Criterion 3

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN
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Formerly S.I.E.T. College

3.4.4. Books and Chapters in Edited Volumes / Book Published and Papers in National / International Conference

(2019-2020)

JUSTICE BASHEER AHMED SAYEED COLLEGE FOR WOMEN (AUTONOMOUS) Chennai-600 018

The Appended list is of Books and Chapters in edited Volumes/Books Published and Papers in National / International Conference - Proceedings During the Year (2019-2020) Published Faculty members of the Justice Basheer Ahmed Sayeed College For Women (Autonomous)

Sl. No.	Name of the teacher	Title of the book/chapters published / Title of the paper	Year of publication
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1	Mrs. Anitha Merin Vincent	Voices of the voiceless in new literatures - (An Anthology of Research Articles) / An Analysis of Elements of Resistance in the Play Woza Albert!	2020
2	Mrs. Seshuvani	Voices of the voiceless in new literatures - (An Anthology of Research Articles) / The Voices of Indian Women For Empowerment in the Select Novels of R K Narayan	2020
3	Mrs. Azeez unnisha P.S	Soft Computing for Problem solving 2019, Volume 2 An array P System based on a variant of Pure 2D Context-Free Grammars	2020
4	Dr. Anjum.A	Antibacterial and Anticancer activity of Turbinaria conoides and Sargassum wightii	2020
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6	Dr. R. Ramya	In Vitro Antidiabetic and Antioxidant activity of Costus pictus D. DON	2020
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13	Dr. T. Mythili	"Internet Addiction and Perceived Loneliness among college students"	2020
14	Maragatham.R.S	"Internet Addiction and Perceived Loneliness among college students"	2020
15	Dr.O.M.S.Amc er Hamsa Beevi	Panmuga Noogil Tamizh Ilakkiyangal / Muthumozhi Maalai Oru Paarvai	2019
16	Dr.O.M.S.Ameer Hamsa Beevi	Yathumagi Ninrai -Pennum Thamizh Illakiyamum / K. Jayabunnisavin Sirukathaikalil penkalugu Izhaitha Paliyal	2020
17	Dr.O.M.S.Ameer Hamsa Beevi	Kappiya Illakiyam Panmuga Parvai / Islamillakiyamana kuppu Nayagathin Arivuraigal - Oru parvai	2020
18	Dr.V.Sheela	Thamizh illakiyankalil Aramum Arulum / Thirumanthiram Unarthum anbum aramum, (Vol -2)	2019
19	Dr.M.Lakshmi	Thamizh illakiyankalil Aramum Arulum / Sirupanjamoolam Suttum Aram (Vol -2)	2019
20	Mrs.S.Hajira Farzana	Tholkappiyam mudal Naveena ilakiyam varai / Samudaya matra munedupil Rahimavin pudinangal	2019

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Editors
Dr. K. THIYAGARAJAN
N. ARUNAGIRI

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(An Anthology of Research Articles)

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AN ANALYSIS OF THE ELEMENTS OF RESISTANCE IN THE PLAY *WOZA ALBERT!*

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Abstract

Theatre is a social site where resistance is practised, articulated, enacted and explored. Marginalized groups, using subversive discourse, evade or redefine official ideologies using the platform of resistance theatre. This paper, by a close study of Woza Albert! by Percy Mtwa,Mbongeni Ngema and Barney Simon, a black South African play, looks at how theatre stresses the representation of 'life in the raw' and an assertion of selfhood through staging resistance. Resistance Theatre exposes exploitation and atrocities against all oppressed groups. Theatre becomes a site of contestation and struggle against diverse forms of institutional and ideological domination. The study also focuses on questions of subjectivity, identity, agency, change and the role of theatre in deconstructing and displacing the elite discourse.

Keywords: *Theatre of Resistance, History, Physical Theatre, Grand Narratives, Language*

Whenever there has been extreme repression imposed on people, theatre has provided a space to their protest. Theatre is a social site where resistance is practiced, articulated, enacted and explored. The gestures, speeches and practices through which subordinated groups rebel against the official version of social reality propagated by the elites find an expression in the Theatre of Resistance. The marginalized groups using subversive discourse evade or redefine official ideologies. *Woza Albert! is* a black South African play, is characterized by a feeling of rebellion against the establishment. Resistance theatre must be assessed from a sociological framework. The indigenous black African people were forcibly brought under white control by the end of the 18th century. Several laws were passed by the new white authorities to establish

their control which jeopardized the lives of the natives in their own land. By land appropriation, the white secured complete domination over the indigenous people. The already existing system of racial discrimination and denial of human rights were formalized into the legal system of apartheid. The British colonial rulers introduced a system of Pass Laws to restrict the movement of black people by compelling people to live in separate places defined by race.

*Woza Albert!*is a black South African play, created by two black actors, Percy Mtwa and Mbongeni Ngema, in collaboration with the white director Barney Simon. It is a play that 'laughingly dissects' the hypocrisies of racism as it calls for social change (Jenkins, 254). It exposes the real effects of apartheid policies, which the government has always hypocritically claimed to be sanctioned by its Christian nationalist principles.

Most expressions of protest in theatre have exposed the plight of victims, laid bare the oppressions unleashed on them, and issued a call to fight the situation in solidarity with the oppressed. The playwrights of the apartheid era in South Africa through their plays protested against racial segregation by depicting its inhuman nature. Early Protest Theatre never offered any solutions beyond the depiction of the sad situation in which the people found themselves. By the advent of black consciousness movement in the 1970's some theatre practitioners went beyond mere protest. It was then that the Theatre of Resistance became the main genre. While protest theatre addressed itself to the oppressor, this new theatre addressed itself directly to the oppressed with the overt aim of mobilizing the oppressed to explore ways and means of fighting against oppression. The theatre of Resistance attempted to propagate a message, and agitate for action on the part of the oppressed to change their situation. *Woza Albert!* addresses the oppressed and the oppressor alike. The spirit of defiance and rebelliousness runs through the play giving voice to the questions that failed to find a voice for decades.

Woza Albert! reflects the dichotomy of the self and the other, subject and the object, the master and slave. The dramatists are

engaged in producing the true history of rightful 'self's. In complex, diffuse and multifaceted ways the dramatists portray reality, by the medium of theatre. History plays an important role in constructing the reality of the marginalized. The master makes a history and is conscious of making it (Fanon 2001, 40). The Other has no voice in the grand narrative of the master. The playwrights in their work of art depict a history from the margin. In their works, the natives and the indigenous people who were pushed to the margin by their oppressors are brought back to the center, which in itself becomes an act of resistance.

Woza Albert! incorporates the features of physical theatre in them. This introduces other elements of resistance: Manipulation of bodies becomes a means of offering a critique of apartheid and oppression. Percy Mtwa has stressed the central importance of the actors body in their form of poor theatre: "You are using your body as the only instrument you have, and that body which you have can be anything, can be a piece of sculpture, it can sing, it can be a song, it can be a movement, can be a sound, can be anything, that body." (Balme, 80) Thus the violated, degraded and imprisoned body becomes a sign of the deprived state of the colonized. Body is used to challenge the white notions. By using the black body to play the white characters, body is presented as a politicized space. In *Woza Albert*, the actor uses a pink ping pong ball whenever he plays the role of a white man. This is seen as an act of defiance, because the choice of that particular costume denotes the crossing of cultural racial and political boundaries (Tompkins, 190).

The black man himself playing the role of the white could be seen as an act of subversion. They disturb the "mimetic stability of the back/white dichotomy" says Loren Kurger. Mtwa and Ngema turn their bodies into distorting mirrors parodying their audience. The impersonation of authority figures in *Woza Albert!* may be compared to what Bhabha has called the colonial subject's mimicry of domination. For Bhabha, colonial mimicry is 'a strategy of subversion that turns the gaze of discriminated back upon the eye of power.' Woza Albert! turns the equivocation of colonial mimicry into a strategy of critique (Kurger, 168). Woza Albert! was played

not only in the market place but also in Johannesburg and new York. Thus, they invite them to share their jokes at the impersonated whites only to remind them that they are themselves the butt of the joke. The theatrical language of resistance consists of motion, movement and mime, of rhythm and action, of music song and dance, and more that the theatre provides myriad possibilities of direct communication. Mime and story-telling tradition are common among African and Indian indigenous people. The play carries these elements in them strongly. A gesture speaks volumes. As in epic theatre, the playwrights employ the use of gestures and mime in their plays. The actors displaying their bare back side in scene 2 of *Woza Albert!* and raising his middle finger successfully conveys the anger and protest suppressed by the character.

Music and dance, which are part of the South African black tradition, find expression in the plays. In *Woza Albert!*, the actors convey the spirit of the outdoor concert in the first scene without real instruments, using an array of melodic and percussive sounds to give impression of an orchestra in full swing. Throughout the play the characters are seen making various sounds using their body. The songs performed by the actors are generally traditional Zulu songs sung in Zulu. They usually comment on their situation under apartheid. They also become means to criticize and insult whites and call for black to unite against the white oppression. "Come together! Whites are swines! They call us damns!" (31).

In *Woza Albert!* the songs are sung in Zulu, to build a relationship with the audience, to encourage them to think critically and take actions. Songs reflect their yearning to free themselves from the eternal bonds of slavery. Through the songs they go back to the roots, recovering the past and the history, memory. They reflect the ache of lost homelands. Among the dances included in *WozaAlbert!* are the Towsa dance (6) and the Zulu war dance. The oppressed dance in their state of agony and deprivation. "It relaxes their painfully contracted muscles; and then the dance mimes secretly, often without their knowing, the refusal they cannot utter and the murders they dare not commit." (Fanon 1967, 16)

Language itself can be seen as a site of resistance. In *Woza Albert!*, there is a refusal to use the language of the oppressor. "A particularly effective form of subversion occurs when one character moves between registers, showing he/she is capable of using all manner of linguistic codes but chooses certain ones strategically" says Gilbert et al.(169) The characters of *Woza Albert!* use a mixture of languages, mainly English, Zulu, Afrikaans and Xhosa. The fact that all the songs in *Woza Albert!* are sung in Zulu, the language of the native becomes significant. Songs intensify the reactions of the audience as well as the actors. It denaturalizes the action and increases audience's attention.

Woza Albert! employs laughter as a means of resistance. The characters use laughter as a survival tactic when the odds are stacked against them. Steeped in pain, their comedy celebrates human perseverance in the face of injustice. (Jenkins, 424) The hypocrisy of the white authorities is publically unmasked in *Woza Albert!*. From the opening sequence the play exposes, criticizes questions and mocks at the white regime that has restricted their movements, limited their economic opportunities and imprisoned their heroes. "Laughing at *Woza Albert!*was the only permissible form of insubordination" says Ron Jenkins in an article in the book Fools and Jesters in Literature Art and History (254).

Grand narratives such as the Bible and other religious texts and beliefs are satirized in the play. "Mtwa, Ngema and Simon (mis) use the Bible to demonstrate its covert racism and to protest against apartheid" says Gilbert et al in Postcolonial Drama (44). The white man came into the new land with a Bible in hand. And they left disappeared leaving the Bible with the people and taking away their lands. *Woza Albert!* exposes the oppression instituted by imperial Christianity. The belief that to suffer is edifying is one of the main Christian doctrines attacked for upholding its position through the promise of an eternal reward for the persecuted. In fact, the playwrights use the white man's god against them by showing Morena as black and as a redeemer of the blacks. This is an act of subversion and defiance.

In *Woza Albert!* the actors ask questions to the audience and try to wake them from the state of passivity. In one of the scenes, the actor sees Morena among the audience. The two throw away their passes after pleading with Morena to take them to heaven. Morena becomes the justification to unveil and communicate the problems and conditions under which the black South Africans live in what was considered a Christian country. Morena is the excuse to speak out the evils of apartheid. At the end of the play the actors call upon members of the audience to 'rise up' as resurrected heroes of the struggle against apartheid. the gesture is powerfully subversive in apartheid South Africa.

The very title of the play signifies a call to action, a revolutionary cry of defiance, a declaration of existence, determination to survive and accusation of the oppressor. Woza means rise up. It is a call to wake up to action, the need to wake up to a new beginning, new energy through resistance. The act of Morena bringing back to life the dead heroes is metaphorical. The playwrights urge the people to rise from their state of submissiveness. It is also significant that the title is not translated to English but is retained in the language of the natives.

Woza Albert! emphasizes the importance of reinserting previously marginalized voices into historical discourses. The play successfully portrays theatre's capacity to intervene publically in social organization and to critique political structures. The play highlights HomiBhabha's view that the colonized (the oppressed) are never always impotent, the colonizer (the oppressor) never always powerful. The play could thus be viewed ambivalently as potential agents of social reform. Behind the apparent compliance is the spirit of resistance and desire for change.

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THE VOICES OF INDIAN WOMEN FOR EMPOWERMENT IN THE SELECT NOVELS OF R.K.NARAYAN

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Abstract

Swami Vivekananda says "Educate your women first and leave them to themselves; then they will tell you what reforms are necessary for them."

Woman is the personification of Sakthi which is the dynamic energy behind this universe. Science defines that male as mass and female as energy. Genders: masculine and feminine are for the noble cause of progeny and social harmony. In the Vedic period women like Maitreyi, Gargi... had taken the places of Rishis through their skill discussing about Brahman. In the assembly of thousand Brahmans Gargi boldly challenged Yajnavalya in a discussion about Brahman. The ideology of Hindu Dharma is to bring a state of equilibrium in the society by involving both genders. So in the name rituals, Vedic philosophy enforced and restricted husband and wife to coordinate each other. Hence, this Karma philosophy purifies individual characters and inculcates discipline in life style.

R.K.Narayan, who is the staunch believer and follower of Hindu Dharma emphasized and reinforced the essence of Indian Culture through his novels. British Colonizers misinterpreted the ideologies and structure of Indian society. R.K.Narayan has taken social responsibility to redirect Indians towards the intrinsic gist of Indian Culture through his novels. His style of writing is, portraying divergence in the beginning and convergence in the ending. In the novel The Grandmother's Tale the character Bala is an embodiment of Sati Savitri who takes up arduous journey to Pune in tracing out her husband Viswa who left her abruptly in her young age. Similarly, the character of Rosie in The Guide and the character of Savitri in the novel The Dark Room.

Keywords: *Eequilibrium, State of harmony, Women empowerment, Social responsibility and discipline*

Introduction

For an Indian married woman Sita, Savitri, Damayanti...are the role models who followed their husband's footsteps meticulously. Similarly for the king Rama who was loyal and had shown esteemed regards on his wife. The transgressing nature of male found it difficult to follow the path of king Rama. British colonialism, poverty and ignorance had become added fuel to fire in suppressing women. During this period the social reformers Kandukeri Veereslingam, Gurajada Appa Rao..,fought to wipe out social evils such as kanyasulkam and child marriage. This had become the seal of approval for women empowerment. Sooner or later the next stage was followed by the dowry system which is another social evil to pull down the women. At this juncture, women decided to break the granite walls of obstruction with education and employment to empower themselves.

Physical feature of a woman is the blessing of God. The heap of flesh (breast) which is treated as holy as the Ganges, motherhood perceives its gratification when she feeds baby. The milk-giving mother is exalted in the form of the cow, symbol of Hinduism for several centuries. But unfortunately these divine physical features are becoming gear of entertainment in the name of beauty contest or item songs in films either to mint money or social recognition. Hence Narayan through his novels epitomized Indians view of feminism. Bala's role of wife is the personification of Sati Savitri. Rosie as a scholar and Savitri as an ideal mother. Narayan believed that women have the power to establish right relationship and social harmony.

Adventurous Bala

R.K.Narayan, is one of the distinguished writers who tried his best to convey the essence of Indian Culture and the role of women in true sense through his novels. In the novel *The Grandmother's Tale* the character Bala is an embodiment of Sati Saviti who took up arduous journey to Pune in tracing out her husband Viswa who left her abruptly in her young age. Bala's dauntless journey traces Viswa. With domineering emotional touch, Bala goes to Agraharam with Viswa and proves herself that she is not a widow. Adventurous Bala is not known to Agraharam. She becomes submissive obedient wife after attaining the goal. Narayan's narration marvelously shows true feministic aspects such as Indian women know to take bull by horns and as well as head over heels in expressing love. Dominating, devious and aggressive till she attained her object. Now she was docile and never spoken to her husband in the prescence of others. Her tone was gentle and subdued. It was a transformation.

Rosie as a Scholar

The art forms such as dance and music are considered as alternate paths, in potency similar to the knowledge of Srutis (Vedas and Upanishads). Indians consider Natayasastra as the fifth Veda. God Brahma with the assistance of the other Gods created the NatyaVeda which could be understood by everyone even who did not know Sanskrit. The sage Barata Muni has recorded the teachings of Natyasastra when God Brahma taught him. The Natyashastra is perhaps world's the most prevalent and the most comprehensive theatre and dance manual, and it still forms the groundwork of the classical forms of theatre and dance in India. In the novel *The Guide*, Narayan expounds the significance of Natyasastra and Rosie's dedication and devotion towards it. Rosie belongs to the family of Devadasi which means the family traditionally dedicates to the temple as dancers. The etymology of the word Devadasi is women who dedicate themselves to God and they are an essential part of the society. They render services such as cleaning, lighting the lamps and dressing the Deities in the temple. At the same time the study of Natayasastra and classical music are the parts of, one of the Vedas,

Samaveda. The essence of Hindu culture, traditions and ethics are promulgated to the society through dance and devotional songs. During colonialism, Europeans were dumbfounded to witness the girls singing and dancing in temples. The concept of offering oneself to God was unknown to them so they named them "Nautch-girls" or "Temple-maids". In due course of time, this has led to prostitution. The world of dance brightens up her and she determines to spend an hour or two in the forenoon studying the ancient works of the art, Natyashastra of Bharata Muni which is a thousand years old and various other books. She believes that to keep up the purity of the classical forms and ancient methods, it is mandatory to study Natyashastra. She also wants a Sanskrit pandit to read for her a few chapters from Ramayana and Mahabharata because they are the treasure house of knowledge. Raju is amazed at the performance of Rosie and he honestly declares that his mind is free from all the carnal thoughts. He views her as the pure abstraction. Narayan also illustrates the detail description of time-scheme and rhythm in the seventh chapter of the novel *The Guide*. Narayan illustrates Rosie as a scholar who shows intrinsic interest to study Indian art forms.

Motherhood of Savitri

To evade effects of broken family, Indian marriage structure has been established as an institution with strong lure. R.K.Narayan through his art of writing gives adequate suggestion to the society. If conflicts are compromised reunion occurs. Savitiri suspects Ramani's fascination towards Santabai who is a clerk in his office. The frustrated Savitri questions her husband. Right to question is given by the institute of marriage to man and woman if anyone indulge in extramarital affairs. Ramani who is an authoritative husband tries to suppress her. One mid night Savitri departs and decides to commit suicide by drowning herself in the river. But fortunately something takes hold of her and topples her over. Then Blacksmith Mari and his wife Ponni aids assistance to get her shelter in a priest's house. Although she is physically separated from family, her entire thoughts are filled with the memories of her

children. Savitri does not endure her separation from her children and husband. Savitri's motherly affection and duties bring her back home. In the morning Savitri goes to the old man's house and tells him," I am leaving ", "What has happened?" "I cannot keep away from my children and home".Ramani also accomplishes the role of father in the family and warmth in parenting in the end of the novel. Divorce is common in many western societies. This can have serious consequences on children. So in Indian society the bond of mother and father has been made so strong that any of the reasons they must not get apart. Broken families are at times an exception in Indian society. Savitri and Ramani consents each other for the sake of their children. R.K.Narayan does not want Babu, Kamal and Sumati to develop criminal tendencies in their mind. He makes Ramani to know his role of father. The attachment between mother and children is an interminable one. Motherly instinct of a woman makes her give away her profession, life and ego. R.K.Narayan portrays Savitiri as an idyllic Indian mother who has surrendered her suffering and intentions for the sake of family. The futility, the frustration and her own inescapable weakness make her cry and sob. "Wretched feet wouldn't let me down first time. I can't go near the water again. This is defeat. I accept it. I am no good for this fight. I am a bamboo pole... perhaps Sumati and Kamala have not had their hair combed for ages now".

The Indian thought of universe is the combination of Prakruthi and Purusha which means nature and man. Nature is the embodiment of female and man is the personification of male. These two are inseparable. Gender justice and feminism are the concepts politicized and enforced by British colonizers in India. In the *Ramayana*, King Rama fought for the Sita's disrespect and in *Mahabharata*, Pandavas fought for the humiliation of Droupathi. These two epics endorse that Bharath has been giving predominant role and respect to women. Hence, Narayan's reverence to his mother land portrayed Bala, Rosey and Savitri as decision makers. He conveyed Indian motive of feminism which is as pure as fire and as patience as earth through his women characters. Whereas Aristotle (384-322 BC) acknowledged female as lack of qualities and

deformity. In Greek mythology mother is no parent to her child, victory is granted by Athena to Appolo's male oriented arguments. Nietzsche, the German philosopher declared that creation of women is God's second mistake. Hence feminist writers Mary Wollstonecraft, Virginia Wolf and Simone de Beauvoir formulated the issues and fought for the solutions of gender problems. Hence in India gender justice is integrated which is the code of conduct of society.

Conclusion

Bharath is the homeland for many versatile personalities, leaders, scientists, philosophers and saints. Jagad Guru Adi Sankaracharya is one among. He kept up his affirmation and touched his mother's feet in reverence on her death bed. He also performed funeral rites to his mother. He acquainted a new philosophy to the society that Sanyasis also should do their duties of son as a token of gratitude to their mother. The great Maratha king Shivaji's mother Gijiabai laid the seeds of bravery, placed a record in the history. Swami Vivekananda says that Indian woman is not a wife but also a mother who has more responsibilities in moulding the character of children. Therefore Marriage is a sacrament in India. It is not an agreement that can be put to an end at will. According to the Apastamba Dharma Sutra, marriage gives capacity to perform religious rites to a man because an unmarried person is incomplete. In such way Indian culture is bringing proportion between genders which is a drawn line in the sand. Every Indian woman spreads red carpet to her husband who is truthful, righteous and loyal as king Rama and she also enjoys its servitude. Narayan who is the staunch follower of Hindu Dharma depicted women characters Bala an ideal woman, Rosie as ideal scholar and Savairti as an ideal mother. They are the path followers to the readers. The three novels convey the feministic aspects of Bharath. For Indians Prakruthi means nature (panchabhutas: earth, fire, sky, water and air), the incarnation of women. Narayan orated to remain the Indian womanhood and motherhood as constant as sun and as fit as fiddle. Indian thought of freedom must be like an iron rod in a velvet glove. Indian

womanhood and motherhood should nourish, flourish and cherish but should not perish.

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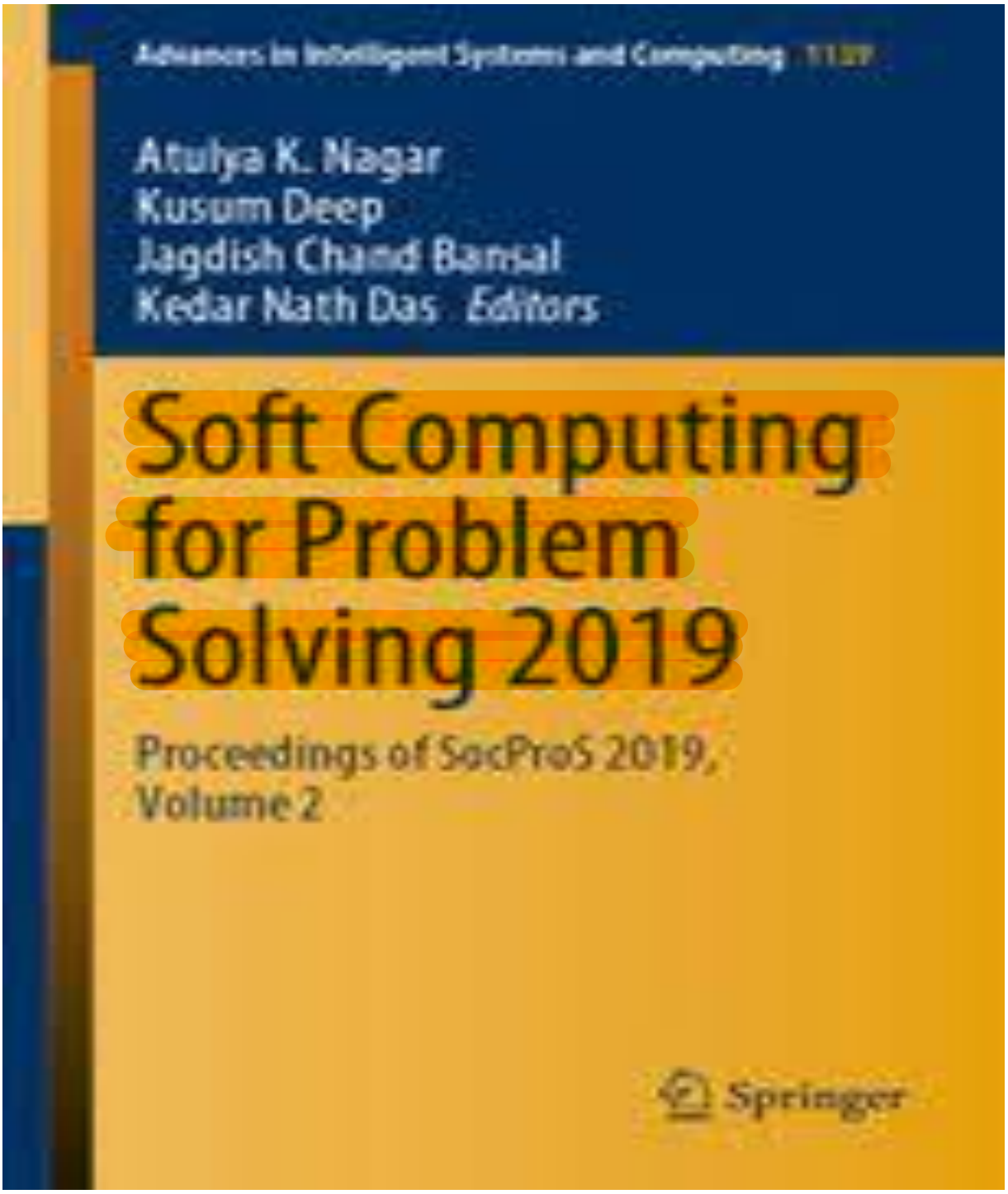
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An Array P System Based on a Variant of Pure 2D Context-Free Grammars

P. S. Azeezunnisha, S. Hemalatha, Sastha Sriram, and Atulya K. Nagar

Abstract The P system model in the area of membrane computing is known to be a convenient framework for handling problems in different areas of application. Several models of array P systems have been developed for dealing with the problem of generation of picture arrays in the area of two-dimensional picture languages. Here, we introduce an array P system which uses in its regions the rewriting rules of pure 2D context-free grammars in the (r/d) derivation mode in order to evolve array objects. We study the generative power of this new P system model by comparing it with certain other picture array generating models.

Keywords Membrane computing · P system · Picture languages · Pure 2D context-free grammar

1 Introduction

The idea of bringing together the two areas of membrane computing [2, 5, 8] and picture array grammars was considered in [1] by developing an array P system for dealing with the problem of handling information structured as two-dimensional

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(2*D*) objects or arrays [3]. On the other hand, a simple and at the same time expressive 2D grammar model, known as pure 2D context-free grammar ($P2DCFG$), was introduced by Subramanian et al. [9] for generating rectangular picture array languages. Subsequently, a number of studies on this model and its variants [4, 11] have been done, establishing theoretical properties as well as applications to generation of picture patterns. Here, we consider the variant [11] of $P2DCFG$, called $(r/d)P2DCFG$, that involves a (r/d) mode of derivation in the sense of rewriting all the symbols in the rightmost column or in the lowermost row of a rectangular picture array by strings of equal length, thereby maintaining the rectangular shape. We introduce an array P system with objects as rectangular arrays in the regions and groups of context-free rules with (r/d) mode of rewriting as in a $(r/d)P2DCFG$ and investigate the generative power of this new array P system by comparing it with certain other picture array grammars.

2 Preliminaries

For notions on formal language theory, we refer to [6], and for array grammars, we refer to [3].

An alphabet, Σ, is a finite set of symbols. A word or a string $w = w_1 w_2 \ldots w_n (n \geq 1)$ over Σ is a finite sequence of symbols $w_i, (1 \leq i \leq n)$ from Σ. The length of a word w is denoted by $|w|$. The set of all words over Σ is denoted by Σ^* which includes the empty word λ. For a given word $w = w_1 w_2 \ldots w_n$, we denote by ${}^t w$ the vertical word $\begin{matrix} w_1 \\ \vdots \\ w_n \end{matrix}$ such that ${}^t({}^t w) = w$. We set ${}^t\lambda$ as λ itself.

A rectangular $m \times n$ picture array A over an alphabet Σ is of the form

$$A = \begin{matrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{m1} & \cdots & a_{mn} \end{matrix}$$

where each $a_{ij} \in \Sigma$, $1 \leq i \leq m$, $1 \leq j \leq n$. The set of all rectangular arrays over Σ is denoted by Σ^{**} which includes the empty array λ and $\Sigma^{++} = \Sigma^{**} - \{\lambda\}$. The operations of *column concatenation* and *row concatenation* of arrays in Σ^{**}, denoted, respectively, by $\circ$ and $\diamond$ are defined such that, for any $A, B \in \Sigma^{**}$, $A \circ B$ is defined only when A and B have the same number of rows and $A \diamond B$ is defined only when A and B have the same number of columns.

We now recall the pure 2D context-free grammar introduced in [9].

Definition 1 ([9]) A pure 2D context-free grammar ($P2DCFG$) is a 4-tuple

$$G = (\Sigma, P_1, P_2, \mathcal{M}_0)$$

where

(i) Σ is a finite set of symbols;
(ii) $P_1 = \{c_i \mid 1 \leq i \leq m\}$, where c_i is called a column rule table; each c_i is a finite set of context-free rules of the form $a \to \alpha, a \in \Sigma, \alpha \in \Sigma^*$ such that for any two rules $a \to \alpha, b \to \beta$ in c_i, we have $|\alpha| = |\beta|$, i.e., α and β have equal length;
(iii) $P_2 = \{r_j \mid 1 \leq j \leq n\}$, where r_j is called a row rule table; each r_j is a finite set of rules of the form $c \to {}^t\gamma, c \in \Sigma, \gamma \in \Sigma^*$ such that for any two rules $c \to {}^t\gamma, d \to {}^t\delta$ in r_j, we have $|\gamma| = |\delta|$;
(iv) $\mathcal{M}_0 \subseteq \Sigma^{**} - \{\lambda\}$ is a finite set of axiom arrays.

A picture array $B \in \Sigma^{**}$ is derived from a picture array $A \in \Sigma^{**}$ in G, if B is obtained from A either (i) by rewriting in parallel all the symbols in a column of A, each symbol by a rule in some column rule table or (ii) rewriting in parallel all the symbols in a row of A, each symbol by a rule in some row rule table. All the rules used to rewrite a column (or row) are to belong to the same table. We denote such a derivation by $A \Rightarrow B$.

The picture language generated by G is the set of picture arrays $L(G) = \{M \in \Sigma^{**} \mid M_0 \Rightarrow^* M \text{ for some } M_0 \in \mathcal{M}_0\}$. The family of picture languages generated by $P2DCFGs$ is denoted by $P2DCFL$.

We now recall the variant of $P2DCFG$ with (r/d) mode of derivation [11] in which, unlike in a $P2DCFG$, all the symbols in the rightmost column (respectively, the lowermost row) of an array are only rewritten in a step of rewriting, using the rules of a column rule table (respectively, row rule table) with the tables of rules as in a $P2DCFG$.

Definition 2 ([11]) Let $G = (\Sigma, P_1, P_2, \mathcal{M}_0)$ be a $P2DCFG$ with the components as in Definition 1. A (r/d) mode of derivation of a picture array B from A in G is a derivation in G such that only the rightmost column or the lowermost row of A is rewritten using, respectively, the column rule tables or the row rule tables to yield B. We denote such a derivation by $A \Rightarrow_{(r/d)} B$. The generated picture language is defined as in the case of a $P2DCFG$ but with (r/d) mode of derivations. The family of picture languages generated by $P2DCFGs$ under (r/d) mode of derivations is denoted by $(r/d)P2DCFL$. We write $(r/d)P2DCFG$ to refer to $P2DCFG$ with (r/d) mode of derivations.

We illustrate with an example.

Example 1 Consider an $(r/d)P2DCFG$ $G = (\Sigma, P_1, P_2, \{M_0\})$ where $\Sigma = \{x, y, b\}$, $P_1 = \{c\}$, $P_2 = \{r\}$ with $c = \{x \to bx, y \to xy\}$, $r = \left\{x \to \begin{matrix} b \\ x \end{matrix}, y \to \begin{matrix} x \\ y \end{matrix}\right\}$ and $M_0 = \begin{matrix} b & x \\ x & y \end{matrix}$.

G generates a picture language L_{xy} consisting of arrays A of size $(m, n), m \geq 2, n \geq 2$ with $p(m, n) = y$; $p(m, j) = x$, for $1 \leq j \leq n - 1$; $p(i, n) = x$, for $1 \leq i \leq m - 1$;

$$\begin{array}{ccccc} b & b & b & b & x \\ b & b & b & b & x \\ b & b & b & b & x \\ b & b & b & b & x \\ x & x & x & x & y \end{array}$$

Fig. 1 A picture array in the language L_{xy}

$$M_0 = \begin{array}{cc} b & x \\ x & y \end{array} \Rightarrow_{(r/d)} \begin{array}{ccc} b & b & x \\ x & x & y \end{array} \Rightarrow_{(r/d)} \begin{array}{ccc} b & b & x \\ b & b & x \\ x & x & y \end{array} \Rightarrow_{(r/d)} \begin{array}{ccc} b & b & b & x \\ b & b & b & x \\ x & x & x & y \end{array}$$

Fig. 2 A sample derivation under (r/d) mode in Example 1

$p(i, j) = b$, otherwise. A member of L_{xy} is shown in Fig. 1. A sample derivation in $(r/d)P2DCFG$ G starting from the axiom array M_0 and using the tables c, r, c in this order is shown in Fig. 2. The application of the column rule table c rewrites all symbols in the rightmost column in parallel, and likewise, the application of the row rule table r rewrites all symbols in the lowermost row. We note that the application of a column table or a row table is independent of each other as in a $P2DCFG$, and so it cannot maintain any proportion between the number of columns and the number of rows in any generated picture array.

Remark 1 In another variant of $P2DCFG$ with (l/u) mode of derivation, introduced in [4] and called $(l/u)P2DCFG$, all the symbols in the leftmost column (respectively, the uppermost row) of an array are only rewritten in a step of rewriting, using the rules of a column rule table (respectively, row rule table) with the tables of rules as in a $P2DCFG$. The corresponding family of picture array languages generated by $(l/u)P2DCFG$ is denoted by $(l/u)P2DCFL$. The $(l/u)P2DCFG$ is a 2D analogue of context-free grammar with leftmost rewriting while $(r/d)P2DCFG$ is a 2D analogue of context-free grammar with rightmost rewriting [11].

3 Array-Rewriting *P* System with Pure Context-Free Rules and (r/d) Mode of Derivation

Motivated by the array-rewriting P system model introduced in [10] with the regions containing rectangular arrays as objects and tables of rules of a pure 2D context-free grammar [9], we define here a variant with the regions containing rectangular arrays as objects and tables of context-free rules as in a $P2DCFG$, but array-rewriting is done in (r/d) mode of derivation as in $(r/d)P2DCFG$.

Definition 3 An array-rewriting P system (of degree $m \geq 1$) with pure 2D context-free rules and (r/d) mode of derivation is a construct

$$\Pi = (V, \mu, F_1, \ldots, F_m, R_1, \ldots, R_m, i_o), \text{ where}$$

V is the alphabet, μ is a membrane structure with m membranes labelled in a one-to-one way with $1, 2, \ldots, m$; $F_1, \ldots, F_m$ are finite sets of rectangular arrays over V associated with the m regions of μ; $R_1, \ldots, R_m$ are finite sets of column tables or row tables of context-free rules over V (as in a $(r/d)P2DCFG$) associated with the m regions of μ with the application of the column rule table which is only on the rightmost column of the picture array rewritten while the application of the row rule table is only on the lower most row; the tables have attached targets *here, out, in*, in_j (in general, *here* is omitted), and finally, i_o is the label of an elementary membrane of μ (the output membrane).

A computation in Π is defined in the same way as in an array-rewriting P system with the successful computations being the halting ones: each rectangular array in each region of the system, which can be rewritten by a column/row table of rules (rewriting as in a $(r/d)P2DCFG$) associated with that region (membrane), should be rewritten; this means that one table of rules is applied; the array obtained by rewriting is placed in the region indicated by the target associated with the table used (*here* means that the array remains in the same region, *out* means that the array exits the current membrane; *in* (respectively, in_j) means that the array is immediately sent to one of the directly lower membranes (respectively, with label j), nondeterministically chosen if several exist there; if no internal membrane exists, then a table with the target indication *in* cannot be used). A computation is successful only if it stops, that is, a configuration is reached where no table of rules can be applied to the existing arrays. The result of a halting computation consists of rectangular arrays over V placed in the membrane with label i_o in the halting configuration. The set of all arrays computed or generated by such a system Π is denoted by $AL((r/d)\Pi)$. The family of all array languages $AL((r/d)\Pi)$ generated by such systems Π as above, with at most m membranes, is denoted by $AP_m((r/d)P2DCFG)$.

Example 2 Consider the picture language L_{sq} consisting of square-sized arrays A of the language L_{xy} in Example 1, i.e., pictures A of size (n, n), $n \geq 2$ with $A(n, n) = y$; $A(n, j) = x$, for $1 \leq j \leq n-1$; $A(i, n) = x$, for $1 \leq i \leq n-1$; $A(i, j) = b$, otherwise. We construct an array-rewriting P system Π_{sq} with three membranes and in the regions $P2DCFG$ kind of rules in (r/d) mode of derivation. Π_{sq} is given by

$$\Pi = (V, \mu, F_1, F_2, F_3, R_1, R_2, R_3, 3),$$

where

(i) $V = \{x, y, b\}$

(ii) $\mu = [_1\, [_2\,]_2\, [_3\,]_3\,]_1$

(iii) $F_1 = \{\begin{matrix} b & x \\ x & y \end{matrix}\}$, $F_2 = F_3 = \emptyset$

(iv) R_1 consists of a column rule table c and a row rule table r_1; R_2 consists of a row rule table r_2; $R_3 = \emptyset$; The tables of rules are as follows: $c = \{x \to bx, y \to xy\}(in_2)$, $r_1 = \{x \to \begin{matrix} b \\ x \end{matrix}, y \to \begin{matrix} x \\ y \end{matrix}\}(out)$, $r_2 = \{x \to x, y \to y\}(in_3)$

In the array-rewriting P system Π_{sq}, the skin membrane labelled 1 has inside it, two elementary membranes labelled 2 and 3. Region 3 is the output membrane. Initially, region 1 contains the array $\begin{matrix} b & x \\ x & y \end{matrix}$. If the column rule table c is applied, then a column $\begin{matrix} b \\ x \end{matrix}$ is inserted to the left of the rightmost column and the array $\begin{matrix} b & b & x \\ x & x & y \end{matrix}$ is sent to the region 2. Here, the row rule table r_1 can be applied which inserts a row $b\ b\ x$ just above the last row and sends the array to the region labelled 1. The process can be repeated or the row rule table r_2 can be applied in region 2 which will send the array to the output region 3 without making any change in the array. Since there is no table of rules in region 3, the array remains in the region 3 and is collected in the language generated by Π_{sq}. Thus, the system Π_{sq} generates the language L_{sq}.

We now examine the generative power of the array-rewriting P system with $P2DCFG$ kind of rules in (r/d) mode of derivation.

Theorem 1 $AP_1((r/d)P2DCFG) \subset AP_2((r/d)P2DCFG)$.

Proof The inclusion $AP_1((r/d)P2DCFG) \subseteq AP_2((r/d)P2DCFG)$ follows from the definition of the family $AP_m((r/d)P2DCFG)$.

The proper inclusion can be proved by considering the picture array language L_c consisting of square arrays A of size $n \times n, n \geq 2$, with $A(n, n) = c$, $A(i, n) = a$, for $1 \leq i \leq n-1$, $A(n, j) = a$, for $1 \leq j \leq n-1$ and $A(i, j) = b$, otherwise. This language L_c cannot be generated by $(r/d)P2DCFG$ type of rules as the application of the column rule and row rule tables are independent and hence cannot generate only square-sized arrays. Hence, $L_c \notin AP_1((r/d)P2DCFG)$ as the P systems generating languages in $AP_1((r/d)P2DCFG)$ have only one membrane containing all the column or row rule tables. But, L_c can be generated by an array-rewriting P system Π having two membranes with pure 2D context-free rules and (r/d) mode of derivation where $\Pi = (V, \mu, F_1, F_2, R_1, R_2, 2)$, with

(i) $V = \{a, b, e, c\}$
(ii) $\mu = [_1\, [_2\,]_2]_1$
(iii) $F_1 = \{M_0 = \begin{matrix} b & a \\ a & e \end{matrix}\}, F_2 = \emptyset$
(iv) R_1 consists of two column rule tables c_1, c_2; R_2 consists of a row rule table r.

The tables of rules are as follows: $c_1 = \{a \to ba, e \to ae\}(in)$, $c_2 = \{a \to a, e \to c\}(in)$, $r = \left\{a \to \begin{matrix} b \\ a \end{matrix}, e \to \begin{matrix} a \\ e \end{matrix}\right\}(out)$. In a computation in Π, an application of the rules of c_1 will add a column to the left of the rightmost column of M_0 yielding the array $\begin{matrix} b & b & a \\ a & a & e \end{matrix}$, and due to target indication *in* of c_1, the array is then sent to region 2. The rules of the row rule table r can be applied adding a row above the last row of the array, thus yielding the array $\begin{matrix} b & b & a \\ b & b & a \\ a & a & e \end{matrix}$. The process can be repeated. If in region

$$\begin{array}{c} b \cdots b\ a \\ \vdots\ \ddots\ \vdots\ \vdots \\ b \cdots b\ a \\ a \cdots a\ c \end{array}$$

Fig. 3 An array in L_c

1, the rules of the column table c_2 are applied, then the array of the form shown in Fig. 3 is generated and is sent to region 2, where it is collected in the language L_c.

Thus the system Π generates the language L_c.

Theorem 2 *(i)* $AP_2((r/d)P2DCFG) - (r/d)P2DCFL \neq \emptyset$
(ii) $AP_2((r/d)P2DCFG) - (l/u)P2DCFL \neq \emptyset$.

Proof The picture array language L_c considered in the proof of Theorem 1 belongs to the family $AP_2((r/d)P2DCFG)$ but cannot be generated by $(r/d)P2DCFG$ or $(l/u)P2DCFG$ as the application of the rules of a column rule table and the rules of a row rule table can be independently done in both (l/u) mode or (r/d) mode, and hence, L_c cannot be generated as L_c contains only square-sized arrays.

Controlling the application of the tables of rules in a $(r/d)P2DCFG$ by a control language is considered in [11]. The family of picture languages generated by $(r/d)P2DCFG$ with a regular control language is denoted by $(R)(r/d)P2DCFL$. We now consider a non-trivial picture array language L_d [11] consisting of square picture arrays A of size $(n+2) \times (n+2)$, $n \geq 0$, with $A(i,j) = a$ for $i = j$ and $A(i,j) = b$ for $i \neq j$. A member of L_d is shown in Fig. 4.

Theorem 3 *The picture array language L_d belongs to $AP_3((r/d)P2DCFG) \cap (R)(r/d)P2DCFL$.*

Proof The $(R)(r/d)P2DCFG$ given by $G = (\{a, b, e\}, \{c\}, \{r\}, \{\begin{matrix} a & b \\ b & a \end{matrix}\})$ with the column rule table $c = \{a \rightarrow ea, b \rightarrow bb\}$ and the row rule table $r = \{a \rightarrow \begin{matrix} b \\ a \end{matrix}, e \rightarrow \begin{matrix} a \\ b \end{matrix}, b \rightarrow \begin{matrix} b \\ b \end{matrix}\}$ and the control language $\mathcal{C} = \{(cr)^n \mid n \geq 0\}$ generates L_d with the sym-

$$\begin{array}{c} a\ b\ b\ b\ b\ b \\ b\ a\ b\ b\ b\ b \\ b\ b\ a\ b\ b\ b \\ b\ b\ b\ a\ b\ b \\ b\ b\ b\ b\ a\ b \\ b\ b\ b\ b\ b\ a \end{array}$$

Fig. 4 A member of L_d

bol e as the control character. In fact, a derivation starts with the axiom array $\begin{matrix} a & b \\ b & a \end{matrix}$, and the rules of the column rule and row rule tables are applied as specified by a control word of the form $(cr)^n$ yielding a picture array which will belong to L_d. No other array can be generated and hence $L_d \in (R)(r/d)P2DCFL$.

The picture array language L_d also belongs to $AP_3((r/d)P2DCFG)$ being generated by the following array P system Π_d with $P2DCFG$ rules and (r/d) mode of derivation given by $\Pi_d = (V, \mu, F_1, F_2, F_3, R_1, R_2, R_3, 3)$, where $V = \{a, b, e\}$, $\mu = [_1[_2]_2[_3]_3]_1$; Region 3 is the output region. $F_1 = \{\begin{matrix} a & b \\ b & a \end{matrix}\}$; $F_2 = F_3 = \emptyset$. R_1 consists of a column rule table c and a row rule table r_1. R_2 consists of a row rule table r_2. The tables of rules are $c = \{b \to bb, a \to ea\}(in_2)$, $r_1 = \{b \to b, a \to a\}(in_3)$ $r_2 = \{b \to \begin{matrix} b \\ b \end{matrix}, a \to \begin{matrix} b \\ a \end{matrix}, e \to \begin{matrix} a \\ b \end{matrix}(out)\}$.

Starting with the initial array in region 1, if the rules of the column rule table c are applied generating the array $\begin{matrix} a & b & b \\ b & e & a \end{matrix}$, the array is sent to region 2. In this region 2, the row rule table r_2 is applied and the resulting array is sent back to the region 1. The process can be repeated. If the rules of the table r_1 are applied in region 1, the array generated of the form $\begin{matrix} a & b & b \cdots b \\ b & a & b \cdots b \\ \cdots & & \cdots \\ \cdots & & \cdots \\ b & b & b \cdots a \end{matrix}$ is sent to the output region. Thus, the array P system generates L_d.

4 Conclusion

An array P system that evolves rectangular picture arrays in its regions using $P2DCFG$ kind of rules in (r/d) mode of derivation is introduced, and its picture array language generative power is studied. It will be of interest to compare this new array P system model with other picture generating models such as the model in [7].

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Antibacterial and Anticancer activity of *Turbinaria conoides* and *Sargassum wightii*

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ABSTRACT

Cancer caused due to oxidative stress induced by oxygen radicals is believed to be a primary factor in various degenerative diseases and finding new therapeutic agents for such disease treatment remains a major challenge in the pursuit for a cure. Microorganisms are currently gaining resistance to drugs and antibiotics. They cause potential threat and innumerable mortality in human population which creates need for searching new antibacterial agents. Several research suggested possible pathways through which the antioxidant nutrients from marine sources act to inhibit the development of cancer cells and to destroy them through apoptosis. Recent findings evidenced that seaweeds contained antibacterial activity. This study aims to highlight the secondary metabolites isolated from algae with the highest cytotoxic and anti bacterial activity. The two brown algae namely *Turbinaria conoides* and *Sargassum wightii* were subjected to proximate analysis according to the standard protocol. Further GCMS analysis followed by the Anti- bacterial efficacy by Disc diffusion method and Minimum Inhibitory Concentration (MIC) and *in-vitro* Anti-cancer activity (MTT assay) using HeLa cell lines were carried out in the ethanolic extract of the chosen algae. In the present investigation an attempt was made for proximate composition and mineral content of the selected brown algae to provide a good estimation in order to evaluate their potential use. The results show that ethanolic extract of both the algae *co*ntaining higher polyphenols has efficient antimicrobial activity against pathogenic bacteria understudy. The GC-MS analysis of ethanolic extracts of algae showed the presence of bioactive compounds which played a vital role in antioxidant and antibacterial activities. The ethanol fraction of brown algal extracts induced cell shrinkage, and formation of apoptotic bodies with evidence of bioactive components as profound influencing factors for anti-tumor effects. Further research need to be explored for the successful application of these seaweeds as a potent therapeutic tool against cancer.

Key words: Algae, *Turbinaria conoides*, *Sargassum wightii*, antibacterial, cancer

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HEPATOPROTECTIVE EFFECT OF GINGER HONEY COMBINATION IN STREPTOZOTOCIN-INDUCED DIABETIC RATS

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ABSTRACT

Oxidative and non-oxidative metabolic stress generated in the hyperglycemic state plays a potential role in damaging organs like the kidneys, heart, nerves and liver. ALT, AST and ALP are the intracellular enzymes that serve as clinical index of tissue injury chiefly hepatocyte. The elevation in the levels of these hepatic marker enzymes indicates hepatocyte injury. In the present study a noticeable increase in the levels of ALT, AST and ALP were observed with STZ induced diabetic rats when compared with that of normal control. Oral administration of ginger honey combination to diabetic groups showed a notable decline in the activity of these enzymes to their basal levels, signifying its nontoxic as well as tissue protective nature. The results of histopathological studies of the liver tissues showed activation of Kupffer cells, apoptosis of hepatocytes, marked dilatation and congestion of central vein with necrosis of sporadic hepatocytes, as well as congestion of central vein and mononuclear infiltration in STZ induced diabetic rats when compared with control group. Whereas, histopathological examinations of liver sections of diabetic rats treated with ginger honey combination showed almost normal architecture with slight Kupffer cells activation in few sections. This proclaims the hepatoprotective activity of ginger honey combination which may be due to its direct radical scavenging activity. Therefore, it may be concluded that ginger and honey combination synergistically work together and exerts modulatory effects on altered biochemical parameters even better than the individual effects of ginger or honey alone. The study thus justifies the use of ginger honey combination in the management of diabetes.

Keywords: effects of ginger, effects of honey, hepatoprotective effect, liver marker ezymes

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In Vitro Antidiabetic and Antioxidant activity of *Costus pictus* D.DON

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ABSTRACT

Diabetes mellitus is one of the most common endocrine metabolic disorder characterized by hyperglycemia due to absolute or relative deficiency of Insulin. Herbal medicine derived from plant extract are used for the treatment of diabetes and its associated complications because of less side effects. *Costus pictus* D. Don is one such plant with its medicinal properties. The aim of the present study was to screen the leaf extract of *Costus pictus* for its antioxidant activity and antidiabetic activity. The plant material was subjected to extract preparation by soxhlet apparatus by using five different solvents such as ethanol, acetone, chloroform, aqueous and petroleum ether. The various phytoconstituents present in the leaf extract of *costus pictus* were detected and then the antioxidant activity was studied by using free radical 1, 1– diphenyl 2- picryl hydrazyl (DPPH) scavenging method. The results showed that ethanol leaf extract have higher free radical scavenging activity of 93.1%. Inhibition of amylase and glucosidase enzymes in the digestion of carbohydrates is an effective method to control diabetes. *In vitro* antidiabetic activity was studied by using α amylase and α glucosidase inhibition assay. The results suggest that the ethanol leaf extract of *Costus pictus* exhibit dose dependent increase in percentage inhibitory activity on α amylase enzyme (Ic_{50} 113.6 mg/ml) and α glucosidase enzyme (Ic_{50} 65.1 mg/ml). Acarbose was used as a standard drug.

Key words: *Costus pictus*, soxhlet, α amylase, α glucosidase, antidiabetic activity, acarbose.

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2	K. Janani, A. Hemavathi, R. & Sowbakkiyam, & A.Malarkodi	The Relationship Between Internet Addiction and Depression Among PubG Players
3	P. Kirthana	Gender Comparison Among Nomophobia of Non- IT Employees
4	Mabubee M	Religious and Caste conflict through the social media
5	Parvathi.S & Mythili.T	Relationship Between Internet Overusage And Wellbeing Among Young Adult Women
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7	Shivani Ramakrishna & Dr. Waheedha Matheen	Internet Addiction and Well being among Adolescents
8	Jagadesh Chander. AadithyaVardna & Dr. S. Thenmozhi	Internet Addiction – A Critical Consideration
9	Janani J & Ghayathri Swetha Kumari R.A	A study on the Relationship between Internet Addiction and Emotion Regulation

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INTERNET ADDICTION AND WELL-BEING AMONG ADOLESCENTS

Shivani Ramakrishna* & Dr. Waheeda Matheen**

ABSTRACT

Internet has become an essential part of daily life among adolescents, as it provides abundant information and entertainment; however excessive Internet use can lead to unhealthy outcomes. This study is aimed at assessing the levels of Internet Addictions and Well-being among adolescents, and to study the relationship between these two variables. Demographic variables such as gender , birth order , number of siblings and mothers working status are considered. The design used in the study is ex post facto research design . The sample consists of 80 adolescents, comprising of 40 boys and 40 girls. The tools used for the study are Internet Addiction Test (Young, 1998) and General Well-Being Scale (Kalia &Deswal, 2011). The data are analyzed using't' test and correlation. The results indicated that there exists a negative correlation between Internet Addiction and Well-being. It was found that there is no significant difference between boys and girls in Internet addiction levels as well as in their well-being.

Keywords: adolescents, internet addiction, general well-being

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TEST ANXIETY AND PARENTAL PSYCHOLOGICAL CONTROL AMONG HIGH SCHOOL STUDENTS.

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ABSTRACT

The current study examined the relationship between test anxiety and parental psychological control in high school students. The study also investigated if there were any significant differences in test anxiety and parental psychological control among Central Board of Secondary Education (CBSE) and state board high school students and also gender differences in test anxiety and parental psychological control among high school students were investigated. The participants were 240 high school students (CBSE: 120, State board: 120; Male: 120, Female: 120) from four schools in Chennai city who were administered the Psychological Control – Disrespect Scale (PCDS; Barber et al., 2012) and Westside Test Anxiety Scale (Driscoll, 2004). Pearson's product moment correlation was calculated to find the nature of relationship between the variables. Independent samples t test was used to find out if there were any significant differences in test anxiety and parental psychological control between CBSE and State board high school students and to find out if there were any gender differences in these variables. The analysis revealed that there was a significant positive relationship between test anxiety and parental psychological control among high school students. There was a significant difference in test anxiety among Central Board of Secondary Education (CBSE) and State board high school students. The state board high school students experienced more test anxiety. There was a significant difference in parental psychological control among Central Board of Secondary Education (CBSE) and State board high school students. The state board high school students experienced more parental psychological control. There were no significant gender difference in test anxiety and parental psychological control.

Keywords: Test anxiety, Parental Psychological Control, Central Board of Secondary Education (CBSE) high school students, State Board high school students.

Introduction:

Students from all over the world tend to experience test anxiety in some part of their life. In India, a lot of students tend to experience test anxiety especially during Board examination because academic performance is highly valued in the families and societies in the country, as after board examination the high school students have to make crucial decision regarding their career. Test anxiety is usually influenced by the parental pressure (Vansteenkiste et al., 2005) and pressure from the relatives to score good marks in the exams. Most people believe that test anxiety only occurs when the individual is taking a test. However, it is very common to experience similar symptoms prior to and hours or even days after a test. Test anxiety affects the physical, psychological and emotional aspect of an individual. It consists of the common anxiety symptoms such as headache, upset stomach, sweating, shortness of breath, pacing or fidgeting and crying.

According to Birenbaum and Nasser (1994), test anxiety is one of the factors that disrupts performance in school and other settings where testing takes place. It is estimated that more than 30% of the students experience various levels of test anxiety (Shaked, 1996). Hong (1998) defined test anxiety as a complex multidimensional construct involving cognitive, affective, physiological and behavioural reactions to evaluative situations." Researchers found that high school students tend to experience high level of anxiety especially boys which might affect their academic performance (Mary et.al., 2014; Dordi Nejad et al., 2011).

Parental psychological control:

Historically, psychological control has been defined as psychologically and emotionally manipulative techniques or behaviors that the parents tend to use which are not responsive to children's psychological and emotional needs (Barber, Maughan, & Olsen, 2005).

According to Barber (1996) and Grolnick (2003), parents may not always be conscious of their use of psychological control. They tend to use psychologically controlling tactics to coerce children into compliance by appealing to internally pressuring feelings in the child's functioning such as shame, pride, guilt and separation anxiety. Barber et al., (2012) define parental psychological control as a set of parenting behavior that invades children's integrity and individuality such as ridiculing violation of privacy and excessive high expectation. Researchers found that parental psychological control was positively correlated with test anxiety (Vansteenkiste et al., 2005).

Objectives of the study:

The objectives of the study as follows:

1. To examine the relationship between test anxiety and parental psychological control in high school students.
2. To investigate the differences in test anxiety and parental psychological control between CBSE and State board high school students.
3. To assess the differences in test anxiety and parental psychological control between male and female high school students.

Hypotheses:

In order to investigate the objectives of the study and based on the review of literature, the following hypotheses were formulated.

1. There will be no significant relationship between test anxiety and parental psychological control among high school students.
2. There will be no significant difference in test anxiety among CBSE and State board high school students.
3. There will be no significant difference in parental psychological control among CBSE and State board high school students.
4. There will be no significant difference in test anxiety among male and female high school students.
5. There will be no significant difference in parental psychological control among male and female high school students.

Methods

Participants and procedure:

The sampling method that was adopted for the present study was convenience sampling. The participants consisted of 240 high school students in which 120 were male and 120 were female high school students. The students studying in grade 10, 11 and 12 were included in the present study. 120 high school students were from CBSE School and 120 high school students were from state board school. The participants were selected from 2 CBSE and 2 state board schools in Chennai city.

To conduct the study, the researcher obtained permission from the principals of all the four schools. The purpose of the study was explained to the students. Informed consent was taken before initiating the study. All the tools which were used in the present study were self-administered. There were adequate instructions given at the beginning of the tools about how to respond to the items. The anonymity of their responses was assured to the participants. The participants answered the questionnaire in their school and returned it back.

Research design:

Ex Post facto research design was adopted for the study.

Measurements:

1. *Westside Test Anxiety Scale*:

Westside Test Anxiety Scale was developed by Driscoll (2004) which consists of 10 items. This scale was designed to measure the anxiety levels that interfere with performance during examinations. The internal consistency of the West Side Test Anxiety Scale is high, with Cronbach's alpha ranging 0.89. The scale has face validity and content validity.

2. *Psychological Control – Disrespect Scale (PCDS):*

Psychological Control – Disrespect Scale (PCDS) was developed by Barber et.al (2012) which consists of 8 items. The PCDS was written to correspond directly to the eight categories of parental behaviors identified by youth as disrespectful of their individuality (i.e., ignoring, invading their privacy). Respondents were asked to separately rate their mothers and fathers on this set of items. Research studies have shown that the PCDS possess good psychometric properties (Barber et al., 2012).

Statistical Analyses:

- Pearson Correlational co-efficient was used to investigate the relationship between test anxiety and parental psychological control.
- Independent samples t- test was used to examine differences in test anxiety and parental psychological control between CBSE and State board high school students.
- Independent samples t- test was used to investigate any gender differences in test anxiety and parental psychological control.

Results and discussion

Table: I

Pearson's product moment correlation between Test Anxiety and Parental Psychological Control.

Variables	N	Correlational coefficient
Test Anxiety	240	0.141*
Parental Psychological Control		

*$p<0.05$

The correlation coefficient between test anxiety and parental psychological control is significant, r (238) = 0.141, $p<0.05$. This indicates that there is a significant positive relationship between test anxiety and parental psychological control among high school students. This seems to indicate that as parental psychological control increases, test anxiety also increases. Students with parents who might have high expectations, comparison with other children etc tend to experience anxiety symptoms such as fear of failure, feelings of hopelessness, frustration, anger and sadness.

Similar findings were reported by Xu et.al., (2017) who examined the relationship between parental psychological control and their children's test anxiety in the Chinese cultural context. The authors found that there was a negative influence of parental psychological control on their children's test anxiety.

Another study reported by Sibnath et.al., (2015) who investigated the academic stress and mental health of Indian high school students and the associations between various psychosocial factors and academic stress. The authors found that academic stress was positively correlated with parental pressure.

Therefore, the null hypothesis stating that "There will be no significant relationship between test anxiety and parental psychological control among high school students" is not accepted.

Table: II

Mean, standard deviation and 't' value for test anxiety between CBSE and State board high school students.

Variable	Educational Board	N	Mean	Standard Deviation	't' value
Test Anxiety	CBSE	120	3.039	0.719	1.991*
	State board	120	3.210	0.604	

*$p<0.05$

Results indicate that there is a significant difference in test anxiety among CBSE and State board high school students, t (238) = 1.991, $p<0.05$. This indicates that State board high school students have higher test anxiety (M=3.21, SD= 0.604) than the CBSE high school students (M=3.03, SD=0.719). The State board high school students tend to experience more anxiety symptoms such as poor concentration, frustration, feelings of hopelessness, fear of failure, mental blocks and freezing than the CBSE high school students.

Similar findings were reported by Sharma (2015) who found that there was a difference in the anxiety level of CBSE and State board private school students. The author also reported that students from State board private schools experienced more anxiety symptoms than the students from CBSE schools.

Therefore, the null hypothesis which states that "There will be no significant difference in test anxiety among CBSE and State board high school students" is not accepted.

Table: III

Mean, standard deviation and 't' value for parental psychological control between CBSE and State board high school students.

Variable	Educational Board	N	Mean	Standard Deviation	't' value
Parental psychological control	CBSE	120	25.3833	6.29	4.377**
	State Board	120	28.8250	5.87	

**$p<0.01$

Results indicate that there is a significant difference in parental psychological control among CBSE and State board high school students, t (238) = 4.377, $p<0.01$. This indicates that state board high school students had higher parental psychological control (M=28.82, SD=5.87) than the CBSE high school students (M=25.38, SD= 6.29). This seems to indicate that the state board high school students experienced more parental psychological control than the CBSE high school students.

Therefore, the null hypothesis which states that "There will be no significant difference in parental psychological control among CBSE and State board high school students" is not accepted.

Table: IV

Mean, standard deviation and 't' value for test anxiety between male and female high school students.

Variable	Gender	N	Mean	Standard Deviation	't' value
Test Anxiety	Male	120	3.18	0.69	1.364 NS
	Female	120	3.06	0.63	

NS- Not Significant

Results indicate that there are no significant gender differences in test anxiety among male and female high school students, t (238) = 1.364. This indicates that there is no significant difference in test anxiety among male (M= 3.18, SD= 0.69) and female (M= 3.06, SD= 0.63) high school students.

Contradictory findings were reported by Rani (2017) who investigated the difference in test anxiety between male and female students and found that female students compared to male are more anxious.

Therefore, the null hypothesis which states that "There will be no significant difference in test anxiety among male and female high school students" is accepted.

Table: V

Mean, standard deviation and 't' value for parental psychological control between male and female high school students.

Variable	Gender	N	Mean	Standard Deviation	't' value
Parental psychological control	Male	120	27.44	6.11	0.827 NS
	Female	120	26.76	6.52	

NS- Not Significant

Results indicate that there are no significant gender differences in parental psychological control among male and female high school students, t (238) = 0.827. This indicates that there is no significant difference in parental psychological control among male (M= 27.44, SD= 6.11) and female (M= 26.76, SD= 6.52) high school students.

Therefore, the null hypothesis which states that "There will be no significant difference in parental psychological control among male and female high school students" is accepted.

Conclusions

The study compared test anxiety and parental psychological control between CBSE and State board high school students. The study also investigated the gender difference in test anxiety and parental psychological control between male and female high school students. The study also examined the relationship between test anxiety and parental psychological control among high school students.

1. There was a significant positive relationship between test anxiety and parental psychological control among high school students.
2. There was a significant difference in test anxiety among CBSE and State board high school students. The state board high school students experienced more test anxiety than the CBSE high school students.
3. There was a significant difference in parental psychological control among CBSE and State board high school students. The state board high school students experienced more parental psychological control than the CBSE high school students.

4. No significant difference was found in test anxiety among male and female high school students.
5. No significant difference was found in parental psychological control among male and female high school students.

Implication of the study

From this study it is evident that parental psychological control is linked to test anxiety, which affects the student's performance. Hence, the parents could be educated how their high expectations affect their children's performance in their academics. And the students can be give some kind of psycho-education about the effects of test anxiety in their performance as well as their life. Thus interventions such as relaxation techniques can be taught to the students to help them deal with their test anxiety.

Limitations of the study

- The study was conducted with a sample of 240 high school students only.
- The study was limited to the geographical location of Chennai.
- The age range of the samples was limited to 14-18.
- The students were selected only from CBSE and State board schools.
- The students were selected only from the grade 10-12.

Suggestions for further research

- The study could have expanded to a wider sample size.
- The study could have expanded to a wider age range.
- The study could have included the students from different states.
- The study could have included the students from other grades.
- The study could have included the students from other boards such as Indian Certificate Secondary Education (ICSE) and other international board such as International General Certificate of Secondary Education.

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DEPARTMENT OF PSYCHOLOGY

NATIONAL CONFERENCE ON PARENTHOOD IN THE NEW MILLENNIUM

BEST PAPER AWARD

This is to certify that Prof./ Dr./ Mr./ Ms. AYESHA ARIF ZINNA.

of JUSTICE BASHEER AHMED SAYEED COLLEGE has been awarded Best Paper for the Session on _____ for presenting the paper entitled TEST ANXIETY X PARENTAL PSYCHOLOGICAL CONTROL AMONG HIGH SCHOOL STUDENTS at the **National Conference on Parenthood in the New Millennium** held on 3 January 2020.

Head of the Department | **Principal** | **Correspondent**

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Perceived academic pressure from parents among students facing board exams:

Syeda Haleema Sadiya.S and Ayesha Arif Zinna

Justice Basheer Ahmed Sayeed College for Women, Chennai

Abstract:

"Behind every young child who believes in himself is a parent who believed first" is the saying which reflects the importance of parents in every child's journey to achieve success. Most parents hope to give their children a good education that will allow them access to good colleges and a successful career. However in today's world full of competition, parents may force their children to excel in academics. Hence this might lead to academic pressure in students. The present study was aimed to determine the extent of academic pressure from parents, faced by students who are appearing for their board exams. The study was conducted on 100 students in the age group 15-19. A self-developed questionnaire consisting of 15 items with multiple options was used in the study. Google forms were used as the means of collecting the data. Descriptive analysis and percentage analysis were computed for comparison to observe the general trends as indicated by the data. The results of the survey revealed that most of the students felt that their parents did not pressurize them to excel in their academics , a little

more than half of the students reported that their parents were satisfied with their academic performance . A little less than half of the students reported that their mother forces them more than their father to work very hard to improve their academic performance. More than half of the students felt that their parents are happy when they do their best in academics and that their parents do not compare their marks with neighbors, friends and relatives. Half the students felt that their parents provided them with psychological support to achieve the best of their potential in their academics.

Keywords: Academic pressure, academics, board exams, parental pressure.

Introduction:

Parents are the greatest support to children. They bring up their children with a lot of effort with the hope that their children will be the best among other students. In today's world filled with competition, judgment and envy, due to the growing recognition and importance given to academic success by our society, the parents tend to think that their child must be the best in all fields of excellence. Parents are made to think that academic success is the only way to achieve success in life, hence they pressurize their children to excel in academics.

The three major reasons why students face distress are: Parental pressures, exam stress and inability to cope with disappointments. The

academic pressure from parents leads the children to think that they would be disliked by their parents and that they wouldn't want them anymore. Parents tend to think that their child's academic success is the most important aspect of the child's life, because they feel that pursuing interests and talents such as sports, music, art and photography etc., won't make their child's life, only scoring 98% marks will. Many parents feel that art, music and sports can only be a hobby and won't help them get into a good college. They tend to forget that the core moral values and the never give up attitude is in actuality the most crucial aspect for children to be successful in lifeExam stress is also a major reason for the distress caused to children. The exam stress is caused due to the school's inefficiency of having adequate teachers to handle a lot of students. The schools wish to get popular, so they try to either take good care of only the students who achieve the best grades and leave out the capable ones or force all the students equally to get the best grades. This might be exhausting for the students. The inability to cope with disappointments makes the students feel incapable. This might lead to the extreme level of stress and they tend to take the decision of committing suicide as a means of escaping humiliation and failure. The stress might have an impact on the child's life even in the future. In spite of the pressure, if the children get top marks in exams, the parents are very happy, but, if

they don’t, they criticize them and belittle them. This might take away their self confidence and dignity.

Review of literature:

Deb, Strodl and Sun (2015) conducted a study on “Academic stress, Parental pressure, Anxiety and Mental health among Indian high school students”. The results concluded that nearly two-thirds of the students had reported stress due to academic pressure – with no significant differences across gender, age, grade, and several other personal factors. About two-thirds of the students had reported feeling pressure from their parents for better academic performance. The degree of parental pressure experienced had significant differences across the educational levels of the parents, mother’s occupation, number of private tutors, and academic performance. Children of fathers possessing a lower education level had been more likely to perceive pressure for better academic performance. About one-thirds of the students had reported examination-related anxiety. The research study concluded that academic stress is a serious issue which affects nearly two thirds of senior high school students in Kolkata.

Nagpal and Sinha (2016) conducted a study on “perceived parental pressure and academic achievement among students”. The study attempted

to bring out the mediating effects of test anxiety among students. Results showed that perceived parental pressure had a negative influence on the academic achievement of students which was mediated through the psychological route of test anxiety.

Aim: The present study aimed at understanding and investigating the perceived academic pressure from parents among students.

Objectives: The following were the objectives of the study.

1. To investigate the extent of academic pressure from parents experienced by students facing board exams.
2. To assess the effect of parental pressure on students.
3. To examine the differences in academic pressure from fathers and mothers.

Methodology: The methodology adopted to conduct this study on “perceived academic stress from parents in students” was descriptive survey method.

Sample: The study was conducted by using convenience sampling and snowball sampling methods. The sample consisted of 100 participants, in the age range 15-19.

Tools used: A self-developed questionnaire consisting of 15 items to study the perceived stress from parents among students was developed by the authors. The respondents had to rate themselves using a five point likert format – strongly disagree, disagree, neither agree nor disagree, agree and strongly agree.

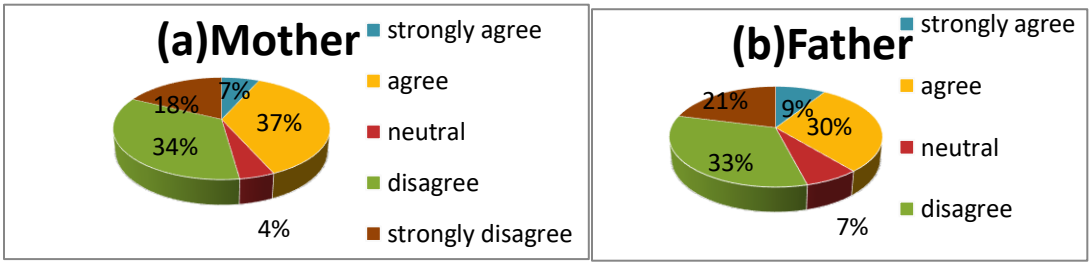
Data collection: Participants were invited to participate in an online survey that was distributed through social media platforms such as whatsapp and the data was collected online using Google forms.

Statistical analysis: Descriptive analysis and percentage analysis were computed for comparison and to observe general trends indicated by the data.

Results:

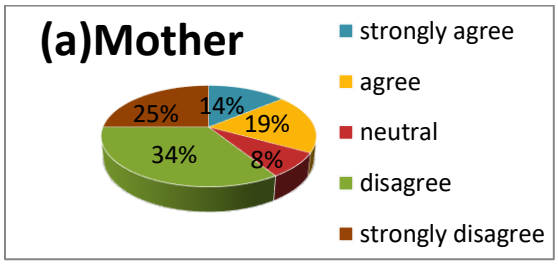
Item no.1, a: I feel my mother is not satisfied with my academic performance.

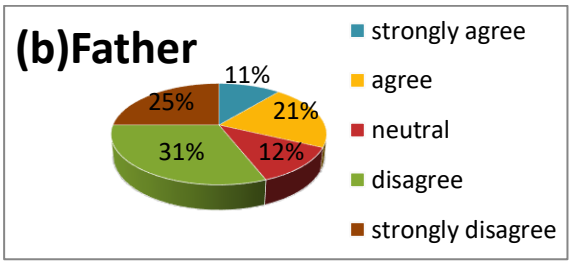
b: I feel my father is not satisfied with my academic performance.



Item no.2, a: I feel my mother pressurizes me to excel in academics.

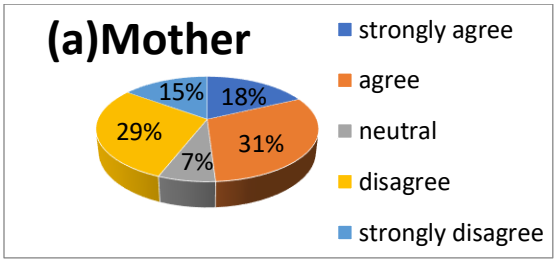
b: I feel my father pressurizes me to excel in academics.

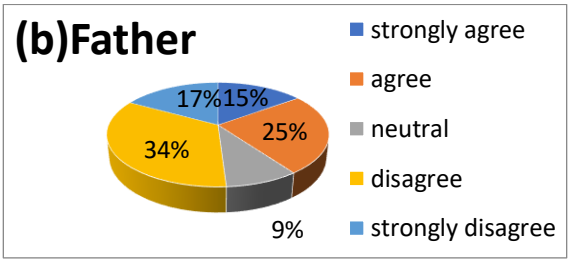




Item no.3, a: I feel my mother forces me to work very hard to improve my academic performance.

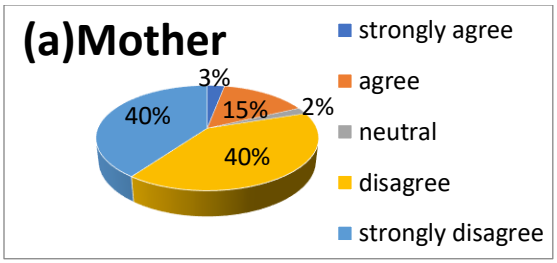
b: I feel my father forces me to work very hard to improve my academic performance.

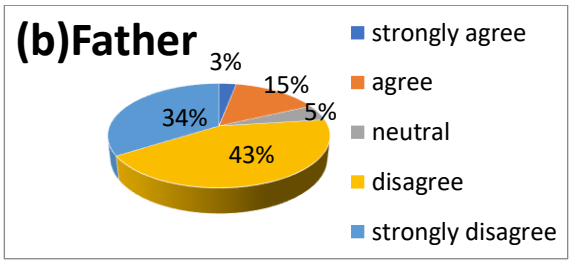




Item no.4, a: I feel my mother doesn't let me have leisure time.

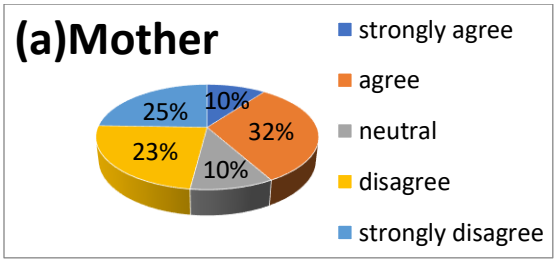
b: I feel my father doesn't let me have leisure time.

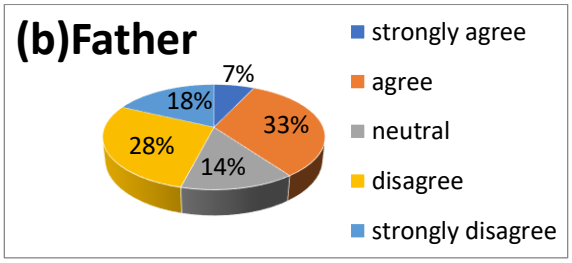




Item no.5, a: I feel my mother is not happy when I do my best in academics but fail to fulfill her expectations of my academic performance.

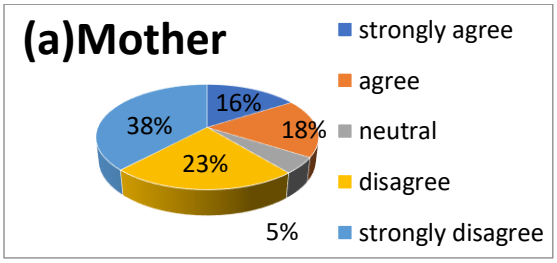
b: I feel my father is not happy when I do my best in academics but fail to fulfill his expectations of my academic performance.

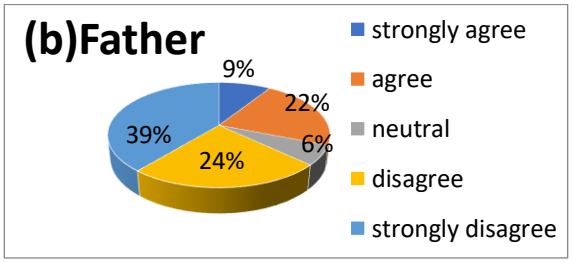




Item no.6, a: My mother compares my marks with my friends, siblings, neighbors and relatives.

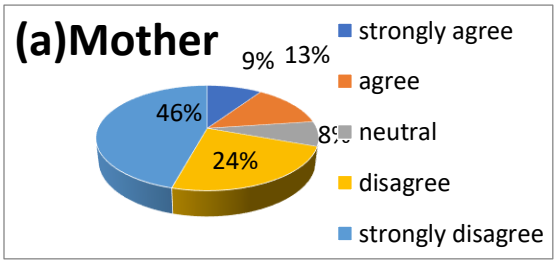
b: My father compares my marks with my friends, siblings, neighbors and relatives.

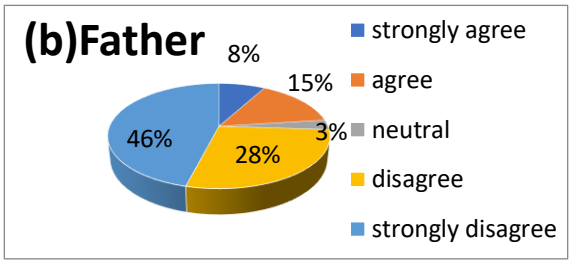




Item no.7, a: My mother complains to my neighbors or relatives about my academic performance.

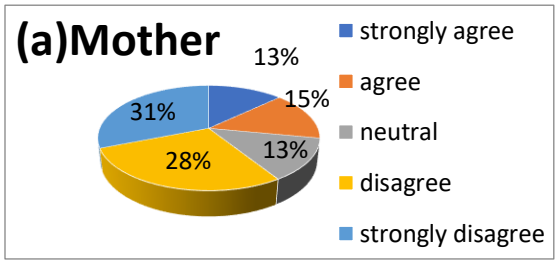
b: My father complains to my neighbors or relatives about my academic performance.

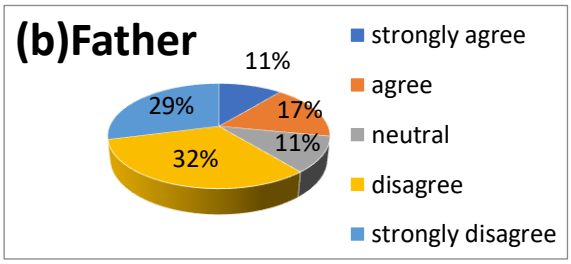




Item no.8, a: my mother pressurizes me to get placed only into one of the top ranking colleges.

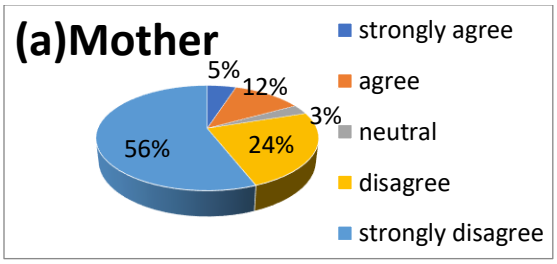
b: my father pressurizes me to get placed only into one of the top ranking colleges.

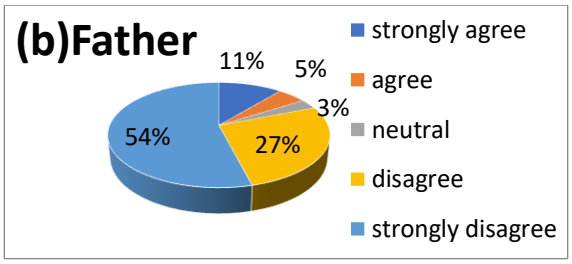




Item no.9, a: my mother gives me unbearable punishments such as starving or beating, if I don't fulfill her expectations of my academic performance.

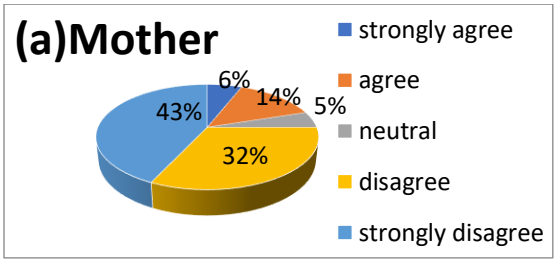
b: my father gives me unbearable punishments such as starving or beating, if I don't fulfill his expectations of my academic performance.

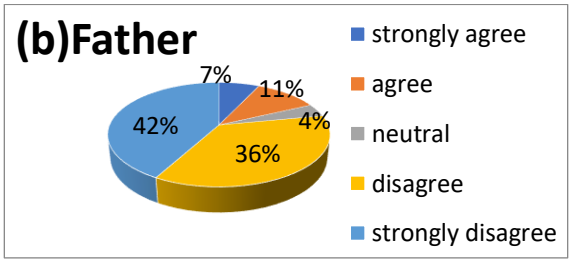




Item no.10, a: my mother doesn't talk to me if I don't perform well in academics.

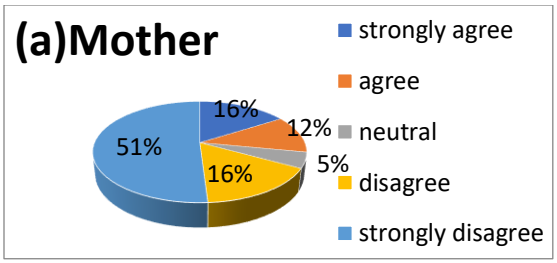
b: my father doesn't talk to me if I don't perform well in academics.

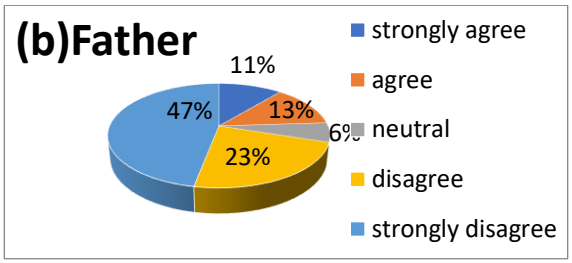




Item no.11, a: I feel my mother's verbal abuse or extreme punishments affect my emotional wellbeing often.

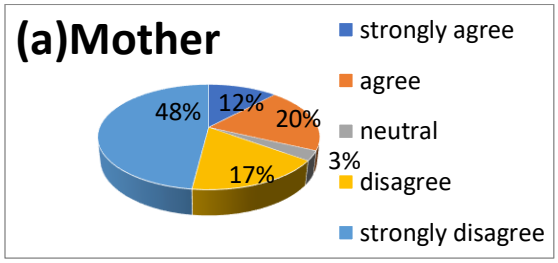
b: I feel my father's verbal abuse or extreme punishments affect my emotional wellbeing often.

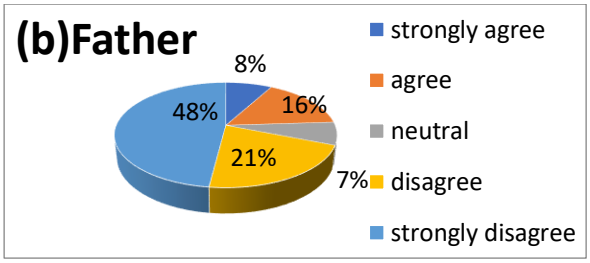




Item no.12, a: I feel my mother's forceful behavior stresses me a lot and decreases my self-confidence.

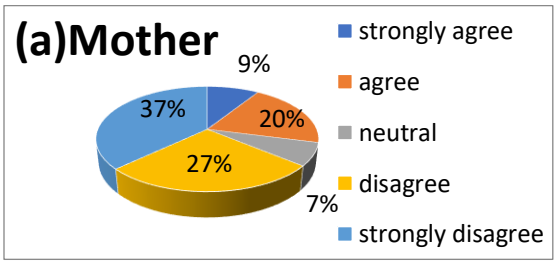
b: I feel my father's forceful behavior stresses me a lot and decreases my self-confidence.

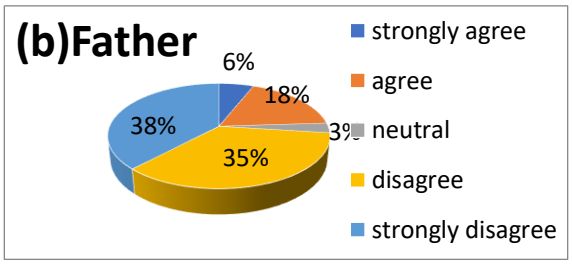




Item no.13, a: I feel depressed due to the academic pressure from my mother.

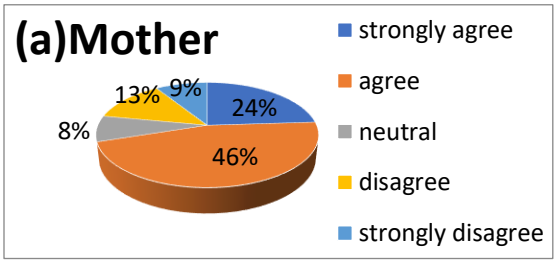
b: I feel depressed due to the academic pressure from my father.

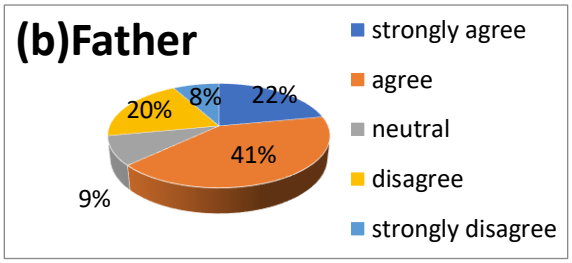




Item no.14, a: I feel my mother understands my academic potential and doesn't force me to excel in academics.

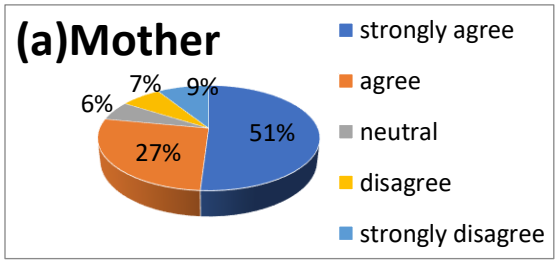
b: I feel my father understands my academic potential and doesn't force me to excel in academics.

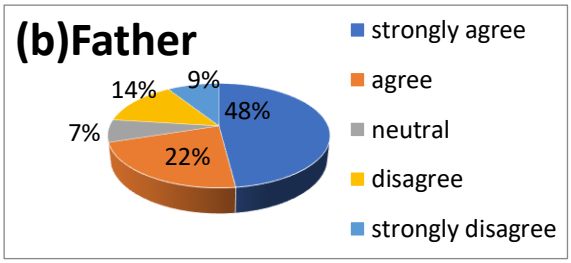




Item no.15, a: I feel my mother gives me emotional and psychological support to achieve the best of my potential in academics.

b: I feel my father gives me emotional and psychological support to achieve the best of my potential in academics.





Discussion: The results of the survey show that students from the sample feel that they do not experience academic pressure from parents. From the

study it is evident that the students feel that their parents do not give them academic pressure. It is evident that a little more than half of the students feel that their parents are satisfied with their academic performance. More than half of the students feel that their parents do not pressurize them to excel in academics. A little less than half of the students feel that their mother forces them more than the father to work very hard to improve their academic performance. More than half of the students feel that their parents are happy when they do their best in academics. More than half of the students feel that their parents let them have leisure time. More than half of the students feel that their parents do not compare their marks with neighbors, friends and relatives. More than half of the students feel that their parents do not complain to neighbors or relatives about their academic performance. More than half of the students feel that their parents do not pressurize them to get placed in only one of the top ranking colleges. More than half of the students feel that their parents do not give them unbearable punishments even if they don't fulfill their expectations of their academic performance. More than half of the students feel that their parents talk to them even if they don't perform well in academics. More than half of the students feel that their parents do not give them academic pressure. More

than half of the students feel that their parents give them emotional and psychological support.

Conclusion : Majority of the students feel that their parents understand their academic abilities and don't force them to excel in academics. It can be interpreted that though the majority of the students feel that their parents don't force them to excel in academics, there are less than half of the students who face high academic pressure from their parents.

Implications:

One way of decreasing the pressures is to focus on creating awareness among parents to treat their children with attention, care and emotional support even when their child doesn't score good marks, with the strong belief that their child is talented. It is the duty of parents, to help their children identify their talents and also to encourage and nurture the child to master their talent in order to live a happy, healthy and fulfilling life. This will enable them to improve their emotional intelligence, morals and the never give up attitude which in turn will be the base for achieving success in their life. The factors such as the child's interest, exposure and decision making skills can be given importance in order to increase the child's emotional intelligence. These students must be given special care and less

academic pressure in school in order to improve their emotional wellbeing which may also improve their academic performance.

Limitations:

1) Only a limited sample size of 100 students was chosen.

2) The geographical area was restricted only to Chennai city.

Suggestions for research:

1) A larger sample across the states could have been studied.

2) Other questions based on how parental academic pressure affects the students could have been studied.

3) Gender differences between the male and female students could be included as males have a high tendency to aggress.

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PARENTHOOD IN THE NEW MILLENNIUM

This is to certify that Prof./Dr./Mr./Ms. AYESHA ARIF ZINNA of JUSTICE BASHEER AHMED SAYEED COLLEGE participated/presented a paper entitled PERCEIVED ACADEMIC PRESSURE FROM PARENTS AMONG STUDENTS FACING BOARD EXAMS at the National Conference on Parenthood in the New Millennium held on 3 January 2020.

Head of the Department

Principal

Correspondent

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UNIVERSITY OF MADRAS

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"INTERNET ADDICTION: CHALLENGES & THERAPEUTIC INTERVENTION FOR MILLENNIUM 2020"

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PARALLEL SESSION 1: HEALTH PSYCHOLOGY & FAMILY
VENUE: COUNSELLING PSYCHOLOGY LAB, DEPARTMENT OF COUNSELLING PSYCHOLOGY, SOCIAL SCIENCE BLOCK
DATE: 13.03.2020 | TIME: 3.00 PM- 4.30 PM
TOTAL PRESENTERS: 10

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1	Parkavi K.G., Jeyaserandhini R & Dr. S. Thenmozhi	Effects of Binge Watching on Sleep among Young Adults
2	Dr. R. Pradeep Kumar & Dr. S. Thenmozhi	Internet and Dentist-Patient relationship: Patients' Perceptions and Practices
3	Z. Asifa Seifana & Ayesha Arif Zinna	Smartphone addiction and Insomnia severity among Young Adults
FAMILY		
4	Priya D, D. Reni Angelin & Varada Avanoor	Relationship between Family Communication Pattern and Internet Addiction among Young adults
5	Ludia Lawrence & Dr. Sajitha Kurup	Impact of Internet use on Family relationships among teenagers
6	Shaduli P	Moderating Effects of the Family Environment for Parental Mediation and Pathological Internet Use in Youths
7	Kiruthika. A & Lakshitha. M. S	Influence of Internet Addiction on Family Relationships
8	Rosemol Thamby & Vandana VS	Role of Problematic Internet Use on Family Relationship and Loneliness among University Students
9	Nithila M.K. & Ghayathri Swetha Kumari	Relationship between Internet Addiction and Parental Control among Adolescents.
10	P.Divya & Shruti Rao	The Influence of Parenting Styles on Internet Addiction in Adolescents

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SMARTPHONE ADDICTION AND INSOMNIA SEVERITY AMONG YOUNG ADULTS

Z. Asifa Seifana* & Ayesha Arif Zinna **

ABSTRACT

Most young adults use smartphone regularly for various purposes. Excessive smartphone usage can potentially cause smartphone addiction. It not only leads to addiction but also might affect the individual's sleep and other areas of functioning. The current study examined the relationship between smartphone addiction and insomnia severity among a sample of young adults. The study also investigated gender differences in smart phone addiction and insomnia severity among young adults. Two hundred young adults with age ranging between 17 and 30 years (100 females and 100 males) from Chennai city completed the Smartphone Addiction Scale- Short Version SAS-SV (Kwon, Kim, Cho & Yang, 2013) and Insomnia Severity Index (Bastien, Vallières & Morin, 2001) which assess their smartphone addiction and insomnia severity level. Pearson's Product Moment Correlation was used to investigate the relationship between smartphone addiction and insomnia severity. Independent samples t-test was computed to examine the gender difference in smartphone addiction and insomnia severity. The analysis revealed that there was a significant positive relationship between smartphone addiction and insomnia severity. The findings of the study revealed that there were no gender differences in smart phone addiction and insomnia severity among young adults.

Keywords: smart phone addiction, insomnia severity, and young adults.

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PARALLEL SESSION 2C: CHILDREN & ADOLESCENCE
VENUE: LECTURE HALL, DEPARTMENT OF SAIVA SIDDHANTHA
DATE: 13.03.2020 | TIME: 3.00 PM – 4.30 PM
TOTAL PRESENTERS: 8

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S.NO	AUTHOR NAMES	TITLE OF THE PAPER
1	Anjaly Anilkumar, Sajil K.R.K. & Akhilkumar P.V.	Social networking (Facebook intensity) and Decision making among college students
2	Aarthy, R. J & Sujaritha Magdalin	Social Networking Usage in Relation To Externality, Self Esteem and Personality Among College Students
3	Muammed Sajid AP, Muhammed Sajad C & Namita Nizar	Adjustment among Higher Secondary and College Students : A Comparative Study
4	Lalitha Ragul & Dr. S. Thenmozhi	The Invisible Cobweb: Cyber bullying on Social media among college students
5	Resny R, & Arya K	Comparison Of Emotional Intelligence Between Early Adulthood Work Own Country And Foreign Country
6	Nandini .P & K.N. Jayakumar	The Development and Validity of Internet Usage scale for Emerging adults
7	Umekulaum M, KatheejaSuhail, S.SankariNarayani, & S.Meherunissa	Effect of Digital Diet on Internet addiction, Procrastination and mindfulness among Undergraduate students
8	Nilofer Riyazahamed, Hemavathy, Narayanan & Dr.Sujaritha Magdalin	Internet Addiction In Relation To Leisure Boredom, Social Support And Life Satisfaction Among College Students

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EFFECT OF DIGITAL DIET ON INTERNET ADDICTION, PROCRASTINATION AND MINDFULNESS AMONG UNDERGRADUATE STUDENTS

Ume Kulsum M*, Katheeja Suhail**, S. Sankari Narayani*** & S.Meherunissa****

ABSTRACT

Smartphones have become an inevitable part of one's life. The present study aimed to find the effects of Digital Diet on Internet Addiction, Procrastination and Mindfulness. Digital Diet module was designed to restructure and attempt to reduce the usage of mobile phones by introducing activities such as: signing a pledge, maintaining a log, creating tech-free zones at home, taking a vacation from technology by pursuing hobbies. A convenient sample of 32 undergraduate female college students between the age of 18 to 21 years were selected for the intervention after their consent. The intervention program was incorporated between the pre and post-tests using psychological tools such as: The Toronto Mindfulness Scale (TMS; Lau et al., 2006), Lay's General Procrastination Scale (GPS; Lay, 1986), Short Internet Addiction Test (Pawilkowski et al., 2013). The findings indicate significant difference between the pre and post test scores of internet addiction, procrastination and curiosity-mindfulness, thus there was a significant effect of digital diet among undergraduate female students. The future scope of digital diet can be broadened as a module for anxiety, depression, stress and insomnia.

Keywords: internet addiction, procrastination, mindfulness, digital diet.

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PROCEEDINGS

RELATIONSHIP BETWEEN INTERNET OVERUSAGE AND WELLBEING AMONG YOUNG ADULT WOMEN

Parvathi.S* & Dr.Mythili.T**

ABSTRACT

Young adulthood is a time of development. Healthy women are the cornerstone of healthy society. Technology can fulfil many human needs but it's over usage is a risk. Being addictive to technology has its effects on the psychological and physical wellbeing of a person. In order to move towards a brighter and healthier future, it is crucial to address and ensure the wellbeing of young adult women. The study is conducted to find out the relationship between the ages of 20 and 24 years. The study design used is an ex post facto design. A total of 50 women (Post graduate) students, using internet for at least the past six months are included in the study. Young's internet addiction scale is used to calculate internet addiction scores. Ryff's psychological wellbeing scale and physical health questionnaire by Spence Helmreich are used to measure psychological and physical wellbeing respectively. Statistical analysis and results will be discussed.

Keywords: young adulthood, wellbeing, internet overuse

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Has ~~Chaired~~ / ~~Participated~~ / Presented / ~~Co-authored~~ a paper titled RELATIONSHIP BETWEEN INTERNET OVERUSAGE AND WELLBEING AMONG YOUNG ADULT WOMEN *at the National Conference on "Internet Addiction: Challenges & Therapeutic Interventions for Millennium 2020" organized by the Department of Counselling Psychology, University of Madras, Chennai on 13th March, 2020.*

Dr. S.Thenmozhi
Professor & Head, Department of Counselling Psychology
University of Madras

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PARALLEL SESSION 4A: MENTAL HEALTH
VENUE: F 50 HALL, UNIVERSITY OF MADRAS
DATE: 13.03.2020| TIME: 3.00 PM- 4.30 PM
TOTAL PRESENTERS: 9

CHAIR
Dr. Veena Easvaradoss

CO-CHAIR
Dr. T. Mythili

S.NO	AUTHOR NAMES	TITLE OF THE PAPER
1	Princy Thobias, Nimmy Johns	Internet Addiction and Mental Health among College Students
2	Jones Christopher A, Thiruchelvi, Arunachalam & Manoj Kiran P	The role of Machiavellianism and self-esteem in determining pirating intention
3	S.V.Rithambari, C. Pavithra,, Dr.Santhana & Karthikeyan,V	Relationship between social media usage and social anxiety level in young adults
4	Smruthi Sivakumar	Relationship between Internet Addiction and Loneliness
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6	Athira P Sasidas, B. Krishna Priya & Dr.S.Thenmozhi	A Study on General Well-Being and It's Relation with Procrastination & Self-Handicapping
7	Kanakala Vaishnavi, Priya Sharma, & Varada Avanoor	A study of Happiness and Helping Attitude among College Professors
8	Vanitha Raj W, Santhiya R & Darshini Madanagopal	Internet addiction and mood disturbance among middle adulthood
9	K. Nithya & Dr. V.P. Matheswaran	Internet Addiction and Mental Well being Among Youth

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INTERNET ADDICTION AND PERCEIVED LONELINESS AMONG COLLEGE STUDENTS

Afreen Banu. V*, Dr.T.Mythili** & Maragatham Kumar.R.S***

ABSTRACT

The study aimed at assessing the levels of Internet Addiction and Perceived Loneliness among college students. It also intended to find out the correlation between internet addiction and perceived loneliness. The research design used in this study is ex post facto. Demographic variables such as Gender, Birth Order, and level of education were considered. The sample consists of 302 college students, comprising of 151 boys and 151 girls studying in Chennai. The tools used for the study were Internet Addiction Test Young (1998) and Loneliness scale (L-Scale) Jha (1997) were administered to assess internet addiction and perceived loneliness respectively. The data were analysed by 't' test and correlation. Results revealed that there exists a positive correlation between perceived loneliness and internet addiction. It was also found that there are significant differences between boys and girls in their internet addiction and perceived loneliness. Results showed that boys are more addicted to the internet and also experience higher levels of loneliness when compared to girls. Effective diagnosis and intervention can help to prevent internet addiction and loneliness, thereby maintain good mental and physical health.

Keywords: internet addiction, perceived loneliness, college students.

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பன்முக நோக்கில் தமிழிலக்கியங்கள்

பதிப்பாசிரியர்கள்

கு.விக்ரம்

இரா.சந்தோஷ்குமார்

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பொருளடக்கம்

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12. முதுமொழி மாலை ஓர் பார்வை

முனைவர் ஒ.மு.சே.அமீர் அம்சா பீவி,
உதவிப் பேராசிரியர், தமிழ்த்துறை,
நீதிபதி பசீர் அகமது சயீது மகளிர் கல்லூரி(தன்னாட்சி)
தேனாம்பேட்டை,சென்னை600 018.

முன்னுரை

மாலை என்று பொதுவாகக் குறிப்பிடும் பொழுது பூமாலையையே கருதுவர். இலக்கிய நூல்களுள் மாலை என்றால் அது ஒருவகைப் பிரபந்தத்தையே (சிற்றிலக்கியம்) குறிக்கும். இம்மாலைப் பிரபந்தத்தில் பாக்கள் மாலை போல் கோர்க்கப்பட்டுள்ளன என்பர். இஸ்லாமிய தமிழ் இலக்கியத்தில் மாலை இனத்தைச் சோ்ந்த நூல்கள் மிகப் பல இருக்கின்றன. அவற்றுள் தலை சிறந்தது உமறுப்புலவர் இயற்றிய, நபிகளார் மீது பாடிய முதல் காவியமாய், முகவுரையாய், முன்னுரையாய் புகழப்படும் முதுமொழி மாலை என்னும் நூலே. இம்மாலை நபிகள் நாயகம் முஹம்மது (ஸல்) அவர்களைப் புகழ்ந்து பாடப்பட்டுள்ள மாலையாகும். இம்மாலை எழுந்த வரலாற்றையும், அறக்கருத்துக்களையும் ஆய்வதே இக்கட்டுரையின் நோக்கமாகும்.

ஆசிரியர் குறிப்பு

ஈறிலா இறைவன் தூதை,
இன்புறக்காணல் வேண்டி
மூரலின் இனிமை மிக்க
முதுமொழி மாலை செய்தார் **(முதுமொழி மாலை : ப: 6)**

உமறுப் புலவர். இம் முதுமொழி மாலையில் 88 பாடல்கள் உள்ளன. முதுமொழி மாலை இயற்றியவர் சீறாப்புராணம் இயற்றிய உமறுப் புலவர் அவர்களே ஆவார். உமறுப் புலவர் கி.பி. 1642 இல் ரபியுல் அவ்வல் மாதம், பிறை 14இல் பிறந்தார். செய்கு முகம்மது அலியாரின் புதல்வர். நெல்லை மாவட்டத்தில் உள்ள

நாகலாபுரத்தில் வாழ்ந்தார். இவர் அரபு மொழியில் பாண்டித்தியம் பெற்றவர் அல்லர்.

தமிழ்நாட்டிலே தமிழ்ச் சூழ்நிலையிலே வாழ்ந்தவராத லால் தமிழையே ஐயந்திரிபறக் கற்றார். உமறுப்புலவர், வெங்கேடசுவர எட்டப்ப பூபதியின் அவைக்களப்புலவராக இருந்த கடிகை முத்துப்புலவரின் மாணாக்கரில் ஒருவர். இவர் மாணவராயிருக்கையிலே கடிகை முத்துப் புலவர், உமறுப்புலவர் ஆற்றலை அறிந்தார். ஒருநாள் வாலை வாரிதி என்ற வடநாட்டுப் புலவர் ஒருவர் கடிகை முத்துப்புலவரை வாதிற்கு அழைத்தார். கடிகை முத்துப்புலவர் அப்பொழுது உடல் மெலிவால் வருந்திக் கொண்டிருந்தார். இதை உமறுப்புலவர் அறிந்து தமது ஆசிரியரின் உள்ளக் கவலையை நீக்கத் துணிந்தார். இதனை,

உற்றுழி உதவியும் உறுபொருள் கொடுத்தும்,
பிற்றைநிலை முனியாது கற்றல் நன்றே[2]

(புறம் :183 பாடல் ப: 215)

என புறநானூறு கூறுகின்றது. இப்புறநானூறு கூறுவது போல உமறுப்புலவர் ஆசிரியருக்கு உதவ முன்வந்தார். ஆசிரியர் தடுத்தும் கேட்கவில்லை. வாலை வாரிதியுடன் வாதாடி வெற்றிமாலை சூடினார்.

உமறுப்புலவர் பெற்ற அன்பளிப்பு:

கீழக்கரையில் நடைபெறும் திருமணம் ஒவ்வொன்றிலும் உமறுப்புலவருக்கு இரண்டரை அணா அன்பளிப்பாகக் கொடுக்கப்பட்டது என்பர். உமறுப்புலவர் மௌத்தானதின் (இறப்பு) பின்னும் அவர் குடும்பத்தார் இவ்வன்பளிப்பைப் பெறும் வழக்கம் இன்று வரை நடைமுறையில் இருக்கின்றதாம். உமறுப்புலவரின் கல்லறை எட்டயபுரத்தின் தென் பாகத்திலே இருப்பதாகக் கூறியுள்ளனர்.

முதுமொழி மாலை எழுந்த வரலாறு:

உமறுப்புலவர் சீறாப்புராணம் இயற்றுவதற்கு முன்னரே முதுமொழி மாலையைப் பாடியுள்ளார். முதுமொழி மாலை எழுந்த வரலாற்றை நோக்குவோம்.

சீதக்காதி வள்ளல், உமறுப்புலவரை சீறாப்புராணம் பாடும்படிக் கேட்டுக் கொண்டார். ஆனால் உமறுப்புலவர் நபிகள்

நாயகத்தின் வாழ்க்கையைப் பற்றித் தனக்கு உள்ள அறிவு சீறாப் புராணம் இயற்றப் போதியதன்று என்றார். உடனே சீதக்காதி வள்ளல் உமறுப்புலவரை, செய்கு சதக்கத்துல்லா ஆலிம் சாகிபுவிடம் போகும் படி கூறினார். செய்கு சதக்கத்துல்லாஹ் ஆலிம் சாகிபு அரபு மொழியில் தோச்சி பெற்றவராகத் திகழ்ந்தார். உமறுப்புலவரும் செய்து சதகத்துல்லா ஆலிம் சாகிபுவிடம் சென்றார். சென்று, தனக்கு அரபு மொழியில் உள்ள நபிகள் நாயகத்தின் புகழ்மிக்க வாழ்க்கையைத் தமிழில் மொழி பெயர்த்துக் கொடுக்கும்படி வேண்டினார். முஸ்லிம் அல்லாத உடை அணிந்திருந்த உமறுப்புலவருக்கு ஒன்றும் சொல்ல முடியாது என்று செய்கு சதகத்துல்லா ஆலிம் சாகிபு மறுத்துவிட்டார். உமறுப்புலவரும் உள்ளம் வருந்திப் பள்ளிக்குப் போனார். அங்கு சென்று,

நபிகள் நாயகத்தை என்று காண்குவனோ[3]

(இஸ்லாமும், இன்பத்தமிழும் : ப: 67)

என்ற வாக்கியத்தை முடிவில் அமைத்து முதுமொழி மாலையைப் பாடியுள்ளார்.

இருவர் கனவில் தோன்றிய முகம்மது நபி:

அன்று இரவு தொழுத (வணங்கிய) பின்னர் உணவும் உண்ணாது உறங்கினார். அன்றிரவு நபிகள் நாயகம் (ஸல்) அவர்கள் உமறுப்புலவரின் கனவில் தோன்றி, இன்னொரு முறை செய்கு சதகத்துல்லா ஆலிம் சாகிபுவிடம் போகும்படி ஏவி, செய்கு சதகத்துல்லாவிடம், நபிகள் நாயகம் கனவில் தோன்றி உமறுக்குத் துணை புரியுமாறு கூறினார்கள். இருவரும் சந்தித்தனர். நபிகள் நாயகத்தின் வாழ்க்கை வரலாற்றை செய்கு சதகத்துல்லா ஆலிம் சாகிபு அரபு மொழியிலிருந்து தமிழ் மொழியில் மொழி பெயர்த்து உமறுப்புலவருக்கு அளித்தார். உமறுப்புலவரும் சீறாப்புராணத்தைப் பாடினார்.

நபிகள் நாயகத்தின் கீர்த்திகள்:

முதுமொழி மாலையிலுள்ள ஒவ்வொரு செய்யுளிலும் (பாடல்) நபிகள் நாயகம் முகம்மது (ஸல்) அவர்களைப் பற்றி

உமறுப்புலவர் பலவாறாகப் புகழ்ந்து பாடியுள்ளார். எடுத்துக் காட்டாக பின் வரும் பாடலைக் காண்போம்.

புவினிற் சிறந்த மக்கமா புரத்தில்
புகழொடு பிறந்த நாயகரைக்
காவினிற் சிறந்த பதிமதினாவிற்
கதியர சியற்றிடு வேந்தை (முதுமொழி மாலை : ப : 107)

என்று பாடியுள்ளார். இப்பாடலில் நபிகள் நாயகம் முகம்மது (ஸல்) அவர்கள் புவைப் பார்க்கிலும் சிறந்த மக்கமா நகரத்தில் புகழோடு (கீர்த்தியோடு) பிறந்தார்கள் என்றும், புஞ்சோலை களைப் பார்க்கிலும் சிறந்த மதீனமா நகரில் செங்கோல் செலுத்தினார்கள் என்றும், பாடலில் சிறந்த கருத்துக்களை அமைத்துப்பாடிய உமறுப்புலவருக்கு அருள் செய்யும், முகிலைப் போன்றவர்கள் என்றும் புகழப்பட்டுள்ளார்கள்.

தோன்றின் புகழொடு தோன்றுக அதிலார்
தோன்றலின் தோன்றாமை நன்று' (குறள் : 236 ப : 49)

என்று திருவள்ளுவர் கூறும் கருத்து ஒப்ப நோக்கத்தக்கது.

முதுமொழிமாலையில் யாக்கை நிலையாமை:

உமறுப்புலவர் முதுமொழிமாலையில் ஆழ்ந்த அறக்கருத்துக்களை எடுத்தாண்டுள்ளார். யாக்கை நிலையாமை யைப் பற்றிக் குறிப்பிடுகையில், புல் நுனியில் உள்ள பனித்துளிக்கு யாக்கையை ஒப்பிடுகிறார். புல் நுனியில் உள்ள பனிச் சொட்டு ஞாயிற்றைக் கண்டவுடன் மறைந்து விடுவது போல், யாக்கையும் அழிந்து போகின்றது என்பதைக் குறிப்பிடுகின்றார். அப்படி அழிந்து போகும் ஒவ்வொரு உடலிலும் பொருந்திய உயிர்க்கு நற்பேறு பெற அவ்வுடல்களில் உறைகின்ற பெரிய தவத்தை உடையவர் நபிகள் நாயகம் (ஸல்) அவர்கள் என்றும், அந்நாயகம் எல்லா உயிர்களையும் தன் உயிர்போல் கருதி மகிழ்பவர் என்றும், புலியும் பணிந்து நிற்கும் தாமரை போன்ற அடிகளை உடையவர் என்றும் பின்வரும் செய்யுளில் (பாடலில்) இயம்பியுள்ளார்.

புன்னுனிப் பனியின் ஆக்கைக டோறும்
பொருந்தியாங் குறைந்த மாதவரை
மன்னுயி ரனைத்துந் தன்னுயிரென்ன முதுமொழி மாலை : ப : 38)

என்று பாடியுள்ளார்.

மிக்றாஜ் நிகழ்ச்சி:

நபிகள் நாயகம் முகம்மது (ஸல்) அவர்களின் மிக்றாஜ் நிகழ்ச்சியை உமறுப்புலவர் குறிப்பிட்டுள்ளார். விலை மதிக்க முடியாத மணிகள் பொருந்திய முடியை உடைய வலிமை மிக்க ஜிபுரில் (அலை) (வானவர் தலைவர்) அவர்களின் புறாக் (புறாக் வாகனம்) என்னும் வாகனத்தில் ஏறி எல்லா உலகங்களையும் பற்றி அறிந்த அண்ணல் முகம்மது நபி (ஸல்) அவர்கள் எனப் புகழ்ந்து பாடியுள்ளார்.

விலைவரம் பறியா மணிமுடி கவித்த
விறல்ஜிபு ரீல்சிறை ஏகி
அலகிலா வண்டம் பற்பல கடந்த (முதுமொழி மாலை : ப : 72)

இச்செய்யுளில் மிறாஜ் அளவிற் சென்ற அண்ணலை (முகம்மது நபி) அறநெறி வழியே நிலையாக நிற்கும் பெருந்தவ முனிவர் புகழ்ந்து போற்றும் இறையன்பரை, இறையறிவெனும் தோணியால், அழிந்து மறைந்து விடக்கூடிய தீயச்செயல்கள் எனும் கடலைக் கடந்த (பாவக் கடலை) நபிகள் நாயகம் (ஸல்) அவர்கள் என்று கூறியுள்ளார். இவ்வறக்கருத்துக்கள் அடங்கிய இந்நூலை,

முதுமொழிமாலை உமறுப்புலவரின் முதல் நிலைபடைப்பு.
இறையருளை முன் வைத்து நபி நாதரின் பேரில் படைக்கப்பட்ட
பக்தி பாமாலை' (முதுமொழி மாலை : ப : 21)

என்று கவிக்கோ. அப்துல் ரஹ்மான் அவர்கள் பாராட்டி பதிவு செய்துள்ளார்.

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○

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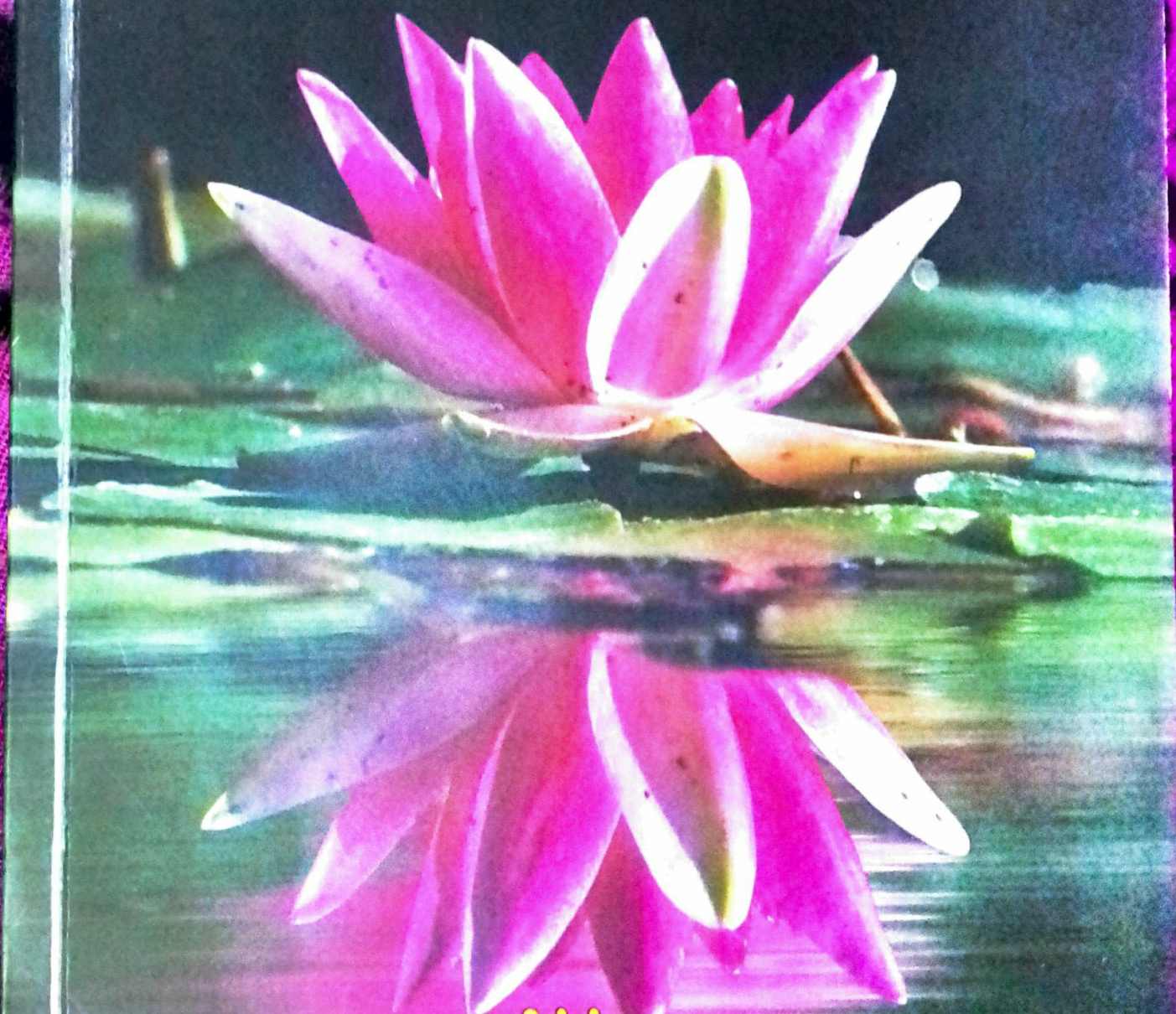

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2. கே. ஜெய்புன்னிசாவின் சிறுகதைகளில் பெண்களுக்கு இழைத்த பாலியல் வன்முறைகளும், தீர்வுகளும்

முனைவர் ஓ.மூ.சே. அமீர் அம்சா பீவி
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தேனாம்பேட்டை சென்னை - 600 018

முன்னுரை:

கதை சொல்லும் மரபு தமிழகத்தில் தொன்மைக் காலம் தொட்டு இருந்து வந்துள்ளது. தொல்காப்பியத்திலே கதை பற்றிய குறிப்பு காணப்படுகின்றது. இதனை,

"பொருள் மரபில்லாப் பொய்ம்மொழி"[1]

எனக் குறிப்பிடுவார் தொல்காப்பியர். சிலப்பதிகாரம் தேவந்தி கதையையும், மணிமேகலை ஆதிரை கதையையும் கொண்டு இருக்கிறது சீவக சிந்தாமணியில் ஒவ்வொரு இலம்பகமும் ஒரு சிறிய கதை அமைப்பைப் பெறும். பெரிய புராணம் சிறிய கதைகள் பற்றிய தொகுப்பாக விளங்குகிறது. இவையெல்லாம் கவிதை வடிவிலான கதைகள். ஆனால், இன்றைய சிறுகதைகள் வடிவாலும், உத்தியாலும், அமைப்பாலும் வேறுபட்டவை என்றாலும், அவை கூறும் முறை தமிழருக்குப் புதியதல்ல. எனினும் தனித்த வடிவமாக உணர்ச்சியை நறுக்குத் தெறித்தாற்போல் ஊட்டவல்லதாக விளங்குவதே இக்காலச் சிறுகதைகள் எனலாம். இஸ்லாமிய எழுத்தாளரான "கே.ஜெய்புன்னிசா"வின் சிறுகதைகளில் பாலியல் வன்முறைகளுக்குத் தீர்வு கொடுக்கும் சிந்தனைகளைக் குறித்து ஆராய்வதே இக்கட்டுரையின் நோக்கமாகும்.

சிறுகதையின் இலக்கணம்:

"எட்கார் ஆலன்போ" எனும் அறிஞர் மூவாயிரம்
சொற்களுக்குட்பட்டதாய் ஒரே மூச்சில் அதாவது அரைமணி
நேரத்திலிருந்து ஒரு மணி நேரத்திற்குள் படித்து முடிக்கக் கூடியதாய்

இருத்தல் வேண்டும் என்று கூறுவார்".[2]

"சிறுகதை குதிரைப் பந்தயம் போலத் தொடக்கமும், முடிவும் சுவைமிக்கனவாக இருத்தல் வேண்டும் என்பார் செட்ஜ்விக்,"[3]

இவ்வாறாக, சிறுகதைகளுக்கு இலக்கணம் வகுக்கப்பட்டுள்ளது.

தமிழ்ச் சிறுகதையின் வளர்ச்சி:

தமிழ்ச் சிறுகதை வளர்ச்சிக்கு கல்வி, புதுமைப்பித்தன், ராஜாஜி, பி.எஸ்.இராமையா, மௌனி, லா.ச.ரா, விந்தன், அகிலன், கி.வா.செல்லப்பா, க.நா.சுப்பிரமணியம், ந.பிச்சமூர்த்தி, கு.அழகிரி சாமி, தி.ஜானகிராமன், ஜெயகாந்தன் ஆகியோரும், பெண் எழுத்தாளர்களான கோமகள், குமுதினி, ராஜேசுவரி, திலகவதியும், இஸ்லாமியப் பெண் எழுத்தாளர்களான, பாத்திமுத்து சித்திக், ஜமீனா ஜமால், நூர் மொய்தீன், ஆர்னிகா நாசர், முன்னோடி எழுத்தாளர்களான (1960) கே. ஜெய்புன்னிசா மற்றும் நூருன்னிசா போன்றோரும் முக்கியப் பங்களிப்பை வழங்கியுள்ளனர்.

கே. ஜெய்புன்னிசா அறிமுகம்:

ஜெய்புன்னிசா பள்ளியில் படிக்கும் போது எழுதிய முதல் சிறுகதை "பாசம்" - இக்கதை அனைவரின் பாராட்டையும் பெற்று, மீண்டும் சிறுகதை எழுதுவதற்கு ஊக்கம் அளித்தது. பின்னர் அவர் செல்வி, ஜெய்பு, தூயவள், யாஸ்மின் போன்ற புனைபெயர்களில் சிறுகதைகள், புதினங்கள் எழுதியுள்ளார். இவர் தொடர்ந்து சிறுகதைகள் எழுதுவதற்கு ஆனந்த விகடன், குமுதம், குங்குமம், ராணி, தேவி, பாக்யா, நல்ல பெண்மணி, உஷா, ராஜம், சூரியகாந்தி, தினமணிக்கதிர், மாலைமுரசு, தினத்தந்தி, ஞாயிறுமலர், சினேகிதி ஆகிய நாளிதழ்கள், வார, மாத இதழ்கள் உதவி புரிந்துள்ளன. இவர் இதுவரை 500க்கும் மேற்பட்ட சிறுகதைகளை எழுதியுள்ளார். மேலும் இரண்டு சிறுகதைத் தொகுப்புகளை வெளியிட்டு, சிறந்த சிறுகதை எழுத்தாளர் என்ற முத்திரையையும் பதித்துள்ளார். இவர் சிறந்த சிறுகதை எழுத்தாளர் என்பதை

"அறுபதுகளில் (1960) தோன்றிய முக்கிய முன்னோடிப் பெண் சிறுகதை எழுத்தாளர்களாக கே. ஜெய்புன்னிசா மற்றும் நூருன்னிசா ஆகியோரை ஹ.மு. நத்தர்சா தம் நூலில் பதிவு செய்துள்ளார்".[4]

என்ற கூற்றின் மூலம் அறியலாம்.

[illegible]

[illegible] நூலகத்தைத் [illegible]

[illegible] "மணிமேகலை" [illegible]

[illegible] "கலை" [illegible]

[illegible] "பெண்மை" [illegible]

[illegible] "தேடல்" [illegible]

[illegible] "தேடல்" [illegible]

[illegible] "தேடல்

ஜெய்புன்னிசாவின் சிறுகதைத் தொகுப்புகள்:

இவர் இரண்டு சிறுகதைத் தொகுப்புகளை வெளியிட்டுள்ளார். "முஸ்லீம் முரசு" இதழில் வெளிவந்த சிறுகதைகளில் குறிப்பிட்ட சிலவற்றைத் தொகுத்து "புரிய மறுக்கும் முகங்கள்" (இஸ்லாமியச் சிறுகதைகள்) என்ற தலைப்பில் வெளியிட்டுள்ளார். இஸ்லாமியச் சார்பில்லாத இதழ்களில் வெளி வந்த சிறுகதைகளில் குறிப்பிட்ட சிலவற்றைத் தொகுத்து "தணல்" என்ற தலைப்பிலும் நூலாக வெளியிட்டுள்ளார். இவ்விரண்டு நூல்களும் "மணிமேகலை பிரசுரம்" வெளியிட்டவையாகும். இதில் "தணல்" என்ற சிறுகதைத் தொகுப்பிலுள்ள ஒரு சில சிறுகதைகளில் பாலியல் வன்முறைகளுக்குச் சவுக்கடி கொடுக்கும் புரட்சிப் பெண்களை, புதுமைப் பெண்களை கே.ஜெய்புன்னிசா தம் படைப்புகளில் படைத்துக் காட்டியுள்ளார்.

"நெருப்பு" என்ற சிறுகதை:

"பெண்" என்றால் "மென்மை" என்றாலும், அந்த மென்மைத் தன்மை கூட சில நேரங்களில் வன்மையாக மாறக் கூடும். அதுவே நெருப்பாகி, பிறரையும் அடக்கும் என்ற கருத்தை வலியுறுத்துவது தான் "நெருப்பு" என்ற கதை.

புதுமையான புரட்சிப் பெண்கள்:

கௌரவத்திற்காக, பதவிக்காக, பணத்திற்காக எப்படியும் வாழலாம் எனச் செயல்படும் கணவன் விசுவுக்கு இப்படித்தான் வாழ வேண்டும் எனப் பாடம் புகட்டும் மனைவி "தைலாவை" நெருப்பாகக் காட்டுகிறது.

"நெருப்பு" எனும் சிறுகதையில் படிப்பு, பண்பு, அழகில் சிறந்த மனைவி "தைலாவை" பதவி உயர்வுக்காகத் தன் வீட்டு விருந்தில் மேலதிகாரிக்கு, தைலாவிற்குத் தெரியாமலேயே, தைலாவையே விருந்தாகப் படைக்க எண்ணும் கணவனின் சதியைப் பொசுக்கி,

> "நீ கட்டின தாலி என் கழுத்திலே இருக்கிறதாலே தான் இந்தத் துணிச்சல் உனக்கு இந்தா என்றவாறே வெடுக்கென்று தாலியைக் கழற்றி நீட்டினேன். அதிலுள்ள தங்கம் கூட என் அம்மா உழைச்சு வாங்கினது தான்! சட்டென தங்கத்தை உருவிண்டு மஞ்சக் கயிற்றை அவனிடம், நீட்டினேன்."[5]

என்று கூறினாள்.

"நாணும் அச்சமும் நாய்கட்கு வேண்டுமாம்:
ஞான, நல்லறம் வீர சுதந்திரம்
பேணு நற்குடிப் பெண்ணின் குணங்களாம்"[6]

என்று பாரதி கூறும் புதுமைப் பெண்ணாய் தைலா படைக்கப்பட்டுள்ளார்.

இக்கதையில் தைலா கூறியதைக் கேட்ட அம்மா.

> "பெத்த வயிறு கலங்கினாலும் எம் பொண் நெருப்பா நின்னு அந்த அநியாயக்காரனை பொசுக்கிட்டானு நான் பெருமை தான் பட்றேன்"[7]

என்ற அம்மாவின் விழிகளிலிருந்து கண்ணீர் அருவியாய்ப் பெருகியது.

> "அழாதேம்மா! புருசனில்லேன்னா பிழைக்க முடியாதுங்கற காலம் மலையேறிப் போச்சு. நான் ஏதேனும் வேலை தேடிண்டா... எதிர்காலப் பாதுகாப்பு இருக்கும்! சீக்கிரமே வேலை தேடிப்பேன்! கவலைப்படாதேம்மா!"[8].

என்றாள் தைலா.

இக்கதையில் "கல்லானாலும் கணவன் புல்லானாலும் புருஷன்" என்று கூறாமல், அந்த அநியாயக்காரனைப் பொசுக்கினதால் பெருமைப் படுகிறேன் என்று கூறிய தாயைப் புதுமைப் பெண்ணாகவும், தாலியைக் கழற்றி எறிந்த தைலாவைப் புரட்சிப் பெண்ணாகவும் படைத்திருக்கிறார் ஆசிரியர் கே. ஜெய்புன்னிசா.

"உறுத்தல்" எனும் சிறுகதை:

உடுமலைப்பேட்டையை ஒட்டியிருக்கும் கிராமம். அக்கிராமத்தில் பள்ளிக்கூட வாத்தியர்களுக்காகவும், மற்றவர்களுக்காகவும் வீட்டின் முன் பகுதியில் மெஸ் தொடங்கினாள் அம்மா. அம்மெஸ்ஸில் சாப்பிட வரும் கோபால் கொடிய நோக்கத்தில் தன்னைப் பாலியல் பலாத்காரம் செய்ய முயல்கின்ற போது அவனை (கோபால்) செம்பினால் தாக்கி விட்டுத் தப்பித்த நிகழ்ச்சி கவுரியின் மனத்தில் உறுத்திக் கொண்டிருக் கிறது. இதனால் கவுரி மனதளவில் பாதிக்கப்படைகின்றாள்.

மேலும் மிருதுவான பெண்கள் தமக்கு ஒவ்வாத செயல் ஒன்றால் தாக்கப்பட்டபோது மனதளவில் அவர்கள் எவ்வாறு பாதிப்பிற்கு உள்ளாகின்றனர் என்பதை இக்கதை எடுத்துக் காட்டியுள்ளது. மேலும் சமுதாயத்தில் சமூக விரோதிகள் இருக்கிறார்கள் என்றும் இவர்களோடு போராடப் பெண்ணுக்குத் துணிவு வேண்டும் என்பதும் உணர்த்தப் பட்டுள்ளது.

"வாழ்க்கை விரட்டிக் கொண்டே இருக்கிறது" என்னும் சிறுகதையில் கூலி வேலை செய்யும் பெண் கன்னியம்மா வியாதியுடைய வயதான ஒருவனைத் திருமணம் செய்து கொண்டாள். அங்கு வாழ்க்கைப் போராட்டம் நடத்துகின்றாள். 16 வயது மகள் சிவகாமியைப் பத்தாம்

வகுப்பு வரை எப்படியோ படிக்க வைத்துவிட்டாள். கணவன் உடல் நிலை சரியில்லாமல் இறந்த நிலையில் குடும்ப வருவாயை ஈடு செய்ய, கன்னியம்மா, கட்டிட வேலை செய்யும் மேஸ்திரியிடம் முன் பணம் கேட்க, மேஸ்திரியும், அப்பணத்தைக் கொடுத்துவிட்டு, அவளின் மகள் சிவாமியை அடைய நினைக்கின்றான். அதற்காக அவளிடம், அவன் சிவகாமியை வேலைக்கு அனுப்பும்படி கட்டாயப்படுத்து கின்றான்.

> "ரெண்டுங்கெட்ட வயசிலே தனிமரமா நிக்குறேன், வயசானவனுக்கு முந்தி விரிச்சு நாம் பட்ட கஷ்டம் எம்மவளுக்கும் வரவேண்டாம்னு பார்க்குறேன்! ஏழையோ பாழையோ... தினப்படி கூலிக்காரனாகவே இருந்தாலும் சரி. அந்த பருவ வயசிலே மனமொத்து கடைசி வரை சந்தோசமா வாழ்ந்தாப் போதும்! ஏழையானவன் காலப்போக்குலே பணக்காரனா மாறலாம்! ஆனா கெழவன் குமரனாக ஒருக்காலும் முடியாது"[9].
>
> "பூனை ஏன் உறியைச் சுற்றி வருகிறது என்பதை உணர்ந்தவளாய் அவள் அழுகையோடு மௌனமானாள்".[10]

மேலும், கட்டிட வேலை மேஸ்திரி சுற்றிச் சுற்றி வருவதைப் பார்த்து கன்னியம்மா ஆவேசத்துடன் பத்ரகாளியாய் மாறி,

> "எம்மக வயசுலே உனக்கும் பொண்ணுக இருக்கு. எம்மகளை வப்பாட்டியாக்கிக்க எந்த தைரியத்திலே இங்கே வந்தே! சுடுகாட்டுக்குப் போற வயசுலே நரை மீசைக்கு சாயம் வேறே...! சரித்தான் போய்யா வெளியே"[11]

என்று துணிச்சலுடன் கூறினாள்.

> "அறிவு கொண்ட மனித உயிர்களை
> அடிமையாக்க முயல்பவர் பித்தராம்"[12]

என்ற பாரதியின் வாக்கிற்கேற்ப மேஸ்திரியை கன்னியம்மா சுட்டிக் காட்டினாள்.

இங்கு பெண்கள் மனவலிமை பெற்றவர்களாக வாழ வேண்டும் என்றும் அநீதியை எதிர்த்தும் ஆணாதிக்கப் போக்கை எதிர்த்தும் போராட வேண்டும் என்ற கருத்தும் முன் வைக்கப்பட்டுள்ளன.

இச்சிறுகதையில் துர்க்குணம் பிடித்த ஆடவர் சமுதாயத்திலிருந்து விலகி, தங்களாலும் தனித்து வாழ முடியும் என்ற நம்பிக்கை, கன்னியம்மாள் என்ற பெண் பாத்திரம் வழி உணர்த்தப்பெற்றுள்ளது.

> "மாதர் தம்மை இழிவு செய்யும்
> மடமையைக் கொளுத்துவோம்"[13]

என்று பாரதி கூறிய புதுமைப் பெண்ணாய் கன்னியம்மாவை கே.ஜெய்புன்னிசா பதிவு செய்துள்ளார்.

முடிவுரை:

"நெருப்பு" எனும் சிறுகதையில் பதவிக்காக, பணத்திற்காக "மேலதிகாரிக்காகத்" தம் மனைவி "தைலாவை" பாலியல் வன்முறைக்கு உட்படுத்த நினைக்கும் கணவன் "விசு"விற்குச் சவுக்கடி கொடுத்து, நல்ல தீர்ப்பை வழங்கி, நெருப்பாக மாறி, அவன் சதியைப் பொசுக்கி, துணிந்து வெளியே வருகின்ற புரட்சிப் பெண்ணாகவும், அவள் (தைலா) தாய் "கல்லானாலும் கணவன், புல்லானாலும் புருஷன்" என்று கூறாமல், அந்த அநியாயக்காரனை (விசுவை) பொசுக்கினதால் பெருமைப்படுகின்ற புதுமைப் பெண்ணாகவும், "உறுத்தல்" என்ற சிறுகதையில் பாலியல் பலாத்காரம் செய்ய முயல்கின்ற கோபாலைச் செம்பினால் தாக்கி, சவுக்கடி கொடுத்து விரட்டும் வீரப் பெண்ணாக கவுரியையும், ஆண் ஆதிக்கத்தாலும், பண பலத்தாலும் பெண்ணை அடிமையாக்க நினைக்கும் மேஸ்திரிக்கு, கூலிப்பெண் கன்னியம்மாள் தகுந்த தீர்ப்பைக் கொடுத்து துணிச்சலான "போய்யா வெளியே" என்று விரட்டிய பெண்ணாகவும் துணிச்சலான ஜே. ஜெய்புன்னிசா தம் படைப்புகளில் பதிவு செய்துள்ளார். இவ்வகையான பாலியல் பலாத்காரம் செய்யும் "கள்ளிச் செடிகள்" மீண்டும் தழைக்காதபடி வேரோடு அறுத்தெறிய, பெண்கள் புரட்சிப் பெண்ணாகவும், புதுமைப் பெண்ணாகவும், மனவலிமை உடையவராகவும், துணிச்சல் மிக்கவராகவும் மாறி அநீதியை எதிர்த்தும், ஆணாதிக்கப்போக்கைத் தகர்த்தும் போராடி பெண்களே சவுக்கடி கொடுத்து, நல்ல தீர்ப்பை வழங்க வேண்டும். இவ்வாறாக நல்ல தீர்ப்பை, பெண்கள் வழங்கும்போது, பலாத்காரம் செய்வது தடுக்கப்படும். இதனைப் பெண்கள் முயற்சி செய்வோம்! முன்னேறுவோம்.

அடிக்குறிப்பு

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2. ஜெயம். அ., தமிழ் இலக்கிய வரலாறு திருந்திய பதிப்பு: 1997, ப. 319.
3. பாலசுப்பிரமணியன், சி., தமிழ் இலக்கிய வரலாறு, முப்பதாம் பதிப்பு: 2003, ப. 339.
4. நத்தர்சா. ஹ.மு. (கட்டுரை), இஸ்லாமியப் பெண் எழுத்தாளர்களின் வாழ்வியல் சிந்தனைகள், இஸ்லாமியப் பல்கலைக்கழக தமிழ் மன்ற ஆய்வுக் கோவை, பதிப்பு: 1992, ப. 34.

ஸ்டெல்லா மாரிஸ் கல்லூரி (தன்னாட்சி)

தமிழ்த்துறை

மற்றும்

நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்.,

இணைந்து வழங்கும்

தேசியக் கருத்தரங்கம்

30.11.2019

சான்றிதழ்

~~செல்வி/திருமதி/திரு~~/முனைவர் ஏ.டி.எ. அமீர் அம்சா பீவி அவர்கள் 'யாதுமாகி நின்றாய் பெண்ணும் தமிழ் இலக்கியமும்' என்னும் பொருண்மையிலான தேசியக் கருத்தரங்கில் பேராளராகக் கலந்து கொண்டு கே. ஜெயபுன்னிசாவின் சிறுகதைகளில் பெண்களுக்கு இழைக்கப்படும் பாலியல் என்னும் தலைப்பில் ஆய்வுக்கட்டுரை வழங்கிச் சிறப்பித்தார் எனச் சான்றளிக்கப்படுகிறது.

கல்லூரி முதல்வர்
ஸ்டெல்லா மாரிஸ் கல்லூரி

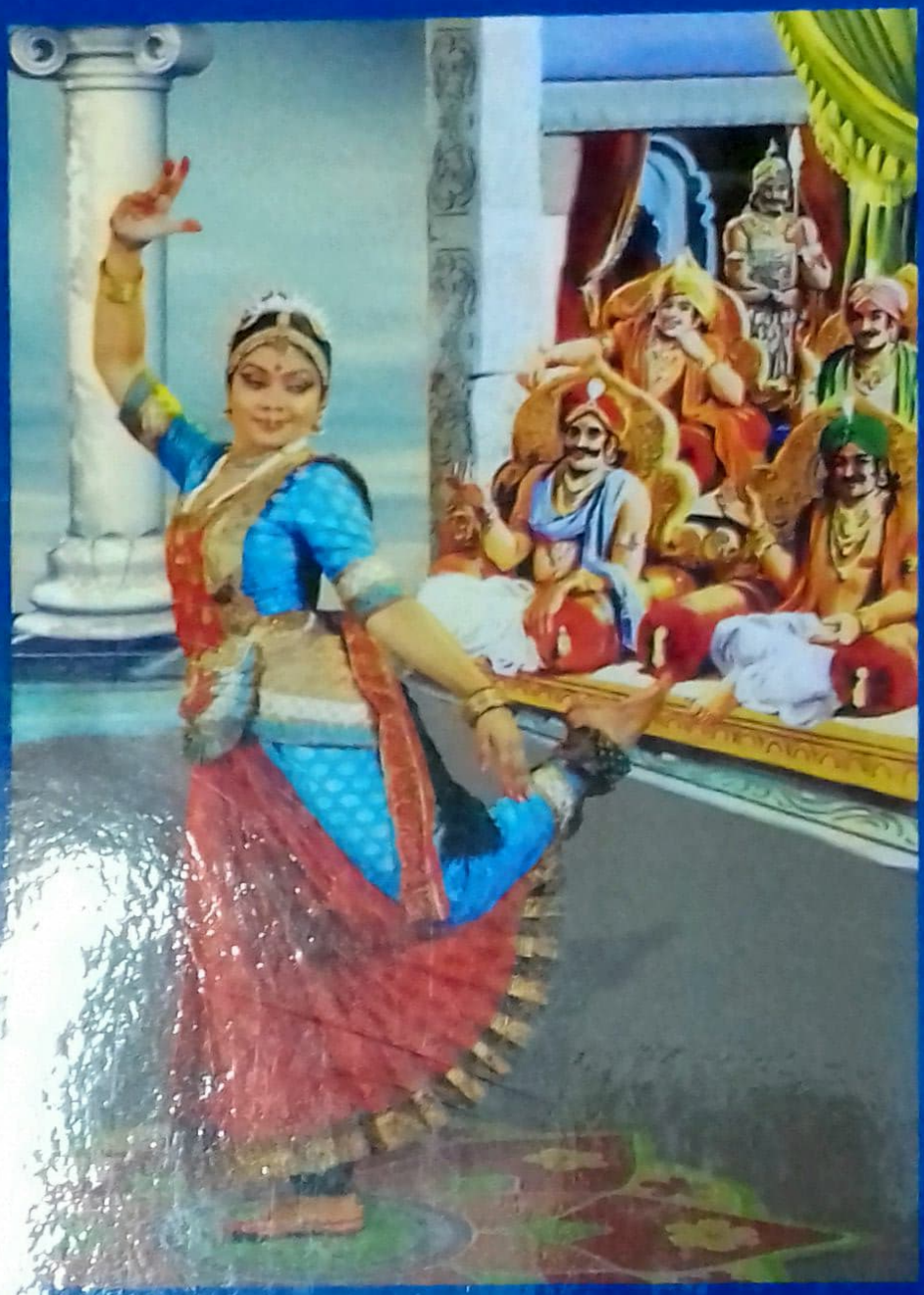
தமிழ்த்துறைத் தலைவர்
ஸ்டெல்லா மாரிஸ் கல்லூரி

மேலாண்மை இயக்குநர்
நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்.

காப்பிய இலக்கியம் - பன்முகப் பார்வை

பன்னாட்டுக் கருத்தரங்கம்

தொகுதி-1



சென்னை வேளாங்கண்ணி மகளிர் கல்லூரி
தமிழ்த்துறை சைதாப்பேட்டை, சென்னை - 600 015.

கவிஞர் முனைவர் ஆலந்தூர் கோ. மோகனரங்கன்
தமிழியல் ஆய்வு மையம், சென்னை - 600 088.

நூல் விவரக் குறிப்பு

தலைப்பு	:	காப்பிய இலக்கியம் - பன்முகப் பார்வை (தொகுதி - 1)
வகை	:	இலக்கியத் திறனாய்வு
பதிப்பாசிரியர்	:	முனைவர் ப.த. இராணி பிரகாஷ் முனைவர் வே.ச. சரவணன் முனைவர் வே. லீலாவதி முனைவர் ஆ. அறிவுமொழி முனைவர் ஜா. பியூலா டோமினிக் முனைவர் மோ. பாட்டழகன்
ISSN No.	:	2394-2428
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வரைகலை	:	செல்லம் கிராப்பிக்ஸ், சென்னை.
அச்சாக்கம்	:	வேதா எண்டர்பிரைசஸ் சென்னை - 17

பதிப்பித்து வழங்குவோர்

கவிஞர் முனைவர் ஆலந்தூர் கோ.மோகனரங்கன் தமிழியல் ஆய்வு மையம்

26, குறுக்குத் தெரு, ஜோசப் காலனி,
ஆதம்பாக்கம், சென்னை - 600 088.
அலைபேசி: 9380417307
vasantha.tha399@gmail.com

கருத்துக்களுக்குக் கட்டுரையாளரே பொறுப்பு

1 [illegible] 1

2 [illegible] 9

3 [illegible] 18

4 [illegible] 28

5 [illegible] 28

6 [illegible] 34

7 [illegible] 38

8 [illegible] 44

9 [illegible] 52

10 [illegible] 57

11 [illegible] 62

[illegible] 68

[illegible] 72

3. இஸ்லாமிய காப்பியமான குத்புநாயகத்தில் அறிவுரைகள் - ஒரு பார்வை

முனைவர் ஒ.மு.சே.அமீர் அம்சா பீவி
உதவிப் பேராசிரியர்,
நீதிபதி பஷீர் அகமது சயீது
மகளிர் கல்லூரி, (தன்னாட்சி)
தேனாம்பேட்டை, சென்னை - 18.

முன்னுரை

மெய்நிலை கண்ட மெய்ஞ்ஞானி ''முகியித்தீன் அப்துல் காதிர் ஜீலானி (ரலி)'' அவர்களைப் பாட்டுடைத் தலைவராகக் கொண்டு தோன்றிய காப்பியங்களுள் முதலாவது எனக் கருதப்படுவது ''குத்பு நாயகம் என்னும் முகியித்தீன் புராணமே''. புலவர் நாயகம் என்று வழங்கப்படும் ''செய்கு அப்துல் காதிர் நயினார் லெப்பை ஆலிம்'' புலவர் அவர்களே இதன் ஆசிரியர் ஆவார். முஸ்லிம் பெருவழக்கில் 'சேகுனாப்புலவர்'' என அழைக்கப் பட்டார். இவரால் இயற்றப்பட்ட இக்காப்பியத்தில் அவர் (அப்துல் காதிர் ஜீலானி) தம் இளமைப் பருவ நிகழ்ச்சிகளுள் குறிப்பிடத்தக்கன பல.

அன்று பக்தாத் மாநகர் கல்விக்குப் பெயரும் புகழும் பெற்று விளங்கியது. அம்மாநகருக்கு கல்வி கற்கச் செல்லயிருக்குஞ் ஞான்று அவரது தாயார் மகனுக்குக்

பிணக்கலாம் உயிர்கட்கேதும் பிறங்குமோ கறங்கு தெ
வணக்கலாம் வணங்கும் காலம் மாறிடிற் பிடிபடாதா

(பாடல் : 2

என்று பாடியுள்ளார். இப்பாடலோடு நாலாடியார் பாட

''கல்வி கரையில், கற்பவர் நாள் சில
மெல்ல நினைக்கின் பிணி பல - தெள்ளிதின்
ஆராய்ந் தமைவுடைய கற்பவே நீரொழியப்
பாலுன் குருகின் தெரிந்து.'' (பாடல் : 1

எனுங் கருத்தினையும் ஒப்பிட்டு நோக்கலாம்.

அறிவு என்னும் மரக்கலம்

கடலிலே கழியிற் சிக்கி துன்புறும் ஒருவ
மரக்கலம் கிடைப்பின் எவ்வளவு மன ஆறுத
அளிக்கின்றதோ அதனைப் போல உலகம் என்னும் கட
சிக்கி இன்னலுறும் ஒருவருக்கு 'அறிவு என்னும் மரக்க
கிடைப்பது அவர் பெறும் மிகச் சிழந்த, உயரிய அரிய பே
அது. இவ்உவமை அறிவின் இன்றியமையாமை
வலியுறுத்த இப்பாடலில் ஆளப்பட்டுள்ளது. மரக்க
இல்லாவிடில் அவர் கடலில் மூழ்கி இறந்து விடு
அதுபோல கல்வி இல்லாவிடில் விடுதலை இ
என்பதும் பெறப்படுகிறது. இதனை,

'வெருள் அலைகச்சுழியில் சிக்கி வெருவலைத்
தாங்கித் தே
மருவலை முங்கினார்க்கு மறுகலைத் தவிர்ப்பானாகத்
தெருளலை மரக்கலம் போல சேர்தலை அறிவிற் செல்
அருளலை அணிந்தாரன்றோ பேதமை அகன்றாராமே''

(பாடல் : 3

எனப்பாடி புலவர் நாயகம் பதிவுசெ ள்ளார்.

அறிவுடைமையின் சிறப்பு

அசுணம் காது காரண
காரணமாகவும், வண்
ம்

காரணமாகவும், மீன் வாய் காரணமாகவும், அழிவை அடைகின்றன. அதனைப் போன்று மனிதன் அறிவின்மை காரணமாக நரகத்தை அடைகின்றான். மனிதனை நரகத்திற்குச் செல்லாமல் தடுப்பது அறிவாகும் என்பதனையும் அறிவுடைமையின் சிறப்பை விளக்க அறிவில்லாமையின் கேடுகளை விளக்கியுள்ளார். இதனைத் தெளிவுபடுத்த பல எடுத்துக் காட்டுகளை உவமையாகக் சேகுனாப் புலவர் காட்டியுள்ளார். இதனை,

'ஒண்சிறை அசுணம் யானை ஒளிர்சிறை அளிபதங்கம்
தண்சிறை மச்சம் காதால் சடத்தினால் மனத்தாற் கண்ணால்

(பாடல்: 372)

என நிரனிறையாக அமைவுறுமாறு அழகுற பாடி விளக்கியுள்ளார்.

அறிவைப் பெறுவதும், அறிவுடையோரை இணைந்தி இருந்தலும், அறிவு புகட்டும் ஆசான் வழி நிற்றலும் ான்றோனாக்கும் என்பதனை,

''உற்றுழி உதவியு முறுபொருள் கொடுத்தும்
பிற்றை நிலை முனியாது கற்ற னன்றே'' (புறம் : 183)

ன்ற புறநானூற்று வழி அறியலாம்.

பெரியோர்களுக்குப் பேராண்மை காட்டுதல், பணியுமாம் ன்பது இளையோருக்குப் பெருமையாகும். இதனை

''தரியவற்று ளெல்லாம் அரிதே பெரியாரைப்
பேணித் தமராக் கொளல்'' (குறள் : 443)

ன்றும்,

'எரியால் சுடப்படினும் உய்வுண்டாம் உய்யார்
பெரியார்ப் பிழைத்தொழுகு வார்' (குறள் : 598)

ன்பார் திருவள்ளுவர். இவ்வாறாக புறநானூற்று வழியும், ருக்குறள் வழியும் ஒப்பிடப்பட்டுள்ளது.

கடமையைச் செய், வெற்றியைப்பெறு

''தடமையினைச் செய்'' என்பதே எல்லா ம
தத்துவமாக இருக்கிறது. கடமையினை ஒழு
செய்யாது வாளாயிருந்து விட்டு வெற்றி எனும் கீரி
ஒரு நாளும் அணிய இயலாது என்பதனை நாளும்
கடமையினைச் செவ்வனே செய்து வெற்றி போன்ற
சிறப்புக்களையும் பெற வேண்டும். கடமையைச் செ
பாவங்களும் நீங்கும் எனும் கருத்துக்களையும் உட்
'நாவினால் பகர்தல் மேன்மை நயனத்தால் கானால்
ஆவியிற் கொள்ளல் யார்க்கும் அறிவினோடு இணக்கம்
(பாடல்:

எனப் பாடி 'செய்கு அப்துல் காதிர் நயினார் லெப்பை
புலவர்' பதிவு செய்துள்ளார்.

இளமைக்குப் பெருமையே பொறுமை

(அ) அவமதிப்பு (ஆ) பகைமை (இ) கடுஞ்சொ
வஞ்சகம் (உ) தீமை என்பனவற்றைப் பொருட்படு
பொறுமையைக் கடைப்பிடித்து இறைப் பொருத்த
பெற வேண்டும் என அறிவுரை பகரும் பிறிதொரு பாட
புலவர் நாயகம் பின்வருமாறு பாடியுள்ளார். மே
பொறுமையைப் பற்றித் திருக்குர்ஆன், நபிமெ
ஆன்றவிந்த சான்றோர்களின் அறிவுரை
கருத்துக்களும் எண்ணி எடுத்தாளத்தக்கன. இதனை,
நிறையுடைமை நீங்காமை வேண்டின் பொறையுடை
போற்றி ஒழுகப் படும். (குறள்:
என்று திருவள்ளுவர் வலியுறுத்தியுள்ளார்.

வளரும் இப்பொறுமை மானிடனைச் சீராக்கும் பண்
உடையது. அப்பொறுமையினைத் கடைபிடித்தொழுக,
''இகழ்ந்தவரேனும் கோபித்து எதிர்த்தவரேனும் வள்செ
நிகழ்ந்தவரேனும் வஞ்ச நெஞ்சினரேனும் நன்மை''
(பாடல்:

என்று பிஸ்வர் நாயகம் இப்பாடலைப் பாடியுள்ளார்.

இளமையில் மெய்மையின் சிறப்பு

இளமையிலே மெய்மை (உண்மை, வாய்மை) பேணி
காப்பாற்றப்பட வேண்டும், போற்றப்பட வேண்டும்.
வாய்மையே வெல்லும், நன்மை, சிறப்புகள் வந்து எய்தும்.
மெய்மையுடையாருக்கு எவ்வித துன்பங்களும் இல்லை.
எல்லாத் துன்பங்களும் நீங்கி விடும். கபடகரமான அற்பச்
செயல்கள் அகன்று விடும். (1) இதழத்தக்க பொய்
சொல்லுதல் (2) களவாடுதல் (3) முடிவை மாற்றல் (4) பிறர்
பணம் கவர்தல் முதலிய எல்லாம் வாய்னமயால் நீங்கி
விடும். மெய்மையால் மனித ஈடேற்றத்திற்கு வேண்டிய
உதவிகள் ஏற்படும். மெய்மையால் பஞ்சபாதகங்களும்
நீங்கிவிடும். எல்லா மதங்களும் வாய்மை பேணவே
கூறுகின்றன. இவ்வாய்மையைப் பற்றி,

பாமெய்யாக் கண்டவற்றுள் இல்லை எனைத்தொன்றும்
வாய்மையின் நல்ல பிற''13 (குறள் : 300)

என்று 'வாய்மை' என்னும் அதிகாரத்தில் திருவள்ளுவர்
கூறியுள்ளார். மேலும் கள்ளாமையை,

எள்ளாமை வேண்டுவாள் என்பான் எனைத்தொனறும்
கள்ளாமை காக்கதன் நெஞ்சு[14] (குறள் : 281)

எனும் குறள் வழி அறியலாம்.

இளமையே மெய்மை பேணுதற்குரிய அடிமனமாக
அமைகிறது. எனவே அக்காலத்தேயும், இக்காலத்தேயும்
இதனைப் பேணி ஒழுக வேண்டும் என்று
சான்றோர்கள் இத்தகைய கருத்துக்களை,

செய்கொலை நீங்கும் வஞ்சச் சில்மவினை நீங்கும் நிந்தைப்
பாய் களவு அறுதி மாறல் புறமுதல் எவையும் நீங்கும்
ய்கதிக்குரிய செய்கைக்கு உதவி உளர்டாகும் தூய
மெய்கருத்து உடையார்க்கு என்னில் பற்றுதல் வேறும் உண்டோ''
(பாடல் : 392)

புலவர் நாயகம் குத்பு நாயகத்தில் பதிவுசெய்துள்ளார்.

★ ★ ★

இன்பத் தமிழ் எங்கள் வளமிக்க உளமுற்ற தீ ! - பாரதிதாசன்

அன்னை வேளாங்கண்ணி மகளிர் கல்லூரி

கோதாப்பேட்டை, சென்னை - 600 015.

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மற்றும்

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முனைவர்.வே.ஜோசப் முருகன்
முதல்வர்

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தொகுதி 2
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திருமதி சுகந்தி நாடார்
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முனைவர். வெ. ஷீலா
உதவிப்பேராசிரியர்
நீதிபதி பஷீர் அகமது சயீது மகளிர் கல்லூரி
தேனாம்பேட்டை, சென்னை - 18.

இறை அன்பு கொள்ளுதலே பக்தி இலக்கியத்தின் அடிப்படை நோக்கமாக அமைகின்றது. இறைவனிடம் அன்பு செலுத்துதல் என்ற செயல் மூலம் உலகில் வாழும் மக்கள் ஒருவருக்கொருவர் அன்பு செலுத்தி ஒற்றுமையுடன் வாழவேண்டும் என்ற உயர்ந்த நோக்கம் பக்தி இலக்கியங்களால் வலியுறுத்தப்படுகிறது. திருமந்திரம் சமயம் சார்ந்த நூல் மட்டுமல்லாமல் உலகில் வாழ்வாங்கு வாழவும் மிகவும் தேவை என்பதை உணர்த்துகிறது. எனவே அறத்தின் வாயிலாகத்தான் அன்பு வடிவான இறைவனின் அருளைப் பெற முடியும் என்பதை இக்கட்டுரை ஆய்கிறது.

அன்பே சிவம்

இறைவனின் தன்மையை அறியாதவர்கள் அன்பும் சிவமும் வெவ்வேறாக எண்ணகிறார்கள் என்பதை

அன்பும் சிவமும் இரண்டென்பர் அறிவிலார்
அன்பே சிவமாவது ஆரும் அறிகிலார்
அன்பே சிவமாவது ஆரும் அறிந்தபின்
அன்பே சிவமாய் அமர்ந்திருந்தாரே

இம்மந்திரத்தால் விளக்குகிறார். அன்பானவன் இறைவன் என்பதை அன்பே சிவம் என்று சுட்டியர் அன்புருவான இறையருளை அன்பின் வாயிலாக அடையமுடியும். ஆன்போடு மனம் உருகி உள்ளம் குழையத் தொழுது வணங்குபவர்களுக்கே அல்லாது மற்றவர்களுக்கு இறையருள் பெற இயலாது என்பதை உணர்த்தியுள்ளார் . அகிலம் படைத்து அன்பையும் படைத்தவர் இறைவன் முழுமுதற்பொருளான இறைவனிடம் அன்பைச்செலுத்தி அதன் அருளைப் பெற அறியாதவர்கள் அழியும் இந்த வாழ்வு நிலையானது என்று நம்பி அதையே உறுதியாக பற்றி நிற்கின்றனர் என்றாலும் அன்பைப் படைத்து பெருமானே நிலையான பொருளாவான் என்று கூறுகிறார்.

இத்தகைய அன்பான இறைவனை நினைவில் நிறுத்தியும் நெஞ்சில் வைத்தும் போற்றி துதித்து உள்ளன்போடு யார் வேண்டி நின்றாலும் அவர்களுக்கு வளவாழ்வைத் தருவான்.

அன்பின் உள்ளான் புறத்தான் உடலாயுள்ளான்
முன்பின் உள்ளான் முனிவர்க்கும் பிரானவன்
அன்பின் உள்ளாகி அமரும் அரும்பொருள்
அன்பின் உள்ளார்க்கே அணை துணையாமே

இவ்வாறு அன்புடையவர்களுக்கு எங்கும் நீங்காதத் துணையாக நின்று அருளுபவன் என்று உணர்த்துகிறமர் மேலும்

கொழுந்தன்பு செய்து அருள் கூறவல்லார்க்கு
மகிழ்ந்தன்பு செய்யும் அருள் அதுவாமே

தன்னிடம் தலையாய அன்பு கொண்டவர்களிடம் அவன் மிகுந்த மகிழ்ச்சியோடு அருள் செய்வான் இறைவனின் தன்மை இது என விளக்குகிறார். மேலும் அன்பர் மனம் அடையும் இன்பத்துள் நின்று இனிக்கின்ற அன்புருவானவனை எவரும் முழுவதும் அறிந்திலர் எவராலும் அறிந்தறியா அளந்தறிய ஆற்றல் உடையவன் இறைவன் பிறப்பும் இறப்பையும் போக்கி கொள்ளத் தெரியாதவர்களாக இந்த மனிதர்கள் இருக்கிறார்களே என்று வருந்துகிறார் திருமூலர்.

அறஞ் செய்வான் திறம்

அன்பு வலையில் அகப்பட்டு அருளும் இறைவனை நினைந்து நினைந்து இன்புறுகின்ற தன்மையை திருமந்திரத்தில் காணமுடிகிறது. அன்பு வடிவான இறைவனின் அருளைப் பெறுவதற்கு அறத்தின் வாயிலாக அணுக வேண்டும் என்று அறம் செய்வானின் திறம் என்னும் தலைப்பில் அறத்தை வலியுறுத்துகிறார்.

ஆர்க்கும் இடுமின் அவர் அவர் என்னன்மின்
பார்த்திருந்து ஒண்மின் பழம் பொருள் போற்றன்மின்
வேட்கையடையீர் விரைந்தொல்லை உண்ணன்மின்
காக்கை கரைந்துண்ணும் காலம் அறிமினே.

அறம் செய்தலில் முதன்மையானது பசியாற்றுதல் இதன் பிறகுதான் மற்ற அறங்கள் எல்லாம் பசி எல்லோர்க்கும் பொதுவானது எனவே மதம் இனம் நாடு சாதி மொழி என்று பாராமல் பிறர்க்கு உணவு இட்டு உண்ணவேண்டும் அதுவும் வேறுயாரையாவது ஒருவரை உடன்வைத்து உண்ணவேண்டும் என்கிறார். அருணகிரியார் தனக்கு என்னென்ன கெட்ட குணங்கள் உண்டு என்று பட்டியலிடும் போது தன்னை "**சாட்சியறப் பசியாறியை**" என்று நொந்துக்கொள்ளுகிறார். ஔவையும் "**ஐயம் இட்டு உண்**" என்கிறார். எனவே தான் ஆதரவற்றவர்கள் யாராவது வருகிறார்களா என்று பார்த்து அவர்கள் வந்தவுடன் அவர்களோடு உண்மின் என்கிறார் திருமூலர் "**பகடு நடந்து கூழ் பல்லோரோடு உண்க**" என்று புறனானூறும் இதனைப் பகர்கின்றது.

வேகமாக மாறி வரும் கணினி உலகத்தில் சுயநலமும் அதிவிரைவாக உண்ணும் பழக்கமும் உள்ளது. தொலைநோக்கு பார்வைக்கொண்ட திருமூலர் அறம் என்று கருதி மீதமுள்ள பழைய உணவை நீயும் உண்ணாதே பிறர்க்கு கொடுத்துவிடாதே என்கிறார். மேலும் உணவு உண்ணும் முறையை கூறுகிறார் உணவை வேகமாக சாப்பிடாமல் நிதானித்து சுவைத்து பொறுமையாக உண்ண வேண்டும் என்று கூறியவர் காக்கை கூட உணவு கண்ட போது மற்ற எல்லாக் காக்கைகளையும் கூப்பிட்டு பகிர்ந்து உண்பதைப் பார்க்க முடிகிறது. ஆறறிவு படைத்த நமக்கு இது வேண்டாமா என்று வினவுகிறார்.

அன்னார் கண்டதண்டப் பிரான் அருளால்
பின்னர் பழுகாக
பன்னாட்பலரை வளர் விருகப் பரமன் அடியாராக்கல்
என்னை வந்து உன்க என இரண்டு கொழுதும்
பன்னி நிகழ்தந்த
மெலிவால் சாதித் சோதிப்பர் துயர்
கூர் வறுமை தொலைத்திப்பர்

என்னும் பாடல் வரிகளை உணர முடிகிறது. உயிருக்கு உணவு அளித்தல் என்பது போன்ற உயர்வான அருள் என்பதை நான் சொல்லத் தேவையில்லை

மணனிவர் பிறந்தார் பிறும் மதிகெடும்
அணனவர் அடியார்தமை அழுது செய்வித்தல

என உணவில்லாதவனையும் அதன் மகத்துவத்தையும் அறிவுறுத்துகிறார் இந்தகைய அருள்மத கூறுவன் வரும் முன் நலமறம் செய்து இறையருளை அடைதல் என்று கூறுகிறார்

அறஞ்செய்யான் திறம்

அறத்தை பின்பற்றாவிட்டால் இறைவனின் அருளைப் பெறலாம் என்று கூறியவர் நல்லறங்களை செய்யாதவனுடைய இயல்பைக் கூறி எச்சரிக்கிறார்

வீடு பழுத்த இருங்கனி வீழ்ந்தன
நீடிய நல்லறஞ் செய்யாதவன் செல்வம்
வீடு கொண்டு சுடுயே மண்ணின் முகந்திடும்
பீடுப் பாதகர் பயனறியாரே

என்ற பத்திரத்தின் வழி நல்லறங்கள் செய்யாதவர்களுடைய செல்வமானது வீடிய பழுத பழுத்தும் பயனில்லாமல் போவதைப்போல பயனிலாமல் போகும் எனறும் இவர்கள் நரகத்தில் வீழ்ந்து துன்புறுவர் நோய்வாய்பட்டு இறையருளை பெறமுடியாது பிறப்பு இறப்பில் உழல்வர் அறஞ்செய்யாமை மனிதப் பண்பன்று மிருகத்தனம் ஆறிவிலாதவரகளே அறம் செய்யாது கெடுவர் என்று வலியுறுத்துகிறார்

அறத்தை மேற்கொள்ள வேண்டிய எளிய வழிகள்

அறத்தை மேற்கொள்ள பொன்னும் பொருளும் தேவையில்லை எளிய முறையில் அறத்தை மேற்கொள்ளலாம் என்று திருமூலர் கூறுகிறார்

பாவர்க்குமாம் இறைவனுக்கு ஒரு பச்சிலை
பாவர்க்குமாம் பசுவுக்கு ஒரு வாயுறை
பாவர்க்குமாம் உண்ணும் போது ஒரு கைப்பிடி
பாவர்க்குமாம் பிறர்க்கும் இன்னுரை தானே

இறைவழிபாடு பிறவுயிர்களிடத்து அன்பாக இருத்தல் கூடாவழிகளை அன்ன எனினையான நான்கு அறங்களை திருமூலர் கூறுகிறார் இறைவனின் அருளை பெறுவதற்கு இறைவழிபாடு ஆற்ற வேண்டும் அவ்வழிபாடு [illegible] வண்ணமலர்களும் தேவையில்லை [illegible] இறையருளை பெறலாம் என்றும் [illegible] வாய் உணவு இறையருளுக்கு இணையானது [illegible] ஒரு பிடி உணவு இறைவனுக்கு [illegible] உணவளிப்பதும் [illegible] உணவுதான் [illegible] இயக்கமும் இன்றியமையாத [illegible] வழிவகுக்கும் இதுவே சிறந்த அறம் அவரே அருள் பூர்வமான இறைவனை அடைவதை **அறம் செயவாரை அறிவான் சிவன்** என்று கூறுகிறார் திருமூலர்

அறிந்ததைக் கொண்டு அறியாத உயிர்களைக் காத்து செலவும் பயிற்சி நிலையே பண்பட்ட வாழ்வியல் என்பதனை வலியுறுத்தி நெறிபடுத்தும் நிறை மொழியே திருமூலர் என்பதை நன்று உணர முடிகிறது

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சிறுபஞ்சமூலம் கூட்டும் அறம்

மா. லெட்சுமி
நீதிபதி பதீர் அகமது
சயீது மகளிர்கல்லூரி
தேனாம்பேட்டை
சென்னை 18

கண்டங்கத்தரி, சிறுவழுதுணை வேர், சிறுமல்லி வேர், பெருமல்லி வேர், நெருஞ்சி ஆகிய ஐந்திணைக் கொண்டு நோயினைக் குணப்படுத்துவது போல, ஒவ்வொரு பாடலிலும் நாம் நம் வாழ்க்கையில் பின்பற்ற வேண்டிய அறக்கருத்துக்களை எடுத்துரைக்கிறது இந்நூல். இனி இந்நூல் உணர்த்தும் அறக்கருத்துக்களைக் காண்போம்

அழகு

ஒருவருக்கு எவையெல்லாம் அழகு என எடுத்துரைக்கிறது சிறுபஞ்ச மூலம். நடுவு நிலைமையிலிருந்து தவறாமையே ஒருவனது ஒழுக்கத்திற்கு அழகு ஆகும்

''கிளர்வேந்தன் தன்னாடு வாட்டான் நன்று
என்றல் வனப்பு'' - பா.எ.9

அரசனுக்கு அழகு நடுவுநிலை தவறாமையும், தனது நாட்டு மக்களைத் துன்புறுத்த மாட்டான் என்று சொல்லப்படுவதுமாகும்.

''மன்னர்க்கு அழகு செங்கோல் முறைமை''
நறுந்தொகை பா.எ.5

நால்வகைப் படைகளுள் யானைப்படை சிறப்புடையது. குறைவில்லா ஆற்றல் உடைமையே படைவீரனுக்கு அழகாகும். பெண்ணிற்கு இடை சிறுத்தல் அழகாகும. கண்ணுக்கு அழகு மை தீட்டிக்கொள்ளல் அன்றுஇ பிறரிடத்தில் இரக்கத்துடன் நடந்து கொள்ளும் அருட் பார்வையே கண்ணுக்கு அழகு. கால்களுக்கு அழகு மதியாதவர் வீட்டிற்குச் செல்லாமையே ஆகும். இவ்வளவு என்று கணக்கிட்டுக் கூறுதலே கணக்குக்கு அழகாகும். இசைக்கழகு பிறர் நன்றாயிருக்கிறது என்று புகழ்ந்து கூறும்படி அமைந்திருப்பதாகும்.

''மயிர்வனப்பும் கண்கவரும் மார்பின் வனப்பும்
உகிர்வனப்பும் காதின் வனப்பும் - செயிர்தீர்ந்த
பல்லின் வனப்பும் வனப்பல்ல நூற்கு இயைந்த
சொல்லின் வனப்பே வனப்பு'' பா.எ.37

மயிர்வனப்பும், கண்கவரும் தலைமயிர் அழகும், மார்பின் அழகும், நகத்தின் அழகும், செவியின் அழகும், பல்லின் அழகும் அழகுகள் ஆகா தான் கற்ற நூல்களின் கருத்துக்களைக் கேட்போர்க்கு

விளங்கும்படி எடுத்துரைக்கும் சொல்லின் அழகே சிறந்த அழகாகு
புறஅழகுகளான இவையெல்லாம் அழகல்ல என்பதை வலியுறுத்து
இக்கருத்துக்கள் நாலடியாரின்

"குஞ்சிஅழகும் கொடுந்தானைக் கோட்டழகும்
மஞ்சள் அழகும் அழகல்ல" நாலடியார் பா.எ.131

எனும் பாடற்கருத்தினை நினைவூட்டுகிறது எனலாம்.

ஈகை

"வறியார்க்கு ஒன்றுஈவதே ஈகைமற் றெல்லாங்
குறியெதிர்ப்பை நீர துடைத்து." குறள்.எ.221

வறியவருக்கு ஒன்றினைக் கொடுப்பதே ஈகையறம் மற்றதெல்லா
ஈகையாகாது என்கிறார் வள்ளுவர்

"இல்லாதான்
ஒல்லாப் பொருவில்லார்க்கு ஈத்தளியான எனறலும்
நல்லவர்கள் கேட்பின் நகை" பா.எ. 5

பொருளில்லாத ஒருவன் தன்னை போன்ற வறுமையில் வாடு
ஒருவருக்கு அவரின் விருப்பம் தணிவதற்கு முன்னே பொருந்தா
பொருளைக் கொடுப்பதுஇ நல்லவர்களுக்கு நகைப்பை ஏற்படுத்து
பெருஞ் செல்வத்தைச் சேர்த்து வைத்திருப்பதை விட வறியவர்க்கு
தேவையான செல்வத்தைக் கொடுத்துப் புகழ் பெறுவதே சிறந்தது
என்கிறது சிறுபஞ்ச மூலம்.

"ஈண்டு
இடம்பொழிய வேண்டுமேல் ஈகை" பா.எ. 6

அடுத்தவர்க்கு ஒன்றைக் கொடுக்கும் போது அது அளவில்
குறைவானது என எண்ணிக்கொடாமல் இருப்பதை விட கொடுப்பதே
சிறப்பானது என்கிறது புறநானூறு.

"எத்துணையாயினும் ஈதல் நன்றே" புறம் பா.எ.141

இதனையே சிறுபஞ்சமூலம்

"பிடிப்பிச்சைப் பின்னிறை ஐயங்கூழ் கூற்றோடு
எடுத்திரந்த வுப்பித் துணையோமு - அடுத்துச்
சிறுபயம் என்னார் சிதவலிப்பு ஈவார்
பெறுபயன் பின் சாலப் பெரிது" பா.எ. 64

"உள்நெகிழ்ந்து ஈயின் சிறிதெனினும்
குன்றுபோல் கூடும் பயன்." பா.எ. 65

"ஈவது நன்றுதீது ஈயாமை" பா.எ.94

என்னும் பாடல்களில் எடுத்துரைக்கிறது. ஒரு கைப்பிடிக்குள் அடங்கும்
பிச்சைச் சோறும், பின்பு விரல் சந்துள் அடங்கும் பிச்சைச் சோறும்.
உண்டோ இல்லையோ என்று ஐயப்படத்தக்க பிச்சைச் சோறும்

சிறுபயனை உடையன என எண்ணாதவராய் யாசிப்பவரை நெருங்கிக
குறைவான பிச்சையை அளிப்பவர் அதனால் அடையும் பயன் மலை
போன்று மிகப் பெரியதாகும்.

மனைவியின் கடமைகள்

கற்புடைய மனைவி கணவனுக்கு அமிழ்தம் போன்றவள் என்கிறார்
இந்நூலாசிரியர்.

"கற்புடைய பெண் அமிர்து" பா.எ. 4

மனைவியானவள் தன் கணவனின் வருவாய்க்குத் தக்க செலவு செய்து
வாழ்க்கை நடத்துதலே சிறப்பாகும்.

"வருவாய்க்குத் தக்க வழக்கறிந்து" பா..எ. 43

இதனையே வள்ளுவரும் தமது "வாழ்க்கைத் துணைநலம்" என்னும்
அதிகாரத்தில் கீழ்க்கண்டவாறு எடுத்துரைக்கின்றார்.

"மனைத்தக்க மாண்புடையள் ஆகித்தற் கொண்டான்
வளத்தக்காள் வாழ்க்கைத் துணை." குறள் எ. 61

மேலும் சுற்றத்தாரிடம் சினம் கொள்ளாதிருத்தல், உறவினரை
வெறுக்காது அன்புடன் பாதுகாத்தல் இ விருந்தினரைப் பேணல் இ
தெய்வ வழிபாடு இயற்றல் ஆகியவையும் மனைவியின் கடமைகளாகும்.
இதனையே சிறுபஞ்சமூலம் இப்பாடலில் எடுத்துரைக்கின்றது.

"சுற்றம்
வெருவாமை வீழ்ந்துவிருந்து ஓம்பித் - திருவாக்கும்
தெய்வதையும் எஞ்ஞான்றும் தேற்ற வழிபாடு
செய்வதே பெண்டிர் சிறப்பு." பா.எ.43

மனைவியின் கடமைகளைக் கூறிய காரியாசான் கணவனைத்
தன்னிடத்தில் பற்றுக் கொள்ளுமாறு செய்தற்கு மனைவி செய்ய
வேண்டியவற்றையும் கூறுகிறார். நல்ல மக்களைப் பெறுதலும், அடக்கம்
உடைமையும், அழகு உடைமையும், கணவனின் கருத்துக்கு ஏற்ப
அவனுடன் உறைதலும், அவன் உண்ணும் உணவை விரும்புதலும்
என்னும் இவ்வைந்து குணங்களும் கணவனைத் தன்னிடத்தில் பற்றுக்
கொள்ளச் செய்யும் வழியாகும்.

மனைவி கணவனிடத்தில் நடந்து கொள்ள வேண்டியவற்றைக்
கூறிய பின்னர் தீய பெண்களின் செயல்கள் குறித்தும்
எடுத்துரைக்கின்றார் ஆசிரியர். கள் உண்ணுதல், தன் கணவரைப்
புணராது பிரிந்து வாழ்தல் இ நாணம் மறந்து மற்றவர் இல்லத்திற்குச்
செல்லுதல், பிறர் செயலை எண்ணி மற்றவருடன் ஆராய்தல், தீய
பெண்களோடு நட்புக் கொள்ளல் ஆகியவை தீய பெண்களின்
செயல்கள் ஆகும்.

"கள்ளுண்டல் காணில் கணவன் பிரிந்துறைதல்
....தீப் பெண்ணின் தொழில்." பா.எ.25

பெருமையும் சிறுமையும்

ஒருவனுக்கு எச்செயல் பெருமையையும் சிறுமையையும் த
என்பதை

''பிழைத்தல் பொறுத்தல் பெருமை சிறுமை
இழைத்ததீங்கு எண்ணி இருத்தல் -இழைத்த
புகைகெட வாழ்வதும் பல்பொருளார் நல்லார்
நகைகெட வாழ்வதும் நன்று.'' பா.எ 16.

எனும் பாடல் வழி விளக்குகிறார் ஆசிரியர். பிறன் ஒருவன் செ
பிழையைப் பொருத்துக் கொள்ளுதல் பெருமையாகும். மற்றவ
செய்த பிழையை நினைத்துக் கொண்டே இருப்பது சிறுமையாகு
இதனையே வள்ளுவர் தம் குறட்பாவில்

''பொருத்த லிறப்பினை யென்றும் அதனை
மறத்த லதனினும் நன்று'' குறள் எ. 152

எனக் குறிப்பிடுகிறார்.

சுவர்க்கத்தை அடையும் வழி

நீர்நிலையைத் தோண்டி அதைச் சுற்றி மரக்கிளைகளை நடுத
மக்கள் நடக்கும் வழியை உண்டாக்குதல், தரிசு நலத்தைச் செப்ப
செய்து உழும் வயலாய் ஆக்குதல், கிணறு தோண்டுத
ஆகியவற்றைச் செய்பவன் சுவர்க்கத்தை அடைவான் என்றும்
எவரொருவர் எல்லோரிடமும் அன்போடும், இரக்கத்துடனும் நடந்
கொள்கிறாரோ அவரே முக்தி நிலை அடைவார் என்றும் இந்நூலி
எடுத்துரைக்கின்றார் ஆசிரியர்.

''குளம்தொட்டுக் கோடு பதித்து வழிசீது
உளம்தொட்டு உழுவயல் ஆக்கி - வளம்தொட்டுப்
பாகுபடுங்கிணற்றோ டென்றிவ்வைவம் பாற்படுத்தான்
ஏகும் சுவர்க்கத்து இனிது'' பா.எ 66.

நம் வாழ்க்கைக்குத் தேவையான பல அறக்கருத்துக்களை மி
அழகாகவும், தெளிவாகவும் இந்நூலில் கூறியுள்ளார் ஆசிரிய
காரியாசான். இதனைப் பின்பற்றி வாழ்ந்தோமானால் நாம் பலவி
நன்மைகளையும் இ இறுதிக்காலத்தில் வீடுபேற்றினையும் அடையலா

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காவ்யம்

காவ்யா பதிப்பகம்

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.....பெரியாரின் இராஜாஜி சிந்தனைகள்.....

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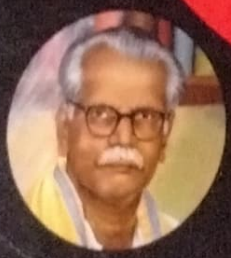

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134. பெரியாரின் திராவிட சிந்தனைகள்

ச. ஹாஜிரா ∴பர்சானா
உதவிப் பேராசிரியர்
நீதிபதி ∴பஷீர் அகமது சயீது மகளிர் கல்லூரி
சென்னை -18

முன்னுரை

திராவிடர் என்ற சொல்லை முதன்முதலில் இயக்க ரீதியாகப் பயன்படுத்தியவர் டாக்டர் சி.நடேசனார் .இவர் தான் திராவிடர் சங்கம் என்கிற அமைப்பை 1912ல் தொடங்கினார். இதிலிருந்து திராவிட இயக்கத்தின் வரலாறு தோன்றியது. தென்னிந்திய நலஉரிமைச் சங்கம் 1916 இல் ஆரம்பிக்கப்பட்டது. இச்சங்கத்தை உருவாக்க முன்னோடியாக இருந்தவர்கள் டாக்டர் நடேசனார், டாக்டர் டி.எம் நாயர், தியாகராய செட்டியார் ஆகியோராவார். தென்னிந்திய நல உரிமைச் சங்கம் தன்னுடைய கட்சிக் கொள்கையினைப் பரப்ப ஜஸ்டிஸ் பெயரில் ஆங்கில இதழ் ஒன்றை வெளியிட்டது.

தென்னிந்திய நல உரிமைச் சங்கம் நாளடைவில் பத்திரிகை பெயரைத் தாங்கி ஜஸ்டிஸ் கட்சியானது இதுவே தமிழில் நீதிக் கட்சியானது நீதிக்கட்சி 1926 இல் பொதுத்தேர்தலில் நின்று தோல்வியுற்றது. இந்நிலையில் தான் பெரியார் தன் ஆதரவைத் தந்தார்.

தமிழ் நாட்டு மக்களின் சேவை பெரியாரை இளக்கிற்று பெரியார் ஈரோட்டில் வேங்கடப்ப நாயக்கர் சின்னத் தாயம்மாள் தம்பதியர்க்கு 1879 செப்டம்பர் 28 - ல் பிறந்தார். தமிழ் இனத்தின் சமுதாய வளர்ச்சி வரலாற்றில் பொனெழுத்துக்களால் பொறிக்கப்பட்ட பக்கங்களுக்கு பெரியார் ராமசாமி சொந்தக்காரர் ஆனார் அவருடைய ஒளிவு மறைவற்ற முடிவுகள் பாரட்டப் பெற்று பின்பற்றப்பட்டன. எதனை எப்பெயரால் அழைக்க வேண்டுமோ அதனை அப்பெயரால் பெரியார் அழைத்தார். அவருடைய தந்தையார் வேங்கடப்ப நாயக்கரின் பெயரும் புகழும் பெரியாருக்குப் பெருமளவுக்கு துணை நின்றாலும் அவருடைய இரண்டறக் கலந்த ஈடுபாடு அவர் தலையிட்டு நடத்திய எல்லா பொதுச் சேவைகளிலும் வெற்றியை அளித்தது.

திராவிட இயக்கத்தைத் தன் தலைமையில் நடத்துவதற்கு பெரியார் தீர்மானித்தார். ஆகவே சமூக அநீதிகளை ஏற்கும் திறமையை அவர் தலைமேல் கொள்ள முடிந்தது. பெரியரின் சமுதாய உற்று நோக்கல் விரிவடைந்து பெருத்தது. அவர் சமயம் சாதி பார்பனீயம் வேதம் புராணம் முதலிய எல்லாவற்றையும். எதிர்த்துக் குரல் கொடுத்தார். அப்படிப்பட்ட பெரியாரின் இயக்கங்கள் பற்றியும். அவருடைய சிந்தனைகள் பற்றியும் ஆராய்வதே இக்கட்டுரையின் நோக்கமாகும்.

பெரியாரின் சுய மரியாதை (அ) தன் மான இயக்கம்

1925 இல் பெரியார் காங்கிரசை விட்டு வெளியேறினர். காங்கிரசை விட்டு வெளி வந்தவுடன் தம்முடன் வெளி வந்தவர்களை வைத்துக் கொண்டு 1926 இல் சுயமரியாதை இயக்கத்தின் முக்கிய நோக்கமே பார்ப்பனார்களின் ஏகாதிபதியத்தை வீழ்த்த வேண்டும் என்பதுதான் சமுதாயத்தில் ஆரியர்களின் வருகையால் ஏற்பட்ட சாதிபேதம் ஒழிப்பு பிறப்பின் அடிப்படையில், ஏற்பட்ட சமூக கொடுமைகளை அடியோடு ஒழிப்பதற்கு பல்வேறு முயற்சிகளை மேற்கொண்டது. தொடர்ந்து 1929 இல் ஈரோட்டிலும் .1931 இல் விருதுநகரிலும் சுயமரியதை மாநாட்டை நடத்திப் பல்வேறு தீர்மானங்களைமுன் மொழிந்தது. அவைகளில் முக்கியமானவை.

- ❖ இன வேறுபாட்டை ஒழித்துத் தீண்டாமையை வேரறுத்தல்
- ❖ இனத்தைக் குறிக்கும் பட்டப் பெயர்களை விட்டு விடுதல்
- ❖ மதக்குறிகளை நீக்குதல்
- ❖ புரோகித்தை அடியோடு நீக்குதல்
- ❖ பெண் உரிமை
- ❖ பகுத்தறிவுக்கு மாறான கருத்தைப் பரப்பினால் தடுத்து நிறுத்துவது

1932 இல் பெரியார் வெளிநாடு சென்று வந்த பிறகு சில மாற்றம் செய்ய விரும்பினார். அதன்படி சுயமரியாதை இயக்கத்தின் பெயரை சமதர்ம இயக்கமாக மாற்றினார்.

சமதர்ம இயக்கம்

இந்த இயக்கம் தொடர்ந்து கீழ் சாதி மக்களுடைய நலனுக்காகப் பாடுபடும் இயக்கமாக இருந்தது. இதற்கு அரசியல் கொள்கை

கிடையாது. சமூக வாழ்விலும் பொருளாதாரத்திலும் சமத்துவமாக வாழ விரும்புவது சமதர்ம இயக்கமாகும். இயக்கத்தின் செயல் முறை முஸ்லீம்கள் கிறித்துவர்கள். பிற்பட்டவர்கள். தாழ்த்தப்பட்ட வகுப்பினர்களின் சிந்தனையை மாற்றி அமைத்தது.

"அரசியல் என்பது சமுதாய நலனுக்கே ஏற்பட்டது." தான் அரசியல் இல்லாத சமூக சீர்திருத்தையே விரும்புகிறேன்." என்று கூறினார். அரசியல் கலந்தால் நம்முடைய சீர்திருத்தம் பாதிக்கும் என்பதை முன் கூட்டியே தெளிவாக உணர்ந்து இருந்தார். 29.12.1938 இல் பெரியார் சிறையில் இருந்தபோது அவரை நீதிக்கட்சியின் தலைவரானதும் கட்சியில் கொள்கை மாற்ற முடியும் என்று நம்பினார்.

பெரியாரின் தீண்டாமை ஒழிப்பு பணி

இளம் வயதில் பள்ளியில் சேர்ந்த பெரியார் ஈ.வே.இராமசாமி வகுப்பறையில் சொல்லிக் கொடுக்கும் பாடங்களை விட தானே தோண்டியெடுத்துச் சேர்த்துக் கொள்ளும் அறிவு செல்வத்தின் மேல் நாட்டமுடையவராக விளங்கினார். பத்து வயதிலேயே சாதி தீண்டாமை யொழிப்பு எண்ணம் இவர் உள்ளத்தில் புரட்சியாக வெடித்தது. அதன் விளைவால் பள்ளி படிப்பிற்கே முற்றுப் புள்ளி வைத்தார். இறுதி வரை பெரியார் சமூக சேவை செய்யும் பணியில் தன்னையே அர்பணித்துக் கொண்டு வாழ்ந்தார்.

மனித நாகரிகத்திற்கும், தேசத்தின் முன்னேற்றத்திற்கும் பாதிப்பாக இருப்பது தீண்டாமை தான் என்பதனை அறிந்த பெரியார் ''இந்திய நாட்டில் முக்கியமாகவும் அவசரமாகவும் ஒழிக்கபட வேண்டியதாக இருக்கும் கொடுமை இரண்டு உண்டு அவற்றில் ஒன்று முதலாவது எது என்றால் இந்திய மக்களிடையே பலகோடி ஆன சங்கிலியாயுள்ள பல சமூகங்களைப் பிறவியிலேயே தீண்டாதவர்கள் என்று கற்பித்து அவர்களை பகுத்தறிவற்ற மிருகங்களிலும் கேவலமாகவும் உணர்ச்சியற்ற பூச்சி புழுக்களிலும் இழிவாக நடத்துவதாகும்.

மனிதப் பிறவியில் உயர்வு தாழ்வு கற்பிக்கப்பட்டன. தீண்டப்படாதவர்கள் என்று கருதப்பட்டவர்களைச் சண்டாளர்கள் என்றும் பஞ்சமர்கள் என்றும் பிரித்து தீண்டத் தகாதவராக ஒதுக்கப்பட்டு வந்தனர். தாழ்த்தப்பட்டவர்கள் உயர்சாதி இந்துக்களைத் தொடக்கூடாது சாதி இந்துக்கள் வாழும் பொது குளங்கள் வழிகள் கிணறுகள் பாட சாலைகள் கோயில்கள் சத்திரங்கள் ஆகியவற்றை

நெருங்கவே கூடாது இப்படிப்பட்ட கீழான நிலைக்கு அன்றைக்கு முதற்குரல் கொடுத்தது. சுயமரியாதை இயக்கமாகும். பின்பு தீண்டாமை ஒழிப்புப் பணியில் இறங்கினர் தாழ்த்தப்பட்ட பிற்பட்ட சமூகத்தினருக்கும் நலிந்த நிலையில் வாழும் மக்களுக்கு அன்று பாதுகாப்பு இயக்கமாக இருந்தது.

தீண்டாமை ஒழியப் பெரியாரின் அறிவுரைகள்

சமுதாயத்தை சீர்திருத்த நினைப்பது நூலைக் கட்டிதேரை இழப்பதற்குச் சமம். சமுதாயத்தைத் திருத்தி நல்வழிப்படுத்துவதே நோக்கமாகச் செயல்பட்ட பெரியாரின் அறிவுரைகள் தீண்டத்தகாதவருக்கும் மட்டும் அல்லாது இருசாருக்கும் அறிவுரை கூறினார்.

தீண்டாதார் கடமைகள்

ஒரு மனிதனைப் பார்த்தால் அவனுக்கு உங்களுக்கும் என்ன வித்தியாசம் என்பது உங்கள் மனதில் உதிக்க வேண்டும். சுயமரியாதையில் கவனவில்லாத சாதியாரை உயர்த்தினாலும் உயரவே மாட்டார்கள். அவனுக்கே தான் மனிதன் என்ற உணர்ச்சி வரவேண்டும்" உயர்சாதி என்ற எவனெவன் திமிரோடு உங்கள் முன் வருகிறானோ அவனைக் குறுக்கே வரும் பாம்பைப்போல் கருதி துரத்தி அடிக்க வேண்டும். அதுதான் சாதி தீண்டாமை ஒழிப்பதற்குச் சரியான மருந்து அது இண்ஜென்ஷன் மாதிரி உடனே வேலை செய்ய ஆரம்பித்து விடும் அதை விட்டுச் சாதி ஒழிப்பு சட்டம் எதிர்பார்த்தால் அதற்குள் சாதி அழியாமல் இருக்க அரசாங்கம் செய்து விடும்.

ஆகவே அடக்குமறை வருமுன் ஆவன செய்யுங்கள் தீண்டத்தாகதவர்கள் கறையேற எண்ணற்ற கருத்துக்களை மாநாடுகளின் மூலமும் தீண்டாமை கொடுமைகள் அதிகமாக இருக்கும் இடத்தில் மேடையிட்டுச் சொற்பொழிவு ஆற்றி அறியாமையில் உள்ள மக்களை பகுத்தறிவு கருத்துகளைக் கூறி விழிப்படையச் செய்தார். தீண்டாமை விலக அவர் கூறும் கருத்துகளும் அறிவுரைகளும் கூறிக் கொண்டே இருக்கலாம். எழுதினாலும் ஏடு கொள்ளாது தீண்டாமை ஒழிய வேண்டுமென்று பேசிய அரசியல்வாதிகளை என்றுமே பெரியார் நம்பியதே இல்லை. பேசுவார்கள் தவிர இவர்கள் செயல் அளவில் செய்ய மாட்டார்கள்.

முடிவுரை

அண்ணைக்குப் பின் தங்கிய நலிந்த பிரிவினர் மக்களுக்கு அறிவுரைகள் வழங்கி சுயமரியாதை உணர்வு பெற்று வாழ வழி செய்தது. பெருமைக்குரிய ஒன்றாகும் தந்தை பெரியாரின் உடல் மறைந்தாலும் அவர் கூறிய அறிவுரைகள் கொள்கைகள் சிந்தனைகள் என்றும் மறையாது. பெரியார் ஆற்றிய தொண்டு அளப்பரியது. ஆனால் பெரியார் எட்ட விரும்பிய இலக்கை அடைவதற்கு வெகுதூரம் கடக்க வேண்டியுள்ளது. அதுவும் உலக மயமாக்கல் சூழலில் அவரது சிந்தனைகளை மேலும் வளர்த்தெடுப்பது காலத்தின் கட்டாயமானது. பெரியார் முடிந்து விட்ட சகாப்தம் அல்ல தொடர வேண்டிய பயணம்.

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Dynamic Trust Based Secure Multipath Routing for Mobile Ad-Hoc Networks

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Abstract

In this paper, we propose a new secure routing protocol for mobile Ad-hoc networks. The proposed new secure routing protocol works by evaluating the trustworthiness of each node to reduce the hazards from malicious mode and enhance the security of network. A new trust computation model is used to calculate the trustworthiness of a node based on the historical behavior. The trust value is evaluated by including the intruder node using Intrusion Detection System (IDS). In this paper, intruder nodes are detected based on the packet delivery mode during the communication. The Ad-hoc on demand multipath distance vector routing protocol is used in this paper which is based on the trust model that computes the trust of nodes and makes decision accordingly. A new dynamic and trust-based routing protocol named Ad-hoc on demand Dynamic Trusted Multipath Distance Vector (AODTMDV) has been proposed for performing effective and secured multi-path routing in MANETs.

Keywords

Trust prediction model Intrusion detection system Multipath

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Dynamic Trust Based Secure Multipath Routing for Mobile Ad-Hoc Networks

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Abstract. In this paper, we propose a new secure routing protocol for mobile Ad-hoc networks. The proposed new secure routing protocol works by evaluating the trustworthiness of each node to reduce the hazards from malicious mode and enhance the security of network. A new trust computation model is used to calculate the trustworthiness of a node based on the historical behavior. The trust value is evaluated by including the intruder node using Intrusion Detection System (IDS). In this paper, intruder nodes are detected based on the packet delivery mode during the communication. The Ad-hoc on demand multipath distance vector routing protocol is used in this paper which is based on the trust model that computes the trust of nodes and makes decision accordingly. A new dynamic and trust-based routing protocol named Ad-hoc on demand Dynamic Trusted Multipath Distance Vector (AODTMDV) has been proposed for performing effective and secured multi-path routing in MANETs.

Keywords: Trust prediction model · Intrusion detection system · Multipath

1 Introduction

Nowadays, there is a rapid increase in the interest to deploy the new mobile technologies in everyday world. People are able to communicate from anywhere and at any time to request services from various locations. A Mobile Ad-hoc Network (MANET) is a connectionless network that allows mobile nodes to join and leave at any time due to the attackers. Trusted routing is carried out after the fault tolerant routing is to reduce the complexity by avoiding the error node using error reporting protocol in fault tolerant routing. In some existing systems, initially the trust of the nodes is calculated and routing is carried based on that. After that, sometimes the trusted nodes energy may reduce or that node is considered for routing because of not in communication path.

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So, in the proposed system the fault tolerant routing may provide the nodes involved in the routing phase. From that, the trust of the nodes is calculated and routing will be reconstructed as secure multipath routing. The reliability of hub is assessed in this model, which is utilized with an attacking prevention system to agreeably distinguish and disconnect the vindictive hubs from the system. At long last, a trusted way is acquired in view of the trust esteem. So, there is no guarantee that some trusted nodes are permanent members of the network to improve the reliability [1].

Trust is used to measure the degree of belief by an individual or node regarding the transaction behavior of any other individual or node. In computer network, it is necessary to know the trust values of other nodes in order to provide secure communication. A trusted node in a computer network is different from a malicious node. A trusted node sends all the packets to the neighbors. On the other hand, a malicious node will drop the packets which are of important to the communication. Moreover, a trusted node is helpful in nature and helps to enhance the security and performance whereas a malicious node will try to destruct the communication by either carrying out active attacks or passive types of attacks. Therefore, isolation of malicious nodes using trust measure will reduce the risk in computer communication.

Nomenclature

IDS	Intrusion Detection System
AODTMDV	Ad-hoc on demand Dynamic Trusted Multipath Distance Vector
MANETs	Mobile Ad-hoc Networks
AOMDV	Ad-hoc On-demand Multi-path Distance vector routing protocol
AODV	Ad-hoc On-demand Distance Vector Routing Protocol

The trust mechanism makes decision based on some trust related information [1]. Generally, intrusion detection systems are classified into two methods such as detecting misbehavior and anomaly detection system. Misuse detection systems detect attacks based on the known attack signatures. The main advantage of developing intrusion detection system is that they can reduce false positives [2]. In this work, trust prediction model and recommendation model for path formation is implemented using the base of AODV. Some of the related work also discussed in Sect. 2 which helps to understand the problem defined here. And finally, the experiments are carried out and performance analysis is done using the bench mark parameters in Sect. 4.

2 Related Work

There are many works which are present in literature and explain about the techniques for intrusion detection. Among them, Sun et al. [3] have proposed a new information theory based framework to estimate trust and to model it in ad hoc networks. In their framework, trust is considered as a measure of belief about nodes in the environment. Liang and Shi [4] proposed two kinds of measures to handle uncertainty in trust modeling for this purpose; they have proposed a new algorithm which can estimate the trust effectively.

Trust model can be build based on the requirements given by the user's in the group. In [5], the cluster based trust model is implemented by which within the certain

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cluster, the nodes are evaluated with their trust using the cluster head. In this work, the cluster head is considered as overall administrator for maintaining the trust level of the individual node. If sometimes, node maybe in two different clusters then each cluster has to given the trust value for that node separately. This will reduce the computational complexity for the individual nodes.

The intelligent energy aware approach for wireless sensor networks is given in [6] which use the intelligent rules with standard classification to make a efficient decision for routing. In [7], fuzzy clustering method is used for energy efficient routing with intelligent rules. This system really makes the communication in a secure way with energy efficiency. Quality of services is the main theme while the routing between the nodes in MANET as discussed in [8]. This work uses the context aware approach with fuzzy based technique to make routing in MANET.

The performance evaluation of routing mechanism in MANET is examined by implementing reusability in path formation. It also includes load balanced process by analyzing the proper channel [9]. Another work discussed in [10] describes the trust based routing mechanism in MANET. Hierarchical based fuzzy approach is applied here too implement trust routing.

Based on the literature survey, it comes to know that trust based routing is needed for network communications. And also, the available techniques for trust based routing are efficient in some manner but not satisfied on all QoS parameters. This proposed work implements the trust based routing using the basic AODV protocol and enhance by applying intelligent rules. With these trust mechanism, intrusion detection system is also introduced which makes the system secure.

3 System Architecture

The architecture of the system proposed in this work consist of four major components namely trust evaluation module, Intrusion Detection System module, trust path formation module and trust based secure routing strategy as shown in Fig. 1.

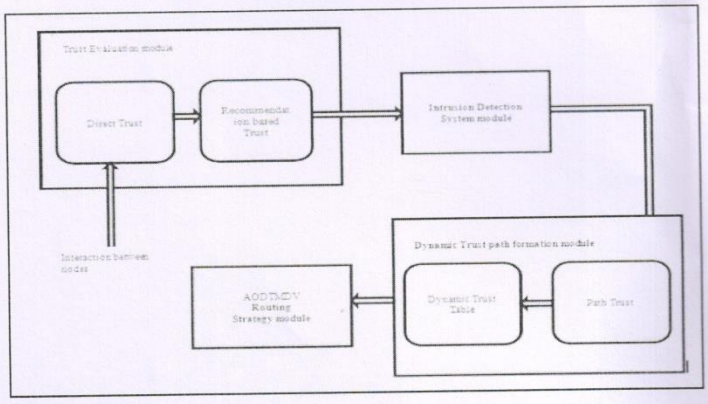

Fig. 1. System architecture

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This architecture explains the trust based routing system and the new trust prediction model used to identify a secure path with the help of intrusion detection system.

3.1 Trust Prediction Model

In this work, trust is evaluated based on knowledge from neighbours called historical trust and also by the direct trust obtained from the transactions. However, temporal constraints are additionally considered in this work to improve the accuracy of the trust values.

Direct trust of the node is calculated by using the information retrieved from the neighbour nodes is computed using equation via utilizing two neighbour entities' historical interaction information. Stn(i, j) means node ***i*** make a satisfactory mode of node ***j*** and the value must be between 0 and 1. It also includes the past score Pij.

$$DT_{ij}^{tn} = \frac{\sum_{m=0}^{tn} S_{tn}(i,j)}{N} + P_{ij} \tag{1}$$

DT_{ij} is the direct trust evaluated by node ***i*** for node ***j***. ***N*** is the number of interaction between node ***i*** and node ***j*** and ***tn*** is the n^{th} time interval.

The recommended trust value RT is evaluate using the recommendation value of each node in the path RC and direct trust value of the node DT. For example, j is the neighbouring node for node i, then the trust value for j is evaluated by applying the recommendation given by i.

$$RT_{irj} = RC_{ir} + DT_{rj} \tag{2}$$

RC_{it} is represented as the recommending path as given in Eq. (3) by applying the direct value of all nodes DT.

$$RC_{it} = DT_{i1} \times DT_{12} \times DT_{23} \times \ldots \quad \ldots \times \quad DT_{(r-1)r} \tag{3}$$

Assuming there are n recommending nodes. Using these trust attenuation rules, it is possible to get ***n*** recommendation trust values: $RT_{iP1j}, RT_{iP2j}, \ldots, RT_{iPnj}$. Then node ***i*** can computes the recommendation trust RT_{ij} for node j using Eq. (4).

$$RT_{ij} = \sum_{k=1}^{n} RT_{ipkj} \tag{4}$$

Finally, node i make a synthesis of the evaluated node ***j***'s historical trust value via Eq. (5) for the time ***t*** in the time interval [t_1, t_2]

$$HTV_{ij} = \alpha DT_{ij}(t) + \beta RJ_{ij}(t) \quad t_1 \le t \le t_2 \tag{5}$$

From Eq. (5), it is observed that the historical trust value HTV is evaluated using direct trust between the source and destination node. In this α and β are the co-efficient which combined and considered as 1. The weights α and β are assigned to DT_{ij} and RT_{ij} respectively.

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The trust score is evaluated for individual node based on the following two constraints. First one evaluates the nodes which perfectly send their acknowledgement to neighbors whenever they receive the packets. Second one is evaluating the Nodes which are dropped the packets more.

$$ITV_i = (ACK/RP) \tag{6}$$

where

ITV_i = Trust value of node i
ACK = No. of acknowledgements sent to the neighbours
RP = No. of packets received from neighbours

Finally, the overall trust score of the particular node is calculated by using the equation.

$$TV_{ij} = \left(ITV_i + HTV_{ij} * 2\right)/2 \tag{7}$$

The threshold value is calculated using equation based on the mean value of the overall trust score for all the nodes which is present in the network scenario.

$$TM = \sum TV_i/n \tag{8}$$

Table 1. Trust table of node *i*

Node_id	Trust value	Backlist
I	93	0
J	73	0
K	23	1
....	....	....

The threshold value TM is evaluated for the network nodes and also malicious nodes are included in the black list in the trust table as given in Table 1. The node trust value which is lower than the threshold value TM is considered as malicious nodes. Based on the trust value of all nodes, the threshold value TM evaluated as 23 for TV_{jk}. Then the node K is thought as malicious node to the node J and it is included as malicious node in trust table. The flag is raised as 1 once the node is included in black list.

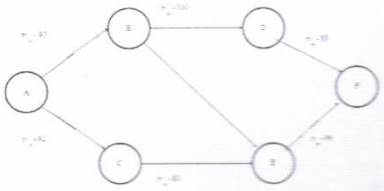

Fig. 2. Path trust computation

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3.2 Trust Path Formation

Once the trust value is evaluated based on recommendation of neighbor nodes the path using that trust value is formed as given in Eq. (9).

$$\textit{Path Trust Value: Path } TV_{sd} = \min\left\{ \underbrace{TV_{nk}}_{\substack{s \le n \le d-1 \\ k = n+1}} \right\} \tag{9}$$

From the Eq. (9), the trust value for the specific path is calculated between the source node s and destination node d. Adjacent node for the path is taken as m and k. The graph given in Fig. 2 represents the directed path communication between the node A and B where there is the directed edge is mentioned with the trust value (TV(AB) = 90).

And also the overall trust value for PathTV(AF) = min{TV(AB), TV(BD), TV(DF)} = min{90, 100, 88} = 88). From Fig. 2, it can be seen that there are different paths are available from A to F. The route trust value is calculated and most trustworthy path is considered for communication (i.e. Path TV(AF) = 90). The trust value of all intermediate nodes within the path is taken into account for calculating path trust value.

Routing with path trust value is given as procedure as follows.

Step 1: Prepare route request packet.
Step 2: Obtain historical trust values.
Step 3: Perform route discovery
Step 4: Find the best five routes based on distance and trust values
Step 5: Check the application.
Step 6: If it is TCP based use route1 and route2 else use route 3, route 4 and route 5.

4 Result and Discussion

The experiments are carried out the set up the simulation environment using NS2. The topology is build by mentioning the mobility of the node and its speed with pause time. The standard AODV is modified by incorporating trust based mechanism and it called as Ad-hoc on demand Trust based Distance Vector (AOTDV) protocol. It also identifies the malicious nodes in the network using this approach.

Table 2. Packet delivery ratio analysis

No. of malicious node	Packet delivery ratio (%)	
	AOTDV	AODTMDV
0	100	100
5	85	89
10	60	66
15	58	62
20	56	59

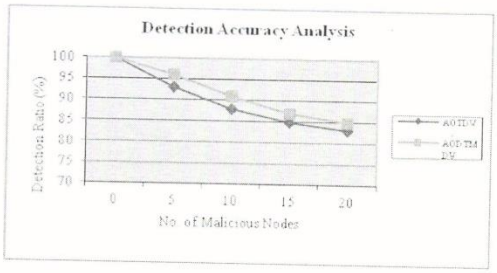

Fig. 3. Detection accuracy analysis

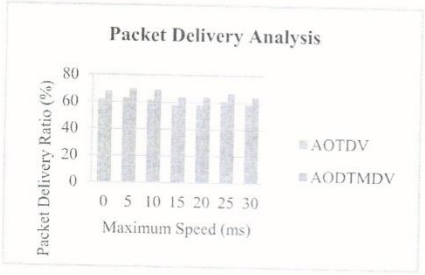

Fig. 4. Packet delivery analysis based on speed

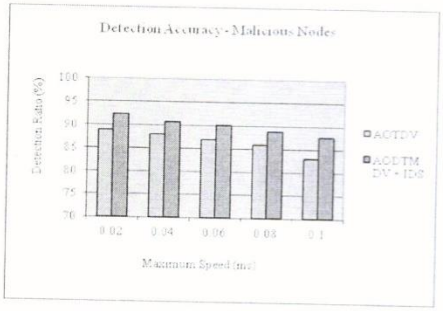

Fig. 5. Performance analysis of AOTDV and AODTMDV + IDS

Table 2 shows the performance analysis of proposed AODTMV using packet delivery ratio. The results are shown that proposed approach is far better than existing AODV routing protocol which also explained in chart representation as shown in Fig. 4. And, Fig. 3 shows the pictorial representation of the detection accuracy of proposed AODTMV by comparing with AODTV. The detection accuracy is not only based on the detection of malicious nodes but it also detects the intrusion in the network. Figure 5

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SELECTING OUTPUT VARIABLES IN DEA USING 2 - LEVEL FRACTIONAL FACTORIAL DESIGN.

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Abstract: *Data Envelopment Analysis (DEA) is a data oriented, non – parametric method to evaluate relative efficiency based on pre – selected Inputs and Outputs. It is a linear programming based technique for measuring the relative performance of organisational units where the presence of Multiple Inputs and Outputs makes comparison difficult. In some cases, the performance model is not well defined, so it is crictical to select the appropriate Inputs and Outputs by other means. We used, Morita and Avkiran propose after it has been developed an Input – Output Selection Method that uses Fractional Factorial design, Which is an Statistical approach to find an optimal combination. In this study* 2^{k-p} *Fractional Factorial design is applied to demonstrate the proposed method relates to the Manufacture of Pharmaceuticals, Medicinal Chemical and Botonical Products from the Manual of Annual Survey of Industries (ASI) 2016 – 2017.*

Keywords: *Data Envelopment Analysis (DEA), Decision Making Units(DMUs), CCR, BCC, Super Efficiency, Mahalanobis Distance.*

INTRODUCTION

Companies in this Industry segment furnish the active ingredients used by pharmaceutical firms to manufacture finished products, called the pharmaceutical preparations. Active ingredient constitute the portion of a finished drug that creates the desired effect – therapeutic or preventive for human and animals sources are important examples of the components produced by this industry sector. By the 1960's synthesized chemicals either a manufactured copy of an organic or in organic substance or a New Chemical Entity (NCE) had become common active ingredients in pharmaceuticals from vitamin pills to hormones. Meanwhile, the bio technology revolution beginning the earnest in the 1980's, resulted in ways of inserting genetic material into small micro organisms. This made them miniature factories for the production of active drugs ingredients like Insulin and in the process, created New Molecular Entities (NME's) that could be patented.

By the late 1990's, the primary market of this Industry the pharmaceutical industry risked high research and development costs for the prized billions of dollars it could generate with new products. Although many drug companies have vertically production lines, a trend grew to favour outsourcing chemical intermediates and active ingredients to smaller fine chemical companies.

This classification covers establishments primarily engaged in manufacturing bulk organic and inorganic medicinal chemicals and their derivatives as well as processing grading, grinding, Milling bulk botanical drugs and herbs. Included in this industry are establishments primarily engaged in manufacturing agar and similar products of Natural

Origin, Endocrine products, Manufacturing or Isolating active medicinal principals from botanical drugs and herbs.

In this paper, we are interested to show the efficient performance of the companies in manufacturing pharmaceutical, Medicinal Chemicals and Botonical products and also uses the diagonal layout experiment to select output variables which is a statistical approach to find an optimal combination to analyse the performance of the above mention Industry by using the technique Data Envelopment Analysis.

Data Envelopment Analysis (DEA) is a linear programming based technique for measuring the performance efficiency of similar type of organisational units termed as Decision Making Units (DMU's), with Multiple Inputs and Outputs. It identifies a subset of efficient "Best Practice" DMUs and for remaining DMUs, the magnitude of their non – efficiency is measured by comparing to a frontier constructed from the efficient DMUs. Data Envelopment Analysis (DEA) is a data oriented, non – parametric method to evaluate relative efficiency base on pre – selected Inputs and Outputs.

Decision Making Units (DMUs) refers to the similar type of organisations that consumes a variety of identical Inputs to produce a variety of identical outputs. DMU can include manufacturing units, Department of big Organisations such as Universities, Schools, Bank Branches, Hospitals, Power Plants, Police Stations, Tax Offices etc.

The rest of the paper is organized as followings: Section II, review of literature. In Section III, a procedure of Selecting Output variables using 2 – level Fractional Factorial Design and Mahanalobis distance is presented. An empirical example is described in Section IV to illustrate the methodology presented herein. The main results of the paper are summarized in Section V.

REVIEW OF LITERATURE:

Farrel (1957) is considered to be the most influential paper on DEA. The further pioneering contributions were made by CCR (1978, 1979) and CCR (1981). Banker, Charnes and Cooper (1984) and Charnes et al (1985). Banker and Morey (1986) have evaluated the relative technical and scale efficiencies of DMUs by means of mathematical programming formulations when some of the inputs and outputs are exogenously fixed and beyond the discretionary control of DMU personnel. A large number of papers have extended and applied the DEA Methodology (Coelli, 1996). Charnes, Haag, Jaska and Semple (1992) use a Super Efficiency model to study the sensitivity of the efficiency classifications. Zhu (1996b) and Seiford and Zhu (1998d) develop a number of new super Efficiency models to determine the efficiency stability regions. Anderson and Peterson (1993) propose using the CRS Super Efficiency model in ranking the efficient DMUs. Also, the Super Efficiency Model in ranking the efficient DMUs. Also, the Super Efficiency can be used in detecting influential observations (Wilson 1995) and in identifying the extreme efficient DMUs (Thrall, 1966). Seiford and Zhu (1999c) study the infeasibility of various Super Efficiency models developed from the envelopment models presents other super efficiency models that are used in Sentivity Analysis. Hiroshi Morita and Necmi. K. Avkiran (2008) developed the method for selecting Inputs and Outputs in data envelopment analysis by designing statistical

experiments. Hulya Bayrak, Oday Jayies and Kubra Durukan demonstrated the proposed method of Morita and Avkiran using of Fractional Factorial design r^{k-p} in data Envelopment Analysis to selection of Outputs and Inputs.

METHODOLOGY

DEA converts multiple inputs and outputs into scalar measure of efficiency. There are basically two types of DEA Models CCR Model (Constant Returns to Scale) and BCC Model (Variable Return to Scale). The two envelopment versions, one involving θ and the other involving ϕ. The version involving θ aims to produce the observed Outputs with minimum Inputs and it is referred to as Input Oriented Envelopment DEA Program. The other version involving ϕ refers to as an Output Oriented Envelopment DEA Program as it aims to maximize output production, subject to the given resource level.

Models	Input Oriented	Output Oriented
1. CCR	(i) Min θ Subject to, $Y\lambda \geq Y_0$ $X\lambda \leq \theta_0 X_0$ $\lambda \geq 0$; θ free	(ii) Max ϕ Subject to, $Y\lambda \geq \phi Y_0$ $X\lambda \leq X_0$ $\lambda \geq 0$; ϕ free
2. BCC	(iii) Min θ Subject to, $Y\lambda \geq Y_0$ $X\lambda \leq \theta_0 X_0$ $\sum_{n=1}^{N} \lambda_n = 1$ $\lambda \geq 0$; θ free	(iv) Max ϕ Subject to, $Y\lambda \geq \phi Y_0$ $X\lambda \leq X_0$ $\sum_{n=1}^{N} \lambda_n = 1$ $\lambda \geq 0$; ϕ free

Where θ and ϕ = Efficiency Measure

$X = [X_1, X_2, X_3, \ldots, X_N]$ = Vector of Inputs

$Y = [Y_1, Y_2, Y_3, \ldots, Y_N]$ = Vector of Outputs

$\lambda = [\lambda_1, \lambda_2, \lambda_3, \ldots, \lambda_N]$ = Vector of Weights

Y_0 = Output of the Observed DMU

X_0 = Input of the Observed DMU

N = Number of DMUs.

The Model (1) is an Input and Output Oriented CCR Model. The Input and Output Oriented Envelopment Model is solved for each DMU in the set, it gives an efficiency score θ or ϕ and DMU weights λ_N. If θ = 1 and ϕ = 1, then the DMU is said to be Efficient and there is no slacks. If θ < 1 and ϕ > 1, then the DMU is Inefficient related to best practice DMU in the sample and efficient DMUs comprise the efficient frontier.

The Model (2) is an Input and Output Oriented BCC Model. The Input and Output Oriented Envelopment Model is solved for each DMU in the set, it gives an efficiency score θ or ϕ and DMU weights λ_N. If θ = 1 and ϕ = 1, then the DMU is said to be Efficient and there is no slacks. If θ < 1 and ϕ > 1, then the DMU is Inefficient related to best practice DMU in the sample and efficient DMUs comprise the efficient frontier.

3.1 Super Efficiency Model:

In this paper, in order to rank DMUs, we use the evaluation contexts that are obtained by partitioning the set of DMUs into several levels of Efficiency, and rank all DMUs with two criteria: the High and Low performers. The influence of all DMUs, both Efficient and Inefficient in Ranking, Author have proposed methods for ranking the best performers, for instance using Super – Efficiency DEA Model.When a DMU under evaluation is not included in the reference set of the envelopment Models, the resulting DEA Models are called Super – Efficiency DEA Models.

As in Charnes, Cooper and Thrall (1991), the DMUs can be partitioned into four classes E, E', F and N described as follows and the extreme efficient DMUs can be identified by the Super efficiency Models.

E – The set of Efficient DMUs

E' – The set of Efficient DMUs that are not extreme points and expressed as linear combinations of the DMUs in set E.

F – The set of Frontier points (DMUs) with non zero slack(s) are called Weakly Efficient

N – The set of Inefficient DMUs.

3.2 Selecting Output Variables Using a 2 – Level Fractional Factorial Design:

Based on the Efficiency score, the whole DMU's are categorized into two groups namely High performers and low performers with the objective of selecting the appropriate variables. The distance between the two groups is measured by the Mahalanobis distance.

3.3 Mahalanobis Distance:

In Statistics, Mahalanobis distance (MD) is a distance measure introduced by P.C. Mahalanobis in 1936. It is based on correlations between variables by which different patterns can be identified and analysed. It gauges similarity of an unknown sample set to a known one. It differs from Euclidean distance in that it takes into account the correlations of the data set and is scale – invariant. In other words, Mahalanobis distance is a Multivariate effect size.

Formally, the MD of a Multivariate vector $x = (x_1, x_2, \dots, x_N)^T$ from a group of values with mean vector $\mu = (\mu_1, \mu_2, \dots, \mu_N)^T$ and the Covariance Matrix Σ.

$$D_M(x) = \sqrt{(x - \mu)^T \Sigma^{-1} (x - \mu)} \quad \text{---------- (1)}$$

The above equation is rewritten for the sample following as

$$\widehat{D}_M(x) = \sqrt{(x - \bar{x})^T \mathrm{S}^{-1} (x - \bar{x})} \quad \text{---------- (2)}$$

Where the Mean Vector and Covariance Matrix of the sample are given as $\bar{x}$ and S respectively.

The MD threshold is another important element of prognostics analysis. An MD threshold value which is either too large or too small leads to false negatives or false positives, respectively. In this study, the author considers the distance of one – dimensional variables, where MD coincides with Welch Statistics. The Welch Statistics is given as

$$d = \frac{\bar{\theta}_h - \bar{\theta}_l}{\sqrt{\frac{V_h}{n_h} + \frac{V_l}{n_l}}} \quad \text{---------- (3)}$$

Where the mean and variance of each group are given as$\bar{\theta}_h$, V_h, for $n_h$high performance and $\bar{\theta}_l$, V_l, for $n_l$low performance.

3.4 2 – Level Fractional Factorial Design:

The aim is to find that combinations of output variables which maximizes the distance d. In our analysis, we applied the 2 – level Factorial Design. When there are k candidates of output variables, the total number of combinations is 2^k. Full Factorial designs perform all of 2^k combinations for k candidates. On the other hand, we can define a 2^{k-p} design to be a Fractional Factorial Design with k candidates, each at two levels, consisting of 2^{k-p} runs. The first (k – p) candidates are part of 2^{k-p} combinations as a Full Factorial Design, and the remaining p candidates can be generated as interactions with the first (k – p) columns. Table 1 shows the example of a Fractional Factorial Design where k = 5, p = 2, and x_i is a candidate variable. '+' means that the variable is selected as an Output, and '–'means that the variable is not selected as an Output. For example, the variables x_1, x_2, x_3 are selected as outputs in run No.3.

Based on the Fractional Factorial design in Table 1, we calculate the efficiency scores by Model 1 (i) and Mahalanobis distance by (3) between two groups using the selected Output variables. The analysis of Variance (ANOVA) for the Fractional Factorial Design appears in Table 2.

Table 1: Fractional Factorial Design for 2^{5-2} and selected Outputs

Runs	x_1	x_2	x_3	x_4	x_5	Selected Outputs	Mahalanobis Distance
1	+	+	+	+	+	x_1, x_2, x_3, x_4, x_5	d_1
2	+	+	-	-	-	x_1, x_2	d_2
3	+	-	+	+	-	x_1, x_3, x_4	d_3
4	+	-	-	-	+	x_1, x_5	d_4
5	-	+	+	-	-	x_2, x_3	d_5
6	-	+	+	-	+	x_2, x_4, x_5	d_6
7	-	-	+	-	+	x_3, x_5	d_7
8	-	-	-	+	-	x_4	d_8

The total sum of squares S_T is given as

$$S_T = \sum_{i=1}^{n} (d_i - \bar{d})^2 \quad \text{---------- (8)}$$

The sum of squares S_i for candidate i reflects the main effect of the variable, which is the difference between '+' and '–'as,

$$S_i = 2\{\bar{d}\,(x_i +) - \bar{d}(x_i -)\}^2 \text{ ---------- (9)}$$

Where $\bar{d}\,(x_i +)$ is the Mean of the Mahalanobis distances observed when $x_i = +$. The residual sum of squares S_E is given by subtracting the sum of S_i from S_T.

$$S_E = S_T - (S_1 + S_2 + S_3 + S_4 + S_5) \text{ ---------- (10)}$$

The total degree of freedom is ϕ_T = 7, which is the number of runs minus 1, and the degree of freedom for each sum of squares is ϕ_i = 1. Therefore the degree of freedom for the residual is given as,

$$\phi_E = \phi_T - (\phi_1 + \phi_2 + \phi_3 + \phi_4 + \phi_5) = 2 \text{ ---------- (11)}$$

The Null Hypothesis that the candidate has no effect as an output is tested by using F Statistics,

$$F = \frac{S_i/\phi_i}{S_E/\phi_E} \quad \text{---------- (12)}$$

The test rejects the Null Hypothesis at level α if F – value exceeds α percentile of F distribution with degrees of freedom (ϕ_i, ϕ_E), and the hypothesis tests is as following:

H_0: The variable candidate has no effect on Output.

H_1: The variable candidate has effect on Output.

This results in the optimal combination of output variables

Table 2: ANOVA table for Fractional factorial Design of 2^{5-2}

Variables	Sum of Squares	Degrees of Freedom	Mean Sum of Squares	F Statistics
x_1	S_1	$\phi_1 = 1$	$V_1 = \frac{S_1}{\phi_1}$	$\frac{V_1}{V_E}$
x_2	S_2	$\phi_2 = 1$	$V_2 = \frac{S_2}{\phi_2}$	$\frac{V_2}{V_E}$
x_3	S_3	$\phi_3 = 1$	$V_3 = \frac{S_3}{\phi_3}$	$\frac{V_3}{V_E}$
x_4	S_4	$\phi_4 = 1$	$V_4 = \frac{S_4}{\phi_4}$	$\frac{V_4}{V_E}$
x_5	S_5	$\phi_5 = 1$	$V_5 = \frac{S_5}{\phi_5}$	$\frac{V_5}{V_E}$
Error	S_E	$\phi_E = 2$	$V_E = \frac{S_E}{\phi_E}$	
Total	S_T	$\phi_T = 7$		

The following is the summary procedure for the selection of variables.

- List potential Input Output Variables
- Use external criteria to distinguish the performance of two groups, e.g. high and low performance. (Here the author used BCC Model and Super Efficiency Model for grouping)
- Assign the variables to an Orthogonal layout and determine the combination of selected variables used in the experiments. (To Select Output Variables alone 2 – level Fractional Factorial Orthogonal layout is used and to select both Input and Output Variables then choose 3 – level Fractional Factorial design)
- Calculate the DEA Efficiency Score and Mahalanobis distance between the two groups by using the selected variables.
- Determine the optimal combination of Input and Output variables based on results of Analysis of Variance.
- Identify the optimal designation of statistically significant variables as either an Input or an Output using Mahalanobis distance.

DATA DESCRIPTION

The data analysed in this paper is a secondary data of Manufacturing Pharmaceuticals, Medicinal Chemical and Botonical Products taken from the published Manual of Annual Survey of Industries (ASI) 2016 – 2017. The data provides the information about the Number of Employees, Number of Factories in Operation, Fixed Capital, Gross Value of Plant and Machinery, Materials Consumed, Fuel Consumed, Wages and Salaries, Net Value Added, Total Output, Income, Profit and Gross Capital Information for each States (ie., 35 – Including Union Territories) during the year 2016 - 2017. Here, the author considered only the 24 States (Including Union Territories) as DMUs by considering only the positive values of the variables and then each DMU is characterized by the following Inputs and Outputs as shown in Table 3. (Appendix 1)

4. EMPRICAL ANALYSIS:

Table 4: Efficiency Score, Peers And Rank By BCC Model

S. No	State/UT/Division	Efficiency Score	Status	Peer Weights	Peer Count	Rank
1	Andhra Pradesh	1	Efficient			
2	Assam	1	Efficient		2	4
3	Bihar	1.0088	Inefficient	$\lambda_2 = 0.02$; $\lambda_4 = 0.78$; $\lambda_6 = 0.20$;		
4	Chhattisgarh	1	Efficient		5	2
5	Dadra and Nager Haweli	1	Efficient		1	5

6	Delhi	1	Efficient		1	5
7	Goa	1	Efficient		7	1
8	Gujarat	1	Efficient		2	4
9	Haryana	1	Efficient			
10	Himachal Pradesh	1	Efficient			
11	Jammu and Kashmir	1	Efficient		1	5
12	Karnataka	1.2437	Inefficient	$\lambda_7 = 0.59$; $\lambda_8 = 0.13$; $\lambda_{19} = 0.29$;		
13	Kerala	1	Efficient		1	5
14	Madhya Pradesh	1.2	Inefficient	$\lambda_4 = 0.33$; $\lambda_7 = 0.52$; $\lambda_{18} = 0.15$;		
15	Maharashtra	1	Efficient			
16	Odisha	1.6097	Inefficient	$\lambda_2 = 0.00$; $\lambda_4 = 0.98$; $\lambda_7 = 0.00$; $\lambda_{11} = 0.01$; $\lambda_{19} = 0.00$;		
17	Puducherry	1.2931	Inefficient	$\lambda_4 = 0.83$; $\lambda_7 = 0.11$; $\lambda_{18} = 0.07$;		
18	Rajasthan	1	Efficient		2	4
19	Sikkim	1	Efficient		3	3
20	Tamil Nadu	1.4197	Inefficient	$\lambda_7 = 0.08$; $\lambda_8 = 0.10$; $\lambda_{19} = 0.83$;		
21	Telegana	1	Efficient			
22	Uttar Pradesh	1	Efficient		1	5
23	Uttarakhand	1.0436	Inefficient	$\lambda_7 = 0.90$; $\lambda_{13} = 0.10$;		
24	West Bengal	1.0436	Inefficient	$\lambda_4 = 0.75$; $\lambda_5 = 0.03$; $\lambda_7 = 0.12$; $\lambda_{22} = 0.10$;		

From the above table, the author cannot categorize the DMUs in groups. So for instance using Super – Efficiency DEA Model the tie ranks were solved and the DMUs were categorized in two groups namely High Performance and Low Performance by considering the set of extreme efficient DMUs in High Performance and the set of inefficient DMUs in Low Performance as shown in the below Table 5.

Table 5: Efficiency Score by Super Efficiency Model

S. No	State/UT/Division	Efficiency Score	Status	Rank
1	Andhra Pradesh	1.6818	Extreme Efficient	High Performance
2	Assam	1.8113	Extreme Efficient	High Performance
3	Bihar	0.8821	Inefficient	Low Performance
4	Chhattisgarh	Big	Extreme Efficient	High Performance
5	Dadra and Nager Haweli	1.3029	Extreme Efficient	High Performance
6	Delhi	1.1993	Efficient	
7	Goa	1.8803	Extreme Efficient	High Performance
8	Gujarat	1.3534	Extreme Efficient	High Performance
9	Haryana	10.5115	Extreme Efficient	High Performance
10	Himachal Pradesh	0.8266	Inefficient	Low Performance
11	Jammu and Kashmir	1.5722	Extreme Efficient	High Performance
12	Karnataka	0.72	Inefficient	Low Performance
13	Kerala	1.0457	Efficient	
14	Madhya Pradesh	0.8307	Inefficient	Low Performance
15	Maharashtra	0.8135	Inefficient	Low Performance
16	Odisha	0.6101	Inefficient	Low Performance
17	Puducherry	0.7678	Inefficient	Low Performance
18	Rajasthan	1.1045	Efficient	
19	Sikkim	2.4227	Extreme Efficient	High Performance
20	Tamil Nadu	0.5373	Inefficient	Low Performance
21	Telegana	0.8074	Inefficient	Low Performance
22	Uttar Pradesh	1.9017	Extreme Efficient	High Performance
23	Uttarakhand	0.7991	Inefficient	Low Performance
24	West Bengal	0.9029	Inefficient	

The author constructed two groups, High Performance and Low Performances based on the value of Super Efficiency Scores and it is shown in Table 6 (Appendix 2).

Based on the Fractional Factorial design in Table 1, the author calculated the Efficiency Scores and Mahalanobis distance between the two groups using selected Outputs and shown in Table 7 and Table 8 shows the analysis of variance of the data, where the level of significance is shown as the p – value. Since the p – value is greater than 0.05, the candidate variables of X_1, X_2, X_3 and X_4 has no effect on Output.

The final step in our procedure generates Table 9 which shows Sum of the Mean of the Mahanalobis distance (MD) for each variable at each level. For example, when variable X_2 is selected as an Output, the Sum of the Mean of MD is 1.464 and when it is not selected as an Output then the Sum of the Mean of MD is 0.4539. Thus, given that the largest value of MD for variable X_2 is 1.464 and it should be selected as an Output. Maximum values are indicated in bold font in Table 9. Thus we select three variables as Outputs namely, X_2 (Income), X_3 (Profit) and X_5 (Gross Fixed Capital Information). Then run the DEA Model 1(i) using the selected Outputs and it has been shown in Table 10 (Appendix 2).

Table 7: Selected Output Variables and Mahalanobis Distance

Runs	**x1**	**x2**	**x3**	**x4**	**x5**	**Selected Outputs**	**Mahalanobis Distance**
1	+	+	+	+	+	x_1, x_2, x_3, x_4, x_5	**1.964**
2	+	+	-	-	-	x_1, x_2	**-1.4914**
3	+	-	+	+	-	x_1, x_3, x_4	**-1.8298**
4	+	-	-	-	+	x_1, x_5	**1.964**
5	-	+	+	-	-	x_2, x_3	**-0.9726**
6	-	+	-	+	+	x_2, x_4, x_5	**1.964**
7	-	-	+	-	+	x_3, x_5	**2.1495**
8	-	-	-	+	-	x_4	**-1.8298**

Table 8: Anova Table for 2^{5-2} Fractional Factorial Design

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25.571[a]	5	5.114	368.299	.003
Intercept	.460	1	.460	33.112	.029
X1	.062	1	.062	4.465	.169
X2	.128	1	.128	9.185	.094
X3	.062	1	.062	4.465	.169
X4	.238	1	.238	17.170	.054
X5	25.081	1	25.081	1806.212	.001
Error	.028	2	.014		
Total	26.059	8			
Corrected Total	25.599	7			

a. R Squared = .999 (Adjusted R Squared = .996)

Table 9: The Sum of the Mean of the Mahanalobis distance

Variables	Selected as an Output	Not Selected as an Output
X_1	0.6068	1.3111
X_2	**1.464**	0.4539
X_3	**1.3111**	0.6068
X_4	0.2684	1.6495
X_5	**8.0415**	-6.1236

CONCLUSION

The author considered an Output Selection method that applies a 2 – level Fractional Factorial design, Mahanalobis Distance and ANOVA. The Concept of Super Efficiency Model is used to distinguish between the two groups as high Performance and Low Performance. Variables are Selected from the results of ANOVA to Maximize the Mahanalobis Distance between the two groups. The author finds an effective variable combination Method from a limited number of experiments and demonstrated the effectiveness of this new approach using a secondary data relates to the Manufacture of Pharmaceutical Medicinal Chemical and Botonical products published in the Manual of Annual Survey of Industries (ASI) 2016 – 2017. The Selected Outputs measure the performance efficiency that can effectively distinguish between the two groups of High Performance and Low Performance.

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SELECTION OF INPUT VARIABLES IN DEA USING 2 - LEVEL FRACTIONAL FACTORIAL DESIGN.

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Abstract

Data Envelopment Analysis (DEA) may be a data oriented, non – parametric method to gauge relative efficiency supported pre – selected Inputs and Outputs. It is a applied mathematics based technique for measuring the relative performance of organizational units where the presence of Multiple Inputs and Outputs makes comparison difficult. In some cases, the performance model isn't well defined, so it's critical to pick the acceptable Inputs and Outputs by other means. We used, Moritaand Avkiran proposed method after it has been developed an Input – Output Selection Method that uses Fractional Factorial design, which isan Statistical approach to find an optimal combination. In this study 2 k – p Fractional Factorial design is applied to demonstrate the proposed method relates to the Manufacture of Pharmaceuticals, Medicinal chemical and Botonical Products from the Manual of Annual Survey of Industries (ASI) 2016 – 2017.

KEYWORDS - Data Envelopment Analysis (DEA), Decision Making Units (DMUs), CCR, BCC, Super Efficiency, Mahalanobis Distance.

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QUANTUM COMPUTING

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ABSTRACT

With the continuous growth of technology and the desire to be linked to people and objects similar for more effective, faster and easier way of doing stuff, Internet of Things (IoT) or the network of "smart" devices that gathers and shares data to other grew exponentially. Business Insider Intelligence forecasted that "by 2023, Consumers, Companies and Governments will mount 40 billion IoT devices worldwide." In this paper we investigate the employment of quantum computing for resolving problems in wireless communication systems using IoT.

INTRODUCTION

IoT is just the network of interconnected things/devices which are embedded with sensors, software, network connectivity .

Quantum Computing and Internet of Things (IoT) coined as Quantum IOT defines a concept of greater security design which harness the virtue of quantum mechanics laws in Internet of Things (IoT) security management. Also it confirms protected data storage, processing, communication, data dynamics.

Quantum computing began within the early 1980s, when physicist Paul Benioff proposed a quantum mechanical model of the Turing machine . Quantum computing is a neighborhood of computing on technology supported the principles of scientific theory , which explains the behavior of energy and material on the atomic and subatomic levels.

HOW QUANTUM COMPUTERS WORK

In physics , if you apply an outdoor force to 2 atoms, it can cause them to become entangled and therefore the second atom can take the properties of the primary atom. So if left alone, an atom will spin altogether directions. The instant it's troubled it chooses one spin, or one value; and at an equivalent time, the second entangled atom will choose an opposite spin. This allows scientists to understand the worth of the qubits without actually watching them.

Classical computers that we use today can only encode information in bits that take the worth of 1 or 0. This restricts their ability. Quantum computing, on the opposite hand, uses quantum bits or qubits. It harnesses the unique ability of subatomic participles that permits them to exist in additional than one state i.e. a 1 and a 0 at the same time. Superposition and entanglement are two features of physics on which these supercomputers are based. This empowers quantum computers to handle operations at speeds exponentially above conventional computers and at much lesser energy consumption.

CONCLUSION

Quantum systems could seamlessly encrypt data, help us add up of the large amount of knowledge we've already collected, and solve complex problems that even the foremost powerful supercomputers cannot – such as medical diagnostics and weather prediction. In the U.S., Google, IBM and NASA are experimenting and building the primary quantum computers.

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IMAGE PROCESSING

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ABSTRACT

Image processing is the learning of concepts, models and algorithms for the manipulation of images It extents a wide variety of areas such as digitization, histogram manipulation, warping, filtering, segmentation and compression. Computer vision deals with concepts and algorithms for automating the development of visual perception, and involves tasks such as

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E-14

ARTIFICIAL INTELLIGENCE

R.Vajubunnisa Begum[1,*], S. Divya[2], S. Tamilarasi[3]
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ABSTRACT

To give a preview of what is artificial intelligence, how it works and the real-world applications of artificial intelligence. Artificial Intelligence is the concept of giving the ability to study to machines.AI works by merging large amounts of data . AI is a wide-ranging field of study that includes many models, methods and technologies. Some of them are:-

Machine learning: It mechanizes analytical model building.

Deep learning: it uses enormous neural networks with numerous layers of processing units.

Natural language processing (NLP): It is the capability of computers to study, recognize and produce human language, including speech. The following stage of NLP is natural language interaction, which permits humans to communicate with computers using normal, everyday language to perform responsibilities.

Graphical processing units:they are key to AI because they offer the heavy compute power that's essential for iterative processing. Training neural networks needs big data plus compute power.

The **Internet of Things**: It makes enormous amounts of data from connected devices, most of it unanalyzed. Automating models with AI will permit us to use more of it. The goal of AI is to deliver software that can reason on input and explain on output. AI will deliver human-like interactions with software and offer decision support for specific responsibilities.
Artificial Intelligence and the technology are one side of the life that always interest and wonder us with the novel ideas, topics, innovations, products ...etc. however there are numerous important tries to reach the level .This is not the end of AI, there is more to come , who knows what the AI can do for us in the future, maybe it will be a entire society of robots.

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E-6

ZIGBEE BASED DATA SECURED AND OPTIMAL CONDITION OF "WIRELESS COMMUNICATION" USING ADVANCED E-D STANDARDS.

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ABSTRACT
The role of communication in day to day life is extremely important.Communication are often of two types which are wireless or wired. Basically wireless communication is usually preferred over wired .But sometimes we'd like a secured wireless communication just in case of industries, companies etc. This paper helps in enabling the user for transmitting data wirelessly through ZigBee with encrypting data to supply security. In the paper it consists of two sections they're transmitter and receiver .The data are often sent to microcontroller through pc by using software called hyper terminal, this software is used for serial communication. The microcontroller after receiving the info it forwards the info to the ZigBee transmitter which is connected to the microcontroller. The data is encrypted and then transmitted to receiver. ZigBee transceiver does data transmission. Original data is Plain text whereas the modified data by using operations so that only authorized person can decode is called as Cipher text. The received data is decrypted and is displayed on pc which needs some password to open the info .So by this the info can't be hacked and is secured

Index Terms:Cryptography, Security, Wireless Network, ZIGBEE S2

E-7

A REVIEW STUDY OF SMART HEALTH CARE SYSTEM IN IOT

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ABSTRACT
The main goal of the proposed framework is to monitor the physical parameters such as Blood pressure, Respiratory level, ECG, oxygen level and Glucose level with the help of non – invasive sensors except glucose measurement for a Diabetes DCM patient. This system would generate an emergency notification for patients particularly with serious illness.

INTRODUCTION
The Old methods for DCM diagnosis lack the specificity and effectiveness. It was thus problematic to get early and precise diagnosis as well as treatment. Healthcare is one of the application domains in IoT along with sensors, gateway platform as processor aggregator and data storage platform as cloud computing by means of various communication technologies.

OVERVIEW OF THE SYSTEM

The physiological parameters can be uninterruptedly observed and showed on the Smart Phones/ PC through internet. Our system will be beneficial to a Diabetes DCM patient. The proposed Smart Monitor System improves healthcare delivery by interactive patient's data over three advanced network protocols – Bluetooth 5.0, Wi – Fi module and 4G LTE mobile connectivity. System has another facility to store the cloud database and these database stores all information of patient's health parameters in structured format using MYSQL server supported by PHP programming Language. Based on this information, the physician will prescribe medicine to patient. The aim of this prototype model is to demonstrate and implement a structure which includes slave and master circuit. The slave circuit integrates different sensors to monitor the patient's data and send it to Arduino/ Z - uno via Bluetooth 5.0. The Master circuit has used Raspberry Pi3 Model B+ processor as a gateway. This framework provides different protocols to support the communication and the collected data of patient are transmitted to the server for analyzing. After analyzing, Doctors can provide timely treatment and then prescribe medicine when the patient health status is in abnormal condition.

ENHANCED FEATURES IN THE PROPOSED MODEL

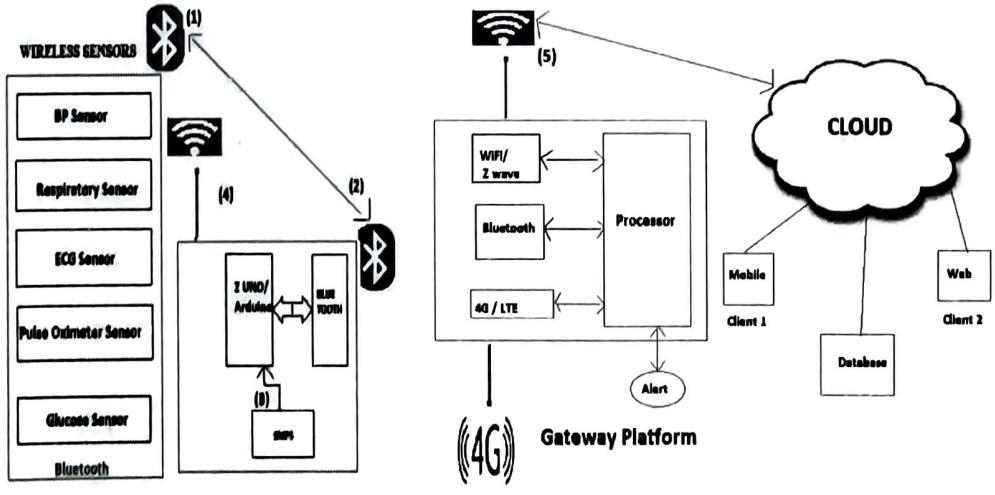
Network Protocols

Increased Data Range and Data speed, Large Memory Capacity, Long Battery Life, Economical, Good Compatibility, Reliability and Better Security.

Hardware Platform

Faster Wi-Fi Speed, Ups in Processing power, an increase of 16.7% efficiency, Faster wired Ethernet, On board dual band wireless antenna, 1.4 GHz CPU Speed.

DEVELOPMENT OF SLAVE CIRCUIT AND MASTER CIRCUIT WITH NEW WIRELESS COMMUNICATION TECHNOLOGY



(a) **(b)**

Fig.1 (a) Block Diagram of Slave Circuit (b) Block Diagram of Master Circuit

CONCLUSION

This system is cost effective, resiliency, energy efficiency and achieved prolonging healthcare when compared with other monitor systems. In this framework, several problems have been examined the existing Network Protocol properties such as Data Speed, Data range, Power

Consumption, Message capacity, Mobility and Security. Several problems have also analyzed in Hardware Gateway platform like Network Interfaces, CPU Speed, Memory Capacity and Cost.

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E-8

REAL TIME FABRIC FLAW DETECTOR USING MICROCONTROLLER

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ABSTRACT

Textile industries are one of the most growing and competitive markets worldwide and form a major part of manufacturing, employment and business operations in several developing countries. Among the numerous failures faced by textile industries, fabric flaws constitute more than 85%. So extra efforts are taken in manufacturing improved quality of fabrics. Defects in textile fabric are a major threat to textile industries. So defect detection becomes an essential step in the manufacturing process of textiles. But the process of detection of fault in fabrics includes only manual inspection strategy. This traditional human visual inspection leaves the process to be inefficient and time consuming. Even then fault classification was based on visual perception. These methods employed so far were time complex and less effective.So automation in this process through image processing technique is introduced later. The image processing technique is used to spot the faults as simulation output and Arduino kit is used for fault detection. Here automated fabric inspection system has been proposed to enhance the accuracy of fabric defect detection. This system is made using MATLAB with image processing techniques and this idea is implemented on Arduino kit for real time applications. Neural Networks with Back Propagation algorithm is used as a finest classifier for classification of faults. Recently, Arduino has become a liable target for the execution of algorithms suited to Microcontroller based processing applications. The unique architecture of the Arduino has allowed the technology to be used in several such applications encompassing all aspects of image processing. Whenever the software notices a defect in the fabric it sends a signal to the microcontroller and it halts the system for a while to eradicate the flawed fabric part. And the buzzer is switched ON then the detected fault is displayed in the LCD. And the speaker will give the voice alert after noticed the fault.

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of multi core CPU with a limited complexity. They worked on how such parameters can be derived from measurements originating from executions of real applications on real multi core machines have been given [3].Daniel Shelepov introduced a Heterogeneity-Aware Signature-Supported scheduling algorithm that does the coordinating using per-thread architectural signatures, which are compacted summaries of threads' architectural properties collected offline. The resulting algorithm does not depend on dynamic profiling, is able to achieve performance comparable to the best (oracle) static assignment. Contrary to our expectations, we found that lack of phase awareness in HASS has attempted to its advantage, because it save it from many problems linked to phase changes that were uncovered by our implementation of IPC-driven algorithm [4]. Antonio Pullini, Francesco Conti, Davide Rossiy, Igor Loiy, Michael Gautschi, Luca Benini the adaptable architecture of Mia Wallace can be exploited to proficiently run Convolution Neural Networks, which gave best in class brings about visual, sound and classification of signal and would be very attractive in IoT[5].

CONCLUSION

EBWC mechanism is the visualization computing framework used for the workloads performance relationship for the Multi Core Heterogeneous Architectures to the users. It has been tested with the different families of the architectures with the ARM. Intelligent framework with the prediction mechanism makes energy consumption is achieved by 20-25%.

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E-2

INTELLIGENT CONTROL OF ELECTRICAL SYSTEM FOR ENERGY CONSERVATION USING PIR SENSOR

R.Vajubunnisa Begum[1,*], H. Jasmin [2], H B Ayesha [3]

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[3]II year Electronics and Communication Science, JBAS College for Women, Chennai,

Corresponding Author: *vaju6666@gmail.com

ABSTRACT

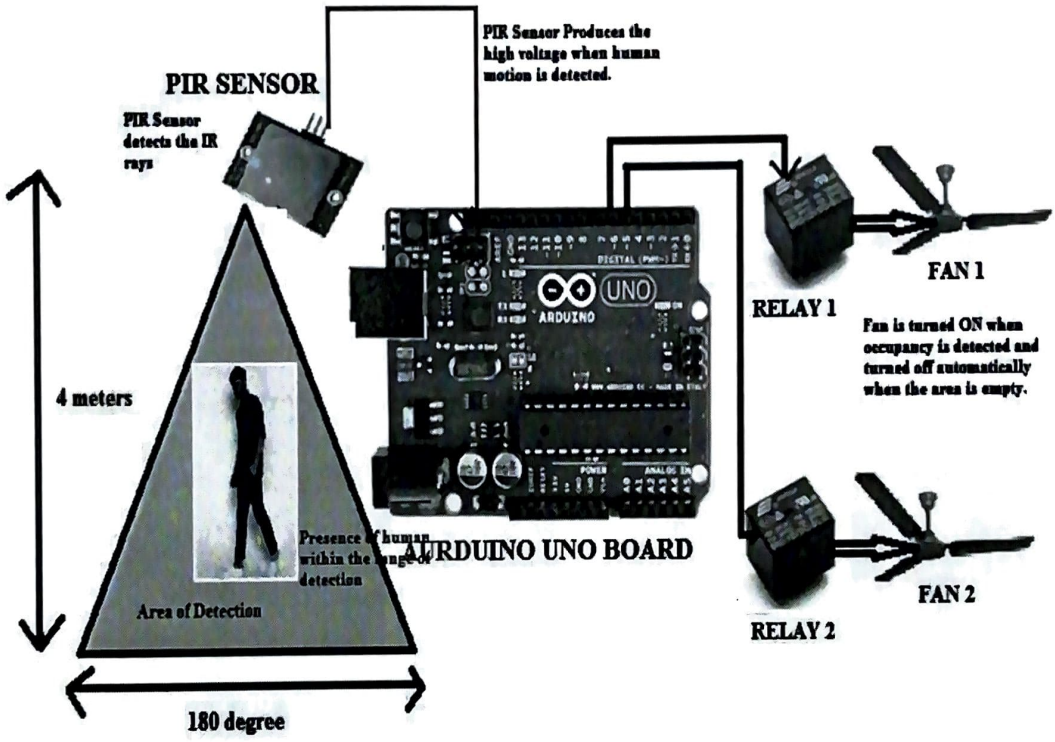
Energy conservation and considerable saving can be achieved by installing the project "INTELLIGENT CONTROL OF ELECTRICAL SYSTEM FOR ENERGY CONSUMPTION

USING PIR SENSOR". It is uncommon to see the fans switched off in unoccupied classrooms, offices and homes for many hours by which considerable amount of energy get wasted. Using PIR (Passive Infrared sensor) sensor it can be automatically switched on or off by the help of ARDUINO microcontroller.

INTRODUCTION

Energy conservation are taken to decrease the uasage of energy by using less of an energy service. Previous research suggested that there always exists a gap between generation of energy and energy demand. From the survey conducted by the ministry of power, it is found that the improvement in efficiency of end user is essential. (Bisajit Biswas., etal., 2013). Application of Energy conservation technology will lead to energy saving which means growing generation of energy with available source. (Pradeep H. Zunake., Sati S. More, 2012)

BLOCK DIAGRAM



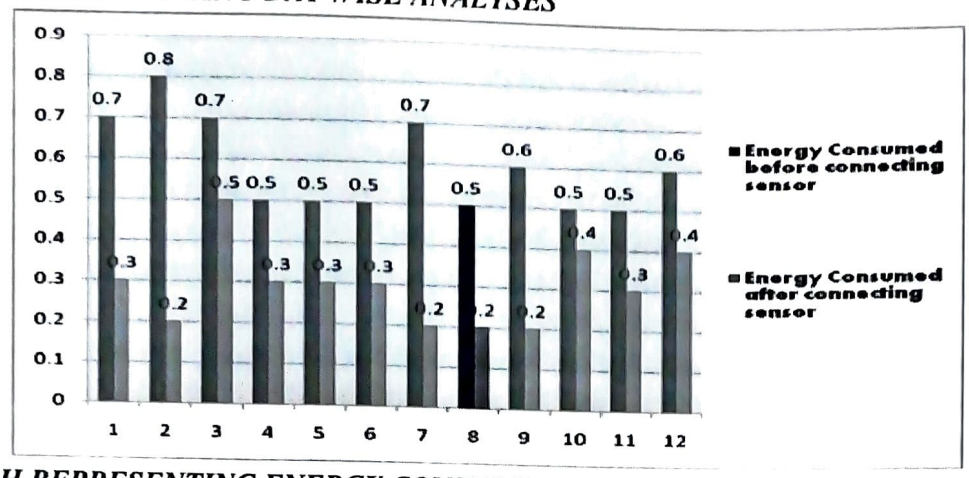
PROPOSED MODEL

Implemented the automated switching of real time application. Two fans from the Department of Electronic Science lab of our college are selected as a control application.

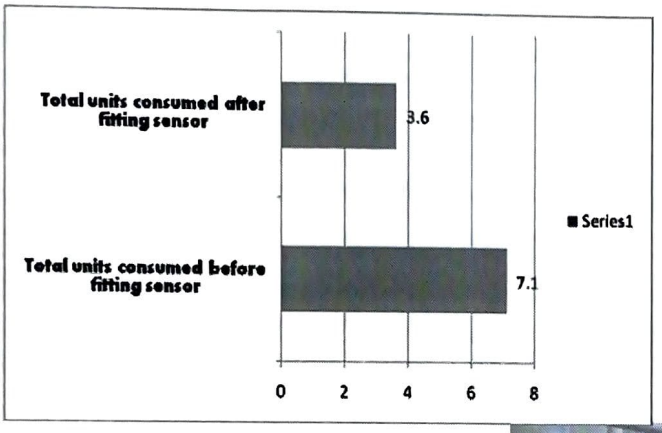
A separate Energy meter is installed for measuring the energy consumed by these two fans before incorporating the PIR. Then we have interfaced PIR sensor with Arduino board.

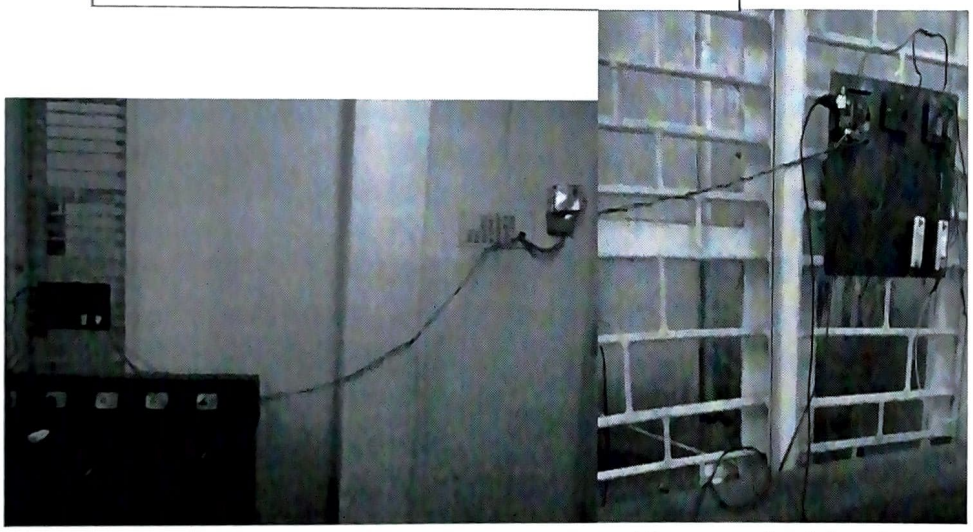
The Arduino board automates the switching of fans through a relay. The readings of before installing our Energy conservation system is compared with the readings taken after fusing our system to show the energy conservation. It is proved that about 50% of energy is saved after implementing the technology of "Intelligent control of Electrical system using PIR Sensor.

GRAPH REPRESENTING DAY WISE ANALYSES



GRAPH REPRESENTING ENERGY CONSERVATION





Photograph of the energy meter **Photograph of the circuit**

CONCLUSION

The main goal of this research project is to save the electricity from being wasted when not necessary by automatically switching ON of the appliances that are required based on the occupancy, instead of blindly switching on all the appliances. It was found that about 50% of the energy could be saved using Energy conservation system using PIR sensor. By implementing this idea in educational sector would yield considerable energy conservation.

In future, further research could be developed using high end MEMS Thermal Sensor or Microbolometer. Unlike pyro-electric human presence sensors that rely on motion detection, the thermal sensor can detect the presence of stationary humans by detecting body heat.

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E-3

WIRELESS CHARGING CIRCUIT USINGINDUCTIVE COUPLING METHOD

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ABSTRACT

The transmission of energy, from one place to another place without using wires is in great demand nowadays and don't future realistic. Conventional energy transfer is using wires and cables. But, various technologies are used to build wireless transmission. There are different methods of charging such as, Resonance coupling, Inductive coupling and Radio coupling. The inductive coupling is used in this present work, where primary and secondary coils are not connected with wires and energy transfer is due to mutual induction. This proposed work contains two sections, first the transmitter section and the receiver section. Transmitter coil converts the d.c power to high frequency AC signal and receiver coil receives the power and convert it into a.c signal.

In this module of wireless battery charger, it has been used with two circuits. The first circuit is transformer circuit used to produce voltage wireless method and then, the transmitter circuit consists of dc source and an oscillator circuit. When d.c power is given to the oscillator the current continue to start flowing through the two coils and drain terminal of transistor. The second circuit also called as receiver circuit consists of receiver coil, rectifier circuit and regulator. Receiver coil is placed at a distance near the inductor to induce ac power in the coil. The following advantages are identified from the proposed work. It provides convenient and safe way for charging of everyday devices and reduces costs associated with maintaining mechanical connectors. Also, it prevents corrosion due to elements like oxygen and protects from water and eliminates sparks and debris associated with wired contacts . It provides protected connections; no corrosion when electronics are all enclosed, away from water or

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IaaS is the delivery of technology infrastructure as an on request scalable service. IaaS offers to access important resources such as physical machines, virtual machines, virtual packing, etc.

- Usually billed based on usage
- Usually multitenant virtualized environment

Platform as a Service (PaaS):

PaaS provides the runtime atmosphere for applications, development & deployment tools, etc. PaaS provides all of the conveniences required to support the complete life cycle of building and transporting web applications and services exclusively from the Internet.

- Multi-tenant settings
- Highly scalable multi-tier architecture.

Software as a Service (SaaS):

SaaS model lets to use software applications as a service to end users. SaaS is a software delivery procedure that provides licensed multi-tenant access to software and its utilities remotely as a Web-based service.

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AN OVERVIEW OF IoT APPLICATIONS

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ABSTRACT

This paper on IoT is to acquire basic concept of what IoT is and to share glimpse of it in various applications around us in everyday walk of our life.

INTERNET OF THINGS (IOT)

IoT is actually a platform where embedded devices are connected to the web , in order that they can collect and exchange data with one another . It enables devices to interact, collaborate and, learn from each other's experiences a bit like humans do.

IoT applications promise to bring immense value into our lives. With newer wireless networks, superior sensors and revolutionary computing capabilities, the web of Things might be subsequent frontier within the race for its share of the wallet. IoT applications are expected to equip billions of everyday objects with connectivity and intelligence. It is already

being deployed extensively, in various domains, namely

- Wearables
- Smart home applications
- Health care
- Smart cities
- Agriculture
- Industrial Automation

1.Wearables

Wearables iot devices, namely smart watches and fitness trackers, as the among the most conspicuous examples of iot. Wearables are used primarily for singular functions like checking the time and tracking exercise.

2. Smart Home Applications

When we mention IoT Applications, Smart Homes are probably the primary thing that we expect of. The best example is Jarvis, the AI home automation employed by Mark Zuckerberg. There is also Allen Pan's Home Automation System where functions within the house are actuated by use of a string of musical notes.

3. Health Care

IoT applications can turn reactive medical-based systems into proactive wellness-based systems. The resources that current medical research uses, lack critical real-world information. It mostly uses leftover data, controlled environments, and volunteers for checkup . IoT opens ways to a sea of valuable data through analysis, real-time field data, and testing. The Internet of Things also improves the present devices in power, precision, and availability.

4. Smart Cities

The thing about the smart city concept is that it's very specific to a city. The problems faced in Mumbai are very different than those in Delhi. The problems in Hong Kong are different from ny. Even global issues, like finite clean beverage , deteriorating air quality and increasing urban density, occur in several intensities across cities. Hence, they affect each city differently. The Government and engineers can use IoT to research the often-complex factors of city planning specific to every city. The use of IoT applications can aid in areas like water management, waste control, and emergencies.

5. Agriculture

Statistics estimate the ever-growing world population to succeed in nearly 10 billion by the year 2050. There are numerous possibilities in this field. One of them is the Smart Greenhouse. A greenhouse farming technique enhances the yield of crops by controlling environmental parameters. However, manual handling leads to production loss, energy loss, and labor cost, making the method less effective. A greenhouse with embedded devices not only makes it easier to be monitored but also, enables us to regulate the climate inside it. Sensors measure different parameters consistent with the plant requirement and send it to the cloud. It, then, processes the info and applies an impact action.

6. Industrial Automation

This is one among the fields where both faster developments, also because the quality of products, are the critical factors for a better Return on Investment. With IoT Applications, one could even re-engineer products and their packaging to deliver better performance in

both cost and customer experience.

LATEST APPLICATION

Driverless Cars

One of the foremost futuristic applications of IoT is that the autonomous car. These cars that appear sort of a product from the near future actually exist today and are mostly under development or prototype stages. The cars don't have drivers and are sensible enough to take you to your destination on their own. Equipped with plenty of devices like sensors, gyroscopes, cloud architecture, internet and more, these cars sense huge chunks of knowledge on traffic, pedestrians, conditions of the road such speed breakers, potholes, corners and sharp turns and immediately process them at rapid speeds. This information is passed to the controller which takes corresponding driving decisions.

CONCLUSION

The Internet of Things (IoT) has amalgamated hardware and software to the web to make a better world.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION SCIENCE

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E WASTE AND IMPACT ON HEALTH

E Waste comprises of several different substances and chemicals most of which are toxic which if not properly handled and disposed may cause adverse impact on human health. However classification of e waste as hazardous and non hazardous depends on the extent of hazardous materials present in it.

AWARENESS ON E GADGETS DISPOSAL

The segregation and disposal of E –Waste from home is a threat, where awareness to how to dispose is lagging. The impact of the e-waste has to be properly managed from home.

- E- waste should not be thrown into the common dustbin.
- Awareness should be created on the concept Reduce, Reuse and Recycle.
- In certain gadgets the iron and copper present in the e-waste can be separated and sold out.
- Proper disposal plants for e-waste is limited. Hence collection centres can be formed areawise.
- Institutions and organisations can take up the responsibility of collecting the e waste from neighbourhood.
- Mobile apps can be developed so that the public can reach out collection centres easily.

SUGGESTIONS

- Avoid(Reduce) buying of unnecessary and unwanted electronic items
- Choose brands which has higher shelf time.
- If going for higher versions find a suitable place to Reuse the existing good ones.
- Concentrate on recylcling of E- Waste.
- Proper disposal of e waste.

CONCLUSION

Rapid technological changes, increased purchase power, low initial cost, more of china products, high obsolescence rate etc., have contributed to the great rise in E Waste generation. Government should take stringent actions but that alone cannot help the scenario. Hence there is a strong need for awareness campaign among the public, schools and colleges bringing out the measures that an individual can take to reduce the E waste.

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E-WASTE MANAGEMENT

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ABSTRACT

"Any device connected to a power source will not satisfy the current owner to the purpose for which it was created" Such as computer, television, cell phones, refrigerators and ovens. E –

wastes are considered dangerous as certain components of some electronic products containing materials that are hazardous. The aim of the paper is to create the awareness, knowledge, perception and attitude of the public about existent, risk management of E – Waste which is the rapidly growing problems of the world. This paper highlights the implementation of E waste management and harmful effect due to hazardous substances and reduces the usage of hazardous substances.

Keywords – E – Waste, Toxic hazardous, E – Waste management.

I *INTRODUCTION*

The information and communication revolution brought massive changes in our lives, our economies, industries and institution. Also, these have led to the problem of massive amount of hazardous waste and other wastes generated from electric products. Rapid growthoftechnologyand a high rate of obsolescence in the electronic industry have led to one of the fastest growing waste streams in the world which consist of end of life electrical and electronic product which contain toxic materials. The collection, management of E – waste and the recycling process is properly to be regulated. It may cause environmental damage and health problems.

II *CATEGORIZATION OF E – WASTE*

- Large household appliances (refrigerators/freezers, washing machines, dishwashers)
- Small household appliances (toasters, coffee makers, irons, hairdryers)
- Information technology (IT) and telecommunications tools (personal computers, telephones, mobile phones, laptops, printers, scanners, photocopiers)
- Consumer equipment (televisions, stereo equipment, electric toothbrushes)
- Lighting equipment (fluorescent lamps)
- Electrical and electronic tools (handheld drills, saws, screwdrivers)
- Medical equipment systems
- Monitoring and control instruments.

III *E – WASTE MANAGEMENT*

The major constituents of E – waste management are E – waste collection, sorting and transportation, E- waste recycling. In industries E wastemanagement is done by waste minimization techniques. It involves record management, production process modification, volume reduction, recovery and reuse.

Managing E – Waste both locally generated and internationally imported are the major challenges for government. Less than five (5%) of Indians total electronic waste gets recycled due to absence of proper infrastructure, legislation and framework, said ASSOCHAM. Over 90 percent of e – waste generated in India is managed by the unorganized sector and scrap dealers. Organizing sector accounts for less than ten percent of the recycling business, there is huge scope for growth as the recyclers.

Waste Electric and Electronic Equipment must be taken into consideration not only by the Government but also by the public due to their hazardous material contents. Currently, the main options for the treatment of electronic waste are reuse, remanufacturing, and recycling as well as incineration & land filling. The existing E – Waste recycling techniques are CRT recycling, glass to glass recycling, glass to lead recycling, metal recovery, pyro and

hydrometallurgical processing, bio metallurgical processing and recovery of metals from mobile phones. Recycling of electronic waste is an important subject of waste treatment and also recovery of valuable materials. Recycling of E – waste can be broadly divided into three steps

1. ***Disassembly:*** Aiming on singling out hazardous or valuable components for special treatment, is an indispensable process in recycling of E – waste.
2. ***Upgrading:*** Using mechanical process and metallurgical processing to upgrade desirable material content.
3. ***Refining:*** Recovered materials are retreated or purified by using chemical (metallurgical) process.

a. *Pyrometallurgical:*

Pyrometallurgical process includes incineration, smelting in a plasma arc furnace or blast furnace, drowsing, sintering and melting and reaction in a gas phase at high temperatures. In this process, the crushed scraps are burned in a furnance to remove plastics. The presence of halogenated frame retardants (HFR) in the smelter feed can lead to the formation of dioxins unless special installations and measures are present.Precious metals are obtained at the end of the process.

b. *Hydrometallurgical:*

This method is more exact, more predictable and more easily controlled. It consists of series of acid or caustic leaches of solid material. Solutions are then separated and purified. Final treatment by electro refining process, chemical reduction or crystallization for metal recovery.

c. *Biometallurgical:*

The understanding of biochemical process involved in the treatments of metals has been subject to growing investigation. Bio metallurgical can be classified as Bioleaching and Biosorption.In bioleaching dust are collected from shredding process of electronic scrap was used in investigation.

IV *CONCLUSION*

E – waste are characterized by a complex chemical composition and the pollution is due to the irregular management has degraded the environment. Motivated the minimization of the environmental effects caused by the generated E – waste many technological changes has been developed. They are

- ✓ Introduction of optical fibers(CU elimination from the cablings),rechargeable batteries (Ni, Cd reduction but Li increases) etc.,
- ✓ LCD screens instead of CRT screens (containing lead oxide and barium).
- ✓ Create computer components and peripherals of biodegradable material.

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समस्त कल्याणगुणात्मकोऽसौ स्वशक्तिलेशद्धृत भूतवर्ग। इच्छा गृहीताभिमतोरुदेहः संसादिताशेषजगद्धितो यः।(Vishnu Purana.6.5.8)
भगवान् स्वेच्छया स्वशक्त्या च विशेषेण भक्तान् परिपालयति।

आगमसंप्रदयोऽयं प्राधान्येन विष्णुपारम्य प्रतिपादको वैष्णवागमः वैखानसपञ्चरात्रात्मना द्वैविध्यमावहति। अनयोराद्यः भगवता विखनसा द्वितीयः भगवता नारायणेन च प्रवर्तित इति प्रतीतिः। तदेवं द्विविधयोः वैष्णवागमयोरन्यतरं पञ्चरात्रागममधिकृत्य अत्र किंचित् प्रस्तूयते।

<u>पंचरात्रलक्षणम्</u>
रात्रिपञ्चकाभिधायकाद् अस्मात् पञ्चरात्रशब्दात् पञ्चसु अहोरत्रेषु भगवता नारायणेन शाण्डिल्यादिभ्यः पञ्चभ्यःप्रपन्नेभ्यः अध्यापितं मोक्षैकफललक्षणं शास्त्रं लक्ष्स्ते इत्यभिप्रयन्ति पाञ्चरात्रिकाः।

अस्मदभ्युपगतासु पञ्चरात्रसंहितासु अष्टास्वेव पञ्चरात्रानुक्रमणमुपलभ्यते। तासामष्टानामन्यतमा विश्वामित्रसंहिता।

तत्वशास्त्रसिद्धान्ताः विश्वामित्रसंहितायां सुस्पष्टं निर्दिश्यन्ते। तथा हि - भगवान् व्यूहसृष्टिः ब्रहमसृष्टिः सृष्टिस्थितिलयविवेचनम् इत्यादि।

भगवान्

सर्वज्ञः सर्व द्द्रुक् सर्वं शक्ति ज्ञान् बलर्द्धिमान्। क्लम - तन्द्री – भय – क्रोध - कामदिभिरसंयुतः। V.P.5.1.47/48
यो सर्वं जानाति, सर्व शक्ति ज्ञान, बल, ऐश्वर्यादि सहितः, अपि च काम, क्रोध, क्रम, आलस्य, भयादि रहितः स एव पुरुषोत्तमः।

पञ्चरात्रे उपबर्ण्यमानो भगवान् निग्रह अनुग्रहसमर्थः। निःसीमं ज्ञानम्, असाधारणमैश्वर्यम् , सर्वातिशायिनी शक्तिः, असमानं बलम् , अहार्यं वीर्यम् , लोकोत्तरं तेजः- इत्येते गुणाः षट् भगशब्देनाभिधीयन्ते। सोऽयं भगवान् एकमुखः, द्विबाहुः, शुद्धस्फटिकसंकाशः, सुर्यचन्द्राग्निसमप्रभः, तेजोतिरेकाद् दुष्प्रेक्षः, शङ्खचक्रायुधः, श्री श्रीवत्सकौस्तुभवक्षाः, हारकेयूर कुण्डलवनमालादिभूषितश्चेति पञ्चरात्रसमयः।

वासुदेव परं ब्रह्म कल्याणगुणसंयुतः।
भुवनानामुपादानं कर्ता जीवनियामकः॥
स एव् वासुदेव परमकारुणिको भक्तवत्सलः परमपुरुषः तत् उपासकानु गुणतत्तत्फल प्रदानाय स्वलीलावशाद् अर्चा विभव व्यूह सूक्ष्म अन्तर्यामि भेदेन पञ्चधाव तिष्ठते।

अर्चा

तत्र अर्चा नाम प्रतिमादयः। गृहे देवालयदिषु वा देवतात्वेन कल्पिता याः पाषाणादिप्रतिमास्ताः शरीरत्वेन स्वीकृत्य तत्र सूक्ष्मदिव्यशरीरविशिष्टः परमात्मा वर्तते। अय च अर्चकपराधीन स्नान भोजनासन शयनस्थितिः सर्वसहिष्णुः। अयं च क्वचित् स्वयमेव व्यक्तो भवति। क्वचित् देवैः सिद्धैः मनुष्यैः स्थापितो भवति।

विभव

विभवश्च मुख्य गौणभेदेन द्विविधः। तत्र मुख्यः साक्षात् स्वेच्छयावतारः। अयं च् उपासक् विशेष अन्ग्रहार्थं क्वचित् प्रकटो भवति। तत्र स्वरूपेणावेशः राम परशुराम आदिषु।

व्यूह

व्यूहो नाम परमात्म एव उपासनार्थं जगत्सृष्टयाद्यर्थं च वासुदेव संकर्षण प्रद्युम्न अनिरुद्ध भेदेन चतुर्धावस्थितः।

सूक्ष्म

सूक्ष्मं संपूर्णषड्गुणं वासुदेवाख्यं परं ब्रह्मा। अयं च सूक्ष्ममित्यादिनोच्यमानो नारायणः श्रीवैकुण्ठाख्ये पुरं श्रीमद्दिव्यालये श्रीमहामणिमण्डपे सिंहासने शेषपर्यङ्के निषण्णो दिव्यमङ्गलविग्रहधारी श्रीभूनीलासहित चतुर्भुजः शङ्खचक्रादिदिव्यायुध उपेतोनन्त गरुडदिभिः उपास्यमानो भगवान्। अयमेव् मुक्तप्राप्यः।

अन्तर्यामीति

अन्तर्यामित्वं नाम जीवात्मनां स्वर्गनरकाद्यनुभवदशायामपि सुहृत्वेन योगिभिर्द्रष्टव्यतया हृदयप्रदेशावस्थितं रूपम्।

व्यूहसृष्टिः

व्यूहसृष्टिकामेन भगवता आत्मा द्विधा कृतः। तत्र आद्यो विमलस्फटिकच्छविः, द्वितीयो नीलनीरदद्युतिश्च समभूत्। अनयोः प्रथमः परवासुदेव इति, द्वितीयः व्यूहवासुदेव इति नारायण इति वा पञ्चरात्रे व्यवह्रियते। परवासुदेव कूटस्थः सन् व्यूहं सृजति।परवासुदेवात् व्यूहवासुदेवः, व्यूहवासुदेवात् संकर्षणः, संकर्षणात् प्रद्युम्नः, प्रद्युम्नात् अनिरुद्धः - इत्येवं सृष्टाश्चत्वारः पञ्चरात्रे व्यूहपदेन, चतुर्व्यूहपदेन वा अभिधीयन्ते।

चत्वारोऽप्येते एकवक्त्राश्चतुर्भुजाः शङ्खचक्रगदाब्जधारिणः। एषां प्रथमः षड्गुणैः समप्रमाणैर्युक्तः। ज्ञानबलाभ्यां युक्तः संकर्षणः। ऐश्वर्यवीर्याभ्यां युक्तः प्रद्युम्नः। शक्तितेजोभ्यां युक्तिनिरुद्ध इति त्रिषु गुणविभागः। संकर्षण ऐश्वर्यादिगुणचतुष्टयसद्भावेपि तत्र अधिकृतकार्यानुगुण्येन ज्ञान बलरूपं गुणद्वयमेव प्रकाशते। एवमेव प्रद्युम्ननिरुद्धे च उक्त गुण द्वयात् अन्यद् गुण चतुष्टय अवस्थितिरप्रकशिता द्रष्टव्या।तत्र संकर्षणस्य कार्य शास्त्र प्रवर्तनं संहारश्च। प्रद्युम्नस्य धर्मनयनं सृष्टिश्च। अनिरुद्धस्य तत्वगमनं रक्षणं च।

परंतु संकर्षणे ज्ञानस्य, प्रद्युम्ने बलस्य, अनिरुद्धे ऐश्वर्यस्य - गुणान्तरापेक्षया आधिक्यमुपवर्ण्यते।

अस्मात् चतुर्व्यूहात् क्रमेण केशवादिद्वादशमूर्तयः अधोक्षजाद्यष्टमूर्तयश्च जज्ञिरे। चतुर्व्यूहः, द्वादशमूर्तयः, अष्टमूर्तयः - इत्येतेषां संकलितानां चतुर्विंशतिसंख्याकानां पञ्चरात्रे

चतुर्विंशतिमूर्तिसंज्ञया व्यवहारः प्रवर्तते। अधोक्षजा - नृसिंह-वामन - भार्गव - जनार्दन - उपेन्द्र - हरि - कृष्णाः अष्टमूर्तय इति च अष्टमूर्तीः निर्दिशति।

व्यूहवासुदेवात् - ब्राह्मी - प्राजापत्या - वैष्णवी - दिव्या - आर्षी - मानुषी - आसुरी - पैशाची - इत्येता अष्टमूर्तयः, मत्स्य - कूर्म - वराहसंज्ञका अवतारः, बभ्रूः - त्रैलोक्यमोह - दाशार्ह - शौरि - अन्नाधिपतिरित्येताः पञ्चमूर्तयश्च संबभूवुः। एतेषां पञ्चमूर्तीनां बभ्रूसंज्ञकस्य स्थाने बुद्धसंज्ञकः पाद्मसंहितया पठयते। अष्टमूर्तयः परमुभयत्र समानाः।

सङ्कर्षणात् - हयग्रीव - शङ्खोदर - नृकेसरि - वैकुण्ठमूर्ति - मुकुन्द - वृषा - कपि - वराह – अनन्तमूर्तयः, शङ्खचक्रगदापद्माद् आयुधानि, किरीटहारकेयूर कटकानि, श्रीप्रभृतयो देव्यः, श्रीवत्सं, गरुडस्चेत्येत समभवन्।

अनिरुद्धात् – (अङ्घ्रिभ्यां) दशभूतनाथाः, तत्पारिषदाः, अङ्गात् सदेवासुरमानुषं जगत् ; मुखात् इन्द्रवह्नी, चत्वारो वेदाः, षडङ्गानि ; (मूर्ध्नी) द्यौः ; (चक्षुषो) रविः ; (मनसः) चन्द्रमाः, (श्रोत्राद्) दिशः ; (नाभेः) नभः; (प्राणात्) वायुः ; (अपानात्) मृत्युः ; (केशेभ्यो) मेघः; (शरीरात्) कालभेदाः ; (रोमकूपेभ्यः) सवनस्पतय ओषधयः ; सदक्षिणा यज्ञाः ; (मुखाद्) ब्राह्मणाः ; (बाहुभ्यां) क्षत्रियाः ; (ऊरुभ्यां) वैश्याः ; (पद्भयां) शुद्राश्च संबभूवुः।

एवं व्यूहसृष्टिनिदानभूतो विष्णुः क्षीरार्णवे अनन्तभोगिपर्यङ्के श्रीभूमिभ्यां सह शयानः सन् योगिभिः सुरैश्चण्डादिद्वारपालै तत्परिवारैश्च संसेव्यते। व्यूहसृष्टिरेषा गुणवैषम्यनिबन्धनेति पञ्चरात्र सिद्धान्तः विश्वामित्रसंहितायां स्पष्टीक्रियते।एष एव सृष्टिक्रमः शुद्धसृष्टिक्रम इत्यभिधीयते।