indicates this acquisition of new knowledge through experiments and the thrill of science learning. In her article “Dharshanam” about the relevance of scientific literature periodicals like *Eureka* for children, she says:

*“Even those children who are interested in reading are not seen interested in science literature. Their reading is usually limited to stories, novels, dramas, and poetry. The reason might be the lack of interest in science and its unattractive way of rendering/narration. Science is one of the things that uplifts life.”*

KSSP in general and *Eureka*, in particular, tries to overcome this obstacle in science education. *Eureka* elucidates scientific information about society and environment through a simple language that students can comprehend easily and enjoy reading. *Eureka* imparts such information through short articles, accounts of the life of famous scientists and their inventions, imaginary travelogues, short stories, illustrated stories, short poems, and short notes on various aspects of nature, inventions and discoveries, a special section for children's writings, feedbacks from readers, drawings from children, and crossword puzzles prepared by children. Each section in the magazine is prepared to talk to the child rather than the child reading a piece of information.

In the course of reading, on some occasions, the child reader becomes a character in the narration. The series on *The Origin of Species* by Darwin is an example. In ‘Ammuvinte Swantham Darwin’ (Ammu’s own Darwin) Ammu and her brother are transported to the time when Darwin lived, and they discuss with him about the book. Thus, the book (*The Origin of Species*) progresses like a fairy tale in which the readers also become a part. The imaginary travelogue by N.P. Hafiz Muhammad titled



‘Kuttippattalathinte Kerala Paryadanam’ (the Kerala visit of children’s army) is another example. The narrative develops through the descriptions of the places, persons, and other related topics along with answering the questions and doubts of the children. It includes discussion about the destruction of the environment, pollution (e.g. pollution of backwater by houseboats), historical incidents, the history of the communist party and many more.

Instead of teaching science, *Eureka* focuses on learning science and developing a scientific outlook. Our traditional textbooks and teaching methods focus on teaching science as if it has no direct connection with our everyday activities. To overcome this one-sided mode of education, *Eureka* encourages children to be a part of it not only as a reader but also as active participants by contributing to its content and involving in other production processes. Through different activities and competitions, it inspires children to observe things, and study through experiments. It asks readers to prepare write-ups on these activities and send it to *Eureka*.

Generally, in children's literature, the targeted consumers (children) are not involved in selecting contents and other production processes. Haritha R., in her article, observes that *Eureka* is the first and probably the only children’s magazine in Malayalam that incorporates children in their production process (Haritha, 2019). Annually it publishes an issue written and edited by children. In every issue *Eureka* includes sections exclusively for children such as Dear Eureka, ‘chuvadukal’ (steps), crossword puzzle, stories, and ‘chitrakkalari’ (drawing tutorial) to publish their contributions to ensure the creative freedom and participation of children.

Other than these usual segments, in some issues, the children are asked to do small experiments/activities, prepare write-ups on their ambition, complete a poem or story, and so forth. In one issue, readers were asked to sprout vegetables like onion, and green gram. There are also discussion forums in which children are asked to write their opinions after discussing with the elderly and send them to *Eureka*. Teachers are invited to write their classroom experiences, project experiments and asked to help children do the tasks given by *Eureka*. Through incorporating

parents and teachers into the activities of *Eureka*, it makes the learning process more effective.

The characterisation of *Eureka* as Eureka uncle (Eureka Maman) is another technique to encourage the inquisitive quality of children and to keep them active. *Eureka* always encourages children to ask questions and express doubts. They can write letters and ask questions to Eureka uncle who clarifies their doubts and answers their questions. *Eureka* has reserved space for readers' doubts and questions in regular columns like "Eurekayodu chodikkam" (Let us ask Eureka), "chodyottarappetty" (question-answer box), "vayanakkarude samshayangal" (readers' doubts) (Haritha, 2019). "Mashodu chodikkam" (Let us ask our teacher) is a column handled by K. Papputy, one of the prominent members of KSSP. He states that this column was started when *Eureka* began to receive lots of questions and doubts regarding science. *Eureka* encourages such questions from readers to encourage and develop the nature of questioning. In the editorial, *Eureka* asks readers to explain why they like or dislike a specific content in their letters. Thus, it creates a social space where the readers can express their opinions, and discuss problems of general concern from a scientific perspective with Eureka uncle.

*Eureka's* environmental education also springs from its objective to develop scientific awareness about various aspects of society, environment, and the human-nature relationship. Since the beginning of the publication, *Eureka* tried to eradicate superstitions related to nature and myths regarding various natural phenomena like solar eclipse. *Eureka's* environmental education aims to develop a scientific understanding of the complex web of relations within nature of which we are a part. Insights about environment are communicated to children through stories, short poems, various activities, and pictures of various creatures that attract children's attention. The discussions on environment in *Eureka* intend to develop a feeling of acquaintance with nature and an understanding that all other creatures, including flora and fauna, are essential for our existence. *Eureka* is keen on conscientizing children about the dangers of the overexploitation of the natural resources and the mounting environmental issues in the present world. It tries to develop environmental stewardship among children.

*Eureka* helps children to develop an interest in nature through stories, poems, articles, write-ups, and various activities. Through such contents, *Eureka* imparts the understanding that human beings are also part of nature and the existence of every other creature in nature is necessary for the existence of human beings and that of the world at large. The poem "Ellavarkkumullath" (It is for Everyone) by Raghunath O. (2010) discusses the theme that nature is for everyone, and everything is part of nature:

"Rain comes and says  
River repeats  
The Earth is for everyone  
The sky is for all of us".

The November 16, 2015 issue also includes a novelette about the formation of colours and a short story about thunder and lightning. The latter is selected from the stories written by children. There was also a description of a local flower exhibition conducted by students and teachers in a school. The article titled "Manasu Niracha Nattu Pookkal" (Local Flowers that Filled the Mind) describes the experience of the exhibition conducted by children with the help of teachers (Saija, 2010). Students, along with teachers, visited local areas and observed different flowers in that area and prepared a project report. The 'Doordarshini' (a special section introducing science related information) of this issue introduced different kinds of eggs and their peculiarities followed by a task to measure the length of the chicken egg. Such activities, like observing the wildflowers in the surroundings, and the difference between various eggs, will improve children's knowledge about the environment. *Eureka* has included many short articles like the one on wetlands, appeared on the fourth of February 2010 issue that helps to improve children's understanding about such ecosystems, its peculiarities, and importance. In the same issue, there was a short story portraying the breeze as the main character and a poem about a frog. Such contents also develop an acquaintance with other creatures and various natural phenomena.

The environmental education proposed by *Eureka* and KSSP has always emphasised the interconnectedness of the history of

the development of human culture with nature. *Eureka* includes accounts of the development of agriculture and the consequent evolution of human social life. Through *Eureka*, KSSP encourages children to take part in cultivation like preparing a kitchen garden and sprouting seeds. As part of the environmental day celebration, the 16<sup>th</sup> May 2010 issue was exclusively devoted to agriculture. This issue included articles, stories, songs, and columns on different social and ecological aspects of agriculture such as man's development through agriculture, peasant revolt against feudal landlords, crop varieties, especially various types of paddy seeds and their peculiarities, varieties of soil and their importance in cultivating various crops, and water and its necessity for agriculture.

Conscientizing its readers about the mounting environmental issues in the contemporary world is another aspect of *Eureka*'s environmental education. There are many articles, series, stories, poems, and columns related to various environmental issues. It also includes activities for children that will give them a direct experience of the severity of environmental destruction. In the April first 2010 issue, there was a special feature on plant varieties. For this feature *Eureka* asked the readers to prepare an album collecting newspaper reports on environment. *Eureka* published a series on global warming titled "Agola thapanam" (Global warming). The discussion revolves around the story of Meenu, a little girl. In each issue, they discuss a particular topic related to global warming like the melting of ice in the Arctic region, climate change, the importance of recycling paper and the like. *Eureka* conducted essay writing competitions in connection with the series to make sure that readers are also taking part in the discussions on global warming.

They also conducted a state-level essay writing competition on the topic "tree is a solution to global warming" and published the prize-winning essay in the January first issue of 2010. The series 'Kerala visit of children's army' by N. P. Hafiz Muhammad also discusses topics related to environmental degradation in Kerala. In the first April 2010 issue, a travelogue discussed the backwater pollution in Kerala. Other than serialised features, there are also features including contributions from children. "Puzhayora chinthakal" (Thoughts on the River

Bank) by N.K. Krishnakumar about the impacts of sand mining, a poem "Sreshtam" (Valuable) by Satyachandran Poikkavu about cutting trees (2010), are some. Thus, through both critical and creative writings, *Eureka* presents a realistic picture of the destruction of the environment.

### **Conclusion**

*Eureka* has grown into an important medium for KSSP to educate children about science and the scientific approach towards matters related to society and environment. As a Peoples' Science Movement, KSSP emphasises imparting scientific awareness about the interconnection between human beings and the external nature, and the impact of environmental degradation on our social, cultural, and economic life. Children have been a major target group of KSSP's activism since its beginning because it believed that it is important to educate children to mould a scientifically tempered environmentally concerned generation. Only such a generation can actively and productively take part in the scientific public sphere, where science and scientific analysis of the issues concerning everyday life are discussed for an egalitarian, democratic state.

*Eureka* is an important initiative towards bringing up a generation as envisaged by KSSP. Even though *Eureka* could bring innovative changes in science education and propagate environmental awareness among children, in the current Internet era of information boom, it is facing many challenges. Today, children are getting a lot of information at the tip of their finger and our education system is itself focusing on the Internet and the facilities it offers. Therefore, it becomes necessary for *Eureka* to acknowledge such developments and update it according to the new developments.

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