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3.3.1: Number of research papers published per teacher in the Journals notified on UGC care list during the last five years.

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International Journal of Advance Research in Computer Science and Management Studies

Research Article / Survey Paper / Case Study

Available online at: www.ijarcsms.com

An Effective Counter Measure of Attacks for Secured Online Transactions

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Abstract: *In the current scenario of online era, it requires to have a complete countermeasure to defuse the attacks by the attacker to provide the safeguard to online transactions. Therefore, a model during testing to check each and every step in providing security through this proposed model of e-commerce network security i.e. a complete countermeasure. This combination of Action and Underlying Countermeasures, united and decentralized during performance is special characterized in this security model. A security guard of building regularly checking the ID cards etc. and an action taken by Rapid Action Force during any attack are the best similar to the both of above countermeasures.*

Keywords: *countermeasure, action, underlying, security, enablers, integrity.*

I. INTRODUCTION

In the current scenario of online era, it requires to have a complete countermeasure to defuse the attacks by the attacker to provide the safeguard to online transactions. Therefore, a model during testing to check each and every step in providing security through this proposed model of e-commerce network security i.e. a complete countermeasure. All the countermeasures are collaborated and integrated together to perform the action fulfilling the purpose of study. The potential errors will come out during the testing period. While experiment will also make us familiar with the limitation inherited in the model. As the name suggests, testing will present all the possible lacking in the entire system in actual. If found, will be removed.

It is important in testing of security, the testing of addition developed parts along with the entire resulted system. For newly introduced or we can say an additional part is tested by acquiring the Security Certification, which will prove whether the system will meet the requirements and inherit with all the specifications. Generally, certification is done by others than the designers.

Another security test is Accreditation, which covers the whole system inspite of only new developed or adopted parts of system in the form of review of its operations and controls.

An action by team of football is the same as our security model defuse all the attacks. A companion ready to receive the ball kick by a sportsperson to him will always be followed by the rival person to fail his prospective attack. In the security model also, on the identification of any Security Principle, there are high chances of Security Attack by Enablers. In this situation, this security model proposed Counter Measure which will follow every prospective Security Attack. An integration of countermeasures to follow the enablers and decentralization of countermeasures, as per their characteristics, to defuse the attack is the summary of the study. The countermeasures for before attack and after attack are required separation in working for fast and quick healing. An Action Countermeasure is the defender which works just after attack by attacker such as closes the account which is currently opened and an Underlying Countermeasure is of having the characteristics i.e. defendable nature

which does not literally perform any action but perform its task of defending at regular basis which itself avoid the particular attack. For example the security of Captcha or user name password allows to proceeds in execution. The comparison of e-commerce network system is quite must to find out the counter measures to stop the attack after reviewing the fields where lack of security is lying in the whole system.

II. TECHNICAL ATTACKS

Technical attacks are one of the most challenging types of security compromise an e-commerce provider must face. Perpetrators of technical attacks, and in particular Denial-of-Service attacks, typically target sites or services hosted on high-profile web servers such as banks, credit card payment gateways, large online retailers and popular social networking sites.

III. DENIAL SERVICE OF ATTACKS

Denial of Service (DoS) attacks consist of overwhelming a server, a network or a website in order to paralyze its normal activity (Lejeune, 2002). Defending against DoS attacks is one of the most challenging security problems on the Internet today. A major difficulty in thwarting these attacks is to trace the source of the attack, as they often use incorrect or spoofed IP source addresses to disguise the true origin of the attack (Kim and Kim, 2006).

The United States Computer Emergency Readiness Team defines symptoms of denial-of-service attacks to include (McDowell, 2007):

- Unusually slow network performance
- Unavailability of a particular web site
- Inability to access any web site
- Dramatic increase in the number of spam emails received
- DoS attacks can be executed in a number of different ways including:

ICMP Flood (Smurf Attack) – where perpetrators will send large numbers of IP packets with the source address faked to appear to be the address of the victim. The network's bandwidth is quickly used up, preventing legitimate packets from getting through to their destination

Teardrop Attack – A Teardrop attack involves sending mangled IP fragments with overlapping, over-sized, payloads to the target machine. A bug in the TCP/IP fragmentation re-assembly code of various operating systems causes the fragments to be improperly handled, crashing them as a result of this.

Phlashing - Also known as a Permanent denial-of-service (PDoS) is an attack that damages a system so badly that it requires replacement or reinstallation of hardware. Perpetrators exploit security flaws in the remote management interfaces of the victim's hardware, be it routers, printers, or other networking hardware. These flaws leave the door open for an attacker to remotely 'update' the device firmware to a modified, corrupt or defective firmware image, therefore bricking the device and making it permanently unusable for its original purpose.

IV. DISTRIBUTED DENIAL-OF-SERVICE ATTACKS

Distributed Denial of Service (DDoS) attacks are the greatest security fear for IT managers. In a matter of minutes, thousands of vulnerable computers can flood the victim website by choking legitimate traffic (Tariq et al., 2006). A distributed denial of service attack (DDoS) occurs when multiple compromised systems flood the bandwidth or resources of a targeted system, usually one or more web servers. The most famous DDoS attacks occurred in February 2000 where websites including Yahoo, Buy.com, eBay, Amazon and CNN were attacked and left unreachable for several hours each (Todd, 2000).

V. BRUTE FORCE ATTACKS

A brute force attack is a method of defeating a cryptographic scheme by trying a large number of possibilities; for example, a large number of the possible keys in a key space in order to decrypt a message. Brute Force Attacks, although perceived to be low-tech in nature are not a thing of the past. In May 2007 the internet infrastructure in Estonia was crippled by multiple sustained brute force attacks against government and commercial institutions in the country (Sausner, 2008). The attacks followed the relocation of a Soviet World War II memorial in Tallinn in late April made news around the world.

VI. NON-TECHNICAL ATTACKS – PHISHING ATTACKS

Phishing is the criminally fraudulent process of attempting to acquire sensitive information such as usernames, passwords and credit card details, by masquerading as a trustworthy entity in an electronic communication. Phishing scams generally are carried out by emailing the victim with a 'fraudulent' email from what purports to be a legitimate organization requesting sensitive information. When the victim follows the link embedded within the email they are brought to an elaborate and sophisticated duplicate of the legitimate organizations website. Phishing attacks generally target bank customers, online auction sites (such as eBay), online retailers (such as amazon) and services providers (such as PayPal). According to community banker (Swann, 2008), in more recent times cybercriminals have got more sophisticated in the timing of their attacks with them posing as charities in times of natural disaster.

VII. INTEGRITY, AUTHENTICATION & NON-REPUDIATION

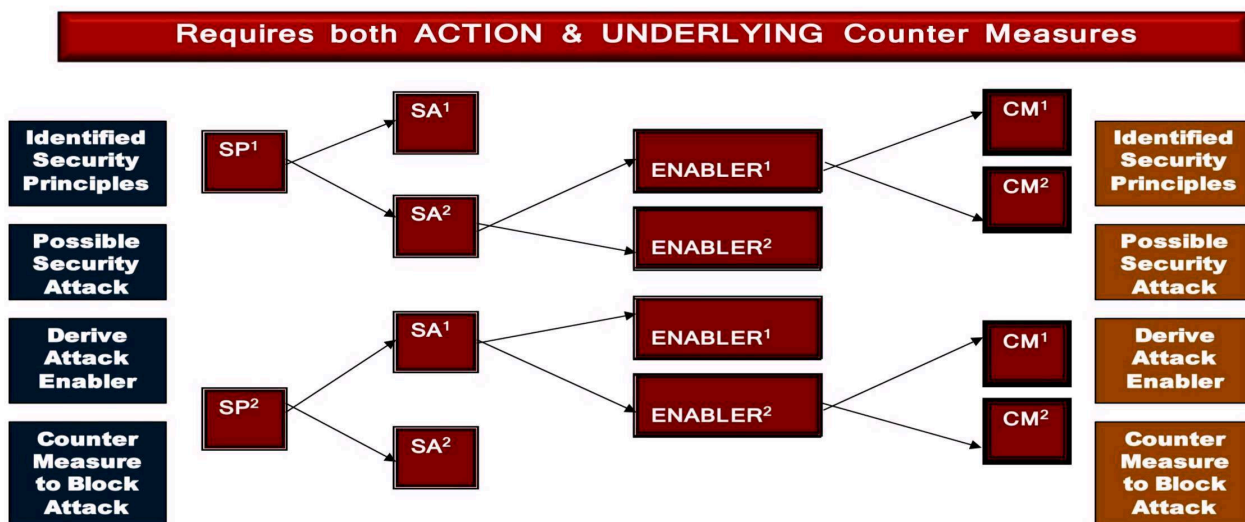
In any e-commerce system the factors of data integrity, customer & client authentication and non-repudiation are critical to the success of any online business. Data integrity is the assurance that data transmitted is consistent and correct, that is, it has not been tampered or altered in any way during transmission. Authentication is a means by which both parties in an online transaction can be confident that they are who they say they are and non-repudiation is the idea that no party can dispute that an actual event online took place.

Proof of data integrity is typically the easiest of these factors to successfully accomplish. A data hash or checksum, such as MD5 or CRC, is usually sufficient to establish that the likelihood of data being undetectably changed is extremely low (Schlaeger and Pernul, 2005). Notwithstanding these security measures, it is still possible to compromise data in transit through techniques such as phishing or man-in-the-middle attacks (Desmedt, 2005). These flaws have led to the need for the development of strong verification and security measurements such as digital signatures and public key infrastructures (PKI).

One of the key developments in e-commerce security and one which has led to the widespread growth of e-commerce is the introduction of digital signatures as a means of verification of data integrity and authentication. In 1995, Utah became the first jurisdiction in the world to enact an electronic signature law. An electronic signature may be defined as "any letters, characters, or symbols manifested by electronic or similar means and executed or adopted by a party with the intent to authenticate a writing" (Blythe, 2006). In order for a digital signature to attain the same legal status as an ink-on-paper signature, asymmetric key cryptology must have been employed in its production (Blythe, 2006). Such a system employs double keys; one key is used to encrypt the message by the sender, and a different, albeit mathematically related, key is used by the recipient to decrypt the message (Antoniou et al., 2008). This is a very good system for electronic transactions, since two stranger-parties, perhaps living far apart, can confirm each other's identity and thereby reduce the likelihood of fraud in the transaction.

Non-repudiation techniques prevent the sender of a message from subsequently denying that they sent the message. Digital Signatures using public-key cryptography and hash functions are the generally accepted means of providing non-repudiation of communications.

VIII. ACTION COUNTER MEASURE



An action by team of football is the same as our security model defuse all the attacks. A companion ready to receive the ball kick by a sportsperson to him will always be followed by the rival person to fail his prospective attack. In the security model also, on the identification of any Security Principle, there are high chances of Security Attack by Enablers. In this situation, this security model proposed Counter Measure which will follow every prospective Security Attack. An integration of countermeasures to follow the enablers and decentralization of countermeasures, as per their characteristics, to defuse the attack is the summary of the study. The countermeasures for before attack and after attack are required separation in working for fast and quick healing. An Action Countermeasure is the defender which works just after attack by attacker such as closes the account which is currently opened.

IX. UNDERLYING COUNTER MEASURE

An Underlying Countermeasure is of having the characteristics i.e. defensible nature which does not literally perform any action but perform its task of defending at regular basis which itself avoid the particular attack. For example the security of Captcha or user name password allows to proceeds in execution. The comparison of e-commerce network system is quite must to find out the counter measures to stop the attack after reviewing the fields where lack of security is lying in the whole system.

X. CONCLUSION

The identification of Security Principles and possible security attacks by finding the Enablers, the requisite countermeasures are adopted to perform security action is the prime working of this methodology.

During various phases, the existing status of security principles/measures are required to be studied by going through of pros & cons which are inherit in current available security measures and compared. After NIST study, we have to identify & to select the three security principles. i.e. Privacy, Integrity & Authentication. For every principle a design of countermeasure model will be derived.

The main objective of our proposed study is to avail the appropriate countermeasure security model for existing e-commerce network system and also to the upcoming network system.

The complete architecture of design documents took place in actual form. Testing will present all the possible lacking in the entire system in actual. If found, will be removed.

The application of countermeasures leads to achieve the objective for which the complete model is launched and hence, are used to get the best possible results of achieving the objective for which it is formed.

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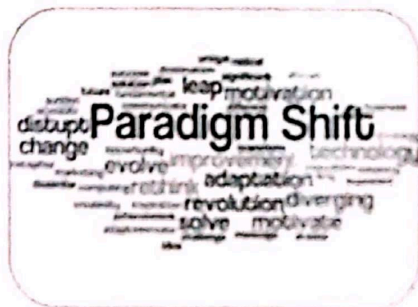
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ISSN: 2249-894X
 IMPACT FACTOR : 5.7631 (UIF)
 UGC APPROVED JOURNAL NO. 48514
 VOLUME - 6 | ISSUE - 8 | MAY - 2019



SHIFTING PARADIGMS IN HARYANA: AN OVERVIEW

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ABSTRACT:

Haryana is one of the most prosperous states not only in India but also among the countries of South Asia. The state has a glorified past and a bright future. This paper is an effort to pen down the glory of the state, being the cradle of Indian culture and civilisation. With the recognition of Haryana on 1 November, 1966, it has carved out a special niche of distinction for itself, whether it is agricultural or industrial sector, rural electrification or canal based irrigation. Haryana keeps marching towards modernity, that brings a social and cultural change in the state. But behind this forefront, there is a hidden face which is always neglected, and no one is ready to

expose it. This paper discusses many recent issues of the state such as cultural and political division, social division on the basis of caste, role of local social judiciary, land acquisition, unequal distribution of property, increasing gender ratio, and uplifting status of women.

KEYWORDS: Alluring, acquisition, disjunct, pollutant, polygamy, monogamy, indigenous, female-foeticide, honourable.

INTRODUCTION:

Haryana has a proud history dating back to the Vedic period. The state was home to the legendary Bharata dynasty, after which the country was named Bharata. Ved Vyasa wrote Mahabharata epic on the pious land of Haryana. It was here that the disastrous battle of the epic was fought and Lord Krishna delivered the celestial gospel of *karam yoga* to Arjuna enshrined in *SrimadBhagwad Gita* about 5000 years ago. Being the gateway to north India, the

Huns, the Turks, and Tughlaq invaded Haryana and decisive battles were fought on this land. The battle between Lodhis and Mughals, Marathas and Ahmed Shah Abdali were fought here. Bold in spirit and action, the people of Haryana have always formed a bulwark against the forces of aggression and anti-nationalism. In fact, the history of Haryana reads like a saga of struggle of the righteous, forthright, and proud people of the state who are known for their traits of bravery and valour. Being the victim and witness of circumstances, this paper is an effort to reveal the things experienced in society. Behind this forefront of a prosperous state, there is a hidden face which is always neglected, and no one is ready to expose it out. Though the

state has a glorious past but many recent issues contribute to make a complex state i.e.- cultural and political division, social division on the basis caste, unequal distribution of property, land acquisition, unequal distribution of property, increasing gender ratio and uplifting status of women.

In Haryana, people believe that it is a state where the identity of natives is culture and vice-versa. In this context famous Indian sociologist S. C. Dube says: "A question is often asked: Is man the creator or the creature of culture? He further says, the disjunct assumption, seeking on either/ or answer, implies that a creator cannot be at the same time a creature of what he created. Certainly mankind has created its culture, but the process has

shaped and conditioned not only its pattern of life but even the structure of its physical organism" (Dube,1992,13).

Two factors effected the culture of the state: one is division of property within family and another factor is the technological development in NCR (National Capital Region), especially in two adjacent districts of Haryana, Gurgaon and Faridabad. Agriculture was the major occupation in the state. But with the acquisition of land and division of property within family, it is getting more difficult for the natives to survive. Not only the Jat community, but also the other communities are affected by land acquisition. Rajput and Gujjar communities also received adverse effects of these factors. Land acquisition is the major cause for the destruction of Gujjar community, even though they have reservation. Due to lack of education and vision, people are not even aware how to save the next generation. But nobody is interested to peep into the dark recesses of the other sides of this development. In fact, in this complex society, people are trapped in their own created web and do not know how to come out of it. As Dube opines: "An architect of majesty and mighty civilization and the performer of breathtaking feats in the field of science and technology, the human animal finds himself helpless and desperately reaching remedies for the ills and afflict the social order"(Dube,1988,10).

Another issue is identity of natives. Almost 60 to 70 percent residents in these two districts, especially in urban sector, are not the natives of Haryana. Nowadays, this is the great matter of insecurity for the indigenous population that very soon the districts are going to turn into a portrait of the globe, not a part of Haryana, in the words of Dipesh Chakravarti, "The Province of Europe in India" (GIVE SOURCE)

Unequal distribution of property act as a major problem in maintaining social balance among the people of Haryana. Some people have abundant property while other have dearth of it. To resolve this issue government has taken two steps. One was Tenancy Reform Act implemented on 15th June 1952, under which 30 standard acres of land was allotted to the peasants. Only the person who cultivates can have the ownership of land. The second, Surplus Act or Haryana Ceiling of Land Holding Act came into existence on 1 January 1971 and was implemented by the then Chief Minister, Chaudhary Bansilal, who himself belonged to the most dominating and prosperous Jat caste of the state. Under this Act right to property was divided into three categories: in first, the fine land (three crops in a year), and an individual can own 17 acres of land; in second category (two crops in a year), an individual can own 27 acres and in third category (one crop in a year), an individual could own maximum 54 acres of land. Rest of the land was allotted to poor peasants. The Act implemented by government was very alluring but practically it was not very fruitful. People, who were allotted the land, sold it back to the owners to meet their requirements, i.e., to construct the house, for the marriage of their children, and in some cases to get rid of debts. It happened due to the lack of vision, lack of education, and unavailability of resources to cultivate. And once again, the state is striving with the same problem and is in desperate need of redistribution of property. Indira Gandhi has rightly said, "For these societies, poverty is the greatest pollutant. Removal of poverty will significantly contribute to improvements in the quality living. It should be noted that greed and lack of foresight have been responsible for considerable environmental degradation in the third world, it must be reversed"(qtd. in Dube,1988,8).

On one hand, people are demanding redistribution of property and on the other hand reservation for agrarian community. Demand of this reservation is not prevailing in Haryana, but among other agrarian communities, i.e. Patidars aka Patels in Gujarat (July 2015), Marathas in Maharashtra (August 2015), Gujjars in Rajasthan (2011), and Kapus in Andhra Pradesh (January 2016) and Jat agitation (February 2016).All the other agitations remained peaceful, while Jat agitation and the Patidars protests held the authorities over a week for ransom.Unfortunately, Jat agitation turned into the caste feud between Jats and Non- Jats, resulting in huge loss of property (roughly worth rupees, 35000 crores).This agitation was initiated by people only to help those in the state who are not well-off. Before two or three decades, people had sufficient agricultural land. But now, many people of the same community have only one or two acres, some of them even do not have a piece of land and are mere labourers, they are the victims of reservation. Being the people of general caste, they are unable to get reservation and because of lack of resources they are unable to get their right part in the society. They

have neither received any help from the government nor the reservation: so the question is, how can they survive? Ten percent reservation under Special Backward Class was given to the people of some caste, i.e., Sikhs, Tyagis, Bishnois, Rors, and Jats, in Haryana by the former Congress government on 12 December 2012, under the leadership of former Chief Minister Shree Bhupinder Singh Hooda. Haryana Cabinet accepted in principle, a 10% reservation for five 'special backward classes' on the recommendation of Haryana Backward Commission. This took the existing 47% reservation (20% for SCs and 27% for OBCs) to 57% in the state. But it was only a political announcement. A Jat leader, Shree Yashpal Malik said in one of his interview, "We want reservation within the 27% meant for OBCs. Since reservation cannot exceed 50%, it will be struck down by the court. Also, if the Jats are outside, the center will not include us in the list" (*Tribune*, 13 Mar. 2015).

Under reservation many young people were appointed and got the job. Some of them were appointed but not joined the duties and in the meantime reservation was withdrawn by the succeeding BJP government. It was a major pushback for those young people in the state who were selected for employment in different departments, but could not make it to joining. This created great unrest among young blood that resulted into the form of a movement against this impossible and politically announced reservation. This movement not only created bitterness against the government, but also broke the spirit of *bhaichara* among people of different castes, which was the strength of civilization.

Another aspect is, shifting paradigm of the status of women in Haryana. Throughout the years of Vedic culture, women had always been given the highest level of respect and freedom. There is a Vedic saying "Where women are worshipped, there the gods dwell." *Manu-Samhita* also explains the status of women:

Women must be honored and adorned by their fathers, brothers, husbands and brother-in-laws, who desire their own welfare. Where women are honored, there the gods are pleased; where they are not honored, there are no sacred rite yields rewards. Unfortunately, these standards have declined primarily due to the outside influences that have crept it because of foreign invaders, either military or culturally. These foreign invaders who dominated India mostly looked at women as object of sexual enjoyment and exploitation, and as a spoil of war to be taken like a prize. This oppression increased in India because of Mugal rule. (Knapp, web).

But the status of women in Haryana was not honourable, except in a few families. These were the landlord families, where people were educated. Before the Hindu Marriage Act of 1955 which declared polygamy illegal and a cognizable offence punishable by law, people often practised polygamy. In the older generations, several people had more than one wife; but among post-colonial generations monogamy has become a tendency of educated people: Earlier four types of marriages were practised. First is traditional marriage where head of the family or father looks for a perfect match for his daughter. Second is widow remarriage. Soon after the death of her husband she starts to live with her husband's brother. It is automatically accepted by the family, only with a small custom of giving only one rupee to him by her father, this practice is called *bithana*. Third type of marriage is *mol-lana* or marriage by purchase of bride. It is usually practised in both the cases, with a woman of high cast and also with the woman of low cast. Fourth and the last type of marriage is marriage by elopement or *bhaga-lana*. Children by this marriage cannot enjoy their social status and they are always cut-off from the main stream of the society, even though they are the legal heir of the property of their father.

Before 2000, the State was in great gulf of gender unbalancing, female feticide and honour-killing² were at height. Marriage by purchase, *mol-lana*, and marriage by elopement, *bhaga-lana*, were practised. Marriage by elopement was the major cause of honour killing in the state. People considered this practice as an attack on the honour of their clan. The second reason is, people from Jat community do not want to share their property with the low caste people. If a girl is married to a lower caste boy, she can claim over her parent's property and it will automatically be attached to that low caste boy. It is also mentioned in *Mahabharata*, edited by Rajagopalachari, that from the ancient time there was no permission to the females of upper class to marry to a lower class man but an upper class man can marry a lower class woman. Same is followed by the people in Haryana: for upper class male inter-

caste marriage is permitted, but for female it is not. They are also very particular about the selection of match for their daughter even within the caste. In this context a famous saying among the Jats³ is that daughter and vote should be given to another Jat only. M.C. Pradhan says, "The jats never marry girls outside their own cast whether higher or lower" (Pradhan, 1966, 90). A very famous Haryanvi anecdote about the selection of bridegroom within caste is, *GharHeenaDijo, Bar HeenaNaaDijo* (They can marry their daughter to a family not equally prosperous to them but cannot marry her to a physical weak man, they believe that their daughter will be safe with a strong man). People still believe, that this is the impact of Mughal period. We can also see the impact of that period in other way, i.e. *pardahpratha*. Even in this modern era, women usually wear veil when they move out of their house. But among new generation, it is only a tradition to carry forward their culture.

There were so many cases, as mentioned in media against women, but after that period there is a rapid change in social and cultural scenario in the state, i.e., liberalization of marriage, security of female child birth, and support for female education and games. In the last decade, the state was known by honour-killing, but in this decade no more honour-killing can be seen. Now, the girls are an icon of power and honour, not only in Haryana, but also across the globe. Many eminent personalities, especially in the field of games, are from Haryana, i.e. Balali sisters and Sakshi Malik in wrestling, and Deepa Malik in Paralympics. To support this transformation in a complex society B. Kuppuswamy opines, "The more complex societies have built-in-mechanism in the various institutions to enable them to change themselves in response to the strain and stresses which arise and in response to the new knowledge and techniques deliberately developed to overcome the strains and stresses" (Kuppuswamy, 1972, 7).

In Haryana this happened due to the efforts of government and awakening of the people by education. On the occasion of a convocation in a reputed women college in Haryana on 27 September 2016, Smt. Maneka Sanjay Gandhi (Union Cabinet Minister for Women and Child Development) stated that government started the scheme of *BetiBachao, BetiPadhao* (a scheme launched by center government to improve gender ratio), especially targeting Haryana and was launched from Panipat on 22 January 2015. She declared that before the launch of this scheme sex ratio was 840 to 860, but after a year it has reached to a great height and now the highest ratio is in Sirsa district, where it is 999. Three districts, Bhiwani, Narnaul and Jhajjar, in south Haryana, are nominated for awards for improving sex ratio, though Jhajjar still stands at the lowest on the list with having 794 girls against 1000 boys.

Khap-Panchayats⁴ are also one of the important parts of culture in Haryana. Regarding the history and origin of Khap-Panchayats, we have the only evidence, *Harshcharita* written by Bhanabhata. Harsha was a Jat king, who ruled over Thaneshwar (Haryana) between 606-647. In 643 AD, Harshvardhan called for a meeting of Jat warriors in Kannauj and established *Haryana Sarva-khap Panchayat*. Approximately five lakh people and twenty kings participated in this meeting, and was continued for 75 days. *Sarva-Khap Panchayat*⁵ was not only meant for Jat community but all communities participated in this, and the word *Bhaichara* came into existence. It symbolises the respect and equality between different castes and clans. People in Haryana still believe in Khap-Panchayat, but it is mutable with the changing paradigms. Sarva-Khap Panchayat is the supreme authority, and when any conflict arises, the decision taken by Sarva-Khap Panchayat, is the final decision one has to accept. The punishments given for the offences are either to put a fine on the accused or dismissal from community. This formation of local judiciary in Haryana was once the spine of society but with the wheel of time, it rotated and people of new generation are not ready to follow it blindly. They are prolific adaptor of changing circumstances. In fact, they are adjusting themselves to find harmony, and are educating with what is prevalent.

CONCLUSION:

With a glorious past and bright future, Haryana is a state which is known for controversial issues more, than its development. Due to its geographical situation, the state is surrounded by four states and a national capital (Delhi) and it effects the culture, tradition and development. Though the

area of state is not very wide-spread, but it has its own complexities regarding social and cultural construction, technological development and economic growth. But, people of new generation are very flexible and are trying to adjust and adopt what is prevalent.

NOTES

1. A spirit of togetherness of all communities in a society in Haryana.
2. Murder of a girl who eloped with another caste/community boy and got married.
3. A hard-working, prosperous and dominating cast in North-India.
4. Social-judiciary of a single clan/ gotra/surname in a community.
5. Social-judiciary of all clans/gotras/surnames/castes of a community.

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Lady Macbeth: A Reassessment

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Macbeth is one of the principal tragedies of Shakespeare and is usually clubbed together with Hamlet, Othello and King Lear. Having all the attributes of a Shakespearean tragedy, the play is a discovery of anatomy of evil. Among all Shakespearean plays, it is the play which is most obsessively concerned with evil. Hazlitt says, "she is a great bad woman whom we hate but whom we fear more than we hate" (web). Here Hazlitt finds that evil is more fascinating and effective than the dim representation of good. Until now the critical focus has been more on the tragic protagonist Macbeth. He has a 'gift' for bloodshed and is driven by his "over-vaulting" ambition which is spurred by the witches. However, Lady Macbeth who "wills" Macbeth to march ahead and is ready to "unsex" herself so that her husband realizes his ambition, does not get the critical attention she deserves. This paper endeavors to make an examination of Lady Macbeth's character and her role in the play.

It is a commonly held belief that a woman does not have an identity of her own. She is pleased to merge her identity into that of her husband and her family. According to Lois Tyson, "Women invest themselves in the accomplishment of their husbands and sons." (10).

About Lady Macbeth too, it is a generally believed that she is a mere agent who helps her husband in the realization of his dormant ambition. The ambition which has been lying in the darkest recesses of his psyche is suddenly roused when the witches hail him as the "Thane of Cawdor" and "King here after" (Macbeth, 1.3.49-50). After that, the dialogue between Macbeth and Banquo is interesting and revealing:

MACBETH: Your children shall be kings"

BANQUO : You shall be king (1.3.86-87).

These "black and deep desires" again come to the fore when Macbeth in an aside says:

..... Stars hide your fires;

Let not light see my black and deep desires: The eye wink at the hand; yet let that be

Which the eye fears, when it is done, to see (1.4.50-53).

This desire to be the king is again manifested in the letter which Macbeth dispatches to Lady Macbeth. Addressing her as "my dearest partner of greatness, that might not lose the "dues of rejoicing" (1.5.12-13) he shares his ambitions and dreams with his wife.

However, Lady Macbeth who understands her husband well makes a fair evaluation of Macbeth when she speculates:

Yet do I fear thy nature;

It is too full o' th' milk of human kindness . Then wouldn't be great,

Art not without ambition" (1.5.16-19).

She also knows that this greatest warrior has a softer side. He will hesitate and dither before doing a dishonorable act. Hence, she decides to

pour my spirits in thine ear,

And chastise with the valor of my tongue

All that impedes thee from the golden round (1.5.26-28).

At this point one may pause and speculate whether Lady Macbeth is just an agent of support to her husband or she has her own hidden desires for which she uses the services of 'her gullible husband. Lady Macbeth's monologues give us an inkling about the nature of her ambition, the mechanics of her evil mind's working and the dark pall of evil that envelops her soul. She beseeches the spirits to:

Unsex me here. .

And fill me, from the crown to toe, top pall of direst cruelty. (1.5.40- 43).

She wants them to make her blood "thick" and make her devoid of remorse so that they may not shake her "full purpose". She wants them to come to her "woman's breast" and turn her

milk into "gall". She appeals to thick night so that her sharp knife may not see the wounds it makes. To realize this dream she pours her spirits in Macbeth's ear thus:

Bear welcome in your eye,
Your hand, your tongue; look like the innocent,
Flower,
But be the serpent under't. (1 :5.64-66).

Macbeth's monologue in Act I; Sc. vii, precedes a dialogue between him and Lady Macbeth which throws light on the underlying conflict that rages in his mind. He wants to murder his King but is indecisive. He feels that:

He is here in double trust:

First, as I am his Kinsman and his subject, Strong both against the deed, then his trust. (I should" against his murder shut the door nor bear the knife myself. (1.7.12-16).

But while he is pondering over all this, the evil ambition to be the King works in his heart. It is given a whetting by his equally evil wife who uses all the weapons of elocution at her disposal to persuade him for this heinous crime. She challenges his manliness and scolds him to live his own life as a coward: was the hope drunk.

Wherein you dressed yourself? Hath it slept since
And wakes now, to look so green and pale (1.7.35-38).

She takes the whole argument to a climax when she challenges his masculinity:

I have given suck, and know
How tender 'tis love the babe that milks me
I would, while it was smiling in my face
Have plucked my nipple from his boneless gums.

Have done so. And dashed the brains out, had I so sworn as you have done to do this (1.7.53-58).

The evil Lady mocks Macbeth, scoffs at his manliness, cajoles him and ultimately manipulates him to murder the "noble" king. There is no doubt that the lady with an iron soul motivates and forces her weak-willed husband into the crime. Yet in her heart there is a soft streak also. When Macbeth has gone with his dagger to commit the foulest crime, her soul quakes:

Hark! I laid their daggers ready;

He could not miss 'em. Had he not resembled

My father as he slept, I had done 't (2.2.12-14).

But later in the scene when Macbeth dithers on going back and smear the guards with blood, she scoffs at him and says:

Infirm of purpose

Give me the daggers.

The sleeping and the dead

Are but pictures (2.2.52-54)

This heartless unscrupulous woman feels the tremors of murder. She is really ashamed to "wear a heart so white" but soon she recovers to proclaim: A little water clears of this deed

However is it then! (2.2.67-68)

Thus apparently-it seems that Lady Macbeth is intelligent enough to understand the ambition of her husband. For this, she has suppressed her own feminine instincts and even prepared to "unsex" herself. Here she seems to resemble Queen Elizabeth who too played this role. She is known to have said:

I know I have the body but of a weak feeble woman; but I
have the heart and stomach of a king, 'and I myself will take
up arms. I myself will be your general, judge and rewarder
of everyone of your virtues in the field.(web.)

Lady Macbeth is so strong willed and focused that in Act II Sc ii, when Macbeth is disturbed by Banquo's ghost, she single - handedly manages the situation. She distracts the attention of the Lords by suggesting that those who know Macbeth know about this infirmity in him. It is this evil single mindedness that has earned her the title of the "fourth witch" in the play. However, the same woman with steely nerves is stricken with heart- wrenching memories of the misdeeds done. In a wonderful delineation of her psychological state, Shakespeare presents. the sleep-walking scene wherein the dark rings of her guilt- stricken conscience start uncoiling. Her misdeeds recoil on her and torment her, splitting her soul to smithereens.

Hell is murky: Fie, my lord, fie! A soldier and afraid? What need we fear who knows it yet who would have thought the old man to have and so much blood in him (5.1.35-39).

Her guilt continually pricks her. Her soul is torn apart. The woman who has heartlessly prompted her husband to kill the old king by suggesting that a little water would cleanse their hands, now bemoans" Here's the smell of blood skill. All the performances of Arabia will not sweeten this little hand. Oh! Oh !"(5.1.50).

These rantings go on:

Wash your hands; put on your nightgown: look not is pale!

tell you yet again. Banquo's buried. He can not come out on's grave. (5.1.60-61).

All the commands on the part of Macbeth to the doctor to "minister to a mind diseased" go waste as no doctor in the world can do that. Ultimately, this "unsexed" woman is not able to bear the pain of guilt. She dies, broken, battered and split.

So, how do we finally assess Lady Macbeth? Can it be said that she herself mutates her desires to the desires of her husband and plays a supporting role to create a situation where he can win? Mary Mc earthy supports this view when she comments:

"Lady Macbeth does not so much give the impression of coveting the crown her as of being weary of watching Macbeth covet it." (n.p.)

In the final analysis, it appears that this middle aged general is dominated by his wife. He might be a brave general out in the field, yet at home it is his wife, Lady Macbeth who calls the

shots. She appears to be a monster in Act I but she also has a heart which trembles at the sight of the feeble king sleeping unprotected as she is reminded of her father at his sight.

Another question that needs and he answered is whether Lady Macbeth has been able to unsex herself. The answer is a firm no. It is realized in the sleepwalking scene, which in spite of all the abuses hurled at her, shows that she is still a woman at heart. The sleepwalking scene confirms it that this "monster" or "the fourth witch" also has a heart which weeps, bleeds and feels pangs of guilt for evil deeds committed by her.

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Empirical Analysis of Agriculture Credit Structure in Haryana

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Abstract : This paper examines the concerns and issues in agricultural credit in Haryana. The analysis states that the credit delivery to the agriculture sector continues to be insufficient. It appears that the banking system is still hesitant on various grounds to provide credit to small and marginal farmers. Transformation in banking policies and practices and the resultant of and access to total bank credit during the post-bank nationalization period have not satisfactorily addressed equitable and efficient delivery of agriculture and rural credit. Due to declining in public capital formation in the rural and agriculture sector and the persistent unenthusiastic attitude of rural bankers towards formal financing, the planners and policymakers are believe on microfinance to suitably supplement formal banking in Haryana.

IndexTerms - Agriculture credit, Small farmers, Banking, Planners.

Introduction

Haryana has a geographical area of 44,212 sq km. It is comprised of six divisions namely Ambala, Rohtak, Gurgaon, Hisar, Karnal and Faridabad and 22 districts. It has a population of 2,53,51,462 with a literacy rate of 75.55 percent. Haryana is the bread basket of India. The state has high agricultural productivity and therefore reaps a surplus in food grain production and contributes about 15% of the central pool of food grains, despite constituting only 1.3% of the national landmass. Agriculture is the primary sector of Haryana and majority of the population is directly or indirectly dependent on agriculture and its allied activities. Agriculture has been the top priority for the state since decades. The strong infrastructure facilities like metal led roads, rural electrification, network of canals, development of market yards etc. were created that provide the needed impetus to agriculture development in the State. Such facilities coupled with agriculture research support and excellent extension network to disseminate the information related to improved farm practices for farmers yielded tangible results. Rural finance is a matter of credit concern in a developing state like Haryana where 70 percent of the population depends upon agriculture. The demand for agricultural credit arises due to i) lack of simultaneity between the realization of income and act of expenditure; ii) lumpiness of investment in fixed capital formation; and iii) stochastic surges in capital needs and saving that accompany technological innovations. Credit, as one of the critical non-land inputs, has two-dimensions from the viewpoint of its contribution to the augmentation of agricultural growth viz., availability of credit (the quantum) and the distribution in agriculture credit. Haryana has adopted three pronged strategy for developing agriculture credit, over the years, viz (i) Promoting of institutional structure, (ii) Directing lending, and (iii) Concessional or subsidies credit. Increasing commercialization and globalization also require expanded and improved infrastructure. The National Agricultural Policy not only envisages faster agricultural growth at 4 per cent a year, but also its equitable spread across regions and classes of farmers. All these translate into higher credit demand and acceleration in its growth, as well as cost-effective mechanisms for its delivery.

I. Loaning structure of rural based credit institutions:

Like all other businesses, agriculture has its short term and long term credit needs. The short term credit needs mostly relate to operating expenses or the cost of inputs. The long term credit needs relate to farm development or improvement. Agricultural loans covering production oriented short term credit needs are called crop loans and those covering long term credit needs are called term loans. In this part of the study, the principles of appraisal, sanction and conduct of crop loan and term loan have been explained in brief.

- a) **Crop Loan or short term credit :** Agricultural loans covering production oriented short term credit needs are called crop loans. All the three types of credit institutions viz., cooperative societies, commercial banks and regional rural banks give short period loans to their members for productive purposes. In this portion of the study, the principles of appraisal, sanction and conduct of crop loans have been explained in brief. Crop production is the main agricultural activity in India and crop loans form the bulk of bank advances to agriculture. A request for a crop loan usually originates in an interview with the farmer. The interview

should be conducted by a qualified and experienced bank official like the agent, manager or field officer. If it becomes obvious during the interview that the request has to be declined, it would be desirable to end the interview at that stage with a clear explanation to the farmer why his request cannot be considered. However, if the data indicate that the farmers request for a crop loan can be considered, the interviewing official should assist him in completing the loan application form. The next stage is the appraisal of the proposal. The main considerations, of course, are the honesty and ability of the farmer, technical feasibility of the scheme and the economic viability of the farmer. For convenience, we shall consider crop loan proposals under the following heads are Eligibility, Feasibility, Viability, Borrower, Stake, Marketing and Security.

b) Medium-term and Long-term Credit:

Medium-term and long-term loans are granted primarily for –

1. Purchase of agricultural machinery, pump sets, electric motors, tractors, tillers, sprayers, etc;
2. Irrigation facilities such as sinking of wells, tube-wells, deepening of wells, building of tanks, drainage canals and fencing;
3. Land improvement and reclamation of land;
4. Dairy and poultry development.

c) Term Credit (Investment Loan):

The term loans are generally granted for development purposes and are therefore, often known as investment loans. The purposes for which term lending may be resorted to can be grouped into three broad categories:

1. Those relating to periodical maintenance or replacement of existing production assets with a view to maintaining the income-earning capacity of the farm equipments purchase of bullocks, reconstruction of lands, repairs of wells, farm houses, cattle sheds etc;
2. Those relating to new investments with a view to increasing the income earning capacity of the farmers, e.g., digging of new wells, leveling of land prior to introduction of irrigation, installation of pumping sets, consumption of new bunds, contour-ploughing, purchase of tractors and other costly farm machinery, purchase of milk cattle, purchase of new land, purchase of metallic storage bins, for installation at the farmers house, etc and
3. Redemption of old debt and purchase of ownership rights in land.

The purposes falling in category (1) can be met by and large by loans extending over 2 years but not more than 5 year, whereas, the period of loans for the purposes listed in categories (2) and (3) will have to be determined with reference to the repaying capacity of the concerned borrowers and it may vary between 5 and 15 years. Apart from the repaying capacity, account will have to be taken of the life of the assets created out of the proposed outlay while determining the appropriate period of the loan. Generally speaking, no loan should be extended beyond the life of the particular asset created. If for instance, the working life of an agricultural machinery or implement is placed at say, 8 years, the period of the loan should not extend beyond 8 years.

II. Eligibility, procedure and features for Agricultural Loans:

a) Short Term Agriculture Maximum Credit Limit (MCL):

The MCL of agriculturist members shall be prepared in accordance with crop planning separately for Rabi and Kharif. The following procedure is adopted to prepare the MCL of these members. The secretary of each society shall prepare a land register in respect of all its agriculturist members including tenants. It has been observed that some members provide wrong information regarding the area to be cultivated by them in order to avail higher MCL from the society. The land register shall, therefore be prepared on the basis of land record so as to avoid ghost acres. The entries in the land register shall be made in respect of each member on the basis of land record i.e. Jama Bandi / Khasara Girawari or Land Passbook, as owner or tenant and in absence of such record, these entries should be made on the basis of a declaration given by the member duly verified by the village patwari / lambardar / or committee member of the society.

b) MCL of members:

The maximum credit limit of all members shall be fixed by the managing committee of the respective societies once for a period of three years. A member may, however, get his MCL changed during this period due to change in the holdings, occupation, gross income etc., provided complete evidence in support thereof is produced to the satisfaction of the managing committee. The meetings of managing committee held for the purpose shall necessarily be attended by the executive officer of the cooperative bank. In case of societies having annual loaning business of more than Rs. 5 lacks, their meeting shall

also be attended by the managing director / development officer / manager of the central cooperative banks.

c) Disbursement schedule:

The farmer does not require the entire crop loan at one time. A proper schedule of disbursement corresponding to the farmers cropping pattern, stages in raising each crop and the durations of the seasons would ensure proper use of a crop loan besides saving the borrower interest on the crop loan.

d) Repayment schedule:

Similar to the disbursement schedule, a repayment schedule can be drawn up taking into account the duration of seasons, the time of harvest of each crop and the probable time required to sell the produce at reasonable prices. Repayment for Kharif crop is fixed on January 31st and for Rabi crop on 31st of May whereas in Medium-term loans are generally granted for three to five years and long-term loans for periods between five to ten years. Convenient instalments are allowed in the case of repayment of medium-term and long-term loans, some banks are even going to the extent of defining instalments depending upon the income from the farm and nature of improvements carried out by the farmer. Generally, quarterly or half-yearly instalments are prescribed for repaying medium-term loans

e) Interest rate:

Farmers have to pay interest on the loans received at the rate of 7% in case of cooperatives, it ranges between 4.50 to 12.5% in case of regional rural banks and commercial banks. The banks follow a practice of charging high interest for the default of loan, on the outstanding balance of loans from the date of default to the date of regularization while in Medium-term and Long-term Credit rate of interest charged ranges between 12.5 percent to 13 percent depending on the amount of loan .

f) Insurance: The borrowers plans can be spoiled by the sudden destruction of his assets by fire or otherwise. This type of a loss will be bear by the bank and the borrower in the ratio of 75:25.

g) Loan Application: The farmer has to apply for loan on prescribed form available from the bank in all languages. The form duly filled in and signed is to be submitted to the bank for verification in respect of applicant's bio-data, amount of loan and the purpose for which loan is sought. The applicant has to submit the following documents along with the application are:

1. Land Particulars: Full particulars of land should be furnished to know the title, type of land, etc;
 2. Map of the Land: It shows the location of land to be mortgaged by the owner to the bank;
 3. No Dues Certificate: To overrule the possibility of borrowing from more than one institutions for the same purpose, no dues certificates from the primary agricultural credit society and land development bank are to be attached along with the application form.
- h) Security:** In the case of medium-term loans granted for the purchase of tractors, pumpsets, etc., banks generally require hypothecation of such implements and the loan is advanced not covering the full cost of implements. Some banks ensure that the loan granted for the purpose of purchasing equipments is utilized to the same end by arranging the payment directly to the dealers.
- i) Size of Loan:** The amount of loan under medium-term and long-term categories is generally related to the purpose for which it is granted. For instance, though the banks have prescribed norms per acre in extending short-term loans, it has no rigid norms for medium-term and long-term loans in the case of which requirements for specific purpose and individual merit is taken into consideration.

III. The role of various credit institutions in Haryana:

In this section the role of commercial banks, Gramin Banks and cooperative banks in financing agriculture credit in the state are discussed. A trend of repayments and various financial aspects are also explained in this section.

a) Cooperative banks:

1. State cooperative bank or the apex bank: The state cooperative bank serves as a state level federation of all the central cooperative banks. The apex bank serves as a coordinator between the NABARD and the central cooperative banks of the state for securing credit limits for short and medium term loans for each central cooperative bank. The apex bank compiles the requirement of credit limits for each central cooperative bank and pass on the same to the NABARD. National bank for agriculture and rural development (NABARD) places the funds of the sanctioned credit limit of each central cooperative bank at the disposal of the apex bank which the apex bank passes on to the concerned central cooperative banks for further advancements to the primary credit and service societies, etc. The apex bank retains only a nominal part of the interest (say about .5 percent to .75 percent) as service charges. The apex bank also directly provides credit facilities to other sister organizations like the apex marketing federation for the purchase of consumer articles.

2. Central-cooperative banks: District level the normal pattern throughout the country is that every district has a central cooperative bank at the middle level for the short and medium terms loan for rural masses. District central-cooperative banks secure credit limit for their requirements from NABARD through the state apex bank and advance loans to the various primary agricultural cooperative credit societies for further advancements to the members of these societies. They retain about two percent of the interest as service charge.

b) Primary Agricultural Credit Societies (PACS):

At the operational level, there exists a primary agricultural cooperative society to extend credit to the farmer. These societies were originally formed on Raiffeisen model. The essential elements of Raiffeisen principles were:

1. A restricted area of operation;
2. Unlimited liability;
3. Equal status and democratic control;
4. Gratuitous service;
5. Permanent indivisible reserve fund;
6. limitation of loan to members only and that too after careful selection of such members. But subsequently certain deviations shifts, and changes took place in the original scheme.

Principal Features of PACS:

- a) **Membership and size:** Scope of these societies is kept limited. The membership of the societies is different in different states. However, in most states facilities have been offered to form a society comprising of more than 10 members. National development council has accepted the principle of forming societies taking village community as the primary unit. According to Sarraya Committee, average membership of the societies is 32.
- b) **Registration of PACS:** Any ten persons may combine and apply for the registration of a PACS. Such persons should be above 18 years of age. They should live within the area of operation of the society, which “area should not be so large that the cultivator finds it inconvenient to obtain the service which he requires from the society.” The persons should have a good character. These persons are required to sign an application in a prescribed form, requesting therein for the registration of the society. This application along with the copies of the bye-laws of the society and the prescribed fee, has to be submitted to registrar of the cooperative societies of the place in which the registered office is to situate. If the registrar is satisfied that all the formalities have been compiled with, he may register the society and issue a certificate of registration.
- c) **Liability:** According to the cooperative societies Act 1912, these societies have unlimited, liability. Some economists favour limited liability for these societies. However barring UP and Bihar, in all states of the country, these societies have unlimited liability.
- d) **Management:** The societies are managed in a democratic manner. Every member has the right to vote. But one member can cast only one vote irrespective of the number of shares held by him. All the members together constitute general committee Managing committee is elected by the members of the general committee. Managing committee members are not paid salaries. Only the secretary gets some nominal payment.
- e) **Supervision:** Supervision of the societies implies the scrutiny of their affairs at regular interval. Supervision includes:
 1. Periodical visits to societies (at least once in a quarter);
 2. Preparation of statements, on the basis of merchants land and their productivity;
 3. Assessment of finance required for agricultural and productive purposes;
 4. Preparation of loan applications;
 5. Maintenance of accounts, records etc.;
 6. Holding of general meetings;
 7. Arrangement for marketing of members produce;
 8. Recovery of loans;
 9. Taking actions in regard to overdue, mal-administration;
 10. Rectification of defect’s pointed out at the time of audit;
 11. Collection of figures for annual statements;
 12. Imparting cooperative education to affect bearers and members of societies.

- f) **Funds of the Societies:** To run their affairs, these societies procure credit from various sources. These sources may be divided into two parts.
1. **Internal sources:** There are many internal sources of finance for the societies such as entry fees, share capital, deposits of members and reserve funds. These societies procure capital by selling shares of small denominations of Rs. 10 to Rs. 50;
 2. **External sources:** The government, central financial institutes, Reserve Bank of India and others are the external sources of finance for the cooperative societies. These societies also receive some money in the form of donations, presents and grants.
- g) **Loans:** These societies give short-period loans to their members for productive purposes. The societies can also give, up to certain limit, medium term loans. At the time of giving loans, economic condition of the farmers is taken into consideration. Loans are given on the mortgage of land. Of late loans are being advanced even on the security of standing crops. Farmers have to pay interest on the loans received at the rate of 7 percent in case of cooperative. The banks follow a practice of charging high interest for the default of loan, on the outstanding balance of loans from the date of default to the date of regularization.
- h) **Distribution of Profits:** Keeping 25% of their profits as reserve funds, the societies distribute the rest among its members.
- i) **Functions of PACS:** The main functions of the credit societies are to: provide short and medium term credit; supply agricultural and other production requirements, and undertake marketing of agricultural produce. In addition to these, the cooperatives help in formulating and implementing a plan for agricultural production for the village and undertake such educative, advisory and welfare functions as the members might be willing to take up. The societies are also expected to inculcate the habit of thrift and saving among their members.

c) **Regional Rural Banks:**

The Regional Rural Banks were set up under RRB Act 1976 with the objectives to take the banking to rural masses particularly in hitherto unbanked rural areas to make available institutional credit to the weaker sections of the society, to mobilize rural savings and channelise them for supporting productive activities in rural areas. Earlier, Haryana Kshetriya Gramin Bank, H.O. Bhiwani, Hisar-Sirsa Kshetriya Gramin Bank, H.O. Hisar and Ambala Kurushetra Gramin Bank, H.O. Ambala City were set up with the same objectives and expectations. On 21st December, 2005 as per Govt, of India, notification, all the above mentioned three RRBs Sponsored by PNB (in State of Haryana) were amalgamated and a new entity, called "Haryana Gramin Bank" with its Head Office at Rohtak came into existence. Since then the bank has come into the category of big RRBs. The area of operation of amalgamated structure is in Bhiwani, Hisar, Jhajjar, Mahendergarh, Rewari, Rohtak, Fetehabad, Sirsa, Ambala, Kaithal, Kurukshetra, Panchkula, Yamuna Nagar, Jind and Panipat districts. District Kamal has also been included in service area of bank by the Govt, of India. The Bank is rendering its services effectively to the different sections of the society viz. farmers, landless labourers, rural artisans, self employed persons, professionals for their socio-economic upliftment. The Bank has a network of 191 branches comprising of 156 rural branches, 26 semi urban branches and 9 urban in above stated 16 districts of Haryana State.

1. **Organization:** The RRBs have been established by 'Sponsor Bank' usually a public sector bank. The steering committee on RRBs identifies the districts requiring these banks. Later, the Central Government sets up RRBs with the consultation of the state government and the sponsor bank. Each RRB operates within local limits with such name as may be specified by the Central Government. The bank can establish its branches at any place within the notified area.
2. **Capital:** The authorized capital of each RRB is Rs. 5 crore which may be increased or reduced by the Central Government but not below its paid up capital of Rs. 25 lakh. Of this 50 percent is subscribed by the Central Government, 15 percent by the State Government and 35 percent by the sponsor bank. At present the formula for subscription of RRBs has been fixed at 60:20:20 between central government, state government and the sponsor bank. The Central Government's contribution is made through NABARD.
3. **Management:** Each RRB is managed by a Board of Directors. The general superintendence, direction and management of the affairs and business of RRBs vests with the nine member Board of Directors. The Centre Government nominates 3 directors, the state government has two directors and the sponsor bank nominates 3 directors. The chairman, usually an officer of the sponsor bank but is appointed by the Central Government. The Board of Directors is required to act on business principles and in accordance with the direction and guidelines issued by the Reserve Bank. At the State Level, State Level Coordination, Committees have also been formed to have uniformity of approach of different RRBs.

4. Responsibilities of Sponsor Bank: The Sponsor Bank shall help and aid the RRB sponsored by it by

- (i) Subscribing to its share capital;
- (ii) Training personnel and
- (iii) Providing managerial and financial assistance during the first five years or extended period. The sponsor banks are empowered to monitor the progress of RRBs, to conduct inspection, internal audit and scrutinizing and to suggest corrective measures as and when necessary.

Resources: The main resources of RRBs are (i) share capital, (ii) deposits from the public, (iii) borrowing from sponsor banks, (iv) refinance from NABARD. The Reserve Bank of India has put RRB at par with the cooperative banks for refinance facilities i.e. 2% below the bank rate. Like commercial banks, the RRBs, have been made eligible for accommodation against a mere declaration of eligible loans and advances by them. Further the RRBs have also been granted the status of scheduled banks by the Reserve Bank.

Several innovative steps as mentioned below have been taken by the Bank:

- i. Infrastructure Development:** To have good ambience, furniture, counter, telephone, lighting, water facilities etc. have been provided and changes for better bank buildings have been effected as per requirement in the area. Computers have been installed in Head Office, Controlling Offices and all 183 branches thereby facilitating data consolidation and other related works.
- ii. Adopting Marketing Approach and Publicity:** Published deposit and loans schemes of the bank by giving lectures in various training programmes. The 'customer meet' programmes and 'Kisan Goshties' have been organized by the bank with participation of high profile customers, directors of the Bank, officers of Districts Administration and Agricultural Scientists. Loans Disbursement functions have been organized in the branches to promote KCC scheme and Self Help Groups.
- iii. NPA Management:** Recovery campaigns were organized by the branches in a planned manner to make recovery in irregular/likely NPA and NPA accounts, which were monitored at Head Office and Controlling Officers level and encouraging results were obtained. One time settlement scheme was implemented and compromise camps were organized which gave encouraging results.
- iv. Human Resource Development:** The bank managed available Manpower Resources judiciously to increase productivity.

d) Commercial Banks:

The government of India nationalized fourteen major banks on July 19, 1969 which had deposits of more than Rs. 50 crore. These Banks are : Punjab National Bank, Central Bank, United Commercial Bank, Bank of India, Bank of Baroda, Allahabad Bank, Union Bank, Canara Bank, Dena Bank, Indian Overseas Bank, United Bank of India, Bank of Maharashtra, Syndicate Bank and Indian Bank. On April 15, 1980, six more banks were nationalized. Each of these had deposits of more than Rs. 200 crores. These banks are: Andhra Bank, Punjab & Sindh Bank, New Bank of India, Vijaya Bank, Corporation Bank and Oriental Bank of Commerce. Rs. 87 crores were paid as compensation to the share- holders in 14 banks. Major share of ownership of State Bank of India and its 7 subsidiaries lies with the government. These are deemed as Public Sector banks : In India, 92 percent share in total deposits and credit, is of nationalized and public sector banks. After nationalization, government has acquired full ownership over these banks. Employees of these banks will continue to function as before but will henceforth be treated as government employees. These banks will now be controlled and managed by the government. Commercial Banks had more or less kept themselves aloof from the agricultural sector until the introduction of Social Control. The subsistence nature of our agriculture and the policies of the Government upto the year 1967 had not given any encouragement to commercial banks to enter this field. Early attempts to provide credit to the agricultural sector by the banks was in the nature of gold loans for agricultural operations. Most of the banks had been granting advances of this kind to the farmers as these loans were not only self-liquidating soon after the harvest but also provided first class security. The other kind of assistance given by the commercial banks was in the nature of credit to traders for procurement and storage of fertilizers, pesticides and agricultural produce. Yet another facility granted by the Commercial Banks after the establishment of the Warehousing Corporation was provision of assistance against the security of Warehouse receipts. In fact a major objective of creating these corporations was to make available institutional credit to the framers against the Warehouse receipts issued by them. Although the volume of bank advances against Warehouses receipt has been increasing, it has not come up to expectations. One factor for the hesitancy on the part of the commercial banks to grant such advance was the fact that these receipts are not negotiable instruments.

1. Finance by Commercial Banks:

To be successful in this new activity, the following factors will have to be borne in mind by the commercial banks:

- i. to provide credit to not only viable but also potentially viable cultivators.
- ii. to keep a close watch on utilization of production and development credit to ensure proper input-output ratio.
- iii. to create an organizational structure which is geared to grapple with the new kinds of problems.
- iv. to create a new cadre of bank officials who should play a dynamic role both in providing credit and also finding ways and means of helping the farmers in various ways.

Lending to agricultural sector differs considerably from the kind of advances, commercial banks are used to grant to commerce and industry. In the field of agricultural advances, a constructive loan is one which will increase the farmer's production, lower the cost of production and improve his ability to operate his farm profitably.

IV. RESULTS AND DISCUSSION

The analysis brings out that the trends of institutional credit to the agriculture sector during the post-reform period were high than the pre-reform period, and the composition also changed significantly over this period. The trends of direct short and long-term credit to the agriculture sector were increased during the post-reform period. Thus, the indirect credit to the agriculture sector was increased tremendously during the post-reform period. The co-operative credit structure needs revamping to improve the efficiency of the credit delivery system in rural areas. Merging and revamping of RRBs that are predominantly located in tribal/backward regions is seen as a potentially significant institutional arrangement for financing the hitherto unreached population. The access of small and marginal farmers to credit has been constrained by their inability to offer the collaterals, micro finance, which works on social collaterals, can go a long way in catering to their requirements. In the long run, an assessment of agriculture credit situation brings out the fact that the credit delivery to the agriculture sector continues to be inadequate. It appears that the banking system is still hesitant on various grounds to purvey credit to small and marginal farmers. The situation calls for concerted efforts to augment the flow of credit to agriculture, alongside exploring new innovations in product design and methods of delivery, through better use of technology and related processes. Transformation in banking policies and practices and the resultant of and access to total bank credit during the post-bank nationalization period have not satisfactorily addressed equitable and efficient delivery of agriculture and rural credit. Due to declining in public capital formation in the rural and agriculture sector and the persistent lukewarm attitude of rural bankers towards formal financing, the planners and policymakers may believe on microfinance to suitably supplement formal banking in Haryana. The Government of Haryana policies are pro-farmer and state has an efficient governance system to support farmers. The state can further scale agricultural productivity by initiating reforms in land settlement rules and procedures, boosting capital investments for developing agri-infrastructure, improving environmental services, risk management, providing agricultural credit, insurance and agro-advisory services to the farmers in order to enhance growth trajectory in the coming times. Going ahead, we look forward to the effective policy interventions and strong agricultural initiatives that would pave the way to achieve a high and sustainable agricultural growth in the state in the future. . To ensure benefits for all crops and animals existing insurance schemes be expanded and strengthened. Initiation of State Insurance Scheme for major agricultural enterprises, besides availing of provisions under centrally sponsored scheme would be a welcome move. Adequate and timely supply of credit with easy terms and conditions to farmers would enhance production by masses.

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The International Journal of Analytical and Experimental Modal analysis

An UGC-CARE Approved Group - II Journal

An ISO : 7021 - 2008 Certified Journal

ISSN NO: 0886-9367 / web : <http://ijaema.com> / e-mail: submitijaema@gmail.com



Certificate of Publication

This is to certify that the paper entitled

**OPPORTUNITES, ADVANTAGES AND SECURITY THREATS
REGARDING GOVERNMENT CLOUD COMPUTING**

Authored by :

Dr. Preeti, Asst. Prof. Computer Science

From

AdrashMahila Mahavidyala Bhiwani Haryana

Has been published in

IJAEMA JOURNAL, VOLUME XII, ISSUE V, MAY- 2020



T.A. Q.



**OPPORTUNITIES, ADVANTAGES AND SECURITY THREATS
REGARDING GOVERNMENT CLOUD COMPUTING**

Dr. Preeti

Asst. Prof. Computer Science

AdrashMahila Mahavidyala Bhiwani Haryana

ABSTRACT

This review article helps to understand the opportunities, advantages and security at risk due of government cloud computing programs. An analytical approach is used to understand the topic. This article present different aspects of government cloud computing. Governments are constantly working to develop their digital-capacity to fulfill the citizens' demands. Governments adopt "cloud computing" becauseof the enormous benefits provide by this technology; such as massive capabilities of cutting cost, large storage capacity and processing. Adoption of cloud computing does, however, pose other security issues. This article adds to the theoretical literature on various aspects of government cloud computing services.

Introduction

From last few years, e-government studies focus on new trends in the ICT sector (Information and Communication Technology) and their relation to cloud computing. According to NIST (National Institute of Standards and Technology), "cloud computing" is a rising and comprehensive technology which is used in daily life by everyone and it provides on demand web services like networks, servers, storage and applications in flexible and cost effective manner to users. In recent past, more government institutions from all part of the world, adopt cloud computing technology

in different sectors and institutions. This technology provides a big solution to government by introducing large storage and computing capabilities at an affordable cost with respect to traditional storage and computing methods. The cloud storage process contains 4 layers including – 1) newly storage layer which use cloud data center for data storage; 2) management layer, it ensures both security and privacy of cloud storage; 3) application interface layer which provide service platform for cloud application and 4) cloud access layer that provide accessibility to cloud user. The services of cloud computing are – 1) Infrastructure as a Service: is most basic category and it involve the delivery of IT infrastructure from cloud providers to its users on demand basis; 2) Platform as a Service: provide an environment and platform for developing, delivering, testing and managing software applications to the developers; 3) Serverless computing, focuses mainly on building app and the cloud provider handles the server management, capacity planning and set up for user; 4) Software as a Service: it deals with delivering of software-applications on demand and subscription basis.

Similar to every new technological evolution, cloud computing technology has significant threats and challenges along with its huge advantages. In cloud computing, day by day, data are growing in exponential manner but the security of data is not up to mark and remain questionable thus privacy and security for cloud data is an important aspect of cloud computing but still it is lacking. The challenges regarding cloud security include data leakage, unauthorized access and leakage of user's sensitive information.

Opportunities for cloud computing in government

In country like India, all sectors including SME, education, government and healthcare are moving ahead to reveal benefit from cloud computing. In education sector government try to achieve at least 75% literacy via cloud-based services by offering education in remote areas. Similarly, through telemedicine services, health service can be providing in remote areas. Cloud computing also helps government in rolling out new schemes and services, effectively and quickly to their large user base. Cloud technologies are the building blocks for the digital transformation of India. Many Indian projects like Aadhaar, Indian Railway would benefit enormously from this technology. Except this for citizens and government of India, creating more and more servers will be helpful for sharing information.

Advantages of cloud computing to government

Cloud computing is a wide concept and it surrounds many technologies. The most competitive characteristics regarding cloud computing are (Ali et al., 2015) given in Table 1. This technology is a smart alternative of traditional storage and computing methods for many governmental institutions around us, due to numerous advantages (Tweneboah-Koduah et al., 2014) such as-

- 1) Cloud computing clearly deduce the governmental expenses by eliminating the requirement of investment in infrastructure capabilities, operational expenses, capital expenditure (Jamsa, 2013); building data centers, purchasing software and hardware, for backup formation of duplicate datacenters, cooling facilities, maintenance of infrastructure, hiring IT personnel and etc. Zwattendorfer et al., (2013) suggested that by moving to cloud computing, governments can save more than 50 % of their expenses.

2) Cloud computing technology also helps government institutes in scaling(copingwith the shrinking or expanding computing resources)their workloads without any additional costs as per requirement.

3) Cloud computing helps in increase productivity of government institute by provide a smart toolregarding implement of their digital strategies to meet increasing customer's demands efficiently and effectively. Costumers now can easily accessing governmental services due to cloud computing from anywhere at any time and eliminating complications, bureaucratic and corruption to achieving standards of good governance.

Table 1: The most competitive characteristics of cloud computing (Ali et al., 2015).

Characteristics	Description
On-demand- self-service	Without any approval or file request from service provider, customers can loss or gain in storage capacity or services any time. Cloud computing technology provides such luxury in an automatic and smooth way.
Access ofbroad network	At any time from any device, customers can access required data at any place.
Resource pooling	Cloud computing include all resources like storage, capacities and data processing at single place for shared to different customers without their invest. Thus customer achieving a low cost and

	providers enjoy merits scales of economies.
Rapid elasticity	Request-services can be expand or shrink by consumer so smoothly and easily, or could even adjust use of cloud computing via called “cloud bursting” (Hill et al., 2013). This method involves automatic cloud change whenever the consumption reaches a defined limit. For example, this may be of great benefit to banks, which experience a large increase in transactions and demands across particular days of the month.
Measured services	Use of cloud computing can be measure and controlled. Thus allow customers to pay as per consumption.

Security threats of cloud computing concerns with government

Cloud computing has a broad range of security concerns as it includes multiple technologies such as databases, networks, operating systems, resource allocation, virtualization, transaction management, memory and load balancing, competition control. Therefore, security issues apply to cloud computing for some of the above listed technologies or systems. Example, the network, in a cloud, which interconnects

the systems need to be secure. The shifting of government organisations towards cloud computing is gaining momentum due to great advantages (mentioned above) but it also brings security threats. Various security-related problems of cloud computing techniques faced by government are as follows -

1) Multi-tenancy security problems: In cloud computing several customers share common infrastructure as this technology is based on renting infrastructure. Thus if technical problems occur due to cyber-attacks on the hypervisor or Virtual Machine Monitor then privacy of customers regarding data may be affected (Hashizume et al., 2013).

2) Vendor lock-in: Few cloud-related service providers gave services and tailored or unpopular programs to customers, which creates problems in transferring data to another service provider thus customers face “locked-in” condition which forced them to keep their data with them. By using open-source software and programs, service providers can overcome this problem.

3) Service provider’s failure: Failure regarding service providers can expose customer’s data to threats, a “source code” for software and customer data is provided to a third party by some companies. In case of any original cloud service provider’s failure, customers can easily switch to the third party. However, this may involve the rearranging of legal matters associated with third party (Hill et al., 2013).

4) Expanding the network of authorized employees regarding data viewing: Normally, only IT personnel view data in governmental institutions, but in cloud computing viewed by others too (Hashizume et al., 2013). Thus government institutions should have to pay attention towards other new technologies, such as “Big data analytics” that depend on mass profiling.

5) Interdependency and difficulty in specifying the responsible for security breaches:

To achieve low cost, cloud computing environment based on distributing responsibilities and tasks. Despite the fact such interdependency may cause security laps and loss of track of the responsible person or entity (Iqbal et al., 2010).

6) Data security: In cloud computing, colocation is a basic process. In case of security breaches, there would be complications as cloud computing regulations are still immature or absent in many countries which complicates the scene (Hashizume et al., 2013).

7) Technical threats: Literature of cloud computing provided both technical threats and their solutions. Specialists must understand these threats and some of them (examples- packet sniffing attacks, DDoS, guest-hopping attacks, etc) can cause security problems.

8) Legal threats: Legal threats may arise when service provider of cloud computing is subject to different judicial jurisdictions of different countries such as the user's country, countries via the data passes and the service provider's country. Things become more complicated when laws and regulations regarding data-protection, data-destruction, data-encryption, data-disclosure to state authorities, rights etc. differ significantly (Iqbal et al., 2010).

Security techniques for securing cloud data in government

For the security of cloud data, there are various techniques which are applicable these days. Some of these techniques are as follows: -

1) Validation of OTP: - Many service sectors like banking, railways etc. provide authentication regarding data by OTP (One Time Password) method. The OTP is to

verify the cloud user and it can be a system factor authentication or multiple authentication factor based on one or two time authentication (Kumar, 2019).

2) Integrity Checking: - It provides guarantee that only authorized user can access or change the cloud data thus acting as a data verification process based on cloud. Basic techniques of the integrity of cloud data are PDP (Provable Data Possession) and POR (Proof Of Retrievability). PDP ensure its integrity over remote server while POR ensure that the cloud data stored on the server by the user is not changed (Sharma, 2016).

3) Access Control: - It means the authorized owner of cloud data have some restrictive permission to access their data while unauthorized user can't in order to protect cloud data from any unauthorized disclosure or modification (Kumar, 2019).

4) Secure Deletion: - For it different techniques used which are as flows- a) Clearing technique is for secure deletion of cloud data before its reuse and also provides protection to cloud data before its deletion. b) Data masking, it involves the removal of all distinguishable and identifiable characteristics from cloud data to make it anonymous nut operable (Varanasi, 2020).

5) Encryption: - Cloud security provides provide service regarding encryption of date before transfer to cloud storage from any local storage. It is impossible to understand data without decryption key from any system thus only an authorized user (having decryption key) can assess it (Kumar, 2019).

6) Data Masking: - It is a process of hiding and securing cloud data from theft and attackers and it also insure change in information. Data masking is algorithm and a

public data-set. There are different methods to mask the cloud data and among them SDM (Static Data Masking) is most commonly used (Ravikumar, 2011).

7) Intrusion Detection Systems (IDSs): -It keeps eyes on the activities of system or network-traffic to find any illegal activities if occurred. In current era, various attacking techniques are used hackers use to find sensitive information of users. An encroachment on cloud data signifies it as illegal access activities for IT resources. There are 2 types of IDSs named as NIDS and HIDS. NIDS kept eyes on ongoing attacks while HIDS, monitor illegal activities on the system in which it installed (Kumar, 2019). Except this data mining techniques which mainly adopted in IDSs can also be used for malware detection in the clouds which is (Sen and Sengupta, 2005; Sen et al., 2006; Sen, 2010).

Conclusion

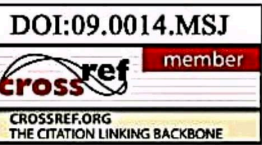
Cloud computing by governments is a very popular subject on both national and international agendas. Governments are very keen to incorporate this new technology into their e-government programs to take advantage of the benefits the technology offers. Nevertheless, it is certainly true that certain security issues are due to the technology which may have major effects on data protection.

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CERTIFICATE OF PUBLICATION

This is to certify that the paper entitled

“A SURVEY ON THE INDIAN ASPECT TO ROBOTS IN DAILY LIFE”

Authored by

Dr. Preeti, Assistant Professor

From

Adarsh Mahila Mahavidyalaya, Bhiwani, Haryana.

Has been published in

MUKT SHABD JOURNAL, VOLUME IX, ISSUE III, MARCH - 2020

S. Ganguly

Sumit Ganguly

Editor-In-Chief

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www.shabdbooks.com

A SURVEY ON THE INDIAN ASPECT TO ROBOTS IN DAILY LIFE

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Abstract

Scientific and technological breakthroughs produce products that touch people's daily lives in a variety of ways and robotics is one of them. Robotics deals with artificial intelligence and its applications in everyday life through robots. Robots' collaboration is increasing with humans as helping hands to complete difficult routine activities. Therefore, design, usability, and user experience of robots can all benefit, particularly in the development of more social and usable robots than ever before. This paper focuses on a detailed examination of robotics in everyday life from an Indian perspective through the survey method. A survey questionnaire is used during the research to get the mindset of Indian people towards the use of robotics in daily life. The findings provide a comprehensive view of the Indian people's mindset. Even though the influence of movies and fiction is there, it is widely found that people are interested in the idea of bringing a robot into their household. To summarize, robot usability in everyday situations is still comparatively new, and thus more effort is needed to build trust in the usage of robots in Indians' everyday routines by the people of India.

Keywords: Robotics, Indians, Survey, Daily-Life

1. INTRODUCTION

Adoption of a particular technology within a community is an essential study topic that should be addressed by the social sciences, and also by technologists in respect of the design of an application. In the present environment, when robot research & development is progressing at a rapid pace, it is vital to explore how the vast majority of the population will adopt modern technology for the betterment of their everyday lives, as well as the elements that may inhibit such adoption. The adoption of tools for assessing people's acceptability of robots, like psychometric questionnaire surveys, may facilitate the creation of a holistic methodological approach that investigates a number of factors, including gender, age, and society.

There have been several investigations directly addressing the societal acceptability of robots up to this point. Scopelliti et al. [1] discovered specific features of robot varieties that are favored in the context of household usage, as well as an age influence on robotic device acceptance. Domestic home robots are projected to do a variety of tasks, according to Oestreicher and Eklundh [2]. This research, therefore, did not concentrate on humanoids. Despite the fact that Nomura et al. [3] discovered cultural variations in robot assumptions across Japan, Korea, as well as the United States, this research was confined to college students.

Kamide et al. [4] constructed a psychological framework for assessing human perceptions regarding robotics, with 6 sub- scales covering "adoption" of robots, and discovered the influence of human characteristics, for example, gender and age, on the rating scale (N = 2,624) [5]. Because this scale was developed to measure overall psychological appropriateness of humanoid robots next to humans, the scientists didn't address bigger aspirations and concerns regarding humanoid robotics as a technology. In contrast to the younger group, Nomura et al. [6] recommended that the Japanese elder community has expectations of success for the particular purposes of humanoid robots in his/her everyday routines and views the designers of such innovations more favorably, and also that the relatively young population's observations with humanoid robots boost concern towards the consequences the robots necessarily involve in society. Horstmann & Krämer [7] found that people's interactions with robots in society resulted in higher expectations about the skillset of robots, which has in turn enhanced individuals' overall hopes related to social robots becoming part of society and also their personal lives.

According to Kahn et al. [8], robots provide a novel technology that is harder to identify than past technologies and hence challenging to categorize, implying that they elicit a great deal of ambiguity. This is certainly relevant when social robots are technological devices that also behave and seem to be human, making it difficult to allocate a definite label to them. People are likely to experience the necessity to forecast and describe the conduct of social robots, depending upon the principles of the uncertain minimization concept [9], since all these robots may take the part of a conversational partner in the long term. As a result, individuals presumably try to construct an overall image of social robots through gathering as much information as possible. It's vital to examine and assess what kinds of expectations people have about social robots, because each of these expectations influence people's perspectives and, as a result, their

acceptance of novel technology. For instance, whether or not individuals adopt new technologies is determined by their expectations of their utility and the convenience of using them [10, 11].

Despite its importance, less is understood regarding what individuals assume and, more frequently than not, no differentiation among what individuals really think and what they desire has been established. Therefore, prediction estimates are often confused with desires and have never been purposefully compared previously [e.g., 12, 13]. Furthermore, to get a more complete understanding of people's expectations, factors impacting the formation of these expectations should be explored. Another important topic is what data sources humans may utilize to lessen their uncertainties and develop their expectations about robots. According to Krägeloh et al. [14], the application of robot acceptance metrics continues to remain fairly new, thus more psychometric study is needed, and the field of personal service robots is projected to develop rapidly in the future [15]. Broadly speaking, there are few studies which provide public views on robots in his/her everyday routines. In this article, we use a questionnaire survey to learn about the understandings of Indian local populations about using robots in their everyday routines in order to gain insight into the coming years of social robots throughout India.

2. METHODOLOGY

An online research with a maximum of 400 respondents was performed to learn about Indian people's attitudes toward the use of robots in their everyday lives. Of them, 51 would have to be eliminated because of being under the age of 18 or finishing the research too quickly (less than five minutes). The remaining 349 datasets included 109 males (31.23%) and 240 females (68.77%) subjects with an average age of 31.42 years ($SD = 10.92$), ranging from 20 to 72 years. The study participants used to have an Indian cultural aspect, and the majority of them had college entrance credentials (37.4 percent) or a college education (54.8 percent). The hyperlink to the research was shared publicly in a number of groups on Facebook, through internet survey portals, and through personal messenger conversations and e-mail connections. The investigation was authorized by the morally acceptable board of the (name of researcher department) department at the (name of researcher college), and signed expressed permission was received. The study's goal and background were first presented, then written permission was acquired, and finally the questionnaires were distributed. Respondents were offered the option to submit their email account to earn an Amazon gift voucher at the conclusion of the online questionnaire,

before the research concluded with a debriefing wherein the article's objective and goal were revealed. The survey required an average of 15 minutes to finish for each respondent.

2.1 Confrontation with Realistic Robots

Respondents were asked whether they had ever come into touch with industrial robots or non-social residential robots (lawn mower / cleaning systems robots), social robots (automated robots that can communicate and interact with individuals), and other robots, as well as how frequently (1 = "very rarely" to 5 = "very often") and also how strongly (1 = "briefly" to 5 = "intensively").

2.2 Response of Reports Concerning Realistic Robots

Participants were also questioned if they had ever viewed reports or equivalent styles regarding industrial, household non-social, social, or some other robots, as well as how frequently and how intensely they had done so.

2.3 Film or Television Show Reaction of Science Fiction

Initially, respondents were asked number of times they observe movies and tv series in which robots contribute significantly (1 = "very rarely" to 5 = "very often"), as well as how they will indeed explain the interactions between individuals as well as robots in all those films and documentaries (five items; for example, "In science fiction movies/series, robots are somewhat against individuals."; 1 = "strongly disagree" to 5 = "strongly agree"; $\alpha = 0.79$). They were then asked which of the ten robot films or series listed in Table 1 they had watched and how well they remembered them (1 = "barely" to 5 = "very excellent"). For each film or television series they had viewed, they noted as to if they recognized the major characters of robot which are also listed in Table 1, and to what scope they interpret such robots as somewhat favorable or unfavorable (slider scale for a more exact statement concerning the robots' assessment; 1 = "negative" to 101 = "positive"), and also to what extent they expect new real robots to become more like such robots (1 = "strongly disagree" to 5 = "strongly agree").

Science- Fiction movies/series based on robot	Fictional character portrayed as robot	Based on source
Terminator	T – 800, T - 1000	1,2,3

The Matrix	The Machines	1
I, Robot	Sonny, other NS -5 type robot	1,2,3
Avengers: Age of ultron	Ultron	4
Enthiran/Robot	Chitti	4
Ra-one	Ra.One, G.One	4
AI: Artificial Intelligence	David	1,2
Walle	Wall-E	2,3
Transformers	Bumblebee, Megatron	1,2,3
Star trek: The next generation	Data	1,2

1 = Kriz et al. (2010) [16]; 2 = Sandoval et al. (2014) [17]; 3 = (Sundar et al., 2016) [19]; 4 = IMDb search with the keywords robot, android and artificial intelligence (www.imdb.com) [19].

2.4 General Expectancies

To begin, participants answered their level of interest in interacting with a robot (interaction expectations; derived from Eyssel et al., 2011 [20]; Eyssel and Kuchenbrandt, 2012 [21]; five questions; for example, "How interested are you in meeting a robot?" 1 = "not at all" to 5 = "very much"; $\alpha = 0.90$). Fifteen objects to analyze people's perceptions regarding long-term conversations with actual robots were formed and are used in the e - learning platform (communication prospects; for example, " In the future, I want to be able to utilize a robot as a fitness trainer."; 1 = "strongly disagree" to 5 = "strongly agree"; $\alpha = 0.92$) relying upon the scenarios utilized by Eyssel et al. (2011) [20] as well as the tasks discussed during earlier interviews conducted. People's perceptions regarding the talents and capabilities of robots have been evaluated through thirty objects (robot abilities and talents; for example, "Pain may be felt by robots."; 1 = "strongly disagree" to 5 = "strongly agree"; $\alpha = 0.90$) relying upon respondents' assertions and Gray et al. (2007) [22] evaluation of intellectual capabilities. Respondents also said how long they believed it would take for robots to outperform humans in intelligence, if any. Moreover, the Frankenstein Syndrome Questionnaire sub-scale aspirations regarding humanoid robots in everyday life (6 questions; for example, "Humanoid robots may make our lives simpler."; $\alpha = 0.77$) was used (Nomura et al., 2012; 1 = "strongly disagree" to 5 = "strongly agree").

2.5 Adverse Predictions

Additional sub - scale (overall anxiety against humanoid robots) of Frankenstein Syndrome Questionnaire (thirteen questions; for example, "I don't know why, but humanoid robots frighten me."; $\alpha = 0.89$) has been used to measure respondents' unfavorable expectations towards social robots. Additionally, twelve self-developed questions were used to inquire about frequent scenarios in science fiction (adverse expectations concerning robots, for example, "Robots would attempt to liberate themselves from humans."; 1 = "strongly disagree" to 5 = "strongly agree"; $\alpha = 0.86$).

2.6 Technical Perspective

When adopting technologies, there are 2 scales of locus of control (KUT; Beier, 1999 [23]; 8 objects; for example, "I feel so helpless regarding technical devices that I rather keep my hands off of them."; 1 = "strongly disagree" to 5 = "strongly agree"; $\alpha = 0.89$) as well as managing and approach towards technological devices are examples of technical affinities (TA-EG; Karrer et al., 2009 [24]; 19 objects; e.g., "I enjoy trying an electronic device."; 1 = "does not apply at all" to 5 = "applies completely"; $\alpha = 0.86$) were utilized to take into account a person's technical knowledge.

2.7 Demographical Background

Respondents provided information such as their gender, age, educational qualification, and recent work or training history.

3. RESULTS

A total of 81 (23.2 percent) of 349 respondents had prior interaction with industrial robot, 225 (64.4 percent) with a cleaning system or lawn mower robot, 28 (8.02 percent) with a social robot, & 15 (4.2 percent) with some other form of robot. The proportion of respondents (58.2 percent) also saw at least 1 report or something related to industrial robots, while 14 percent saw something equivalent regarding vacuum cleaner and lawn mower robots, 24 percent saw something related to social robots, and 3.8 percent had seen something equivalent about all other robotic systems. Six of the ten movies and series mentioned were recognizable to the respondents, and eight of the fourteen fictional robots were recalled. Nearly 16 percent of

respondents said they don't see science fiction films or programs featuring robots in major roles very frequently, and that the human-robot interaction in such films and shows isn't clearly favorable or unfavorable enough to reach a judgment. Aside from the 166 respondents (47.5 percent) who believe robots will never be superior to humans, the remaining respondents believe robots will be superior in 62.5 years on average. The descriptive data for the key affecting and dependent variables are summarized in Table 2.

		Yes	No	Not sure
Influencing variables	Reception about the reports pertaining to Robots	68%	56%	12%
	Contact frequency	72%	26%	2%
	User know-how on fictional robots (Movies/Series)	65%	32%	3%
	Positive perception of fiction projected of robots	41%	44%	15%
	Technical know-how	87%	8%	5%
	Interest to know about robots	84%	6%	10%
Variables that are dependent	Trust on skills and abilities of robots	52%	43%	5%
	Mimic of human-like skills	69%	28%	3%
	Ability to perform machine-like skills	92%	8%	0
	Intensions for contact	84%	12%	4%

Expectations from interactions	55%	33%	12%
General reluctance towards human-like robots	29%	67%	4%
Expectation from human-like robots use in daily life	52%	17%	31%
Interaction of Humanoid robot with children at home	35%	53%	12%
Negative aspects and apprehensiveness towards robots in everyday life	23%	41%	36%
Fears of robot causing Harm	10%	72%	18%

4.DISCUSSION

Regardless of the fact that interest of public in robots is expanding, and thus more robots have become accessible as a consequence, many humans are still inexperienced with social robots [25]. Moreover, considering the notion that social robots are non-living electrical devices, they frequently appear and behave like people or at least some type of human beings, making it harder for people to label them [26]. These circumstances are likely to generate a great deal of ambiguity, which people typically strive to mitigate in interpersonal interactions by obtaining more information [27] and attempting to construct an impression, which is often based on social categories [28]. As a result, individuals are likely to evaluate all accessible sources of information when forming expectations of social robots.

People's impressions of social robots for daily routines, as well as social robots to their own feelings and ambitions, were investigated more thoroughly during interview

conducted. Importantly, such assumptions were systematically matched to their decisions, which will never be done before. People expect and want social robots to make it easy for people by assisting them with domestic or work-related activities, but not social interactions. They too want robots to also have human-like abilities and characteristics, but to be easily recognizable from humans and to have no feelings or objectives of their own. When it comes to preferences, even though individuals are interested in bringing a robot into their households, their apprehensiveness about robot interaction with children is widely present, making them more hesitant. As a result, when discussing expectations, people appear to place a greater emphasis on technology components, whereas their preferences reflect emotional and social factors. It is also worth noting that there is a group of people who have fears about robots and their ability to harm humans. This can be due to many negative aspects that are portrayed in movies, or may be about a piece of content they may have come across, or just the fear of the unknown.

5. LIMITATION & FUTURE SCOPE

The article's participants were all selected using Internet-based methods and were primarily young and highly educated, limiting the generalizability of the findings. Furthermore, people largely from India with a similar cultural environment were studied. Proposed experiments must take that into account since the cultural environment might impact people's expectations and attitudes, and also their specific actions during a robot interaction [29, 30, 31]. Furthermore, because of the study's cross-sectional design, no inferences on causal links can be drawn. However, in addition to the kinds of data examined in this study, there may be additional excellent resources which people use to create conclusions regarding social robots that would be worthwhile to research in future research. Because the questionnaire sequencing in the web-based research wasn't fully randomized, queries about participants' interactions, particularly with hypothetical robots, may have influenced their responses to questions about their positive and negative expectations. Because all of the observations are based on self-evaluation and thus mainly portray what people actually believe they foresee, it would be interesting to look into what kinds of ambiguous desires and supposedly preconceptions people have about robots, and how certain influence people's behavior and assumptions during real-life interactions with them. Communicating with a robot proved to lower negative expectations in this study, despite the fact that few individuals had ever dealt with a robot before. The current study focused only

on the total impact of the various parameters. Controlling only one variable, including imaginary robot knowledge, might result in more comprehensive results. It would also be intriguing to learn more about how individuals form preconceptions about social robots when they first meet one, as well as how they react when those assumptions are broken, by doing actual lab research with a realistic robot.

6. CONCLUSION

People's opinions about social robots are similar to their choices in general, excluding compassion, which is wanted but not required. Because assigning a specific, current classification to social robots is problematic, it logically follows that individuals would try to construct a range of assumptions by utilizing all relevant sources of information to lessen their ambiguity. Because several people haven't met a social robot, they depend on other sources of information, namely the media, to form opinions about robot capabilities and, as a consequence, the importance of robots in their everyday lives and in society as a whole. The response of "evil" fictional robots, on the other hand, tends to generate worries that resemble popular science fiction situations, which may be lessened by actual interaction with realistic robots. People's expectations will impact their attitudes towards or appraisal of social robots. Therefore, these results should be taken into account while creating and constructing social robots. It's important to keep in mind that people's views of robots' skills and talents have a big impact, and that people's fears may be eased by realizing that robots aren't as sophisticated as those described in science fiction. As a consequence, greater emphasis must be placed on training and a more accurate representation of social robots in the media, so that the general populace has a better understanding of what to anticipate. *"In general demonstrations concerning robots, ambiguities and unresolved technical difficulties in robotics frequently stay black boxed,"* as per Weiss et al. [33]. Furthermore, because news about actual robots is less common than science fiction, it is processed more frequently [32]. As a result, better available media attention to genuine social robots is needed, not just to highlight what they can accomplish now, but also to reveal current technical and developmental constraints and issues.

In the future, it looks like social robots will play a much bigger role in our surroundings, primarily in collaboration among people. The impact of social robots will need direct and

effective contact between people and robots. Although it is essential to promote creating independent abilities, the human–robot relationship must also be improved in order to reduce people's anxieties. The objective is to find methods for social robots to actively engage in human society, not only to establish processes that enable them to accomplish restricted tasks.

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Quality of Life, Mental Health and Coping as Determinants of Suicidal Ideation among Farmers with different economic Background

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Abstract

It is widely acknowledged that agricultural is highly stressful occupation, especially in India. India is an agricultural dominant nation, where small farmers are not in a very sound condition economically. The current study investigates the impact of the quality of Life, mental health, and coping as determinants of suicidal ideation among farmers with different economic backgrounds. This study is based on the primary data that has been collected from the eastern zone (four districts) of Haryana state and 375 respondents (with a minimum education of 10th were selected). They were further divided into three different groups as landless farmers, farmers with 1-9 acres land (125), and farmers with more than 9-acre land (125). General Health questionnaire (GHQ), World Health Organization- Quality of life (WHOQOL), Coping Response Inventory (CRI), and Adult Suicidal Ideation Questionnaire (ASIQ) were used for data collection. In statistical tools, descriptive statistic and regression analysis has been applied. The findings of the study reveal significant group differences on different components of quality of life, mental health and different components of coping on suicidal ideation.

Keywords: *Farmers, Land Economic background, Quality of Life, Mental Health, Coping, Suicidal ideation.*

I. Introduction

The Indian farming, the largest collection of surviving small peasants on the planet, is on verge of elimination. Two variables have changed the economy of cultivation into a declining economy for farmers – the increasing expenses of generation and the decreasing costs of farm products. Both these elements are established in the strategies of exchange progression and corporate globalization. Farmers borrow money from moneylenders for purchasing seeds and other types of equipment of farming. But when the crop is destroyed due

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to any natural disaster in that situation, the farmer feels distressed. Due to his destruction, several farmers are not able to pay his debts. The moneylender force farmers to pay their debts, and also humiliate them. Due to these adverse conditions, farmers feel stressed and mentally unhealthy and this becomes a cause of quarrel in farmers' families. Their bad economic condition is responsible for this, pushing them forward committing suicide or suicidal ideation [i].

Suicidal ideation is a situation in which an individual thinks about suicide. The thoughts of suicide keep changing in various situations. A person thinks comprehensively about suicide and makes a detailed plan to commit suicide. Among these few plans are those which remain unsuccessful while an individual may succeed in some. According to [ii], "Suicidal thoughts, also known as suicidal ideation, are thoughts about how to kill oneself, which can range from a detailed plan to a fleeting consideration and does not include the final act of killing oneself. [iii] identified that the majority of peasants who committed suicide in Maharashtra were those with only small lands and who cultivated cotton. According to him, these peasants were exaggerated by the neoliberal economic policies, which led to a higher indebtedness and the introduction of high yielding variety (HYV) crops. He claims that they were experiencing an increasing tendency towards individualization and social alienation. In a study conducted to present models of psychological wellbeing, six dimensions were found to be predictive of resilience, successful aging, and good mental health in adults. These six measurements are Personal Growth, Environmental mastery and Purpose in life, Autonomy, Self – acceptance, and Positive relations with others [iv]. There is a solid relationship between raised suicide risk, physical ailment, and psychological maladjustment, especially depression [v]. Researchers show that individual mental health, quality of life, and coping styles are the strong determinants of suicidal ideation.

[vi] Mental health is "a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community". A healthy person is one who is completely happy physically, mentally, and socially. Mental health also affects how we think or respond to particular things. Mental health also decides how we handle stressful situations, how we behave with others, and how we make decisions. In one's life if anyone ever feels mentally unhealthy then it affects his thinking abilities, moods, and behaviour. Mental health improves the quality of life. A mentally healthy person is one who gets through the stresses and problems of daily life, fights with them and works with regularity and happiness. He can contribute to the society and community. Different adverse circumstances and long-term mental health difficulties are costs for the manifestation of suicidal thoughts in peasants. Suicidal thoughts among farmers usually associated with mental illness [vii]. The work-home condition of cultivating family is one of a kind and accordingly justified further examination because of the potential connection between the working atmosphere and poor emotional well-being status of cultivating families. Increasing in the financial restrictions and stressors that are often a part of farmers' life may be placing the farmer and farming family life at a risk [viii].

Many factors affect an individual's quality of life. Such as income, physical health, mental health, social life and all aspects of the environment in which a person survives. Recent studies indicated that farm size, income from farming and working conditions of farmers associated with quality of life. [ix] found that farmers who have high family income and older the age have sound well-being, and age of farmers positively associated

with quality of life but negatively associated with expectancy for future quality of life. [x] reported that farmers remain in conflicts when they have a lack of time to complete their farm work, low income from farming and during busy seasons of farming. Excess of farm work or workload may be the basic reason of family conflict in farmer's life, but flexible timing of working at farm positive impact on farmer's family relationships and improve their quality of life.

It is "constantly changing cognitive behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" [xi]. [xii], "Coping, in sum, is certainly not a uni-dimensional behaviour. It functions at several levels and is attained by a plethora of behaviours, cognitions, and perceptions". The bottommost levels include "instances" of dealing. These are the innumerable evolving constant reactions that people use in managing explicit distressing exchanges, for example, "I wore my lucky socks the day of the surgery or "I read everything I could find about it". Inoperative footings, these are caught with information from oneself of real adapting practices or through constant perceptions. At the topmost level are collections of fundamental versatile procedures that mediate among pressure and its mental, societal, and physical results. This dimension alludes towards adapting as a "strategy of adaptation [xiii], serving bigger developmental roles, for example, proceeding to verify sufficient knowledge about nature or getting away from a conceivably hazardous exchange. In psychology, adapting refers to inferring one's mindful effort, to resolve their individual and relational problems, to try to master, minimalist or endure mental pressure and conflict.

This study will consider three groups' i.e. landless farmers, farmers with 1 to 9 acre land, and farmers with more than 9 acre land. The objective of the study is to study relationships of Mental Health, Quality of Life, and Coping with Suicidal Ideation among Farmers and to study differences among groups of farmers based on landholdings on the variables of Mental Health, Quality of Life, Coping, and Suicidal Ideation.

Significance of the study: The significance of this study is to find out the impact of Mental Health, Quality of Life, Coping as determinants of Suicidal Ideation among Farmers with different economic Backgrounds. This study will help academicians, researchers, and psychologists to confirm that there is a positive association between quality of life, mental health, coping, and suicidal ideation. This confirmation can help to take the necessary care of farmers.

II. Methodology

2.1. Sample and Population

The sample of this research is of 375 male farmers of four districts of Haryana with the age range of 25 to 40 years. In this research data collection will be through random sampling. A sample of 375 male farmers further categorised into three groups. Such as 125 landless farmers but farming on leasehold land, 125 farmers who have 1-9 acres land, and 125 farmers who have 10-acre and above land.

Table No. 1.

125 Farmers	125 Farmers	125 Farmers
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Landless (farming on leasehold land)	1-9 acre land	10-acres and above land
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2.2. Measures

1. Adult Suicidal Ideation Questionnaire (Reynolds, 1991)
2. World Health Organization-Quality of Life (WHOQOL Group)
3. General Health Questionnaire – 28 (Goldberg and Hillier, 1979)
4. Coping Response Inventory (Rudolf H. Moos, 1993)

2.2.1 Adult Suicidal Ideation Questionnaire (ASIQ)

The ASIQ (Adult Suicidal Ideation Questionnaire) developed by Reynolds, 1991. It has contained 25 items, a revised form of the 30 item SIQ. Whereas the SIQ was aimed to measure suicidal ideation in adolescents, the Adult Suicidal Ideation Questionnaire is aimed to assess it in adults. The reliability of coefficient alpha is excellent 0.97 and test-retest reliability is .86.

2.2.2. WHOQOL-BREF

The WHOQOL-BREF developed by the WHOQOL group. It contains a total of 26 questions. To offer an expansive and wide evaluation, one item from every one of the 24 aspects contained in the WHOQOL-100 has been incorporated. Also, two items from the overall quality of life and the General Health aspect have been incorporated. There are additionally 2 items that are analysed unmistakably: question 1 gets some information about a person's general opinion of the quality of life and question 2 gets some information about a person's general view of their health [^{xiv}].

2.2.3. General Health Questionnaire – 28 (GHQ-28)

The GHQ construct by Goldberg & Hillier, 1979 [^{xv}] comprises of 28 items assessing psychological symptoms. There are 4 subscales: (1) Somatization (2) anxiety/Insomnia (3) Social dysfunction and (4) Severe Depression, with each subscale containing of seven items. Each item is evaluated on a 4-point scale, according to how they have better experienced each GHQ item. The GHQ is a generally used measure of mental health. The GHQ has good test-retest reliability. The reliability coefficient is higher in readings in which there is a greater occurrence of illness and in which the GHQ is used within a comparatively small period (i.e. 5-7 days) and ranges from .85 to .90. When utilizing an example drawn from the large public, the reliability coefficient decreases substantively. For instance, when the dependability of GHQ was estimated a year separated in a specimen of school leavers and men confronting severance, the test-retest connection was .58 and .51 correspondingly.

2.2.4. Coping response inventory (CRI):

This inventory has been developed by [xvi]. The inventory Adult Form (CRI adults) assesses 8 various types of coping responses to taxing life conditions. These responses are measured by 8 scales Logical Analysis, Seeking Guidance and support, Emotional Discharge, Positive Reappraisal, Problem Solving, Acceptance or Resignation, Cognitive Avoidance, Seeking Alternatives Rewards. The inventory contains 48 items. The First set of 4 scales measure approach coping response, the second set of 4 scales measures avoidance coping responses comprising its different aspects at both cognitive and behavioural level. The internal consistencies are moderate .62 to .74. The scales are moderately stable over an average interval of about eight months (average = .48).

Inclusion criteria- Farmers having domicile of Haryana state only will be included in this study. Farmers who have passed at least 10th standard was included in this research.

Exclusion criteria – Farmers having a history of mental illness will be excluded from this study. Farmers who do another job or have other than farming as a career will be excluded from this research.

2.3. Statistical analysis

After collecting the data, statistical analysis was made with the help of descriptive statistics (mean, standard deviation), and regression analysis that was calculated with the help of IBM SPSS (16th version).

III. Results and Discussion

The result has been presented and deliberated under the following headings:

1. Descriptive statistics
2. Regression Analysis

Table No. 2.

Descriptive Statistics

Variables	Landless		1-9 Acre		Above 9 Acre	
	Farmers (N=125)		Land (N=125)		Land (N=125)	
	M	SD	M	SD	M	SD
Suicidal ideation	38.32	20.34	40.29	32.98	3.82	6.31
Physical health (QOL)	10.54	2.48	11.72	2.48	15.29	2.49
Psychological health (QOL)	10.21	3.11	11.89	2.71	14.92	2.57
Social relationships (QOL)	10.99	3.33	12.55	2.90	15.81	2.28

Environment (QOL)	10.30	3.18	11.76	2.90	15.23	2.45
Somatic symptoms (GHQ-28)	15.55	2.98	15.78	4.26	11.64	3.09
Anxiety/insomnia (GHQ-28)	16.13	3.22	16.73	4.58	11.47	3.76
Social dysfunctional (GHQ-28)	18.38	3.14	16.67	3.62	20.56	3.52
Severe depression (GHQ—28)	16.91	4.04	16.01	5.54	11.26	4.64
Logical analysis (Coping)	15.75	3.13	16.12	2.75	16.76	3.83
Positive reappraisal (Coping)	15.32	2.91	16.56	2.65	16.90	3.57
Seeking guidance & support (Coping)	15.54	3.07	16.69	2.59	16.77	3.52
Problem solving (Coping)	15.34	2.82	16.84	2.38	16.84	3.71
Cognitive avoidance (Coping)	15.36	2.74	16.30	2.47	16.68	3.80
Acceptance or resignation (Coping)	15.82	3.09	16.51	2.89	16.30	4.14
Seeking alternative reward (Coping)	15.36	2.78	16.45	2.44	16.77	3.79
Emotional discharge (Coping)	15.40	2.84	16.10	2.67	16.23	3.72

Regression Analysis

Further regression analysis was conducted to identify the specific determinant of suicidal ideation among three groups of farmers (i.e. Landless Farmers who have farming on leasehold land, farmers who have farming on 1-9 acre land, and farmers with more than 9 acre land) for this purpose method of stepwise multiple regression analysis was used. Total 17 variables were used in this regression analyses one score of suicidal ideation used as a dependent variable and 16 variables (i.e. 4 variables of mental health, 8 variables of coping, and 4 variables of quality of life) were used as independent variables in these analyses.

Landless Farmers and their Suicidal Ideation

Table No. 3

Variables	R2	R2 Change	SE	Beta	t-value
CONSTANT			12.00	53.41	4.45**
Physical health (QOL)	.20	.202	.808	-1.39	-1.72
Anxiety/insomnia (GHQ-28)	.31	.109	.451	2.27	5.03**
Emotional discharge (Coping)	.35	.039	.624	2.00	3.22**

Positive reappraisal (Coping)	.37	.021	.671	- 2.09	-3.12**
Social relationships (QOL)	.39	.026	.573	-1.55	-2.71**
Logical analysis (Coping)	.42	.024	.611	-1.34	-2.19*

Note: **. Significant at 0.01 level, *. Significant at 0.05 level.

It is evident in table no. 3 that the variable of physical health and social relationships (a sub variable of quality of life scale) anxiety/insomnia (a sub variable of mental health questionnaire) emotional discharge, positive reappraisal, and logical analysis (a sub variable of coping response inventory) explained 42% variance for suicidal ideation.

The first variable that is physical health (a sub variable of quality of life) accounted for a 20% variance and the Beta value is -1.39 which is non-significant. The second variable is anxiety/insomnia (a sub variable of general health questionnaire) accounted for a 10% variance and the Beta value is 2.27 which is significant at 0.01 level. It shows as the level of anxiety and insomnia increases; suicidal ideation among landless farmers also increases. The third variable is emotional discharge (a sub variable of coping response inventory) accounted for a .039% variance and the Beta value is 2.00 which is significant at 0.01 level. It shows as the landless farmers feel more emotional discharge; they tend to more suicidal ideation. The fourth variable is positive reappraisal (a sub variable of coping response inventory) accounted for a 0.21% variance and the Beta value is -2.09 which is significant at 0.01 levels. It shows negative relationship exist between positive appraisal and suicidal ideation. The fifth variable is social relationship (a sub variable of quality of life) accounted for a 0.26% variance and the Beta value is -1.55 which is significant at 0.01 level. It shows as social relationship increases; suicidal ideation decreases. The sixth variable is logical analysis (a sub variable of coping response inventory) accounted for 0.24% variance and the Beta value is -1.34 which is significant at 0.05 levels. Lack logical analysis leads to high suicidal ideation among landless farmers.

Farmers who have 1-9 acre land

Table No. 4

Variables	R2	R2 Change	SE	Beta	t-value
CONSTANT			19.25	101.2	5.25**
Psychological health (QOL)	.403	.167	.887	-4.46	-5.02**
Somatic symptoms (GHQ-28)	.237	.237	.512	3.48	6.80**
Acceptance or resignation (Coping)	.466	.063	.847	-3.17	-3.75**
Seeking guidance and support (Coping)	.486	.020	.969	- 2.56	-2.65**
Emotional discharge (Coping)	.504	.017	.987	2.01	2.04*

*Note: **. Significant at 0.01 level, *. Significant at 0.05 level.*

It is evident in table no. 4 that the variable of psychological health (a sub variable of quality of life scale) somatic symptoms (a sub variable of mental health questionnaire) acceptance or resignation, seeking guidance and support, and emotional discharge (a sub variable of coping response inventory) explained 50% variance for suicidal ideation.

The first variable that is psychological health (a sub variable of quality of life) accounted for a .16% variance and the Beta value is -4.46 which is significant at 0.01 level. Poor psychological health leads to more suicidal ideation among farmers who have 1-9 acre land. The second variable is somatic symptoms (a sub variable of general health questionnaire) accounted for a .23% variance and the Beta value is 3.48 which is significant at 0.01 level. It shows as the somatic symptoms increases; suicidal ideation among farmers also increases. The third variable is acceptance or resignation (a sub variable of coping response inventory) accounted for a .063% variance and the Beta value is -3.17 which is significant at 0.01 level. It shows as the level of acceptance increases; suicidal ideation decreases. The fourth variable is seeking guidance and support (a sub variable of coping response inventory) accounted for a 0.20% variance and the Beta value is -2.56 which is significant at 0.01 levels. It shows negative relationship exist between seeking guidance & support and suicidal ideation. The fifth variable is emotional discharge (a sub variable of quality of life) accounted for a 0.17% variance and the Beta value is 2.04 which is significant at 0.01 level. It shows as farmers feel more emotional discharge; suicidal ideation increases.

Farmers with more than 9 acre land

Table No. 5

Variables	R2	R2 Change	SE	Beta	t-value
CONSTANT			3.283	2.134	.650
Somatic symptoms (GHQ-28)	.218	.218	.162	.804	6.80**
Logical analysis (Coping)	.289	.071	.131	-.457	-3.50**

*Note: **. Significant at 0.01 level.*

It is evident in table no. 5 that the variable of somatic symptoms (a sub variable of mental health questionnaire) logical analysis (a sub variable of coping response inventory) explained 28% variance for suicidal ideation.

The first variable is somatic symptoms (a sub variable of general health questionnaire) accounted for a .21% variance and the Beta value is .804 which is significant at 0.01 level. It shows as the somatic symptoms increases; suicidal ideation among farmers also increases. The second variable is logical analysis (a sub variable of coping response inventory) accounted for a .071% variance and the Beta value is -.457 which is significant at 0.01 level. It shows as the logical analysis increases among farmers suicidal ideation decreases.

It can be inferred from table no. 2, 3, & 4 that variable related to the economic background are influential predictors of suicidal ideation among three different groups of farmers. If we look at the regression analysis for the whole sample than it is found that physical health, social relationships (all these are sub variables of quality of life) are important determinants of suicidal ideation in landless farmers. Psychological health (sub variables of quality of life) is important determinants of suicidal ideation in farmers who have farming on 1-9 acre land.

Emotional discharge, positive reappraisal, and logical analysis are important determinants of suicidal ideation in landless farmers. Emotional discharge, acceptance & resignation, seeking guidance & support are important determinants of suicidal ideation in farmers who have farming on 1-9 acre land and logical analysis is important determinants of suicidal in farmers with more than 9 acre land (all these are sub variable of coping response inventory).

Somatic symptoms (sub variable of mental health) are important determinants of suicidal ideation in farmers who have farming on 1-9 acre land and above 9 acre land. Anxiety and insomnia (sub variable of mental health) is an important determinant of suicidal ideation in landless farmers. 'Despite the peaceful image of agricultural as a calm and vigorous mode of life, farming has the highest rate of suicide among all trades [xviii]. Farmers and their families are exposed to different types of physical well-being risks such as contact to injurious chemicals [xviii], physically challenging work and lengthy working periods in all climate conditions [xix]. Furthermore, farming is associated with mental risks such as stress [xx], anxiety, desperateness [xxi], and suicide [xxii]. Agricultural trades functions in a framework of fading terms of trade intended for agrarian produce, changeable product markets, reduce chance of off-farm employment, cumulative price of farm equipment and production, loss of farms or income due to failure of crop or production and changeable government rule on ecological and financial matters [xxiii]. Remarkably, [xxiv] originate in their study on intergenerational alternations on domestic farms, that the newer age group suffers complex heights of stress, observe lesser levels of care and are normally less gratified with life. According to [xxv], peasants incline to present with somatic indications of anxiety and hopelessness as contrasting to psychological symptoms. [xxvi] establish the reasons associated with suicide in peasants contain not having a confidant, fears about finance, legal complications, physical well-being and relations. The chief shared reason accounting for eighty-two percent of suicides amongst peasants was the presence of psychological health problems.

IV. Conclusion

From the above discussion, it can be inferred that Physical health, Psychological health, Social relationships (all these are the sub variable of quality of life), Emotional Discharge, Positive reappraisal, Acceptance & Resignation, Seeking Guidance and support, and Logical analysis (all these are the sub variable of coping response inventory), and somatic symptoms, and anxiety & insomnia (sub variable of mental health) are significantly related with suicidal ideation. There were significant group differences on different components of quality of life, mental health, and different components of coping.

V. Implications

The most salient implication of the study is vested in its great relevance in contemporary society. The present study has contributed to the field of suicidal ideation of farmers by examining the mental health, quality of life, and coping. We consider psychology as a science of behaviour, which means its main goal is to predicting and explaining behaviour. Thus to study the suicidal behaviour of farmers, some psychological factors which affects their behaviour needs to be studied. This study dealt with different social and psychological variables like mental health, quality of life, and coping which affect the thought process and suicidal behaviour of farmers. This study also takes into account the educational status of farmers (minimum 10th pass). Suicidal incidences increase among farming society day-by-day, so there is a need to study their suicidal behaviour, and which factors contributed to that type of behaviour. This study has highlighted the need for improvement of quality of life for farmers. This study highlighted the need for improvement in mental health for farmers. This study can help making policies and mental health programs for farmers. The conclusions of the existing study can serve as an empirical basis for scheduling and executing suicidal ideation prevention programs and/or creating or reviewing social policies for the target population.

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Phulkari: A key for women empowerment in India

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Abstract:-The present paper is an attempt to analyze the status of women empowerment in India using various indicators based on data from secondary sources. The *Phulkari* embroidery is also done by both techniques i.e. hand and machine technique. The study reveals that women of India are relatively disempowered and they enjoy somewhat lower status than that of men in spite of many efforts undertaken by government. Today the empowerment of women has become one of the most important concerns of 21st century. But practically women empowerment is still an illusion of reality. Household decision making power and freedom of movement of women vary considerably with their age, education and employment status. More than half of the women believe wife beating to be justified for one reason or the other. Fewer women have final say on how to spend their earnings. Control over cash earnings increases with age, education and with place of residence. Women's exposure to media is also less relative to men. The study concludes by an observation that access to education and employment are only the enabling factors to empowerment, achievement. Women empowerment is a debatable subject. At earlier time they were getting equal status with men. Many a time they were treated as slave. From early twenty century (national movement) their statuses have been changed slowly and gradually. In this regard, we may mention the name of the British people. After then, independence of India, the constitutional makers and national leaders strongly demand equal social position of women with men. Today we have seen the women occupied the respectable positions in all walks of the fields. Under this present study training was organized for rural women of gangway villages and their attitudes were known after training. This training was very helpful for them in knowing new ideas, techniques of products surface enrichment.

Key words: training, *Phulkari*, women empowerment, income, equality.

Introduction:-The *Phulkari* embroidery is also done by both techniques i.e. hand and machine technique. Through use of this activity women of Punjab are earning a heavy amount of income directly customers and shop keepers. Women empowerment” and “women equality with men” is a universal issue. Women empowerment is a term that is used to encourage, inspire and celebrate women. It is also used to celebrate the strides that women and girls have taken in terms of gender

equality, financial independence and high confidence. In the last five decades, the concept of women empowerment has undergone a sea change from welfare oriented approach to equity approach. It has been understood as the process by which the powerless gain greater control over the circumstances of their lives. Empowerment of women is essentially the process of upliftment of economic, social and political status of women, the traditionally underprivileged ones, in the society. Particularly includes control over resources and ideology. According to Sen and Batliwala (2000) it leads to a growing intrinsic capability- greater self confidence, and an inner transformation of one's consciousness that enables one to overcome external barrier. This view mainly emphasizes on two important aspects. Firstly, it is a power to achieve desired goals but not a power over others. Secondly, idea of empowerment is more applicable to those who are powerless- whether they are male or female, or group of individuals, class or caste. Though concept of empowerment is not specific to women, yet it is unique in that and it cuts across all types of class and caste and also within families and households (Malhotra et al, 2002). Empowerment of women is essentially the process of upliftment of economic, social and political status of women, the traditionally underprivileged ones, in the society. Women empowerment is also defined as a change in the context of a women's life, which enables her increased capacity for leading a fulfilling human life. It gets reflected both in external qualities (viz. health, mobility, education and awareness, status in the family, participation in decision making, and also at the level of material security) and internal qualities (viz. self awareness and self confidence) [Human Development in South Asia (2000) as quoted by Mathew (2003)]. UNDP (1990) for the first time introduced the concept of Human Development Index (HDI) that evolved initially as a broader measure of socio-economic progress of a nation but it became popular as a measure of average achievements in human development for both the sexes. Contrary to the general belief that development is gender neutral, statistics show that women lag behind men all over the world including India in almost all aspects of life. It is for this reason that the focus on human development has been to highlight the gender dimension and continuing inequalities confronting women since 1995 (UNDP 1995). The Report noted that without empowering women overall development of human beings is not possible. It further stressed that if development is not engendered, is endangered. To bring out the facts and figures relating to deprivation of women two indices, namely, Gender related Development Index (GDI) and Gender Empowerment Measure (GEM) were introduced. While GDI measures the achievements

in the same dimensions and variables as the HDI, it also takes into account inequality in achievement between women and men (Anand and Sen, 1995). The greater the gender disparity in human development, the lower is country's GDI compared to its HDI. The GDI is the HDI adjusted downwards for gender inequality. On the other hand, GEM indicates whether women are able to actively participate in economic and political life. Theoretically, the index can take values between zero and infinity, with a value of unity reflecting an absolute equality in the respective attainments of males and females. A value higher than unity would imply that females have better attainments than males. Women constitute almost 50% of the world's population but India has shown disproportionate sex ratio whereby female's population has been comparatively lower than males. As far as their social status is concerned, they are not treated as equal to men in all the places. In the Western societies, the women have got equal right and status with men in all walks of life. But gender disabilities and discriminations are found in India even today. The paradoxical situation has such that she was sometimes concerned as Goddess and at other times merely as slave.

Women in India:-Today over 200,000 women are engaged in *phulkari* work in Punjab. Different Self-help groups comprising over 3,000 women who are member in these self help groups are doing phulkari as a means of earning their family income from last few years, Jasbir Kaur age of 45 from Thuha village situated in Patiala district. Now the women in India enjoy a unique status of equality with the men as per constitutional and legal provision. But the Indian women have come a long way to achieve the present positions. First, gender inequality in India can be traced back to the historic days of Mahabharata when Draupadi was put on the dice by her husband 200 *Dhruba Hazarika* as a commodity. History is a witness that a woman was made to dance both in private and public places to please the man. Secondly, in Indian society, a female was always dependent on male members of the family even last few years ago. Thirdly, a female was not allowed to speak with loud voice in the presence of elder members of her inlaws. In the family, every faults had gone to her and responsible. Forth, as a widow her dependence on a male member of the family still more increase. In many social activities she is not permitted to mix with other members of the family. Other hand, she has very little share in political, social and economic life of the society.

Empowerment of women in India

The concept of empowerment flows from the power. It is vesting where it does not exist or exist inadequately. Empowerment of women would mean equipping women to be economically independent, self-reliant, have positive esteem to enable them to face any difficult situation and they should be able to participate in development activities. The empowered women should be able to participate in the process of decision making. The 73rd&74th Amendments (1993) to the constitution of India have provided some special powers to women that for reservation of seats (33%), whereas the report HRD as March 2002, shows that the legislatures with the highest percentage of women are, Sweden 42.7%, Denmark 38%, Finland 36% and Iceland 34.9%. In India "The New Panchayati Raj" is the part of the effort to empower women at least at the village level. In India, the Ministry of Human Resource Development (MHRD-1985) and the National Commission for Women (NCW) have been worked to safeguard the rights and legal entitlement of women. The government of India has ratified various international conventions and human rights instruments committing to secure equal rights to women. These are CEDAW (1993), the Mexico Plan of Action (1975), the Nairobi Forward Looking Strategies (1985), the Beijing Declaration as well as the platform for Action (1995) and other such instruments. The year of 2001 was observed as the year of women's empowerment. During the year, a landmark document has been adopted, 'the National Policy for the empowerment of women.' For the beneficiaries of the women, the government has been adopted different schemes and programs i.e. the National Credit Fund for Women (1993), Food and Nutrition Board (FNB), Information and Mass Education (IME) etc. In the political arena too, we could find that some women excelled in the past and still some of them are in their peak of glory and success because of their boldness and leadership qualities. The most notable amongst these are: Mrs. Pratiba Devi Singh Patil, the Ex president of India, Shila Dixit, the Ex-Chief Minister of Delhi, Ms. Jayalalitha, Chief Minister of Tamil Nadu, Mayawati, the Chief Minister of Uttar Pradesh (UP), Sonia Gandhi, President of the Indian National Congress party since 1998, Bindu Karat, the general secretary of the All India Democratic Women's Association (AIDWA) from 1993 to 2004, and thereafter its Vice-President till date, Susma Swaraj, former lawyer and the current Minister of External Affairs of India, in office since 26 May 2014, Momta Benarji, the founder the party All India Trinamool Congress (AITMC) and at present Chief Minister of West Bengal since 2011, Indira Gandhi, India's third prime minister from 1966 until 1984. Ex-prime minister etc. Women

are also involving in human development issues of child rearing, education, health, and gender parity. Many of them have gone into the making and marketing of a range of cottage products-pickles, tailoring, embroidery etc. The economic empowerment of women is being regarded these days as a sine-quo-non of progress for a country; hence, the issue of economic empowerment of women is of paramount importance to political thinkers, social thinkers and reformers.

Reasons for the empowerment of women

Due to the high popularity of the traditional handmade Phulkari there was a huge influx of demand, and therefore, merchants deemed it necessary to produce machine made Phulkaris to meet this rising demand. This has adversely affected the financial independence of Phulkari artisans. Today we have noticed different Acts and Schemes of the central government as well as state government to empower the women of India. But in India women are discriminated and marginalized at every level of the society whether it is social participation, political participation, economic participation, access to education, and also reproductive healthcare. In spite of enacting various Acts and bringing out several schemes by both the state and central government to empower the women of India, women are still discriminated, subjugated and marginalized at every level of the society, be it social participation, political participation, easy access to education, economic participation and liberation, and also reproductive healthcare at times of their needs. Generally, majority of the women even in the fast changing and competitive world are found to be economically very weak and therefore they continue to remain very poor all over the India. Significantly, a few women are voluntarily engaged in services and other activities with the consent of their partners and family members. It shows clearly that women are not given full freedom to function themselves as they wish or they could not do what they have been wanting or aspiring to do. To come out completely from this kind of situation, women should have an access to money all the time. Therefore, what they need is economic power by which they could be able to stand on their own legs on par with men. Women are found to be economically very poor all over the India. A few women are engaged in services and other activities. So, they need economic power to stand on their own legs on per with men. According to 2001 census, rate of literacy among men in India is found to be 76% whereas it is only 54% among women. Thus, increasing education among women is of very important in empowering them. It has also noticed that some of women are too weak to work. They consume less food but

work more. Therefore, from the health point of view, women folk who are to be weaker are to be made stronger. Another problems is that workplace harassment of women. There are so many cases of rape, kidnapping of girl, dowry harassment, and so on. For these reasons, they require empowerment of all kinds in order to protect themselves and to secure their purity and dignity. Another pertinent problem is the harassment of women at the workplace. There are so many incidences and many cases of rape, kidnapping of girl, dowry harassment and so on taking place every day in workplaces. As women are weak and voiceless, some cases are unreported. Considering the above reasons, women require empowerment. Therefore, it is the urgent need of the hour to help women to attain empowerment of all kinds in order to protect themselves and to secure their purity and dignity. To sum up, women empowerment can not be possible unless women come with and help to self-empower themselves. There is a need to formulate reducing feminized poverty, promoting education of women, and prevention and elimination of violence against women.

Methodology

The present study was conducted Shri Jagdishprashad Jhabarmal Tibrewala University, Rajasthan. The study was conducted in nearby cities of Haryana and Punjab states and training was organized in nearby villages to gather the information about adaptation of traditional Indian *Phulkari* embroidery motifs of Punjab for its fashionable use. Rural villages Gangwa was selected for imparting training regarding *phulkari* Embroidery. Total 30 ladies were selected for training.

CONCLUSION

From the present study it is concluded that the training was beneficial for respondents. In conclusion, I want to underline the importance of the empowerment of women. Effective policies backed by action to accord them their due rights and equal opportunities will be critical to bolstering the overall work on preventing sexual violence against women and other citizens in conflict. Among the educated women in India, women from the middle class are continuing to improve in walk of lives cutting across their traditional boundaries. It shows that there remains a strong bias against gender equality in the societal parts of India, wherever we find the patriarchal traditions prevailing. While in the educated, urban middle class women's rights continue to improve, there remains a strong bias against gender equality in those societal parts of India, where patriarchal traditions prevail. Consequently, in these strata any inheritance of a deceased

husband or father would be passed down to the oldest son, while his wife or daughters would not receive any financial benefit. Women were denied a lot of opportunities and they missed out on a lot of things that would have changed their lives. However, they deserve equal opportunities for **education, in their careers, in the society**, and so much more. There are laws in place to ensure legal protection for women's right to inheritance, but the enforcement of the law is challenging, when the woman is refused her right by the family, and when she is not confident or educated enough to claim her right. Having seen the status of women in India from strength to strength from past to present, It is worth quoting from the statement of Jawaharlal Nehru "You can tell the condition of a Nation by looking at the status of its Women." Having understood this, it is good to conclude with reasonable questions that which nation could claim to be a free and prosperous society, where half of its population is being oppressed? And which striving nation can afford to oppress half of its population? Obviously, the answer to that question is: none! Sustainable and long-term development is not possible without the participation and empowerment of women, only if they participate in the economic and societal development, the full potential of a society of India's society will be unfolded. The empowerment of women is a very important task that every one of us should undertake. This is because empowering women is equal to empowering the whole community and generations to come. "Women empowerment" and "women equality with men" is a universal issue. Women empowerment is a term that is used to encourage, inspire and celebrate women. It is also used to celebrate the strides that women and girls have taken in terms of gender equality, financial independence and high confidence.

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Gender Differences on Personality Trait

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ABSTRACT

This is the universal and scientific truth that males and females are different in the biological aspect, but psychology proves through empirical researches, that they are different in psychological aspects too. The present research reveals that both gender (males and females) are different in their personality traits. The sample comprised of 165 adolescence and early adults, their education is above the 12th standard, and the age range was between 17-26 years. To assess the personality traits of adolescence NEO-FFI by McCrae and Costa (1992) was used. T-test as used as a statistical tool. The finding reveals that there is a difference between males and females on the dimensions of big-five personality traits.

Keywords: *Personality traits, Gender differences, NEO-FFI, Big-five traits*

Males and females are different in the biological as well as psychological aspects. But the question is why they are different? Why they show different scores on personality inventories? A possible answer can be, because, both genders play a different role in society, they socialized to behave differently. As a result of this role, their psychology is different. Some theories also state that heredity and environment play an important role to make individuals' personalities. There are specifically two models that suggest and prove differences between sexes. These models are: biological, and socio-cultural. Biological models explain that there is an innate temperamental difference between males and females. Twin studies, studies on hormones; specifically, gonadal hormones or some physiological measures prove that there is a difference present. Zukerman's sensation-seeking theory also suggests that the traits of aggression and dominance are different in both sexes. The reason behind this is gonadal hormones. The socio-cultural model also emphasizes, that there is a difference between sexes. Males and females are born and developed in a different environment. People can be the same around them but they treated differently. They socialized to behave differently. That is why society and their culture affect and make different personalities. Bandura's (1977) social learning theory and Sigmund Freud's psychodynamic theory of personality both show that nature and nurture both influence on persons' personality. Mainly, the study of personality is very useful to define this.

Now the question is what is personality? It is the combination of characteristics (Gupta, 2017) and can state as the "essence of the person" (Gupta, 2019). Weinberg & Gould (1999)

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Received: June 28, 2021; Revision Received: September 01, 2021; Accepted: September 11, 2021

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says “Personality is the characteristics or blends of characteristics that make a person unique”. These stable characteristics of one’s behavior are called traits. ‘Big Five’ term is the most popular term to examine personality traits. According to McCrae and Costa, there are five dimensions of personality traits, i.e., Neuroticism vs. emotional stability, extraversion vs. introversion, openness vs. closeness, agreeableness vs. antagonism, conscientiousness vs. lack of direction. These five traits are called ‘OCEAN’ as a short form. Extroverts are those who are assertive, full of positive emotions, outgoing, and sensation- seeker, sociable. Introverts are just the opposite of extroverts. An agreeable person is trustworthy, straightforward, sympathetic, and not stubborn. Antagonists are just opposite to agreeable person. Conscientious are those who are dutiful, organized, self-disciplined, and deliberate. Neurotics are full of anxiety, depression, and hostility, shy, moody, and vulnerable. They are just opposite to emotionally stabled. Openness to experience means those who have wide interest, imaginative, and curious.

Gender and Personality Traits

Connections of many things have been seen with personality traits. Gender difference is one of them. Feingold’s (1994) results explore that female are more extroverted than males and males are more assertive than females. Shuqin, Wang, & Rocklin (1995) reveal that woman’s scores significantly higher than men’s on measures of neuroticism and agreeableness. Similar results were founded by Goldberg, Sweeney, Merenda, & Hughes (1998); Budaev, 1999; and Goodwin, & Gotlib (2004); McCrae, et al., (2005); Chapman, Duberstein, & Lyness (2007).

In a big study, on Big Five traits across 55 nations, found men reported low scores than women on the dimension of neuroticism, agreeableness, conscientiousness, and extraversion (Schmitt, Realo, Voracek, & Allik, 2008). Several studies reported that women are more neurotic, agreeable, and open to feelings, whereas mens are more assertive and open to ideas (Costa, Terracciano, & McCrae, 2001; Goodwin, & Gotlib, 2004; Shokri, Kadivar, & Daneshvarpoor, 2007). Yanna, Colin & Jacob (2011) reveal that women scored significantly higher on Neuroticism, Extroversion, & Agreeableness than men. Soudeh & Masound (2012) said that girls have significantly higher openness to experience and agreeableness than boys.

As we all can see, there are many pieces of researches on this topic. But one thing grabs the attention that these all are done in a foreign land. There is a shortage of such researches in the Indian context. This research is very helpful to understand that personality differences on gender bases are present not only in foreign countries but in India also. India is a country with diversity; where people differ not only by gender, and religion but their lifestyle, culture, caste, and so on. Culture, values, traditions change even a few miles. But beyond this kind of diversity both males and females consider equally; they have equal opportunities and responsibilities. This research sheds light that they do not differ only on biological bases but psychological also. Still, they together do work and handle their responsibilities, contribute to a nation equally.

Ethical consideration

This research was done according to ethical standards of human experimentation in accordance to the Helsinki Declaration.

METHODOLOGY

Sample

Sample was comprised 165 adolescence and early adults (68 males and 97 females). Undergraduate and post-graduate students were selected for the data collection. Their age range was between 17-26 years.

Measure

NEO-FFI Questionnaire by McCrae and Costa (1992) was used. It is a self – administered questionnaire which consists of 60 items with five-point Likert response. There are five scales in this inventory. Each scale has 12 items.

RESULT AND DISCUSSION

The results of the study given below:

Personality Traits	Gender	N	Mean	Standard deviation	t	Sig.
Neuroticism	Females	97	23.26	7.50	-2.110	.036
	Males	68	25.84	8.05		
Extroversion	Females	97	29.97	7.21	2.059	.041
	Males	68	27.79	5.83		
Openness	Females	97	25.23	7.86	-2.047	.042
	Males	68	27.59	6.40		
Agreeableness	Females	97	27.74	5.66	1.066	.288
	Males	68	26.65	7.53		
Conscientiousness	Females	97	28.47	6.16	.946	.345
	Males	68	27.63	4.76		

Neuroticism

Results of a t-test reveal that **males** are more neurotic than females. There is a significant difference between both the genders on $p < 0.05$ level. The result of this research is not matched with the results of the previous research. All the previous findings reveal that females scored higher on neuroticism. This research gave a new insight on this area.

Extroversion

Results of a t-test reveal that **females** are higher on the dimension of extroversion than males. There is a significant difference on $p < 0.05$ level. It indicates that females are more social, assertive, chatty, and active. On this dimension, this research is in accord with some previous research. In one study Feingold (1994); Schmitt, Realo, Voracek, & Allik (2008) reveal that females are more extroverted than males. Yanna, Colin & Jacob (2011) found that women scored significantly higher on extroversion than men.

Openness

Results of a t-test reveal that **males** are higher on the dimension of openness than females. There is a significant difference on $p < 0.05$ level. It indicates that males are more open about their feelings and ideas than females. In one study Costa, Terracciano, & McCrae (2001)

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also found that women were higher in openness to feelings and men were higher in openness to ideas.

Agreeableness

Results of a t-test reveal that there is **no significant difference** between the both genders. Here is slightly difference between the mean of both genders that is not significant. It indicates that both males and females are cooperative, altruistic, tender-minded, and straightforward. The result of this research is not similar as the results of previous research. Costa, Yanna, Colin & Jacob (2011); Soudeh, Masound (2012) and many more found that women have significantly higher on agreeableness than men.

Conscientiousness

Results of a t-test reveal that there is **no significant difference** between males and females on the variable of conscientiousness. It indicates that both males and females are equally dutiful, achievement striving, responsible. This finding is different from previous researches. All the previous findings define those females are more conscientious.

CONCLUSION

Finding reveals that males and females are significantly differ on the dimension of personality traits. We found that females scored higher on the dimension of Extraversion. But on the dimension of Neuroticism and openness; males scored higher than females.

Practical implications of the study

This study is useful to a counselor for counseling; specifically, marriage counselors, and vocational counselors.

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Acknowledgement

The author appreciates all the participants who participated in the research process.

Conflict of Interest

The author declares no conflict of interests.

How to cite this article: Gupta T. (2021). Gender Differences on Personality Trait. *International Journal of Indian Psychology*, 9(3), 1466-1470. DIP:18.01.134.20210903, DOI:10.25215/0903.134



Use of Language in Macbeth

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Abstract :-

Human life is multicoloured and multidimensional. The method that a human being adopts to reveal each colour of his life is called language.

Language is a bridge that connects human beings with each other.

This language can be verbal, written, or sometimes symbolic also. When a human being takes emotions of his heart to generation after generation as inheritance, he uses language with great responsibility and this language is called literary language. Litterateur is the writer of society who contemplates the inconsistencies existing in the society and proposes the solution achieving the aim of 'Satyam Shivam Sundaram'. In my research paper, I am presenting such a renowned personality whose name has been written in golden letters in world literature. The topic of my research is "Use of Language in Macbeth" by Shakespeare. William Shakespeare is hailed as the world's greatest playwright as well as England's national poet. Macbeth is one of his famous tragedies. In Macbeth, figurative language has been used by Shakespeare so that it could appeal to the senses of the audience and convey meaning in an imaginative way. Symbolic language has been used throughout the play. Tragedy presents a flaw in the tragic hero that leads him to his ruin. We must not fall prey to the temptations while fulfilling the dreams that lead us to the wrong path. We must fulfil our goals by adopting the right path.

Key Words :- Night, Blood, Time, Guilt, Witches.

Human life is multicoloured and multidimensional. The method that a human being adopts to reveal each colour of his life is called language. The language is a bridge that connects human beings with each other and in this way ties them in a knot. He fulfils his goals through language whether he is related to any field. This language can be verbal, written, or sometimes symbolic also. Human being's nature, aims, environment is moulded in the form, the colour of their language also changes. This change in language decides his behaviour. Although the language is required for every social human being. When a human being takes emotions of his heart to generation after generation as inheritance, he uses language with great responsibility and this language is called literary language. Litterateur is the writer of society who contemplates the inconsistencies existing in the society and proposes the solution achieving the aim of 'Satyam Shivam Sundaram' means truth is ever benevolent and beautiful. In other words, we can say litterateur is the responsible personality who lays the foundation of any change in society. History witnessed that literature became a turning point not only for huge revolutions, faith and beliefs but also made them prestigious in the society at the level of movement.

In my research paper, I am presenting such a renowned personality whose name has been written in golden letters in world literature. The grand multicoloured family of literature that he created, plays a significant role in colouring society in a new colour.

The topic of my research is "Use of Language in Macbeth" by Shakespeare. William Shakespeare is hailed as the world's greatest playwright as well as England's national poet. He was born in Stratford upon Avon on 26 April 1564. He belongs to the Elizabethan and Jacobean Era. His works consist of 37 plays, 154 sonnets, three long narrative poems and a few other verses. His plays include Comedies, Histories and Tragedies as well. His tragedies include Hamlet, Romeo and Juliet, Othello, King Lear and Macbeth. These tragedies are considered to be among the finest works in the English Language. Macbeth is one of his famous tragedies. The tragedy is more than a literary genre. Tragedy creates an atmosphere in which man is 'a plaything of destiny'. Macbeth is the most dehumanized of Shakespeare's tragic protagonists. Lady Macbeth is not suitable to live in this natural world. Speeches of 'The Weird Sisters' throughout the play are full of paradoxes and equivocation and is misinterpreted

by Macbeth. The play Macbeth focuses on the crime's calamitous effect that it is evil which always suffers in the end. Macbeth's villainous desires and Lady Macbeth's inspiration leads him to do the heinous deed. The play Macbeth explores female villainy creating in Lady Macbeth, one of Shakespeare's most powerful inhuman, complex, and frightening characters'. she is devoid of the sentimentality of womanhood but she does not become a man as well.

"And dashed the brains out,
had I so sworn as you
Have done to this" (Act 1, Scene 7)

Ultimately Tragedy presents a flaw in the tragic hero that leads him to his ruin. We must not fall prey to the temptations while fulfilling the dreams that lead us to the wrong path. We must fulfil our goals by adopting the right path. The very opening scene has been presented dramatically as three witches appear on the heath in thunder, lightning, and rain. The conversation of witches is full of paradoxes:

"Fair is foul, and foul is fair:
Hover through the fog and filthy air"
"When the hurlyburly's done,
When the battle's lost and won" (Act 1, Scene 1)

The language of the opening scene is full of images as thunder, lightning, rain, fog, and filthy air. The use of alliteration can be seen in the rhymed couplet. The witches play a vital role in the events of the play. Life presents a confusing picture of events. Witches' prophesy proved to be a turning point in Macbeth's life. Thunder symbolically represents witches' evil intentions. Their appearance has been described in bad weather as supernatural elements that wish to create torment in the world and in the life of Macbeth as well. Duality can be seen in their characters as they predict Macbeth's rise as well as his downfall.

Macbeth has been introduced as a warrior hero. Such phrases as "Valour's Minion" and "Bellona's Bridegroom" exemplify Macbeth's superheroism. Macbeth's heroism has been stated on the battlefield by the similes of the soldier's report in which Macbeth and Banquo are compared to "eagles" and "lions". Macbeth's courage made the audience memorize 'Golgotha', the scene of Christ's crucifixion.

The former Thane of Cawdor has proved his disloyalty towards king Duncan and Macbeth has won the faith of king Duncan by showing valour on the battlefield. King Duncan says:

"What he hath lost, noble Macbeth hath won" (Act 1, Scene 2)

The line signifies a turning point in Macbeth's life. Macbeth was not a villain by heart. Had the witches not been met Macbeth, the ending of the play would have been different.

In his second meeting with the witches, Macbeth is very confused about their existence. He asks them:

"Speak, if you can: What are you?" (Act 1, Scene 3)

The use of question marks states the confusion of Macbeth.

The first witch welcomes Macbeth as 'Thane of Glamis!'

The second witch welcomes Macbeth as 'Thane of Cawdor!'

The third witch welcomes Macbeth 'that shalt be king hereafter!'

The use of exclamation marks expresses a very strong feeling of witches. Prophesy of witches brought a turning point in the play.

When Banquo requested them to say something about his future also, we see that their speech is full of contradiction.

"Lesser than Macbeth, and greater,
Not so happy, yet much happier,
Thou shalt get kings, though thou be none" (Act 1, Scene 3)

The use of Oxymorons can be seen as the ideas are conflicting. The use of comparative degrees as lesser, greater, happier enhances the richness of the language.

In Banquo's speech witches has been referred to as 'The Instruments of Darkness' which means Banquo is more practical than Macbeth. He is doubtful about witches' words. These supernatural powers win man's faith in petty issues and then they cheat them in major issues and destroy the lives of others.

"The instruments of darkness tell us truths,
Win us with honest trifles, to betray's

in deepest consequence" (Act 1, Scene 3)

Darkness symbolises death or destruction.

Macbeth wants to conceal his black thoughts full of murder so that nobody should come to know what is going on in his mind.

"Stars, hide your fires!

Let not light see my black and deep desires" (Act 1, Scene 4)

These lines expose the evil desires of Macbeth who is ready to execute such heinous deeds as his own eyes would be afraid to see. Human-like characteristics have been given to the stars using personification very aptly. The juxtaposition of images of starlight and the cancellation of starlight emphasizes the great disparity between the King and Macbeth and between good and evil.

Macbeth regards Lady Macbeth as his

'dearest partner of greatness.' (Act 1, Scene 5)

The line is dramatically significant as Lady Macbeth proves to be his partner in his greatness as well as in his ruin. Lady Macbeth considers Macbeth as pure as a child. Metaphorical language has been used very beautifully.

"Glamis thou art, and Cawdor; and shalt be

What thou art promis'd. Yet do I fear thy nature;

It is too full o' the milk of human kindness" (Act 1, Scene 5)

She dreams of the paradise promised by the witches but at the same time, she is afraid of her husband's nature. She calls upon the evil spirits to transform her womanhood.

"Come, you spirits

That tend on mortal thoughts! unsex me here" (Act 1, Scene 5)

Duncan's speech on his arrival at Inverness is full of dramatic Irony.

"This castle hath a pleasant seat; the air

Nimble and sweetly recommends itself

Unto our gentle senses" (Act 1, Scene 6)

The air at this point appears to be sweet. The castle appears to be heaven but proves hell for the king. Contrast can be seen in the outer and the inner atmosphere. The king considers the place very safe for himself but he dies there.

Duncan announces his love and trust openly for Macbeth.

"Give me your hand;

Conduct me to mine host: We love him highly,

And shall continue our graces towards him.

By your leave, hostess" (Act 1, Scene 7)

We can see the irony hidden behind the speech of Duncan.

The duality of Lady Macbeth's character has been presented very beautifully in the play.

"False face must hide what the false
heart doth know"

Here we can observe a shift in the tone.

The use of alliteration and monosyllabic words enhances the richness of the language. In her soliloquy, Lady Macbeth's dark desires lead Macbeth to murder King Duncan.

"Hie thee hither

That I may pour my spirits in thine ear" (Act 1, Scene 5)

The dagger speech is one of the most celebrated speeches in Shakespeare's works. The lines create a psychological disturbance that characterizes Macbeth throughout the play.

"Art thou not, fatal vision, sensible

To feeling as to sight? or art thou but

A dagger of the mind, a false creation" (Act 2, Scene 1)

The dagger' is the hallucination of Macbeth's mind."

Macbeth appears very confused when he is ready to murder the king.

"Hear it not, Duncan, for it is a knell

That summons thee to heaven or to hell" (Act 2, Scene 1)

Here knell indicates the death of Duncan.

As Macbeth murdered the sleeping king, he will never be able to sleep properly in his life. Symbolically

“Sleep” here represents “Innocence and peace of mind”.

“Glamis hath murder'd sleep, and therefore Cawdor
Shall sleep no more, Macbeth shall sleep no more!” (Act 2, Scene 2)

Lady Macbeth is unable to foresee the consequences of the unnatural deed of the murder. According to Lady Macbeth, blood is like the paint used to smear the picture of the dead and can be easily washed off. But Macbeth foreshadows the deep stain under the surface.

“Infirm of purpose!
Give me the daggers. The sleeping and the dead
Are but as pictures” (Act 2, Scene 2)

Finally, the Porter scene comes as a “comic relief” after the tense atmosphere of the crime. After the murder of the king, Macbeth who is guilt conscious pretends the matter metaphorically.

“The wine of life is drawn, and the mere lees
Is left this vault to brag of” (Act 2, Scene 3)

Metaphorical language gives the clue that Macbeth is unable to bear the bloody truth in his heart of hearts, so he goes highly poetic.

The thoughts of Lady Macbeth compel us to think that she is also guilt conscious.

“Naughts's had, all's spent,
Where our desire is got without content;
Than, by destruction, dwell in doubtful joy.”

Both husband and wife have lost their peace of mind after having murdered the King. The use of alliteration adds beauty to the play.

As the witches complete their spell, a series of apparitions appear. The first is an Armed Head that warns Macbeth:

“Beware Macduff
Beware the Thane of fife. Dismiss me. Enough” (Act 4, Scene 1)

The Second Apparition is of a bloody child who states that

“None of woman born
Shall harm Macbeth” (Act 4, Scene 1)

Macbeth is strengthened to hear this as he feels that there is no need to fear Macduff.

The third apparition is of a Child crowned with a tree in his hand who says that “Macbeth shall never vanquished be, until

“Great Birnam Wood to high Dunsinane Hill
Shall come against him” (Act 4, Scene 1)

Macbeth feels happy as he feels that nothing can make a forest move.

The last question that is asked by Macbeth is:

“_____ If your art
Can tell me so much, -- shall Banquo's issue ever
Reign in this Kingdom?” (Act 4, Scene 1)

The witches show Macbeth the “show of Kings” the last of whom holds a mirror in his hand, followed by Banquo.

It signifies that Banquo's progeny would be the kings.

Lady Macduff curses her husband's decision to run away when she says,

“His flight was madness: When our actions do not,
Our fears do make us traitors” (Act 4, Scene 2)

We can see the lucidity of language and complexity of thoughts in Lady Macduff's speech.

Being a mother Lady, Macduff goes sentimental and her concern for her child can be felt in her contradictory speech

“Fathere'd he is, and yet he's fatherless” (Act 4, Scene 2)

When Lady Macduff complains to Ross about her husband's abandoning, metaphorical language has been

used to express her feelings:

"The poor wren,
The most diminutive of birds, will fight
Her young ones in her nest, against the owl" (Act 4, Scene 2)

The sleepwalking scene is one of the most remarkable scenes of Macbeth. She is seen to rub her hands now and then but feels helpless when she says:

"Here's the smell of the blood still:
all the perfumes of Arabia will not sweeten
this little hand. Oh! Oh! Oh!" (Act 5, Scene 1)

The use of alliterations and irony adds richness to the play. Strong feelings of lady Macbeth has been expressed through the use of exclamation marks.

Throughout the night She is unable to sleep. Macbeth requests the doctor to cure her of the fancies that haunt her;

"And with some sweet oblivious antidote
Cleanse the stuffed bosom of that perilous stuff
Which weighs upon the heart?" (Act 5, Scene 3)

Alliterations have been used beautifully.

When Seyton informs Macbeth about the death of Lady Macbeth. He utters philosophical speech;

"Life's but a walking shadow; a poor player,
That struts and frets his hour upon the stage,
And then is heard no more; it is a tale,
Told by an idiot, full of sound and fury,
Signifying nothing" (Act 5, Scene 5)

The tone gets sad as Macbeth receives the desperate news of his wife's death, the audience feels that the whole purpose of Macbeth's life has been lost. In a soliloquy, he admits that he has lost the taste of fear. He confesses that his life has been :

"Supp'd full with horrors" (Act 5, Scene 5)

So, no sounds of cry disturb him anymore.

The most celebrated language in Macbeth can be found in the speeches of Macbeth and Lady Macbeth, both of whom begin the play speaking in an energetic and fluent style, but end the play with more halting and cryptic language. In Macbeth, figurative language has been used by Shakespeare so that it could appeal to the senses of the audience and convey meaning in an imaginative way. Lady Macbeth prompts her husband to focus on maintaining his manliness. Symbolic language has been used throughout the play.

The word 'blood' appears throughout the play. It also appears as a symbol of guilt. King's murder was not only a crime but also a deadly sin.

Repetition of the 'blood' stresses to the audience the full horror of what is happening. The word 'night' has also been used as a symbol.

Repetition of the word 'night' also features heavily in the play. Nighttime is associated with evil. The word 'Time' has been used repeatedly in the play. 'Time' seems to pass more quickly as the play progresses and this adds to the tension as the play moves towards its final climax.

'Ghost' symbolizes that past actions come back to haunt the present and the future. The banquet scene is the most suitable example.

The play Macbeth achieves intensity through tonal shifts to focus on the crime's devastating impact on husband and wife. To conclude it is a drama of ambition, murder, guilt, and revenge prompted by the prophecies of the three witches. The evil deed entangles a nobleman in a web of treachery, deceit, and more murders which ultimately takes him to his doom. Macbeth paints a dramatic picture of a man of integrity destroyed by a flaw in his character.

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ISSN : 0022-3301

THE
JOURNAL
OF
ORIENTAL RESEARCH
MADRAS

(Founded by Mm. Prof. S. Kuppaswami Sastri, M.A.)

Vol. XCII-LXXI

October - 2021



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The Journal of Oriental Research Madras

Vol. XCII-LXXI

ISSN: 0022-3301
Impact Factor: 7.193

October 2021

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DEFINITION OF SUCCESS BY CHETAN BHAGAT*

BY

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ABSTRACT

Success is "See your goal, understand the obstacles, and create a positive mental picture, clear your mind of self-doubt, hold the challenge, stay on track, and show the world you can do it."

Success is not possible without some failure to get us on the right direction. Success is what makes us who we are and shows the hard work and dedication a person had to get there. Success is defined as the accomplishment of an aim or purpose.

In this article Chetan Bhagat has defined the success as work life balance and also explains in what ways one can achieve its success in his life by set their specific goals, set action plan and have faith in them.

Keywords: Work life balance, success, action plan

Received 30 September 2021, Accepted 18 October 2021. Published 30 October 2021

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INTRODUCTION

Chetan Bhagat was born on 22 April 1974 is an **Indian author and columnist**. Bhagat graduated in mechanical engineering at IIT Delhi and completed a PGP at IIM Ahmedabad. He started his career as an investment banker but left it after a few years to pursue writing. He has written nine novels and three non-fiction books.

Chetan Baghat, a growing star in the modern Indian literature, is a flexible personality. He is a novelist, columnist, public speaker and a screenplay writer. His notable works include **Five Point someone**, **The 3 Mistakes of My Life** and **2 States**. Chetan Bhagat's writing is really about initiating people to reading.

In today's world everyone wants to be successful but what is a success. The outlook of success varies from person to person. For the record, the people before us have a different view on success and the person after us will have a different view on success. Furthermore, people compare different people performance to weigh up their success. But success is not something that you can copy from others. You have to make your own path to achieving success. In modern-day, people are passionate with success because of the glamour and lifestyle of successful people.

CHETAN BHAGAT VIEW ON SUCCESS

Chetan said there are many ways in the world to be successful. But most people think of celebrities, artists, politicians, and businessmen whenever they heard the word success.

Moreover, they think doing what they will make you successful but that not the case. They forget the most fundamental thing that makes a person successful that is their hard work, dedication, and the desire to achieve their dream. More prominently, they do what they like to do not what that others told them to do. Successful people do what they like to do also they do what they feel correct for their business.

Success is like a plan to strike a work-life balance. And finally, happiness lies in maintaining that balance."

Certainly, many people achieve professional success but in doing so they fail in achieving mental, social and physical success. The tension of lacking behind in other things pulls them apart.

Besides, do not just work on your program, push your limit, take charge of other things, improve your skills and most importantly keep learning. Apart from that, be with positive peoples, develop positive habits, and do exercise not only for the body but also for your mind.

Chetan Bhagat has given six important mantras of success:

Set clear, specific goals

List the reasons behind that goal

Find yourself a suitable group to motivate you

Draw up a detailed action plan

Have in place mechanisms to deal with setbacks

Keep the faith

And one simple strategy

On a more serious note, Chetan shared a six-step strategy for success that has worked for him. Setting a Clear Goal — "Wanting to write a book is a dream, but being exact about when you want to have it written is a goal". Reasons Behind That Goal — "Sixty to 70 per cent of the people quit along the line. Giving the reasons you want a goal a lot of thought before proceeding to achieve them." Finding The Group — "A group can act as a constant motivator — that's why most de-addiction programmes involve groups". Detailed Action Plan — "Breaking a mammoth project into bite-sized tasks helps. The human mind may be stymied by the idea of writing a book. It finds the idea of writing one page a day more acceptable. Just think you have to write one page a day, and after 365 days your first draft

is ready." Setback Dealing Mechanisms — "A clearly figured-out plan on bouncing back after a setback, includes taking a break, revisiting goals and falling back on the support of mentors". Faith — belief in God or parents or the order of the Universe or self-belief."

CONCLUSION

Success is like a seed that needs a balanced percentage of all the elements of life. And no one can achieve success in a day they have to go through and face different conditions in life for being successful. Above all, success is the feeling of fulfillment that you feel when you achieve your goal.

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International Journal of Home Science

ISSN: 2395-7476

IJHS 2022; 8(2): 229-231

© 2022 IJHS

www.homesciencejournal.com

Received: 03-05-2022

Accepted: 04-06-2022

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Women empowerment through income generation activity by adaptation of traditional Phulkari

Sunanda and Savita Sangwan

Abstract

The traditional needlework of Punjab known as Phulkari is an essential component of the region's rich culture and traditions. Phulkari was originally created as a pastime activity, stitched with love for one's own use or to give as a present to family members, without any commercial intent. However, Phulkari embroidery gradually became a business endeavor due to the increased marketization and commercialization of the craft. Through use of this activity women can earn a heavy amount of income directly customers and shop keepers by selling their own developed products. The training demonstration on Phulkari embroidery were imparted to the rural women of villages which were helpful for adaptation of traditional Phulkari embroidery art & also help in to increase their family income. Under this present study training was organized for rural women of Barwala village and their attitudes were assessed after training. The attitude of respondents was found in favor of training imparted to them. They highly appreciated the trainer and learn new things of making these types of articles. This training was very helpful for them in knowing new ideas, techniques of products surface enrichment and found a way of income generation through use of Phulkari embroidery. When women become financially liberated, they become empowered by increasing their role in society, relatives, families and communities. Thus, the present study attempts to examine the impact of adoption of Phulkari craft in the social and economic empowerment of the female.

Keywords: Empowerment, income, training, Phulkari, embroidery

Introduction

Traditional Embroidery

In India, textiles are everywhere which used for many purposes like for wearing, gift, for household articles and are prepared by using traditional craft that is embroidery. The embroidery design is created on the fabric by a variety of methods. From time to time the outline of design is shaped by block-printing; the blueprint can also be created by tracing with a pencil (Bhatnagar 2021) ^[1].

One of the major types is generally known as Phulkari which meaning is 'flower work'. Phulkari and *Baghs* are a specialty of Punjab state of India and there Phulkari are worn by women all over the world during any festivals, functions etc. Phulkari embroidery is needlework of art of Punjab state, this work is very unique and traditional in its beauty and the technique of embroidery especially used in the state of Punjab. Needlework means flower craft which derived from the word *phul* and *kari* words. Phulkari refer to simple and densely embroidered shawls, *dupattas*, suits this densely embroidered work known as *baghs* in which the base material is not visible (Dhamija, 2007) ^[3].

Meaning of Phulkari

Phulkari, literally means 'flower work', it had a history imprinted in Punjabi culture which spun from the charkha this stunning style of embroidery work is patterned on *odhnis*, shawls, *kurtis* and *chunris*. The main uniqueness of this embroidery is the use of darning stitch on the wrong side of fabric with different colours of silk thread (Naik, 1996) ^[8].

Present scenario of Phulkari embroidery

At present time this embroidery is done with new, creative and trendy designs. This work is an art of needlework which is done on different types of fabrics like cotton, georgette, chiffon, linen, chinon, silk etc.

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Wearable garments were decorated with this embroidery but now days this work is also done on curtains, bed sheet, table cloth, pillow covers and cushion covers. From ancient times it was done on white khaddar but at present time this done by colorful threads with colored fabric. Today over 200,000 women are engaged in Phulkari work in Punjab. Different Self-help groups comprising over 3,000 women who are member in these self-help groups are doing Phulkari as a means of earning their family income from last few years, Jasbir Kaur age of 45 from Thuha village situated in Patiala district. She has not thought about her economically independent at the age of 40. Women of Punjab also increasing their family income through this art of products development as well as they feel independent and confidence in family (Gera, 2013) [4].

Embroidery has been one of the ancient ways of decorating clothes since one first wore clothes. The government has also taken steps to train the women by providing them training for making them eligible for development of entrepreneur. In museums or other exhibitions Phulkari and bagh on display are very old from 50 to 150 years. These exhibited collections are collected by retailers in exchange for cash or in exchange for kitchen utensils from rural areas in Punjab province, after

collection these were sold to dealer who deals with museum in big cities or can say in metro cities like Delhi or Peshawar (Gupta and Mehta, 2014) [5].

Methodology

The present study was conducted in Shri Jagdishprashad Jhabarmal Tibrewala University, Rajasthan. The study was conducted in nearby cities of Haryana and Punjab states and training was organized in Barwala village to gather the information related to traditional Indian Phulkari embroidery of Punjab for its fashionable use. Rural villages Barwala was selected for imparting training regarding Phulkari embroidery. Total 30 ladies were selected for training after imparting training the wome their knowledge was assessed.

Results and Discussion

Personal profiles of the trainees (Barwala village)

Personal profile of the trainees selected from Barwala village are presented in fig. 1. According to data collected from trainees. Training was imparted in two groups of fifteen ladies (15 group A and 15 group B) total of thirty ladies and girls attended the training.

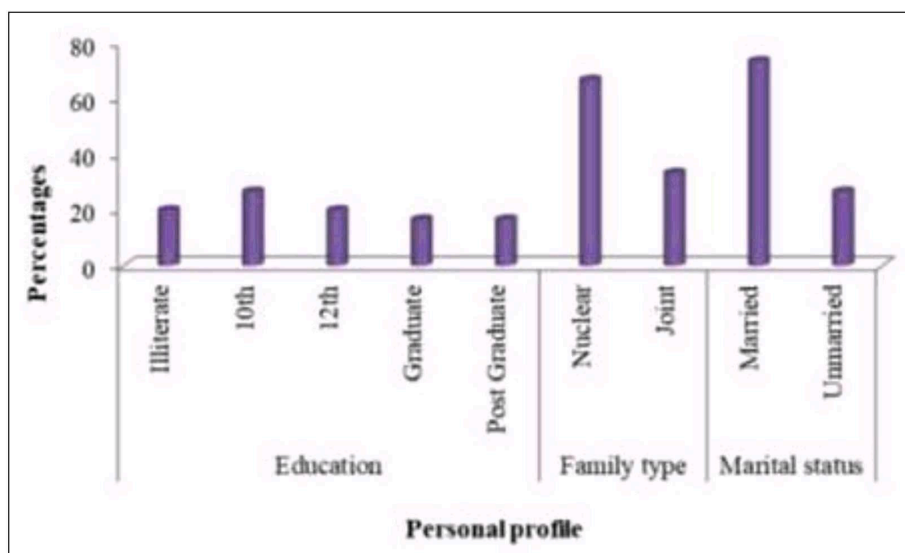


Fig 1: Personal profiles of the trainees

The data relating to the personal profiles of the Barwala village trainees are presented in Fig. 1 that most of the trainees were 10th pass i.e. 40 percent whereas 8 percent trainees were illiterate, equal ratio of trainees i.e. 5 percent were 12th and graduate pass. 80 percent were from nuclear family while 20 percent were from joint family and 66.66 percent trainees were married, while 33.33 percent were unmarried in Barwala village.

Results of this study was supported by the results of Dhani

and Garg, 2013 [2] found that most (70%) of the respondents were graduate in Home Science and left (30%) from them were post graduate in Home Science.

The trainees attended the training because of their personal and family reasons. The reasons for attended the training were that they want to develop their confidence, knowledge in making the types of articles, want to learn something new etc. presented in table 1.

Table 1: Reasons for participating in the training of trainees n=30

Sr. No	Reasons	WMS	Ranks
1	To pass their free time.	1.15	VIII
2	To learn new and variety of things.	1.84	IV
3	Best use of their time by making different products	1.86	III
4	To increase income for upliftment of their family.	1.82	V
5	Only after provoked by the trainers	1.25	VII
6	Only on request of trainer.	1.70	VI
7.	To learn new for being independence	1.92	II
8	To develop their confidence for making these types of articles.	2.00	I

WMS = Weighted mean score

The data shown in Table 37 states that the trainees participated in the training to develop their confidence to make these types of articles which got rank I with weighted mean score 2.00 followed by to learn new for being independence (1.95), want to use their time by making different products from the traditional embroidery work (1.90), attend the training to learn new and variety of things (1.85) also for increase income for upliftment of their family (1.75), their attend only on request of trainer (1.70), for time pass attend this training (1.25), few attended the training only after provoked by the trainer.

It is clear from the data that trainees attend training to learn new trends, new creativity, they want to develop their self-confidence, want to earn money and supplement their family income. Trainees want to spend their free time so they joined the training.

The results of Gera (2013) ^[4] reported that the princely city of Punjab, has thousands of families who have been engaged in hand embroidery for generations. A business that extends employment to over 2 lakh persons (including traders, artisans, wholesalers and retailers) and registers transactions of over Rs 100 crore per year, has been flourishing on its own, without state government intervention.

Results of Malhotra (2011) ^[7] reported that hand / needle work plays an important role in the life of rural women of Punjab villages, it has beautiful names because of its association with beautiful aspects of life. The traditional Punjabi embroidery art is Phulkari. Now the artisans involved in embroidery work in Punjab are very keen in creating several kinds of embroidery stitches on shawls, cardigans, scarves, table covers, cushions and bedspreads.

Kohli *et al.* (2020) ^[6] found that the majority of the Phulkari employees are happy with this work because of high income, value for work and not having any ability in any other profession, whereas less amount of the Phulkari workers were not pleased with this work due to increasing demand of machine made Phulkari items and lesser income. With the changing tastes and preferences of customers Phulkari is going different from its original form.

Conclusion

From the present study it is concluded that the training was beneficial for respondents of Barwala ladies. They learn new creation of designs, new skill of traditional art of Punjab. Phulkari is a traditional art that is more elegant in appearance and found that all the respondents got full interest in doing this work. They learn how to earn money from this art and what types of articles they can make for selling purpose. The imparted training was beneficial for them for earning increase the family income. It was also concluded from the results that knowledge cum skill training programme for creating and promoting self-employment ways amid rural women Punjab and other states also by participate in this type of training and link between rural women with research institutes can bring solid results which obtained from the present study.

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WOMEN EMPOWERMENT IN INDIA

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Abstract:-The present paper is an attempt to analyze the status of women empowerment in India using various indicators based on data from secondary sources. The study reveals that women of India are relatively disempowered and they enjoy somewhat lower status than that of men in spite of many efforts undertaken by government. Gender gap exists regarding access to education and employment today the empowerment of women has become one of the most important concerns of 21st century. But practically women empowerment is still an illusion of reality. We observe in our day to day life how women become victimized by various social evils. Household decision making power and freedom of movement of women vary considerably with their age, education and employment status. It is found that acceptance of unequal gender norms by women are still prevailing in the society. More than half of the women believe wife beating to be justified for one reason or the other. Fewer women have final say on how to spend their earnings. Control over cash earnings increases with age, education and with place of residence. Women's exposure to media is also less relative to men. Rural women are more prone to domestic violence than that of urban women Empowerment of women is essentially the process of upliftment of economic, social and political status of women, the traditionally underprivileged ones, in the society. A large number of gender gap exists in political participation too. The study concludes by an observation that access to education and employment are only the enabling factors to empowerment, achievement towards the goal, however, depends largely on the attitude of the people towards gender equality. Women empowerment is a debatable subject. At earlier time they were getting equal status with men. But they had faced some difficulties during post-Vedic and epic ages. Many a time they were treated as slave. From early twenty century (national movement) their statuses have been changed slowly and gradually. In this regard, we mentioned the name of the British people. After then, independence of India, the constitutional makers and national leaders strongly demand equal social position of women with men. Today we have seen the women occupied the respectable positions in all walks of the fields. Yet, they have not absolutely freed some discrimination and harassment of the society. A few numbers of women have been able to establish their potentialities. Therefore, each and every should be careful to promote the women statuses.

Keywords:-Women empowerment, education and employment.

Introduction:-“Women empowerment” and “women equality with men” is a universal issue. Women empowerment is a term that is used to encourage, inspire and celebrate women. It is also used to celebrate the strides that women and girls have taken in terms of gender equality, financial independence and high confidence. In the last five decades, the concept of women empowerment has undergone a sea change from welfare oriented approach to equity approach. It has been understood as the process by which the powerless gain greater control over the circumstances of their lives. Empowerment of women is essentially the process of upliftment of economic, social and political status of women, the traditionally underprivileged ones, in the

society. Particularly includes control over resources and ideology. According to Sen and Batliwala (2000) it leads to a growing intrinsic capability- greater self confidence, and an inner transformation of one's consciousness that enables one to overcome external barrier. This view mainly emphasizes on two important aspects. Firstly, it is a power to achieve desired goals but not a power over others. Secondly, idea of empowerment is more applicable to those who are powerless- whether they are male or female, or group of individuals, class or caste. Though concept of empowerment is not specific to women, yet it is unique in that and it cuts across all types of class and caste and also within families and households (Malhotra et al, 2002). Empowerment of women is essentially the process of upliftment of economic, social and political status of women, the traditionally underprivileged ones, in the society. Women empowerment is also defined as a change in the context of a women's life, which enables her increased capacity for leading a fulfilling human life. It gets reflected both in external qualities (viz. health, mobility, education and awareness, status in the family, participation in decision making, and also at the level of material security) and internal qualities (viz. self awareness and self confidence) [Human Development in South Asia (2000) as quoted by Mathew (2003)]. UNDP (1990) for the first time introduced the concept of Human Development Index (HDI) that evolved initially as a broader measure of socio-economic progress of a nation but it became popular as a measure of average achievements in human development for both the sexes. Contrary to the general belief that development is gender neutral, statistics show that women lag behind men all over the world including India in almost all aspects of life. It is for this reason that the focus on human development has been to highlight the gender dimension and continuing inequalities confronting women since 1995 (UNDP 1995). The Report noted that without empowering women overall development of human beings is not possible. It further stressed that if development is not engendered, is endangered. To bring out the facts and figures relating to deprivation of women two indices, namely, Gender related Development Index (GDI) and Gender Empowerment Measure (GEM) were introduced. While GDI measures the achievements in the same dimensions and variables as the HDI, it also takes into account inequality in achievement between women and men (Anand and Sen, 1995). The greater the gender disparity in human development, the lower is country's GDI compared to its HDI. The GDI is the HDI adjusted downwards for gender inequality. On the other hand, GEM indicates whether women are able to actively participate in economic and political life. Theoretically, the index can take values between zero and infinity, with a value of unity reflecting an absolute equality in the respective attainments of males and females. A value higher than unity would imply that females have better attainments than males. Women constitute almost 50% of the world's population but India has shown disproportionate sex ratio whereby female's population has been comparatively lower than males. As far as their social status is concerned, they are not treated as equal to men in all the places. In the Western societies, the women have got equal right and status with men in all walks of life. But gender disabilities and discriminations are found in India even today. The paradoxical situation has such that she was sometimes concerned as Goddess and at other times merely as slave.

Women in India:- Now the women in India enjoy a unique status of equality with the men as per constitutional and legal provision. But the Indian women have come a long way to achieve the present positions. First, gender inequality in India can be traced back to the historic days of Mahabharata when Draupadi was put on the dice by her husband 200 *Dhruva Hazarika* as a commodity. History is a witness that a woman was made to dance both in private and public places to please the man. Secondly, in Indian society, a female was always dependent on male

members of the family even last few years ago. Thirdly, a female was not allowed to speak with loud voice in the presence of elder members of her inlaws. In the family, every faults had gone to her and responsible. Forth, as a widow her dependence on a male member of the family still more increase. In many social activities she is not permitted to mix with other members of the family. Other hand, she has very little share in political, social and economic life of the society.

Empowerment of women in India:-The concept of empowerment flows from the power. It is vesting where it does not exist or exist inadequately. Empowerment of women would mean equipping women to be economically independent, self-reliant, have positive esteem to enable them to face any difficult situation and they should be able to participate in development activities. The empowered women should be able to participate in the process of decision making. The 73rd&74th Amendments (1993) to the constitution of India have provided some special powers to women that for reservation of seats (33%), whereas the report HRD as March 2002 shows that the legislatures with the highest percentage of women are, Sweden 42.7%, Denmark 38%, Finland 36% and Iceland 34.9%. In India ‘‘The New Panchayati Raj ‘‘ is the part of the effort to empower women at least at the village level. In India, the Ministry of Human Resource Development (MHRD-1985) and the National Commission for Women (NCW) have been worked to safeguard the rights and legal entitlement of women. The government of India has ratified various international conventions and human rights instruments committing to secure equal rights to women. These are CEDAW (1993), the Mexico Plan of Action (1975), the Nairobi Forward Looking Strategies (1985), the Beijing Declaration as well as the platform for Action (1995) and other such instruments. The year of 2001 was observed as the year of women’s empowerment. During the year, a landmark document has been adopted, ‘the National Policy for the empowerment of women.’ For the beneficiaries of the women, the government has been adopted different schemes and programs i.e. the National Credit Fund for Women (1993), Food and Nutrition Board (FNB), Information and Mass Education (IME) etc. In the political arena too, we could find that some women excelled in the past and still some of them are in their peak of glory and success because of their boldness and leadership qualities. The most notable amongst these are: Mrs. Protiva Devi Singh Patil, the Ex president of India, Shila Dixit, the Ex-Chief Minister of Delhi, Ms. Jayalalitha, Chief Minister of Tamil Nadu, Mayawati, the Chief Minister of Uttar Pradesh (UP), Sonia Gandhi, President of the Indian National Congress party since 1998, Binda karat, the general secretary of the All India Democratic Women's Association (AIDWA) from 1993 to 2004, and thereafter its Vice-President till date, Susma Swaraj, former lawyer and the current Minister of External Affairs of India, in office since 26 May 2014, Momta Benarji, the founder the party All India Trinamool Congress (AITMC) and at present Chief Minister of West Bengal since 2011, Indira Gandhi, India's third prime minister from 1966 until 1984. Ex-primeminister etc. Women are also involving in human development issues of child rearing, education, health, and gender parity. Many of them have gone into the making and marketing of a range of cottage products-pickles, tailoring, embroidery etc. The economic empowerment of women is being regarded these days as a sine-quo-non of progress for a country; hence, the issue of economic empowerment of women is of paramount importance to political thinkers, social thinkers and reformers.

Reasons for the empowerment of women:-Today we have noticed different Acts and Schemes of the central government as well as state government to empower the women of India. But in India women are discriminated and marginalized at every level of the society whether it is social participation, political participation, economic participation, access to education, and also

reproductive healthcare. In spite of enacting various Acts and bringing out several schemes by both the state and central government to empower the women of India, women are still discriminated, subjugated and marginalized at every level of the society, be it social participation, political participation, easy access to education, economic participation and liberation, and also reproductive healthcare at times of their needs. Generally, majority of the women even in the fast changing and competitive world are found to be economically very weak and therefore they continue to remain very poor all over the India. Significantly, a few women are voluntarily engaged in services and other activities with the consent of their partners and family members. It shows clearly that women are not given full freedom to function themselves as they wish or they could not do what they have been wanting or aspiring to do. To come out completely from this kind of situation, women should have an access to money all the time. Therefore, what they need is economic power by which they could be able to stand on their own legs on par with men. Women are found to be economically very poor all over the India. A few women are engaged in services and other activities. So, they need economic power to stand on their own legs on par with men. According to 2001 census, rate of literacy among men in India is found to be 76% whereas it is only 54% among women. Thus, increasing education among women is of very important in empowering them. It has also noticed that some of women are too weak to work. They consume less food but work more. Therefore, from the health point of view, women folk who are to be weaker are to be made stronger. Another problems is that workplace harassment of women. There are so many cases of rape, kidnapping of girl, dowry harassment, and so on. For these reasons, they require empowerment of all kinds in order to protect themselves and to secure their purity and dignity. Another pertinent problem is the harassment of women at the workplace. There are so many incidences and many cases of rape, kidnapping of girl, dowry harassment and so on taking place every day in workplaces. As women are weak and voiceless, some cases are unreported. Considering the above reasons, women require empowerment. Therefore, it is the urgent need of the hour to help women to attain empowerment of all kinds in order to protect themselves and to secure their purity and dignity. To sum up, women empowerment can not be possible unless women come with and help to self-empower themselves. There is a need to formulate reducing feminized poverty, promoting education of women, and prevention and elimination of violence against women.

CONCLUSION:-In conclusion, I want to underline the importance of the empowerment of women. Effective policies backed by action to accord them their due rights and equal opportunities will be critical to bolstering the overall work on preventing sexual violence against women and other citizens in conflict. Among the educated women in India, women from the middle class are continuing to improve in walk of lives cutting across their traditional boundaries. It shows that there remains a strong bias against gender equality in the societal parts of India, wherever we find the patriarchal traditions prevailing. While in the educated, urban middle class women's rights continue to improve, there remains a strong bias against gender equality in those societal parts of India, where patriarchal traditions prevail. Consequently, in these strata any inheritance of a deceased husband or father would be passed down to the oldest son, while his wife or daughters would not receive any financial benefit. Women were denied a lot of opportunities and they missed out on a lot of things that would have changed their lives. However, they deserve equal opportunities for **education, in their careers, in the society**, and so much more. There are laws in place to ensure legal protection for women's right to inheritance, but the enforcement of the law is challenging, when the woman is refused her right by the family, and when she is not confident or educated enough to claim her right. Having seen the

status of women in India from strength to strength from past to present, It is worth quoting from the statement of Jawaharlal Nehru "You can tell the condition of a Nation by looking at the status of its Women." Having understood this, it is good to conclude with reasonable questions that which nation could claim to be a free and prosperous society, where half of its population is being oppressed? And which striving nation can afford to oppress half of its population? Obviously, the answer to that question is: none! Sustainable and long-term development is not possible without the participation and empowerment of women, only if they participate in the economic and societal development, the full potential of a society of India's society will be unfolded. The empowerment of women is a very important task that every one of us should undertake. This is because empowering women is equal to empowering the whole community and generations to come. "Women empowerment" and "women equality with men" is a universal issue. Women empowerment is a term that is used to encourage, inspire and celebrate women. It is also used to celebrate the strides that women and girls have taken in terms of gender equality, financial independence and high confidence.

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Article

Excellent UV-Light Triggered Photocatalytic Performance of ZnO.SiO₂ Nanocomposite for Water Pollutant Compound Methyl Orange Dye

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Abstract: The photocatalytic activity of eco-friendly zinc oxide doped silica nanocomposites, synthesized via a co-precipitation method followed by heat-treatment at 300, 600, and 900 °C is investigated. The samples have been characterized by employing X-ray diffraction method, and further analyzed using the Rietveld Refinement method. The samples show a space group P63mc with hexagonal structure. The prepared composites are tested for their photocatalytic activities for the degradation of methyl orange-based water pollutants under ultra-violet (UV) irradiation using a 125 W mercury lamp. A systematic analysis of parameters such as the irradiation time, pH value, annealing temperatures, and the concentration of sodium hydroxide impacting the degradation of the methyl orange (MO) is carried out using UV-visible spectroscopy. The ZnO.SiO₂ nanocomposite annealed at 300 °C at a pH value of seven shows a maximum photo-degradation ability (~98.1%) towards methyl orange, while the photo-degradation ability of ZnO.SiO₂ nanocomposites decreases with annealing temperature (i.e., for 600 and 900 °C) due to the aspect ratio. Moreover, it is seen that with increment in the concentration of the NaOH (i.e., from 1 to 3 g), the photo-degradation of the dye component is enhanced from 20.9 to 53.8%, whereas a reverse trend of degradation ability is observed for higher concentrations.

Keywords: water pollutant; Rietveld refinement; Tauc's plot; photocatalytic activity; methyl orange



Citation: Rohilla, S.; Gupta, A.; Kumar, V.; Kumari, S.; Petru, M.; Amor, N.; Noman, M.T.; Dalal, J. Excellent UV-Light Triggered Photocatalytic Performance of ZnO.SiO₂ Nanocomposite for Water Pollutant Compound Methyl Orange Dye. *Nanomaterials* **2021**, *11*, 2548.

<https://doi.org/10.3390/nano11102548>

Academic Editor: Vincenzo Vaiano

Received: 6 September 2021

Accepted: 23 September 2021

Published: 28 September 2021

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1. Introduction

To meet the demand and supply of developing countries, numerous small and large-scale industries are flourishing. The fast-growing industries produce a large number of toxic chemical wastes due to a lack of proper management and knowledge. The chemical wastes contain several non-biodegradable elements and other water pollutants, which are harmful to both aquatic and human life. Major water pollutants involve dye molecules used in pharmaceuticals, paper, leather, plastic, cosmetics, food, and textile industries [1,2]. It is reported that the yearly generation of the synthetic dye is greater than 7×10^5 tons, out of which around 2×10^3 tons of dyes are discharged in water bodies only as textile waste [3]. Among many dyes, azo dyes like methyl orange (MO) are used in laboratories as pH indicators, water-soluble dye products in textiles, printing, paper, pharmaceuticals, and food industries [4]. MO displays an orange colour in the basic medium and a red colour in the acidic medium [5]. Due to its high solubility, it is difficult to remove MO from solvents using a conventional treatment system [6]. Drinking MO contaminated

water may cause vomiting, shock, irregular heart rate, jaundice, and tissue necrosis in humans [7]. Thus, it is important to remove the residual MO content from wastewater produced by industries. Numerous water treatment techniques, such as chemical oxidation, adsorption, precipitation, coagulation, electrolysis, photo-degradation, and many more, are employed for the filtration and purification at the industry level before releasing it into the environment [8–10].

In recent times, metal oxides are reported as good photocatalysts due to their excellent photocatalytic activity, high stability in a watery environment, and low cost [11,12], and are the most widely used for wastewater treatment [13–16]. Lu et al. have reported on the TiO₂/biochar composite for photocatalytic degradation of MO, and have illustrated the good catalytic performance of TiO₂ nanocomposites [17]. Molkenova et al. examined the photocatalytic performance of hollow CuO microspheres for the degradation of pollutant Rhodamine B dye [18]. With ZnO having remarkable physical, chemical, and optical properties, as well as an easy scale-up and complete mineralization capacity, it is purposefully used in the catalytic processes for the elimination of organic-dye pollutants [19]. Wang et al. used a porous graphene/ZnO nanocomposite to decolor MO and confirmed enhanced efficiency as compared to bare ZnO nanoparticles [20]. Ali et al. reported the photo-degradation of the MO using ZnO/SnO₂ nanocomposites. Their studies revealed a decrement in the photo-degradation efficiency of ZnO/SnO₂ nanocomposites with an increase in the annealing temperature [21]. Albiss et al. fabricated ZnO nanorods over the activated carbon fiber composites and studied the photocatalytic performance [22]. It is reported that the photocatalytic activities depend on surface area, absorption of UV-light, and charge carrier recombination, and the photocatalytic efficiency can be enhanced by improving these properties.

However, while ZnO is widely used for photocatalytic activities, it has some basic problems such as a high optical band gap (3.37 eV) and a high recombination rate of electron-hole pairs (EHPs), which diminish its photocatalytic efficiency [23,24]. Therefore, it is always preferable to mix doped ZnO with some porous matrix or system, such as silica dioxide (SiO₂). The doping of SiO₂ leads to high mass transport, which causes higher selectivity and adsorption of the pollutants [25]. Additionally, the core of the silicon dioxide will act as an electron-trapping centre. These trapping centres deal with the electron generated from ZnO due to the process of photon irradiation and excitation, which reduces the recombination rate of EHPs, and in turn, contributes to an enhanced photocatalytic performance [26].

In light of the above, the present work reports on the synthesis of ZnO.SiO₂ nanocomposites, the examination of their structure, and photo-degradation of methyl orange pollutant of the nanocomposite. This report explains the correlation between the structure and the parameters such as temperature, pH, irradiation time, and NaOH concentration affecting the photo-degradation performance of nanocomposites.

2. Experimental Details

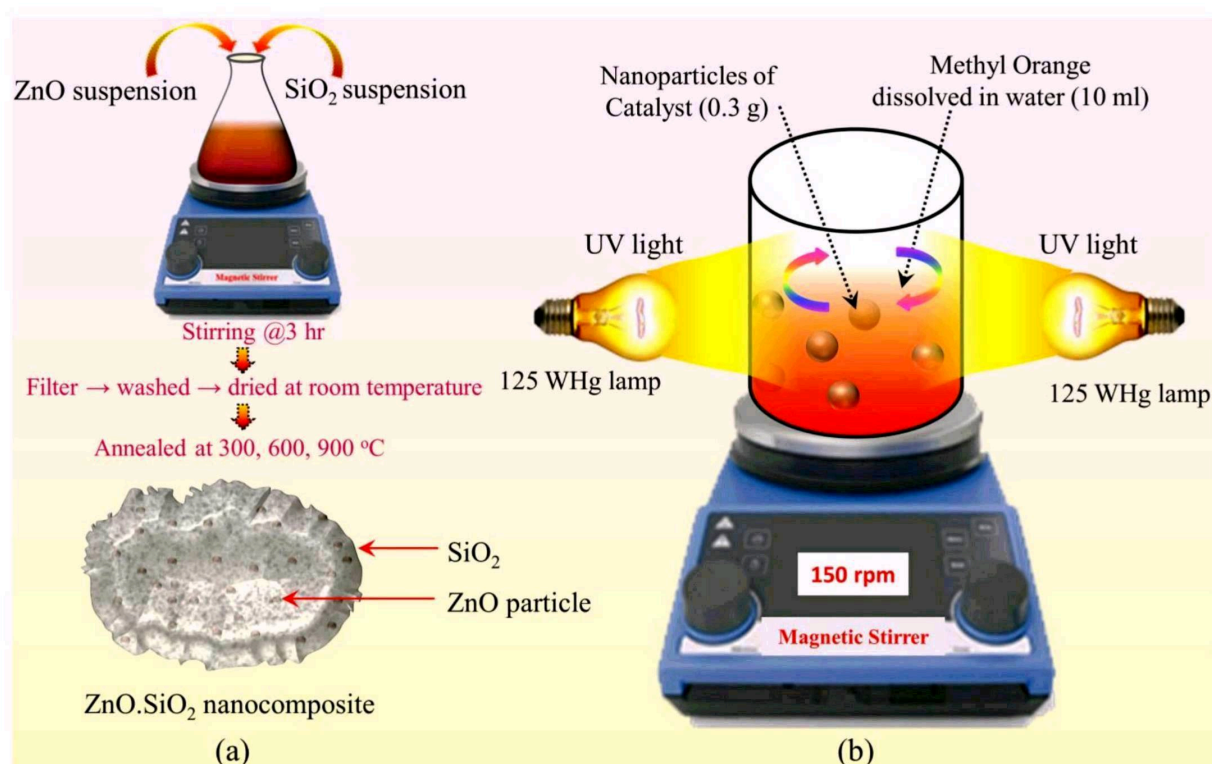
2.1. Materials Used

For the synthesis of this photocatalyst material, zinc nitrate hexahydrate (Zn(NO₃)₂·6H₂O), ethanol (C₂H₅OH), silicon oxide (SiO₂), sodium hydroxide (NaOH), HCl, and methyl orange (C₁₄H₁₄N₃NaO₃S) were procured from the Merck, Bengaluru, India. All chemicals were of analytic grade and were used as procured.

2.2. Synthesis

The synthesis of the ZnO.SiO₂ nanocomposite involves three steps. The first step involves the preparation of ZnO nano-suspension. For this, 0.1 M NaOH solution was prepared in 50 mL distilled water and was added to 0.1 M of Zn(NO₃)₂·6H₂O dissolved in 100 mL ethanol, following the procedure reported in our previous work [27]. Secondly, the preparation of SiO₂ nano-suspension was prepared by mixing 0.3 M SiO₂ in 50 mL 0.6 M NaOH, which resulted in Na₂SiO₃. The prepared solution was drop-wise added (using the

piezoelectric nozzle of 0.05 mm and drop rate of 0.02 mL/s) to 50 mL 0.6 M HCl, which resulted in white precipitates of SiO₂. The obtained suspension was stirred at 8000 rpm for 3 h at 50 °C. Afterward, NaCl was removed from the suspension by washing it several times using distilled water [28]. For the synthesis of the ZnO.SiO₂ nanocomposite, both suspensions were mixed and stirred [28]. The white precipitates were filtered with grade 5 Whatman filter paper and then washed and dried in air. By following the procedure (Scheme 1a) two samples (0.1 M)ZnO.(0.3M)SiO₂ (ZS1) and (0.05 M)ZnO.(0.3 M)SiO₂ (ZS2) were prepared; furthermore, these samples were annealed at the different temperatures of 300, 600, and 900 °C for 2 h. For ease of understanding, the samples annealed at 300, 600, and 900 °C are named as ZS1₃₀₀, ZS1₆₀₀, and ZS1₉₀₀, respectively.



Scheme 1. Schematic diagram of (a) preparation of SiO₂.ZnO nanoparticles with the expected morphology (ZnO nanoparticles embedded into SiO₂ porous structure) and, (b) photocatalytic activity set-up.

2.3. Characterization

For the determination of the crystallite size and lattice constant, the X-ray diffraction (XRD) patterns of the samples were acquired with an X-ray diffractometer (Philips PW/1710), operated at 50 kV and 40 mA in range of 10 to 70 degrees. The XRD data was analyzed through Rietveld refinement for a perfect matching of phases and to determine various lattice parameters, dislocation density, microstrain, Wyckoff positions, bond length, and bond angle, etc. For morphological analysis, transmission electron microscopy was performed on a Hitachi (H-7500) instrument. Fourier transform infrared spectrometer (Bruker compact alpha-II) was used for recording the spectra of nanocomposites in a range of 4000–400 cm⁻¹ using KBr pallets. The UV-Vis absorption spectra of the prepared samples were acquired with a Lambda 750 spectrophotometer (Perkin) in a wavelength from 300 to 700 nm. The surface area (S_{BET}) was evaluated using N₂-adsorption measurements performed on a Quantachrome Instruments at 77.3500 K. Nitrogen and carbon were used as adsorbate and adsorbent, respectively.

2.4. Photocatalytic Activity

The photocatalytic properties of ZnO.SiO₂ nanocomposite were evaluated by testing the photo-degradation of methyl orange (MO) in water using UV irradiation (125 WHg lamp). In a typical reaction, 30 mg ZS1 composite and 10 mL of 30 mg/80 mL of methyl orange dye aqueous solution were stirred using a magnetic stirrer for an hour to establish the adsorption/desorption equilibrium of MO on the surface of catalyst before the irradiated process. For this experiment, two mercury lamps were placed 5 cm away from the magnetic stirrer on which the solution of catalyst, as well as dye, were stirred, as shown in Scheme 1b. The effect of pH (at 7 and 12) on photocatalytic activity was analyzed. The pH of methyl orange dye solution (MODS) was controlled by adding diluted Nitric acid and NaOH. For this analysis, solutions of ZS1 (ZS1₃₀₀, ZS1₆₀₀ and ZS1₉₀₀) and MODS were prepared with pH values of 7 and 12. At consequent intervals of time (i.e., 0 min, 20 min, 40 min, 60 min, 100 min) 2 mL of samples were extracted from each solution and analyzed using UV-Vis spectroscopy. The effect of NaOH conc. on the photo-degradation of dye was also evaluated. For this analysis, solutions of ZS1₃₀₀ and MODS were prepared with different conc. of NaOH (1 g, 2 g, 3 g, and 4 g). Afterward, the slurry was not stirred, and the resulting dye content was determined at the end of the experiment. The photo-degradation percentage of methyl orange is calculated using Equation (1) [29]

$$\text{Photo - degradation (removal efficiency)} = \frac{A_o - A_t}{A_o} \times 100 \quad (1)$$

where, A_o is the initial concentration of MO and A_t is the concentration of MO after time t . The experiment has been repeated again to ensure the reproducibility of the results.

2.5. Zero-Point Charge

The value of zero-point charge (ZPC) was calculated with the help of salt titration method. The ZPC value of the catalyst was determined using a 10 mol solution of NaClO₄. In this method, 0.2 g of catalyst was taken in 10 mL deionized water, and 0.01 mol/L NaOH was added to get the required pH. The suspension was taken in ten different beakers and the pH of the suspensions was initially set to different values from two to 11. This pH value is denoted as $\text{pH}_{\text{initial}}$. The sample of each beaker was stirred briskly for 24 h at room temperature, and the value of pH was recorded. This pH value is denoted as pH_{final} . The ZPC is obtained from the plot, between ΔpH ($\text{pH}_{\text{final}} - \text{pH}_{\text{initial}}$) and $\text{pH}_{\text{initial}}$ as depicted in Figure 1. For ZPC, ΔpH needs to be zero. The ZPC of ZS1₃₀₀ is investigated and its value is found as 8 [30].

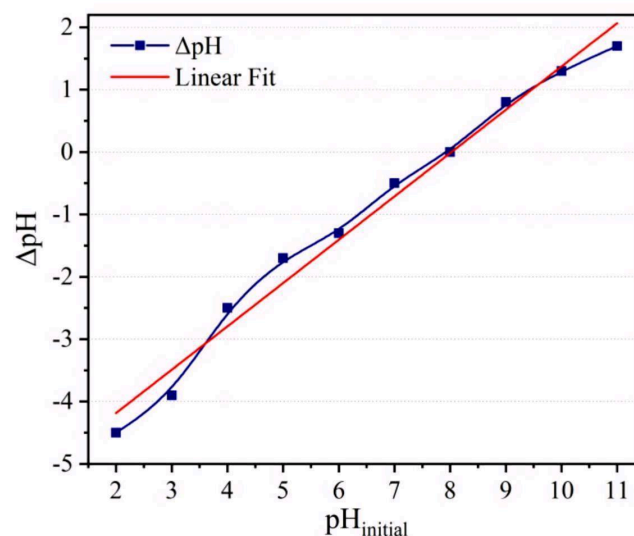


Figure 1. Plot of ΔpH versus $\text{pH}_{\text{initial}}$ for ZS1₃₀₀.

The value of ZPC implies that surface of the catalyst is positively charged at $\text{pH} < \text{pH}_{\text{ZPC}}$, and for $\text{pH} > \text{pH}_{\text{ZPC}}$ will be negatively charged. Therefore, ZPC is considered an important feature for photocatalytic activity as it affects the surface property of catalyst. Under basic pH conditions, the negatively charged pollutant compounds will be repelled from the negatively charged catalyst surface, which results in to decrease in absorption of the pollutant compound. As a result, the degradation efficiency of the sample falls at a higher pH [31].

3. Results and Discussion

3.1. XRD Analysis

The XRD patterns of ZS1₃₀₀, ZS1₆₀₀ and ZS1₉₀₀ samples are shown in Figure 2A. It can be observed from Figure 2A(a,b) that the XRD patterns of both samples contain various well-defined reflections at 2θ at 31.68° , 34.32° , 36.26° , 47.56° , 56.59° , 62.87° , 66.44° , 67.95° , and 69.08° correspond to Miller planes (100), (002), (101), (102), (110), (103), (200), (112), and (201) respectively, confirming the formation of ZnO [32–34]. In both diffraction patterns, a broad hump is present at $2\theta \sim 21.98^\circ$, which reveals the presence of amorphous silica. The observed peaks in the diffraction pattern reveal the formation of the hexagonal structure of ZnO embedded in silica matrix, with the space group P63mc (JCPDS card no. 790205).

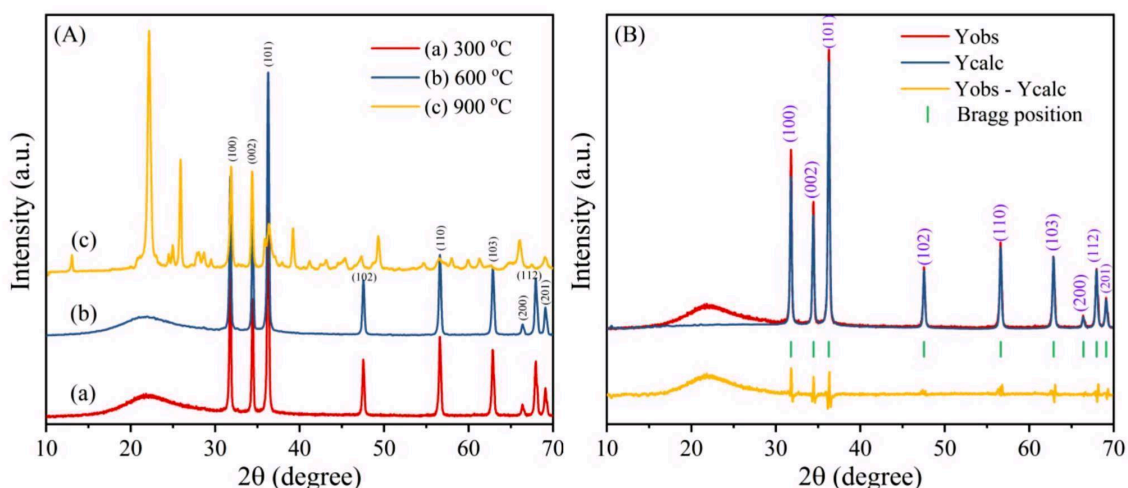


Figure 2. (A) XRD patterns of ZS1 annealed at various temperatures and (B) Rietveld Refined XRD pattern of ZS1₃₀₀ nanocomposite.

However, the XRD pattern of the sample ZS1₉₀₀ also contained some new peaks (Figure 2A(c)). The peak centred at 2θ (reflection planes) at $\sim 22.06^\circ$ (101), 28.76° (111), 31.70° (102), 36.14° (200), 45.44° (202), 47.28° (113), 48.72° (212), 62.18° (302), 65.02° (312), and 66° (204), which may be ascribed to Tetragonal Cristobalite (JCPDS File No. 82-1408). In the same pattern, some of the peaks centered at 2θ (reflection planes) at $\sim 31.70^\circ$ (113), 34° (410), and 38.80° (223) may be ascribed to Hexagonal Zinc silicate (Zn_2SiO_4) (JCPDS File No.37-1485).

The value of structural parameters like plane (hkl), crystallite size (D), d-spacing, full width at half maximum (β), intensity, microstrain (ϵ) and the dislocation density (δ) of ZnO.SiO₂ composite are obtained from XRD analysis and are shown in Table S1. The crystallite size (D) is calculated by using Scherrer's formula as:

$$D = (0.9 \times \lambda) / (\beta \times \cos\theta) \quad (2)$$

The average crystallite size is calculated from the three peaks of highest intensity in the pattern, which was characterized by lattice plane (100), (002) and (101) at $2\theta \sim 31.85$,

34.55 and 36.35°, respectively inserted in Table S1. Dislocation density (δ) is calculated as [35]:

$$\delta = 1/D^2 \quad (3)$$

and microstrain (ϵ) value of the nanocomposite ZnO.SiO₂ is evaluated as,

$$\epsilon = \beta \cos \theta / 4 \quad (4)$$

The Rietveld refined X-ray diffractogram of ZS1₃₀₀ nanocomposite is shown in Figure 2B. For the quantitative analysis of the phase present in the sample, Rietveld refinement was carried out of the XRD data. The atomic position and isothermal parameters for Zinc and Oxygen are fixed and the other parameters like lattice constants, shape parameters, and scale factors are considered as free parameters during the time of fitting. The parameters, such as background factors and scale factors, are refined in the first step of the Rietveld refinement. The background is fitted using a linear interpolation method and pseudo-voigt is chosen for peak profile. In the succeeding stage, the structural parameters (lattice parameters, width parameter, preferred orientation, asymmetry, and atomic coordinates, etc.) are refined.

Figure 2B approves the hexagonal structure of ZnO embedded in SiO₂. The Wyckoff positions parameters ($\frac{x}{a}, \frac{y}{b}, \frac{z}{c}$) of atoms obtained from refinement are tabulated in Table S2. The norm's factor for the best fit, such as the Reliability factors (R factors), Profile R factor ($R_B = 13.6$), Weighted R Factor ($R_{wp} = 14.3$), Expected values ($R_{exp} = 7.17$), Bragg R Factor ($R_B = 6.02$), R_f -Factor ($R_B = 2.78$) and Goodness fit factor ($\chi^2 = 3.9$) value obtained from Rietveld refinement, confirm the precision of the Rietveld refinement analysis. The value of lattice parameters obtained from the refinement are as follows: $a = b = 3.249$ (Å); $c = 5.2058$ (Å); $\alpha = 90^\circ$; $\gamma = 120^\circ$, and ratio of c/a is 1.6022. The bond lengths between different atoms and bond angles between them are evaluated and presented in Table S3.

The type of the grain boundaries may play an important role in the photocatalytic mechanism. The grain boundary specific area (S_a) i.e., the ratio of the area enclosed by the grain boundary and volume of grain, is estimated as [36]

$$S_a = \frac{1.65}{D} \quad (5)$$

where, D is the crystallite size estimated from XRD studies using Equation (2). The Equation (5) is valid for both single and polycrystalline forms of ZnO system having a random distribution of shapes and grains. The values of S_a are tabulated in Table 1. It is observed that the grain boundary-specific area is decreased with an increase in temperature. The higher value i.e., $4.445 \times 10^7 \text{ m}^2 \text{ m}^{-3}$ of S_a is calculated for the ZS1 sample annealed at 300 °C.

Table 1. Average crystallite size (D), bandgap energy (E_g) and grain boundary specific area (S_a) w.r.t. to annealing temperatures.

Annealing Temp (°C)	D (nm)	S_a ($\text{m}^2 \cdot \text{m}^{-3}$)	E_g (eV)
300	36.20	4.455×10^7	3.26
600	38.81	4.251×10^7	3.25
900	43.42	3.800×10^7	3.36

With a change in the precursor's concentration i.e., sample ZS2, it is observed from the XRD patterns of ZS2₃₀₀ and ZS2₆₀₀ for the ZnO phase that the crystallite size decreased compared to ZS1₃₀₀ and ZS1₆₀₀, respectively. The XRD data for ZS2₃₀₀ and ZS2₆₀₀ are provided in the Supplementary File. The diffractogram of ZS2₉₀₀ was found to have marginal changes compare to ZS1₉₀₀. The phase structure observed for ZS2 samples is the same as observed in the case of ZS1 samples.

3.2. TEM Analysis

Transmission electron microscopy (TEM) is a utile technique for the analysis of particle size and the morphology of materials. The microscopic images of ZnO:SiO₂ nanocomposites annealed at 300 °C are depicted in Figure 3. The average particles size is found to vary between 20 to 30 nm, which is nearly analogous to the crystallite size calculated from the XRD results. From the figure, a uniform morphology has been observed in which the particles are appearing roughly as spherical shapes. The micrograph shows the weak aggregation of ZnO particles that confirm the presence of particles in the silica matrix. Some particles are observed to possess sharp grain boundaries and a clear morphology in the silica matrix.

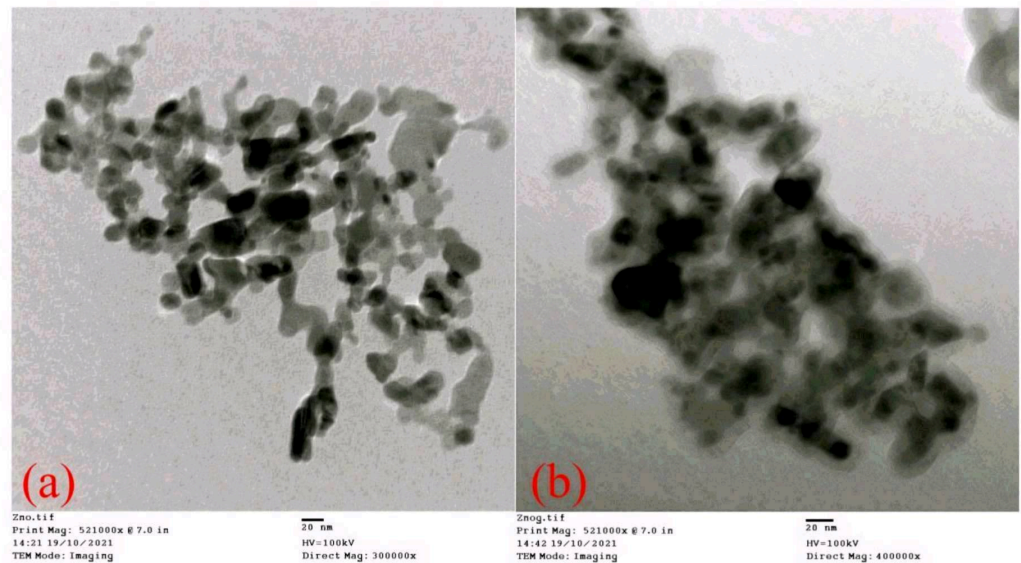


Figure 3. Transmission electron microscopy images of ZS1₃₀₀ (a) lower magnification and (b) higher magnification.

3.3. FTIR Analysis

For the further investigation of the molecular structures of ZS1₃₀₀, ZS1₆₀₀ and ZS1₉₀₀ nanocomposites, Fourier-transform infrared (FTIR) spectroscopy studies are carried out and the FTIR spectra of these samples are shown in Figure 3.

Characteristic peaks of these samples are observed at 1081 and 799 cm⁻¹, which represent the stretching vibration mode and symmetric stretching of the Si-O-Si group, respectively [26]. The peak at around 475 cm⁻¹ in the spectra is due to the vibration of the Zn, and the O bond confirms the presence of ZnO in the samples [37]. The presence of bonds at 1500 cm⁻¹ and 1632 cm⁻¹ are attributed to the stretching vibration of the (-OH) group attached with Si and ZnO, respectively [38]. The hydroxyl group results from the hygroscopic nature of ZnO and Si that come during the synthesis. It is also observed that the content of hydroxyl group in the sample decreased with an increase in temperature, suggesting the presence of impurities mostly near the surfaces of ZnO and Si. Moreover, it can be found that the peak at 1081.98 of ZS1₃₀₀ sample had a strong intensity. However, for ZS1₆₀₀ and ZS1₉₀₀, the peak intensity decreased due to the decomposition of hydroxyl group Figure 4a,b. In the spectrum of ZS1₉₀₀ sample (Figure 4c), some new peaks are also observed, which confirm the formation of some intermediate phases of ZnO and cristobalite (crystallite form of silica). The observed changes in the FTIR spectra of the nanocomposites samples are well-matched with the findings of XRD analysis.

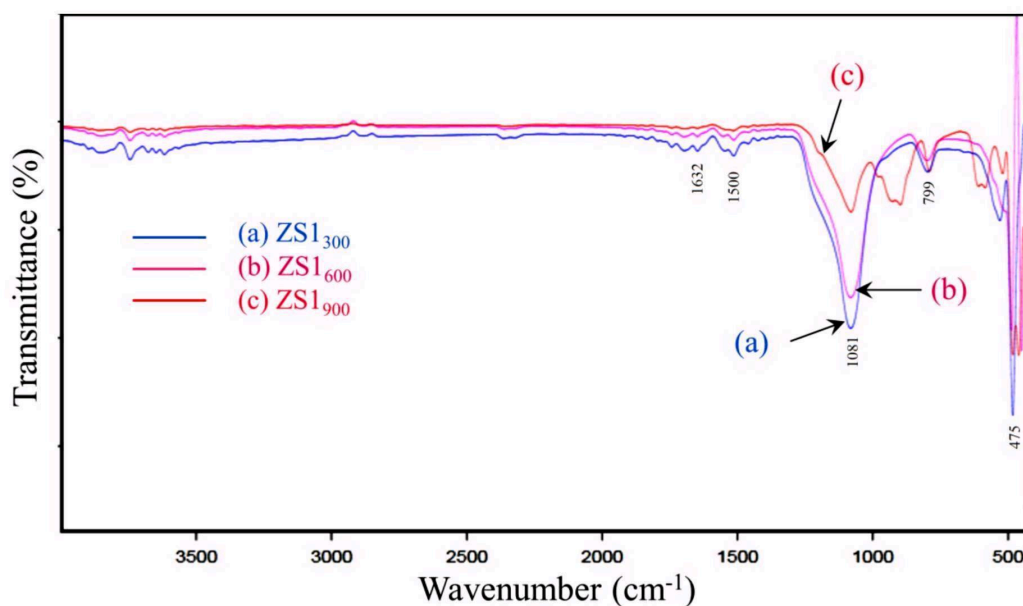


Figure 4. Fourier transforms infrared spectra of (a) ZS1₃₀₀, (b) ZS1₆₀₀, and (c) ZS1₉₀₀ nanocomposite.

3.4. UV-Visible Analysis

For the examination of the optical band gap of the ZS1₃₀₀, ZS1₆₀₀ and ZS1₉₀₀ samples, UV-Visible spectroscopy is performed, as shown in Figure 5. It is seen that band edge shifted to a lower wavelength edge (i.e., blue shift), suggesting an alteration in the optical band gap. Thereby, to estimate the energy band gap (E_g) of the catalyst samples, Tauc's relation the spectra (250–700 nm) is used, which is given by

$$(\alpha h\nu)^{1/n} = A(h\nu - E_g) \quad (6)$$

where α , h , n and A are the absorption coefficients, Planck's constant, power factor for the transition mode, and constant, respectively. For the allowed direct transitions, n is taken as 1/2. The band gap values for the nanocomposites samples are determined by plotting $(\alpha h\nu)^{1/n}$ versus $h\nu$, as shown in Figure 5.

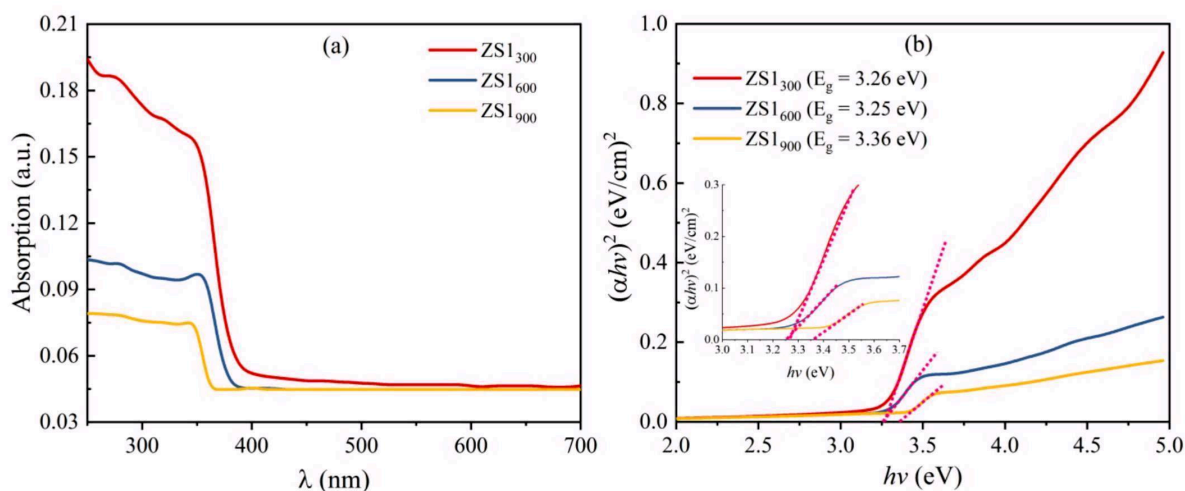


Figure 5. (a) UV plots (b) Tauc's plot of ZS1₃₀₀, ZS1₆₀₀ and ZS1₉₀₀.

The estimated values of E_g for the ZS1₃₀₀, ZS1₆₀₀, and ZS1₉₀₀ nanocomposites are 3.26 eV, 3.25 eV, and 3.36 eV, respectively. The optical band gap of ZS1₃₀₀ is found to be

smaller than the characteristic value of ZnO, i.e., 3.37 eV at room temperature. This may be due to the occurrence of intrinsic defects like oxygen vacancies and zinc interstitials in the ZnO [36,39]. The ZS1₉₀₀ sample has a higher optical band gap (very near to 3.37 eV) which attributes to an increase in crystallite size, as can be seen from XRD studies. The observed values of E_g w.r.t. crystallite size are tabulated in Table 1.

3.5. BET Analysis

Surface area is an important parameter that affects photocatalytic activity due to the surface dependency of the process. With a larger surface area, the active sites are larger and with better photocatalytic activities. Therefore, to measure the surface and porosity of the ZS1₃₀₀ and ZS1₉₀₀ nanocomposite samples, the Brunauer-Emmett-Teller (BET) measurements are performed in a nitrogen environment. The nitrogen (N₂) adsorption-desorption isotherm curves of the ZS1₃₀₀ sample are shown in Figure 6a. The shape of adsorption-desorption curves depicts the features of isotherm of type IV (as per IUPAC classification) with H4 hysteresis, which reflects the mesoporous kind nature of the samples under discussion. The BET curve having three main segments, i.e., (i) concave-shaped for relative pressures from 0.05 to 0.1, (ii) linear-shaped up to 0.3, and (iii) convex-shaped for above 0.3, the (ii) or linear-shaped segment, as shown in inset of Figure 6a, denotes a realization of the first monolayer of the gas molecules and commencement of the second layer. The linear segment of the BET curve is known as the 'B' point, which is further used to calculate the specific surface area. From the BET equation:

$$\frac{p/p^0}{w(1-p/p^0)} = \frac{1}{w_m C} + \frac{C-1}{w_m C} (p/p^0) \quad (7)$$

whereas, w denotes the volume of adsorbed gas at normal temperature (T) and pressure (P); w_m represents the volume of adsorbed gas for monolayer per gram of adsorbent; P^0 denotes saturated vapor pressure of N₂ at normal temperature; C refers to a constant depending on the H_a (heat absorbed by the monolayer of N₂); and H_L (liquefaction parameter of the gas) in the range of 0.05–0.3 of relative pressure, given by flowing relation

$$C = \exp\left(\frac{H_a - H_L}{RT}\right) = \exp\left(\frac{DH}{RT}\right) \quad (8)$$

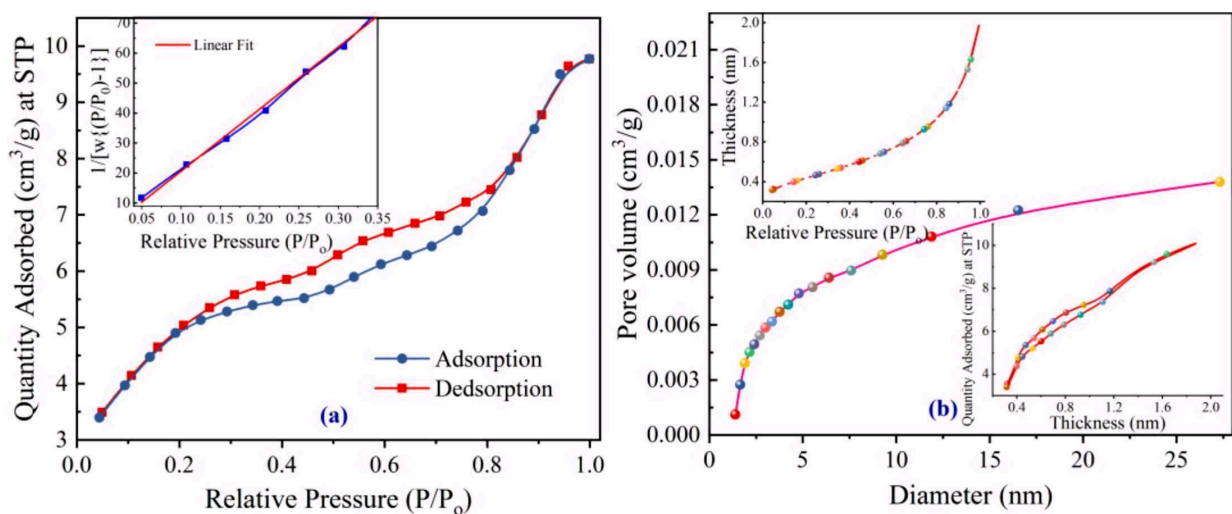


Figure 6. BET isotherm of ZS1₃₀₀ (a) adsorption and desorption curve and (b) pore size distribution, the thickness of deposited layer (inset) & adsorption quantity versus size of the pore (inset).

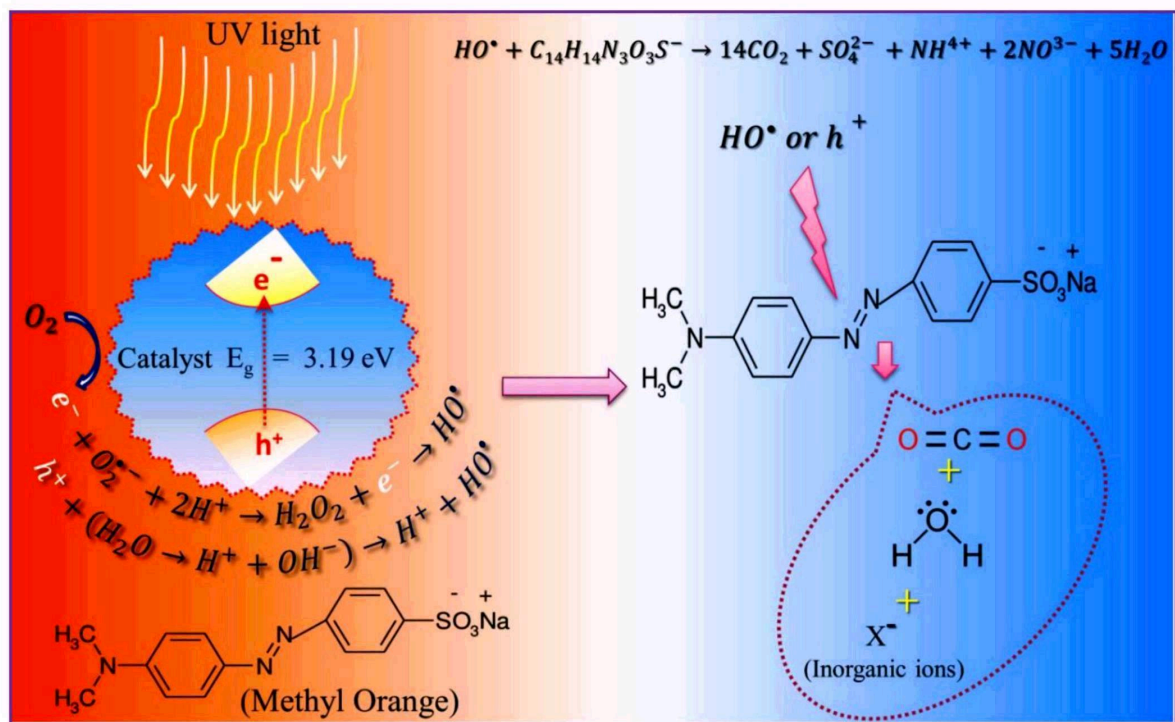
The Equation (7) represents an equation of a straight line in between $\frac{P/P_0}{w(1-P/P_0)}$ vs. $\frac{P}{P_0}$ with slope $\left(\frac{C-1}{w_m C}\right)$ and intercept of $\left(\frac{1}{w_m C}\right)$ having the values of 206.87578 g/cm³ and 0.0088 g/cm³, respectively. The volume of the gas molecules monolayer (w_m) can be obtained using the values of slope and intercept of the curve in the straight-line portion of the isotherm. The specific surface area can be calculated using the relation, $S_{BET} = w_m A_m N$, where N is the Avogadro number and A_m is the molecular cross-sectional area (for nitrogen; $A_m = 0.162$ nm²). The measured values of the specific surface areas (S_{BET}) for the samples ZS1₃₀₀ & ZS1₉₀₀ are found to be 16.8 m²/g and 0.001 m²/g, respectively. The decrease in specific surface area with annealing temperature can be attributed to the penetration of ZnO nanocrystallites into the porous structure of SiO₂. The filling of the closed pores of SiO₂ with ZnO resulted in the decrease in porosity of the nanocomposite samples. This can easily be predicted and corroborated with the change in XRD pattern from ZS1₃₀₀ to ZS1₉₀₀, wherein the XRD pattern of ZS1₃₀₀ is vastly matched with the pure ZnO hexagonal structure. On the flip side, the XRD pattern of ZS1₉₀₀ consists of the sharps reflections of ZnO along with the well-visualized reflection of SiO₂, which points to the mixed phase of the nanocomposite.

The respective pore size distribution curve for the sample under discussion is obtained with the adsorption particulars employing the Barrett-Joyner-Halenda (BJH) method and depicted in Figure 6b. This figure confirms the mesoporous nature of the prepared composite. The insets depict the change in quantity adsorbed as a function of the deposited layer thickness and the change in layer thickness with relative pressure. It can be seen that the composite contains a total pore volume of 0.01667 cm³/g and an average pore diameter of 3.838 nm. The ZS1₃₀₀ nanocomposite shows a higher specific surface area and it is reported that a higher surface area is advantageous for superior photocatalytic performance [40].

3.6. Photocatalytic Studies

Absorption of UV light with energy greater than the band gap of the catalyst material causes generation of electron-hole pairs in ZnO particles i.e., electrons (e⁻) in conduction band and holes (h⁺) in the valence band holes. The holes react with H₂O or hydroxide ions, which are adsorbed on the surface of the ZnO particles and produce •OH. Conversely, the electron reduces O₂ and produces O₂•⁻ as well as other oxygen species (H₂O₂ and •OH) [32,33]. Both the holes and the •OH are super reactive to organic compounds that are in contact with these radicals [33]. The oxidizing tendency of the •OH radicals is high enough to split C-H as well as C-C bonds of MO sitting on the outer surface of ZnO.SiO₂ nanocomposite leading to CO₂ and H₂O production as shown in Scheme 2.

The ability of photocatalyst to decompose the pollutant compound MO, depends upon the different factors, such as the annealing temperature of the photocatalyst, the pH value of solution containing MO dye, and the time of irradiation and different conc. of NaOH. The effect of these factors on the catalytic performance of the material is examined. For an investigation of the effect of pH conc. and annealing temperatures of catalytic material on MO dye, samples of MO and ZS1 (annealed at 300, 600 & 900 °C) were prepared distinctly with different pH concentrations. The samples' names are abbreviated as S1 (ZS1₃₀₀, pH7), S2 (ZS1₃₀₀, pH12), S3 (ZS1₆₀₀, pH7), S4 (ZS1₆₀₀, pH12), S5 (ZS1₉₀₀, pH7), and S6 (ZS1₉₀₀, pH12). The UV-visible spectra of each sample showing degradation of MO w.r.t. irradiation time, depicted in Figure 7.



Scheme 2. Schematic illustration of the photocatalytic mechanism of ZnO.SiO₂ photocatalyst for degradation of MO.

3.6.1. Effect of pH and Irradiation Time

Using Equation (1), the photo-degradation percentages of samples S1, S2, S3, S4, S5, and S6 irradiated under the UV light for 100 min are calculated and the values of photo-degradation (%) are found to be 98.1, 39.7, 71.63, 60.39, 43.51, and 41.34%, respectively (Figure 8a). Interestingly, it is observed that the photocatalytic activity of the S1 sample is relatively higher than the other samples. As the value of pH is increased, the degradation response is decreased and only 39.7 % of MO degradation response is observed for sample S2 (i.e., at pH = 12). The photo-degradation activity depends on the surface properties of the catalyst. Generally, pH changes the surface properties of catalysts like surface charge properties that oversee the absorption mechanism of MO on catalytic surface. At a pH 7 (below ZPC pH i.e., 8), the surface of ZnO is positively charged, which can absorb negatively charged MO due to electrostatic attraction, facilitating the degradation reaction. In contrast, at a higher pH (=12), absorption is decreased due to electrostatic repulsive forces among the catalytic surface and the dyed surface. As a result, photo-degradation response becomes minuscule; this is firstly because of the decrease in adsorption of the dye molecules on surface of the photocatalyst surface at higher pH [41,42], and secondly due to rapid scavenging of the hydroxyl radicals produced via reaction between holes and OH⁻, which causes a decrease in free radicals [42,43]. It is reported that pH affects the production of these free radicals that, in turn, lower the degradation rate of dye, or the termination of degradation [31].

It is observed that on increasing the irradiation time under light irradiating lamps, the photo-degradation percentage of methyl orange also increased, as shown in Figure 8b. It is observed from Figure 8b that all the samples attained maximum photo-degradation (%) in about 100 min. This may be due to the production of more and more e-h pairs and the corresponding excitation of an electron from the valence band to the conduction band [44]. Accordingly, the production of hydroxyl radicals is rose, which resulted in an enhanced photodegradation (%). The higher degradation efficiency of the ZS1₃₀₀ nanocomposite sample, as compared to other samples, can be attributed to its small band gap and larger surface area.

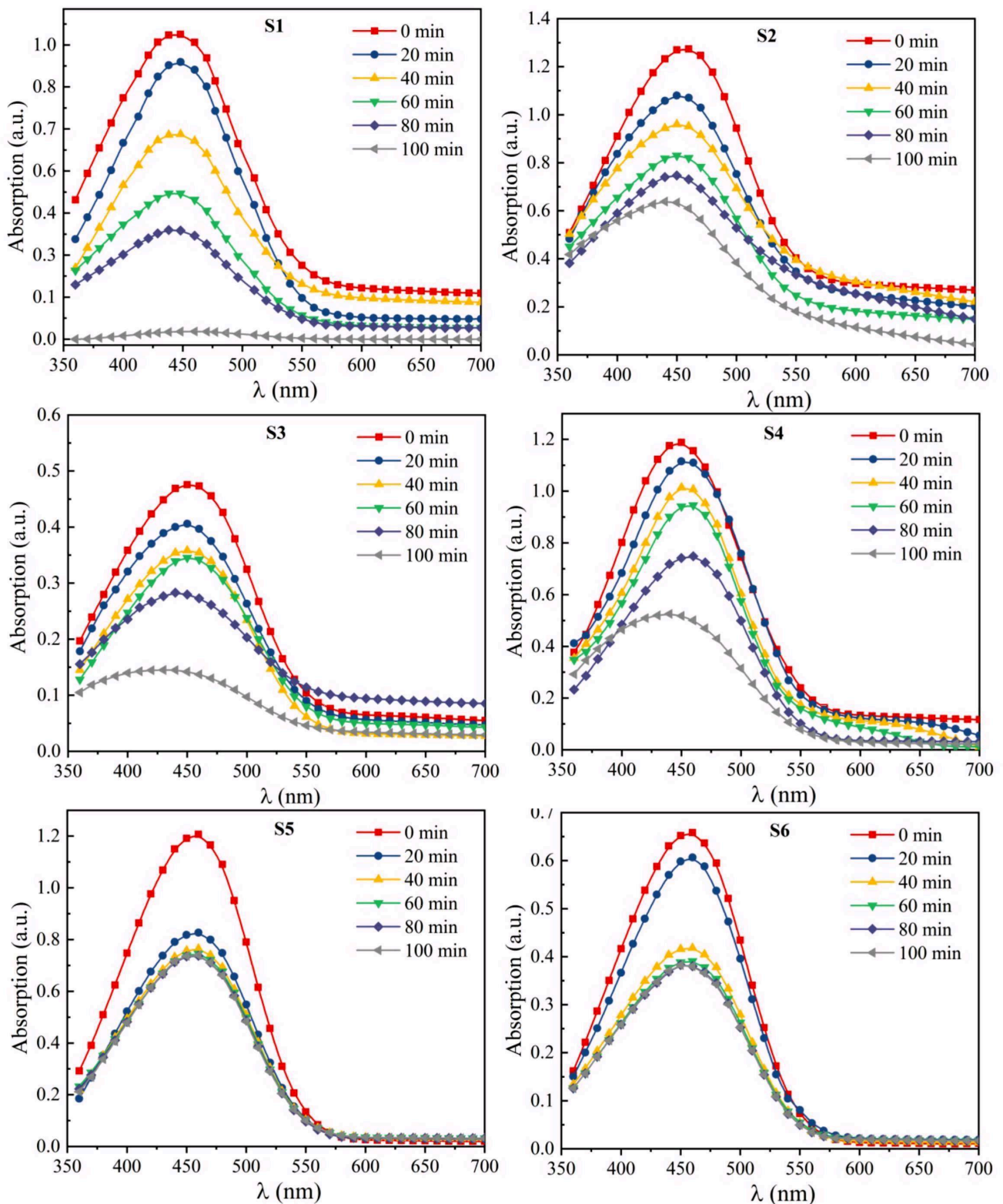


Figure 7. UV-visible spectra of S1, S2, S3, S4, S5, and S6 samples showing degradation of MO.

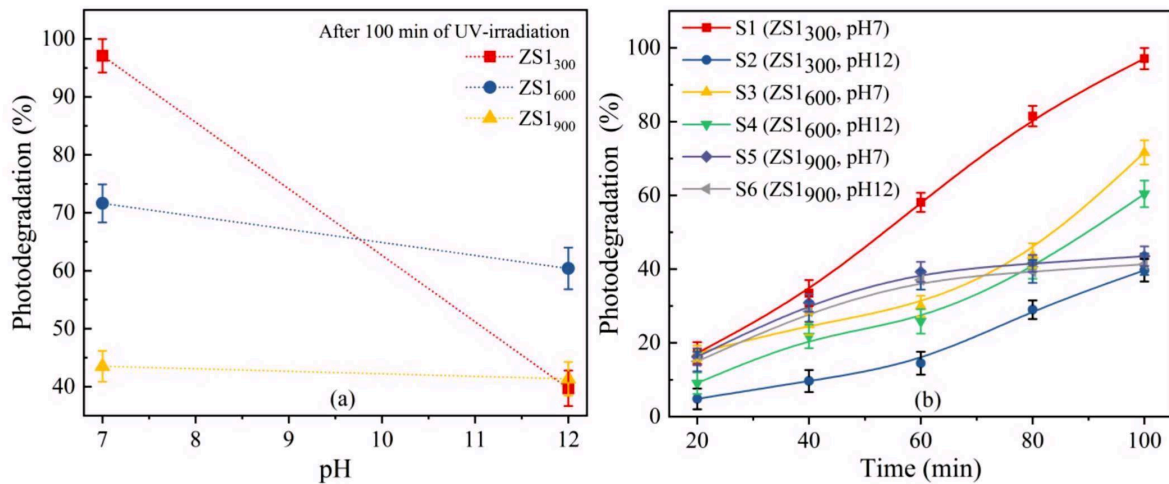


Figure 8. Effect of (a) irradiation time and (b) pH on photodegradation rate (%) of methyl orange (UV irradiation = (2×125) W).

3.6.2. Effect of Annealing Temperatures

The photocatalytic efficiency of the ZS1 nanocomposite at different annealing temperatures has also been assessed for the photo-degradation of MO. Figure 9 shows the correlation between photo-degradation (%) of MO with annealing temperatures of ZS1 nanocomposite. It is observed that the photocatalytic degradation of MO decreases from 98.1% to about 39% with an increase in the annealing temperature of the sample ZS1 (i.e., sample ZS1₃₀₀ to ZS1₉₀₀). The highest activity observed for the ZS1₃₀₀ nanocomposite may be ascribed to the higher specific surface area, lower band gap value, and efficient charge separation ability of the sample through the charge exchange process in the existence of UV light. The lowest photo-degradation ability of the sample ZS1₉₀₀ can be due to the decrease in specific surface area due to the filling of the pore by the penetration of ZnO into the SiO₂ porous matrix, as observed from the XRD and BET studies. The lower reactivity of SiO₂ towards photo-degradation and the presence of higher content of SiO₂ on the upper surface as expected from XRD pattern could be another reason for the lower efficiency of ZS1₉₀₀ sample.

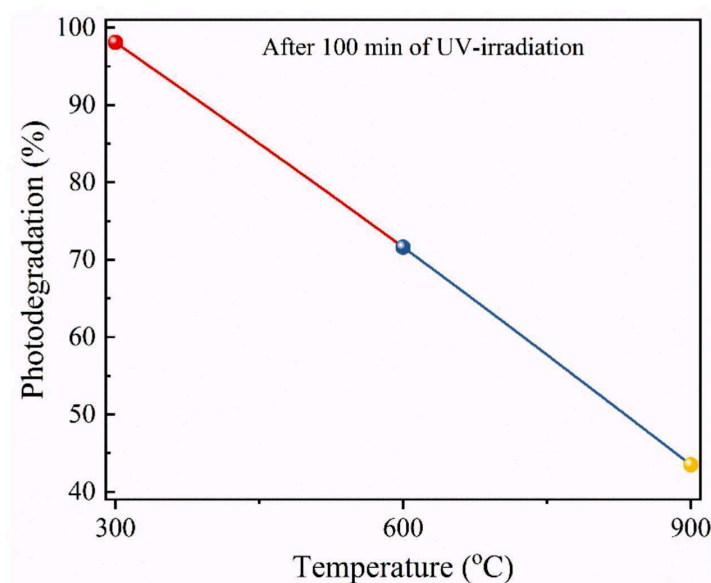


Figure 9. Variation in photo-degradation performance of ZS1 catalyst w.r.t. annealing temperature at pH 7 after 100 min of UV exposure.

It is reported that in the photocatalytic mechanism, the production of $\bullet\text{OH}$ is expected to occur mainly on an internal surface i.e., the ZnO surface [45,46]. In addition, MO approaches the ZnO surface via the pores present in the surface area of sample ZS1. Thus, the photonic degradation efficiency is being limited by the absorption or diffusion rate of the MO molecule into the photo-catalytically active surface. As a result of the difference in the size and the number of pores of the ZS1 samples (ZS1₃₀₀, ZS1₆₀₀ & ZS1₉₀₀), the photo-degradation (%) is changed accordingly. Therefore, it is concluded that the ZS1₃₀₀ assists the transport properties of all reactants involved in the photocatalytic process, which enhanced the overall photocatalytic activity.

3.6.3. Effect of NaOH Concentration

To investigate the effect of NaOH concentration on the photo-degradation ability of the nanocomposite samples, four different concentrations (1, 2, 3 and 4 g) of NaOH are mixed with the photocatalyst and MO solution. In a typical process, 0.38 g of catalyst powder was dispersed in 100 mL deionized water and then 10 mL of methyl orange dye solution was added to catalyst solution and stirred to adsorb the dye molecules on surface of the photocatalyst. After that, 1 g of NaOH powder was mixed with the above solution containing methyl orange and photocatalyst, then the solution was stirred in absence of light to achieve equilibrium between adsorption and desorption and then irradiated with visible irradiation light with continuous stirring [47]. After the decoloration of methyl orange, a part of the solution was used for recording the absorbance spectrum using a UV-Visible spectrophotometer and photo-degradation percentage was calculated using Equation (1). The same steps are followed for the degradation of MO with different weights (2, 3 and 4 g) of NaOH and the recorded absorption spectra are shown in Figure 10a.

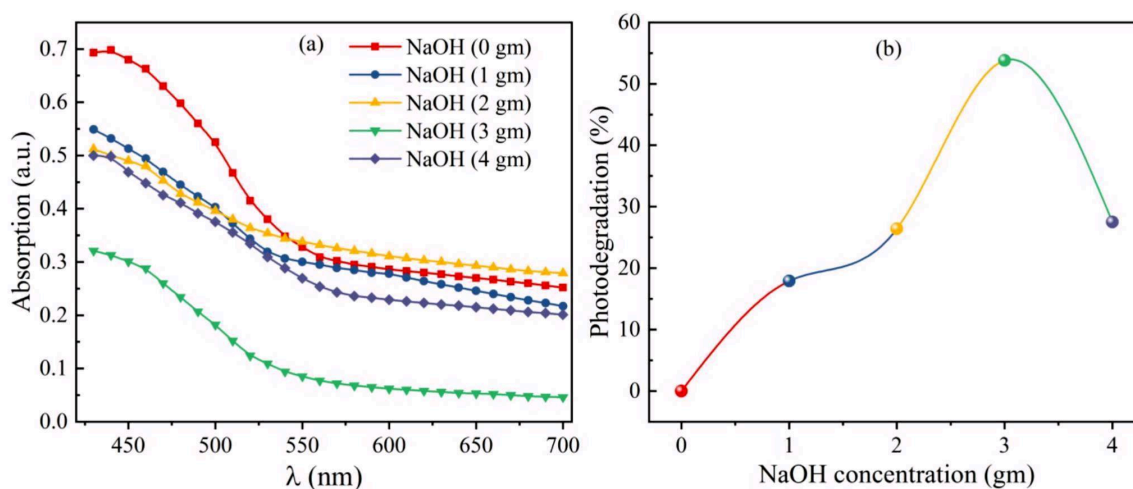


Figure 10. Effect of NaOH on catalyst; (a) UV-visible spectra for different concentrations of NaOH and (b) photo-degradation efficiency w.r.t. concentration NaOH.

It is observed that the decoloration time of methyl orange decreases from 275 through 95 to 40 min with an increase in NaOH concentration from 1 g through 2 g to 3 g. However, for the 4 g of NaOH, again the decoloration time increases to 80 min. It is observed that the sample containing 3 g concentration of NaOH shows a higher photo-degradation of 53.8%, and beyond 3 g NaOH concentration again the photo-degradation (%) decreases to 27.5%, with 4 g of NaOH (Figure 10b). The results showed that the photo-degradation rate increased with an increase in NaOH concentration up to 3 g of NaOH, which may be due to OH^- ions produced by NaOH acting as a strong hole scavenger and generating hydroxyl radicals, thus reducing the e-h pair recombination [45]. Moreover, with a further increase in concentration (>3 g) of NaOH, the degradation rate became poor, since a greater amount of hydroxyl radicals may oxidize the catalyst [45].

Compared to other metal oxide composites tabulated in Table 2, the present ZnO:SiO₂ prepared through the co-precipitation method shows enhanced photocatalytic efficiency for the degradation of MO.

Table 2. Photocatalytic activity of various ZnO composites.

Catalyst Composite	Method of Synthesis	Light Used for Irradiation	Irradiation Time (min)	Photo-Degradation (%)	Refs.
ZnO nano-needles on Si substrates	Hydrothermal	UV light	140	95.4	[48]
ZnO quantum dots	Flame spray pyrolysis	UV light	160	97	[49]
TiO ₂ /biochar	Hydrolysis	UV light	160	96.88	[17]
Xanthan gum/TiO ₂	Hydro-gel	Visible light	90	89	[15]
Anatase TiO ₂	Sol-gel	Visible light	240	67.12	[50]
ZnO catalyst	Hydrothermal	UV light	180	99.7	[51]
Rare earth metal doped ZnO	Sol-gel	UV light	180	98	[32]
ZnO:SiO ₂	Co-precipitation	UV light	100	98.1	Present work

4. Conclusions

ZnO:SiO₂ nanocomposites are successfully synthesized via the co-precipitation method. The specific surface area decreases from 16.8 m²/g and 0.001 m²/g on increasing the annealing temperature from 300 to 900 °C due to blocking of SiO₂ pores via the penetration of ZnO into these pores. It is found that the specific surface area of the nanocomposite plays an important role in photocatalytic activities and the degradation of methyl orange dye. The effect of various parameters, such as the pH value of the solution, irradiation time, annealing temperature, and NaOH concentration on photocatalytic performance of ZS1 nanocomposite have been investigated. The sample ZS1₃₀₀ shows a higher photo-degradation efficiency of 98.1% at pH 7 for 100 min irradiation times. The high efficiency of ZS1₃₀₀ can be governed by the following mechanisms: (i) a higher specific area that assures the maximum interaction with UV irradiation; (ii) an optimized bandgap resulting in enhanced absorption efficiency of UV irradiation where more electron-hole pairs are produced; (iii) more irradiation time proportional to more generation electron-hole pairs; and (iv) at lower pH below the ZPC pH, which increases the absorption of pollutant dye that resulting higher efficiency. OH[−] radicals act as active species for the degradation of the pollutant. For the degradation, the formation of hole and hydroxyl radicals is proven to be the crucial factor. The results revealed that ZnO:SiO₂ nanocomposite is an effective, inexpensive, and eco-friendly catalyst for the degradation of methyl organic pollutants.

Supplementary Materials: The following are available online at <https://www.mdpi.com/article/10.3390/nano11102548/s1>, Table S1: Structural parameters of ZS1300 achieved from X-ray Diffraction Pattern, Table S2: Fractional atomic coordinates and isothermal parameter of different atoms obtained from the Rietveld analysis of XRD patterns for the sample ZS1300, Table S3: Bond Length and bond angles of sample ZS1300, Table S4: Structural parameters of ZS1600 achieved from X-ray Diffraction Pattern, Table S5: Structural parameters of ZS1900 achieved from X-ray Diffraction Pattern, Table S6: Structural parameters of ZS2300 achieved from X-ray Diffraction, Table S7: Structural parameters of ZS2600 achieved from X-ray Diffraction Pattern.

Author Contributions: Conceptualization & Methodology, S.R. and A.G.; Sample characterization, A.G. and S.K.; Validation, V.K. and N.A.; Formal analysis, J.D., S.R.; Investigation, J.D. and M.P.; Data curation, J.D. and M.T.N.; Writing—original draft preparation, S.R.; Writing—review and editing, J.D.; Funding acquisition, M.P. and M.T.N. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Ministry of Education, Youth and Sports of the Czech Republic and the European Union (European Structural and Investment Funds-Operational Programme Research, Development and Education) in the frames of the project “Modular platform for autonomous chassis of specialised electric vehicles for freight and equipment transportation”, Reg. No. CZ.02.1.01/0.0/0.0/16_025/0007293.

Conflicts of Interest: The authors declare no conflict of interest.

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International Journal of Advance Research in Computer Science and Management Studies

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Future of E-Commerce Services in India: Prospects and Problems

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Abstract: As part of the information technology revolution, electronic commerce (e-commerce) has become widely used in global trade in general and the Indian economy in particular." Changes in business transaction methodology have occurred as a result of technological improvements. India, as a quick learner, is keeping up with the current state of electronic data exchanges and has embraced e-commerce. E-commerce stands for electronic commerce and refers to the trading of products and services through the internet. In the field of ecommerce, India is exploding. One of the reasons for this is the low cost of the PC and the expanding use of the Internet. In India, the business community is becoming more conscious of the prospects given by e-commerce India's domestic clothing and textile sector produces 5% of the country's GDP, 7% of industry output in value terms, and 12% of the country's export revenues. India has experienced remarkable growth thanks to e-commerce and technological automation applications. E-commerce is connecting rural India for business purposes, resulting in the development of village economies. In India, ecommerce appears to have a bright future. In the field of e-commerce, India is exploding. India is the second-largest online market in world and this number will be reached up-to 650 million by 2023. In comparison to other markets, e-business penetration is modest, but it is mounting at a considerably quicker rate, with a enormous number of new applicants. India is yet to have a breakout success storey in E-commerce, particularly in online shopping. E-commerce not only expands economic chances, but it also expands educational opportunities. It addresses major consumer concerns about e-commerce, such as ethical dilemmas, risk perceptions in e-service meets, and confronts for e-business education and the lawful system. To improve rural India, India has to boost E-commerce Company. The textile garment trade has benefited greatly from E-commerce through online web portals, but consumers in rural India must be given trust through educational programs.

Keywords: e-commerce, Information Technology, E-business, Online Shopping.

I. INTRODUCTION

Speedy and simple means of exchanging commodities and worldwide services, e-commerce has grown in popularity dramatically over the previous few decades. In 2021, India's consumer Internet economy (e-commerce industry) is expected to surpass \$100 billion (Rs 7.29 lakh crore) for the first time, thanks to massive consumer adoption across industries. This is an increase of nearly 30% over the previous year. The current study is a conceptual survey that is exploratory as well as descriptive. It tries to describe the concept of ecommerce, e-commerce business models. This study also reveal the benefits and boundaries of e-commerce. It concludes that e-commerce provides a number of advantages to many stakeholders. However, there are various limits, lawful and practical impediments in the progress of e-commerce at this time. As a result, we must prepare us to accept e-commerce, which is an evident result of globalisation and hi-tech progress about the world. E-commerce, in its most basic form, is the buying and selling of goods and services through the Internet. Internet vending is quickly

expanding as clients take advantage of wholesalers' subordinate costs when they retail their products. Due to the quick and simple means of "exchanging goods and services both regionally and globally," e-commerce has grown in popularity dramatically over the previous decade. It has now evolved into the world's virtual main street. E-commerce has evolved into a multibillion-dollar sector. "In India, e-commerce has changed the way people do business. From US\$ 46.2 billion in 2020, the Indian e-commerce sector is predicted to expand to US\$ 111.40 billion by 2025." The goals of this manuscript are to "examine the current state of E-business in India, to forecast the future of E-business in India, and to investigate the obstacles that E-Business participants face in India. Current study is an intangible investigation that is both investigative and evocative. It is founded by secondary data analysis.

II. MEANING OF E-COMMERCE

"The purchasing and selling of information, products, and services over computer networks is known as e-commerce."

"A new manner of conducting, managing, and executing business transactions using computer and telecommunication networks" is how E-Commerce is defined.

"E-Commerce is a term that refers to any type of business transaction or information exchange that takes place between businesses and government agencies using information and communication technologies."

In simple terms, E-commerce entails taking activities that your organization now performs in person, via the mail, or over the phone and transferring them to a novel location on the Internet. This can include e-commerce, business-to-business (B2B), "intranets and extranets, online advertising, and simply online presences of any kind that are utilized for communication" (e.g. consumer service). "There were 4.66 billion active internet users globally in January 2021, accounting for 59.5 percent of the global population. 92.6 percent (4.32 billion) of this total used mobile devices to access the internet." Despite the enormous number of internet users, "the India's internet penetration rate was estimated to be more than 50% in 2021." In that year, over "half of India's around 1.37 billion people have access to the internet." Reduced internet surfing fees, internet technology advancements such as more bandwidth, faster speeds, and greater dependability have completed e-commerce accessible to a huge number of promising bazaar clients.

III. REVIEW OF LITERATURE

As of June 2012, "India had approximately 137 million internet users. When compared to markets such as the United States and the United Kingdom, e-business access is limited, but it is developing at a far faster rate, with a huge number of new entrants." Cash on delivery is a distinctive feature of India and is a popular mode of payment. "Because India has a thriving cash economy, over 80% of Indian e-commerce is paid for with cash on delivery." India is a hallucination intention for e-business machinists because to its dense metropolitan areas with high literacy rates. "Furthermore, the low cost of personal computers, a growing installed base for Internet use, and an increasingly competitive Internet Service Provider (ISP) market have all aided e-commerce growth in Asia's second most populous nation. "The Online Travel Industry is the largest section of the e-commerce industry, and it is booming because to the Internet-savvy urban population." Here figure 1 showing Digital E-Commerce Cycle.

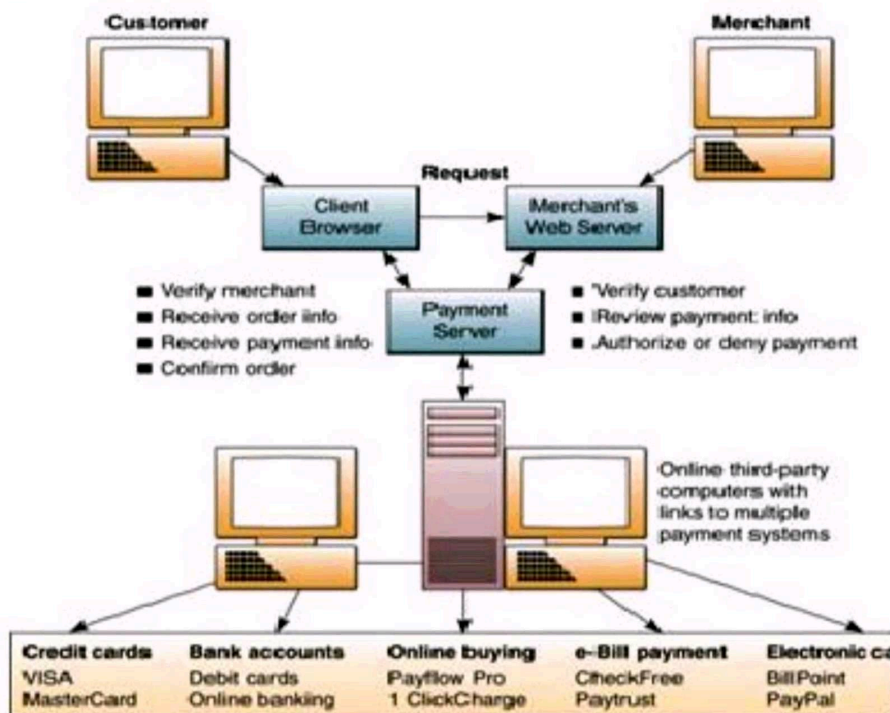


Figure1. Digital E-Commerce Cycle

“E-Tailing (online retail), online classifieds, and Digital Downloads are some of the other categories that fall under the umbrella of the online non-travel industry (still in a blossoming stage).” There are several commercial enterprises in the online travel market, such as Makemytrip, Cleartrip, and Yatra, as well as a major government presence, such as IRCTC,” a successful Indian Railways program. “Jobs, Matrimonial, and Real Estate are the three main categories of internet classified ads.” “According to the Internet and Mobile Association of India, India's e-business market is growing at a 70 percent yearly rate and has increased by more than 500 percent since 2007.” The number of people who want to buy from international merchants is increasing (UNCTAD 2020b). Cross-border internet shoppers raised their percentage of total online consumer from 17% in 2016 to 23% in 2018. In 2018, “cross-border B2C e-commerce sales were \$404 billion, up 7% from 2017.” Two recent investigations have identified this pattern and investigated the causes for it. According to the findings, “customers' processing and responses in cross-border e-commerce platforms follow a sequence from product recognition to platform emotion, and then from platform emotion to behavior” intention. “In conclusion, while the current literature is rich in studies that use behavioral models to identify factors behind e-commerce adoption by individuals and firms, empirical evidence on the relationship between technology adoption measures (e.g., internet users penetration, broadband penetration, secure servers, and so on), financial environment readiness (e.g., credit card and debit card penetration), and various segments of country-level B2C online commerce (e.g., credit card and debit card penetration) and various segments of country-level B2C online” commerce. The purpose of this article is to plug a vacuum in the text by investigative the role of technology adoption indicators, “which reflect the breadth and depth of technology infrastructure for B2C online commerce growth at a country level.”

IV. STATE OF E-COMMERCE IN INDIA

Today E-commerce has become synonymous with Indian society and is a necessary component of our daily lives. Various web pages offer a wide range of goods and services. There are also some who offer a certain result as well as supplementary overhauls. E-Trade with multiple products These Indian e-commerce portals offer a variety of goods and services. To name a few, e-commerce portals sell garments and trimmings for human, health and beauty items, computers “and peripherals, vehicles, software, books and magazines, consumer electronics, appliances, jewellery, audio / video, entertainment, goods, articles gift, real estate, and services.” In a particular field, some Indian agreements/websites exist, such as:

1. Automobiles – These websites allow you to upload and sell your products online, “including four-wheelers and two-wheelers, new and used automobiles. Car research and reviews, online assessment, technical details, vehicle insurance, and vehicle financing” are just a few of the options available.
2. Textiles - In India, the business community is becoming more conscious of the prospects given by e-commerce India's domestic clothing and textile sector produces 5% of the country's GDP, 7% of industry output in value terms, and 12% of the country's export revenues. The Textile Industry has a huge potential for growth. The Government of India is promoting the modernization of the textile industry through the TUFF scheme. From “2020 to 2027, the global technical textile market is expected to increase at a CAGR of 5.1 percent, from \$201.2 billion in 2019 to \$274.1 billion in 2027.”
3. “Stocks and shares, as well as E-trade- In India today, you may even deal in equity” through e-commerce. The services available to registered users are as follows: Online stock and share purchases, stock and share sales, company information, company comparisons, and equity and mutual fund research are all available.
4. Information on new and resale properties is provided by properties and E trade. One can deal directly with the developer and consultant. Insurance firms, NRIs, Packers and Movers services, Housing Finance, architects and interior designers are some of the additional services available.
5. “Lifestyle and E-trade-India, with its affluent history, has a long history of internet commerce, which has been essential in presenting India as a commodity, as well as cheering Indians and foreigners for its diverse culture and beauty.”
6. “Gifts and E-commerce- In recent days, you may have had to think over what to give a loved one, trekking through your favorite store and browsing for hours before making a” purchase. “Collectibles, such as paintings and sculptures, luxury items, such as household curios and rugs, jewellery boxes, leather goods, perfumes, and so on, flowers, toys and games, chocolates, woodwork, and metal-art are among the categories of presents.”
7. E-Commerce and Hobbies- Reading, music, and watching movies have always been “popular pleasures. Business, art, food, Engineering, Children's Stories, Health, Medicine, Biographies, Horror, Home & Garden, and other topics are covered in the books.”
8. Marriage and E-Commerce- There are marriage portals in the realm of e-commerce. On “such websites, one can search for a prospective spouse by region of residence (India or a foreign country), creed, or social group.” Health and Beauty, Fashion and Style, “Information on traditions and ceremonies, legal issues, Wedding Planners, and” Astrological Services are some of the other services available to registered customers.
9. “Employment and E-commerce- Two main portals, www.naukri.com and www.monsterindia.com, are active in contacting clients with suitable positions at the” click of a mouse. Job searchers get the overhaul for open, while companies pay a small fee.

V. FUTURE OF E-COMMERCE IN INDIA

India is quickly developing, and how can we overlook the importance of e commerce in that development? “India's internet user base may still be only 100 million, far fewer than in the United States or the United Kingdom, but it is growing at an alarming rate.” The number of new “entries into this field is increasing on a daily basis, and with growth rates at an all-time high, it's safe to assume that traditional shops will feel compelled to go online in the coming years.” Insights into expanding demand for broadband services, higher living standards, greater product varieties, lower prices, and busy lives highlight this reality more vividly, paving the way for online gift certificate offerings. According to statistics, India's e-commerce business was valued \$2.5 billion in 2009. By 2011, it had risen to \$8.5 billion, indicating a significant increase in the previous two years.

As the government's ambitious effort to provide internet connectivity to 250,000 villages moves forward, this will only gain traction. We may divide E-commerce into three main categories to better grasp this scenario: physical services, physical commodities, and virtual goods. Internet and Mobile Association of India is reached 213 million by December 2013. "This was one of the key conclusions of the I-Cube 2013 report, which was released yesterday by the Internet and Mobile Association of India (IAMAI) and IMRB International." Since June 2012, rural India has seen a 58 percent increase in active Internet users year over year. According to a "new report by the Internet and Mobile Association of India, the number of mobile Internet users in India is expected to double by 2017," passing the 300 million milestones (IAMAI). According to an IAMAI study, India's mobile internet users will exceed 478 million by June 2018. According to the report, Mobile Internet in India 2017, there would be 291 million urban and 187 million rural mobile internet users in India by June 2018. India had 665.31 million internet subscribers as of June 2019. In 2020, India will have a total of 749 million internet users. "Despite the enormous number of internet users, the country's internet penetration rate was estimated to be around 50% in 2020." This means that in 2021, 61 percent of Indian homes would utilise the internet, up from only 21% in 2017. In 2020 and 2021, almost 130 million users came online, with nearly 80 million of them coming online in 2020, and 43 percent of them (about 34 million) coming online as a result of the COVID-19 issue. Local commerce (couponing, yellow pages, classifieds, etc.) is another segment that is slowly gaining traction and has major overlaps with E-commerce. The first category of physical services, "which includes travel ticketing, jobs, matrimonial, and event management websites," is undoubtedly the most important contributor, accounting for 75% of all E-commerce industries! It also offers appealing deals.

The second category of physical items is now attracting a lot of attention, thanks to the buzz generated by new entrepreneurs and storefronts opening every day. Flipkart, Infibeam, Homeshop18, India times, Naaptol, Letsbuy, and others are the market leaders in this category, offering anything from mobile phones to pet food. Virtual goods and gift vouchers in the third "and final category, such as online music, software, movies, games, Taj Hotel gift vouchers, Reebok gift vouchers, Pizza Hut gift vouchers, and so on, have lagged behind in India in comparison to Europe and America, owing to piracy concerns and Indians' social perspectives." However, due to proliferation of mobile devices and services presented through Internet at great rates, the digital downloads portion of the Indian E-commerce business is predicted to develop. Certain distinctive characteristics of the Indian E-commerce industry, such as cash-on-delivery payment and direct imports, which reduce costs significantly, are likely to drive rapid growth in the coming years. According to Forrester, "a renowned global research and advisory firm, India's e-commerce sector is expected to develop at the fastest rate in the Asia-Pacific region between 2012 and 2016," with a CAGR of over 57 percent. India's online users appear to be increasingly.

The e-commerce business as a whole is on the verge of experiencing rapid expansion in the coming years. The online travel business topped the Indian e-commerce market with an 80 percent market share, followed by electronic retail (E-Tailing) with a 6.48 percent market share. "E-commerce and digital downloads are predicted to increase at a quicker rate, while online" travel is expected to persist to dominate the sector. E-Tailing has grown steadily as a result of growing ecommerce initiatives and brand recognition.

In India, the Internet business sector is rapidly expanding. Despite the fact that India's web user base is only 400 million, which is much less than that of urbanized countries around the globe, it is steadily growing. Internet penetration and readily available smart phones are driving the rapid rise of e-commerce in India. Furthermore, favorable demographics and government-led digitalization efforts are propelling India's e-commerce business forward. The retail industry is currently one of India's fastest-growing industries, and it is likely to continue to grow at a rapid pace in the future. From 2015 through 2021, the growth of online sales is shown in Table 1 and Figure 2.

Table 1

Years	E-Commerce Sales in Billion US Dollars (2015-2021)
2015	12.19
2016	16.08
2017*	20.01
2018*	24.94
2019*	31.19
2020*	38.09
2021*	45.17

Source: (Statista, 2017)

“The rise of e-commerce sales from 2015 to 2021 is depicted in Table 1 and Figure 1.” The table and graph clearly illustrate that e-commerce sales are on the rise. In 2015, it was \$12.19 billion dollars, while in 2016; it was \$16.08 billion dollars. In 2021, it is predicted to reach 45.17 billion dollars, about four times the 2015 sales. India now has a top online client base of over 475 million people, or roughly 45 percent of the population, as of July 2019. “Flipkart, Amazon, Myntra, Paytm, and Snapdeal were the largest internet businesses in India in 2016.” In 2019, Amazon outperformed Flipkart and was named India's most profitable online retailer.

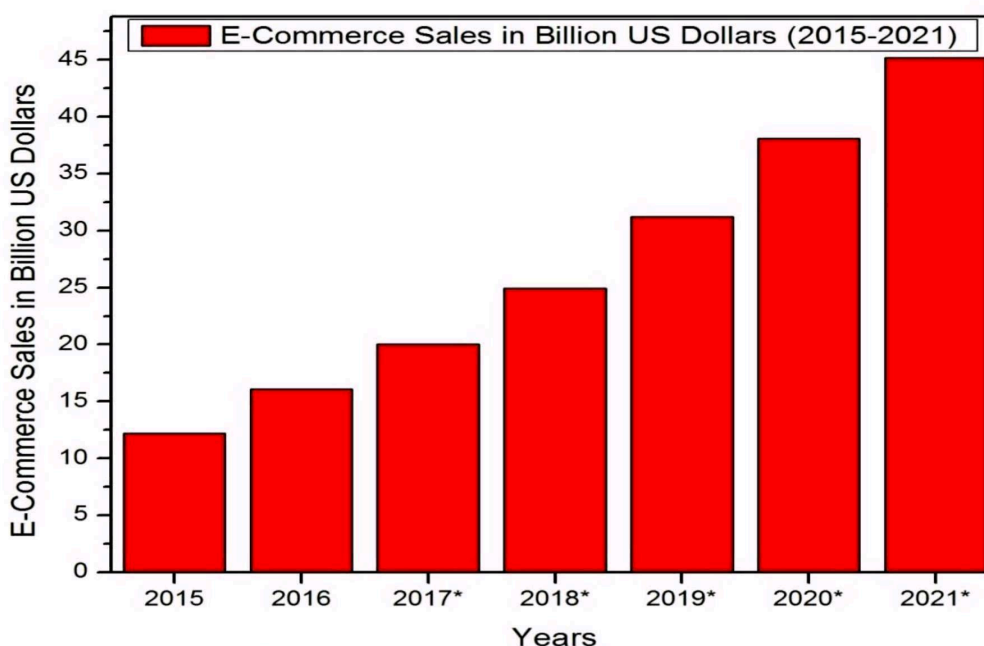


Figure 2. “E-Commerce Sales in Billion US Dollars (2015-2021)”

Today, we are in the era of online commerce, which has evolved from traditional trading. Perhaps the greatest thing that has sent the firm into a tidal wave is the web-based business. It is spawning a brand-new economy with huge promise, and it is fundamentally altering the way businesses are run. We are attempting to study new patterns in online commerce in this article. We will attempt to assess recent e-commerce trends in this article. The following are the details.

VI. E-COMMERCE TRENDS

There are a few E-Commerce trends for 2021 that you should be aware of.

1. The Growth of Online Sales Is Unstoppable
2. Online Shopping Mall
3. “The popularity of mobile shopping is increasing.”

4. The emergence of voice commerce
5. The Use of Mobile Payments is Growing
6. Buyers are influenced by environmental issues.
7. Learn about the fundamentals of ecommerce.
8. Hyper local Shopping Mall
9. Online Shopping via Live Streaming
10. Purchasing in Bulk
11. Delivery without Contact
12. Social Commerce
13. AR Based Shopping-PWA Scan and Go

Truth be told, web-based company will be bigger in 2021, and the world will have blended business ideas of online business stores Moreover, with over 1.92 billion people purchasing items on the internet, a web-based business store will have a lot of potential buyers. This makes it a worthwhile Endeavour for people looking for a steady source of income.

The current internet store must be available 24 hours a day, seven days a week, and through several channels. Client service can be automated to save time, money, and human resources for Web-based businesses. In addition, freeing up personnel from routine enquiries allows them to focus on more complex requests. Individual aides or conversation bots powered by artificial intelligence can surely worry over noting all queries.

VII. CONCLUSION

“In India, the e-commerce market has increased by 34% in the last seven years, from over USD 600 million in 2011-12 to USD 9 billion by 2016 and USD 70 billion by 2020.” According to Forrester, “the Indian e-commerce market would develop at a CAGR of more than 57 percent between 2012 and 2016, making it the fastest in Asia-Pacific.” The rise of Internet usage (which is expanding at a rate of 20% per year) and 3G penetration, as well as the availability of Internet on mobile phones, are driving this expansion. In India, there are approximately 27 million mobile Internet users, with 4 percent of them purchasing things via mobile. India's e-commerce business is predicted to mature at a rapid pace during 2020, because to rising customer awareness about product quality, changing consumer attitudes, and changing buying behaviors. Businesses are being encouraged to innovate and offer a diverse range of products and services online as the number of high-speed internet customers grows. With major advancements in the payment structure in the e-commerce business over the last few years, Indian customers are increasingly turning towards the online realm and abandoning their view that online purchasing is risky. Internet grocery retailers are also joining the country's online arena, with the option of same-day delivery.

In the world of ecommerce, a lot of new things are happening. Individuals and innovation are always evolving, and because ecommerce connects everything, we'll always be looking forward to what's next. Shopping has become easier because to e-commerce. Despite numerous challenges, India's e-commerce industry is quickly expanding. The e-commerce industry is currently one of India's fastest expanding industries. By 2021, ecommerce sales are predicted to be nearly four times higher than they were in 2015. The government should take steps to create an appropriate legislative framework so that barriers to e-commerce growth are kept to a minimal.

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देवानां भद्रा सुमतिर्ऋजूयताम्॥ ऋ० १/८६/२



Impact Factor
5.642



ISSN : 2395-7115
May 2022
Issue 15, Vol. 5(1)

Bohal Shodh Manjusha

AN INTERNATIONAL PEER REVIEWED, REFEREED MULTIDISCIPLINARY
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UGC Valid Journal (The Gazette of India, Extraordinary Part III, Section 4, Dated July 18, 2018)



सम्पादक :

डॉ. नरेश सिहाग एडवोकेट

Publisher :

Gagan Ram Educational & Social Welfare Society (Regd.)

202, Old Housing Board, Bhiwani, Haryana-127021

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Digital Learning : Scope and Challenges

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Abstract :-

The Education system all over the world has gone through a drastic change, with passage of time. The traditional Education system does not fulfill requirements of the present scenario where everything is dynamic. So, a modern way of Education is required to handle such transformation. Thus, to resolve the shortcomings of the traditional Education system, the world is moving towards digital Education which addresses all the issues and challenges of traditional Education. In this research paper, the focus is on the merits, challenges and scope of digital Education. Online Education has brought revolutionary changes in the field of knowledge on a global scale.

Keywords :- Digital Learning, Online Teaching, Education, E-Learning, Students, Teachers.

The Education system all over the world has gone through a drastic change, with passage of time. The traditional Education system doesn't fulfill requirements of the present scenario where everything is dynamic. A huge amount of transformation is taking place in the present scenario. So, a modern way of Education is required to handle such transformation. Thus, to resolve the shortcomings of the traditional Education system, the world is moving towards digital Education which addresses all the issues and challenges of traditional Education. 'Digital Learning' is a learning method based on the use of digital tools which enable learners to learn in a different way. It has been used as a powerful tool during the Pandemic. Although the process of digital learning has already started, the pandemic had hastened it leading to fundamental changes. The Pandemic has impacted Education at all levels in various ways. Institutions and teachers had to adopt an unexpected and forced transition from face to face to remote learning. This transformation required changes in teaching methods. The institutions had to create learning environment for both students and teachers. Due to closures of Educational Institutions (during Covid-19), a paradigm shift can be seen in the field of Education. Online Teaching was a totally different experience for the students and the teachers which they must adopt having no other alternatives available. Teachers and students were compelled to adopt a system for which they were not prepared.

The recent onslaught of Pandemic has shown the importance of out of the box thinking approach. Prior to the Pandemic, only a few institutions had established fully digital modes of teaching and learning. In traditional Education system, we were fully dependent on text books or teachers' speech but now in the present scenario it is easy for the learners to find any text book or other learning materials by using digital Education tools. During the Pandemic, the learners with a fixed mindset found it difficult to adopt and adjust whereas the learners with a growth

mindset quickly adopted to a new learning environment.

Digital learning can be defined as a process where the teachers and learners use computer, laptop, tablet, smartphones as learning tools to improve their knowledge and skills. All over the world, people are going through digitalization and our education system is one of the biggest fields where we can introduce digitalization. Though the traditional Education system has its own importance, Online Education provides more convenience than the former. Academic activities of an institution can be managed easily with the help of digital Education. During the Pandemic, Colleges have understood that online Education is the best way to deliver knowledge and educate students by keeping them at the safety of their homes. Through digital Education, time and money of an institution can be saved. It also saves efficiency of students as well as teachers. Online Teaching is a boon for physically disabled people who can build their career effortlessly.

Through online diploma courses, students can increase their qualifications doing their jobs and enhance their career opportunities. Teaching becomes accessible to students, even in the remote areas sitting at their homes with the help of advanced technology-based teaching tools. They don't need to commute anywhere or live far away from their family to pursue Education. Students are most benefitted by online Education. They can easily view their time table, class assignments, give tests as well as can study from home. It is economical for students as they have to pay only the course fee. There are no other charges like hostel fees, library fees, maintenance fees. Students can prepare their assignments and projects online. They can easily find teaching contents of missed lecture online. Everyone learns at a different pace. In a classroom many students find it difficult to follow the lessons. This is a serious disadvantage of classroom learning. When they learn online, everyone can learn at his own pace. They can access library online.

The time and energy that digital learning saves of students and teachers can be utilized in learning more and more. It saves resources also. Online teaching allows women, deprived people to achieve Education by breaking the barriers both geographically and socially. Online Education has also transformed the way that candidates prepare for competitive exams in India. At a global level, different online communication platforms are available to support digitalize the whole teaching learning process. Various methodologies have proved beneficial during the pandemic.

Through advanced video learning, teachers can interact face to face with students from various cultures. Through E-learning any student can choose the course of his own preference. Many certifications online courses are available in India now. Courses like MBA, MSC, MCA, Retail and Digital Marketing can be taken up online in India. Institutes like IIT Kanpur, IIM Bangalore, NIIT, IGNOU and many more offers online courses in India. Since digital courses require only a laptop, smartphone or tablet with an internet connection, students can easily learn from anywhere at convenient times. This flexibility ensures working people to pursue new courses simultaneously working full time jobs. Course materials are accessible which they can learn during weekends or in free time.

There are several challenges digital Education has to go through that we need to overcome. One of the challenges of digital Education is poor internet connectivity in rural areas. Majority of population across India has still no access to internet. A large population in rural areas is not technology friendly. They don't know how to use technology. A large number of populations is economically weak, unable to afford internet, smartphones,

laptopsetc,tools related to technology required for digital Education.

A major obstacle for the use of digital Education in rural areas is lack of digital knowledge. In rural areas, teachers are less interested in using digital tools for conducting online classes due to so many reasons as has been discussed earlier. So, they prefer traditional teaching method. Language is one of the main barriers for the development of digital Education in India. Digital Education lacks face to face interaction of teachers and students, sharing of ideas cannot be done. Communication skill of students cannot develop. Digital learning is an economical burden on the pockets of the parents who are unable to afford digital tools. The major challenge for students in adopting online learning is technical problem. An engineering course or any other course that needs labs or practical work, cannot be completed online. Also, in courses such as MBA, students miss opportunities for professional networking, international experience and other course components.

Feeling of boredom, sense of isolation, lack of self-organizing capabilities are the main challenges for the students. From the teacher's perspective, Digital Learning is stressful also as they had to adopt new online techniques with little or no training at all. In a diverse Country as India, it creates so many problems in terms of caste, class, regional, linguistic, gender and socioeconomic status. Since the students spend their maximum time in studies on Computer, they also engage themselves in playing online games instead of outdoor games. It leads them towards obesity, heart disease, neck pain, wrong posture, physical as well as mental stress. In spite of reducing the physical distance among people, it has increased the emotional distance among them as they are always busy in their own virtual world.

Despite all these challenges, universities are quite positive about Digital Learning. In a recent survey conducted on institutions of Higher Education in all countries, most universities have admitted that they wish to explore new ways of teaching and enhance online teaching learning environment beyond the crisis. There was a time when Education and learning were confined to colleges and universities.

In the digital era learning is accessible to all. Online Education has brought revolutionary changes in the field of knowledge on a global scale. Online courses certification programs eliminate the geographical and financial barriers in receiving high quality Education. There is a misplaced notion that employees prefer students with traditional college degrees. On the contrary, corporate organizations in India are recognizing the high skill levels of students who have undergone online course certification programs from highly acclaimed educational institutions. MBA through online learning can provide flexibility to the students. Access to innovative technologies and global opportunities help to build mastery over business technology. The online Education scenario in India has tremendous potential and opportunities for the youths. Online courses are being accepted by mainstream employers. As the technology has taken a greater turn in recognition, E-learning method of teaching holds more importance in this age. E learning provides a flexible time schedule and growth in every aspect and exclusive job opportunities on the forefront.

To conclude we can say that a paradigm shift has occurred in the field of Education. Online teaching has ensured its continuance even after the pandemic. Today we don't know what will be the future of higher Education through digital learning at global level. But it is evident that in the present scenario, institutions should develop a

combination of face to face and online learning to meet students' expectations in the present digital environment. Online Education has proved the quality of Education as it has become easy not only for students who can learn as per their convenience but also for the teachers to teach creatively without needing a classroom interaction. But we can hope that this transformation will bring a positive revolution in the field of Education due to its own benefits. Need of the time is that the institutions must improve their technological infrastructure. They will have to fulfill some basic requirements for digital learning. It requires financial investment for real digital transformation. The digital learning leads to ethical questions related to online security and rights to data privacy. Institutions must tackle these issues by developing codes of conduct to ensure a safe process for Digital Learning. However, there is tremendous opportunity for growth and this is the perfect time to tap into it.

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Nature and Nurture Basis of Intelligence of Twins from 3-6 Years: An Intervention Study

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ABSTRACT

Intelligence is considered as most valuable phenotypic psychological and behavioral construct having both genetic and environmental substrates. The classical twin study provided robust information regarding the contribution of nature and nurture propensities on variations of intelligence of twins. The twin investigation has been planned with the objective to assess the influence of nature and nurture on the intelligence of twins. A twin study was conducted in two districts, namely, Bhiwani and Hisar of Haryana state. A sample of 150 pairs of twins in the age groups of 3-6 years was attained from 55 villages of Bhiwani district and Hisar district. The intelligence of twins was assessed with the help of Stanford Binet Intelligence Scale [1], whereas the home environment of twins was measured by using the Home Observation for Measurement of the Environment (HOME) [2] and preschool environment of twin's measure with the help of Early Childhood Environment Rating Scale [3]. The findings of heritability estimates revealed that the heritability estimates for intelligence ranging from 55-74% from 3-6 years in the Bhiwani district, whereas in the Hisar district, the heritability estimates for intelligence were 52-68 percent during 3-6 years. Analysis of variance results revealed that a significant difference in mean values was observed at ages 3-4 years among the gender of twins but no significant difference on ages 4-5 years and 5-6 years. The conclusion of heritability estimates showed that the influence of nature (genetic) on the intelligence level of twins was more than that nurture (environment). The contribution of nature on the intelligence level of twins increases with the increase in the age of twins and the influence of nurture decreases with the increase in the age of twins. The preschool environment of twins was also significantly associated with the intellectual of twins in both the Bhiwani and Hisar districts. The intervention programme also enhanced the intelligence of twins in the age group 3-6 years in both the Bhiwani and Hisar districts.

Keywords: GCMS, *Loranthus longiflorus*, Plant parasites, phytochemical constituents

INTRODUCTION

Human biology and behavioral research primarily focused on the contributions of nature, including all the genes and the inherited characteristics that individuals are born with. Secondly nurture, means all the environmental variables that have influences on life after birth. However, nurture is the integration of external forces acting upon genetic material across the lifespan [4]. The intelligence of a person involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience [5]. Intelligence is important scientifically and socially. Intelligence

is one of the best predictors of key outcomes such as education and occupational status. People with higher intelligence tend to have better mental and physical health and fewer illnesses throughout their life course, and longer live [6]. Heritability is a statistic that describes the amount of variance in a trait that can be attributed to genetic differences in a given population [7]. It is not a constant value and varies for a trait depending on when in the developmental process like neonate, child, and adult [8]. Twin study design estimates the relative contribution of heritability in shaping the intelligence of twins. Intelligence differs from individual to individual similar to any other human trait.

ARTICLE HISTORY:

Received : 1 June 2022

Revised : 21 August 2022

Accepted : 23 October 2022

Available Online : 24 October 2022

DOI:

<https://doi.org/10.5281/zenodo.7454884>

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The twin study designs determine causal interrelationships between brain structure and function, and neuropsychological performance [9]. The manifestation of psychological traits, not only rely on genetic and environmental variances but also the interaction between genetic endowment and environmental circumstances [10]. Genetic studies have shown that intellectual abilities are heritable, and highly polygenic, and that shared genetic factors account for part of their observed co-variation [11]. Genetic influences are an important component of variation for almost all human traits. The intellectual abilities are heritable, genetic differences between individuals account for between approximately 20 per cent and 70 per cent of the variance in intellectual abilities [12]. The heritability of intelligence increases linearly from early childhood to young adulthood [13]. The genetic and environmental influences on intelligence are not static, rather they change and shift during development [14]. Both nature and nurture contributed to the development of intelligence throughout the first 16 years of life, whereas considerable genetic influences at each age and modest shared environmental influences were observed within and across ages [15]. The longitudinal twin design can answer a broad range of questions on the interplay between adverse genetic and environmental impacts and intellectual outcomes [16].

Furthermore, many of the same genetic influences that give rise to individual differences in general intelligence also impact academic achievement, helping to explain their strong relationship [17]. Both nature and nurture contribute to overall stability in intelligence to varying extents, and their relative contributions may change with age. The stability of individual differences in intellectual abilities over time results from consistent exposure to the same environments over time. The stability of intelligence results from the stability of social, educational, and economic contexts [18].

Most behavioural genetic studies, including comparing monozygotic and dizygotic twins, are often used to evaluate the extent to which variations in human abilities like intelligence are the result of the contribution of genetic material and environmental factors. [19] Suggested that twin studies provide a framework to estimate heritable contributions between pairs of

monozygotic twins, who share 100 per cent of their genetic material, and dizygotic twins, who on average share 50 per cent of their segregating gene.

Early childhood is a very important time for brain development, which comprises cognitive, physical, socio-emotional and language development. The early childhood period is most important for intellectual development, later educational performance as well as for lifelong learning and well-being [20]. Early childhood is as a period in development in which the flow of gene-environment transactions is likely to begin. The interventions during early childhood development are designed to promote intellectual development that is implemented before the child was eight years of age. The differences in early intellectual performance have long-lasting consequences for later intellectual performance [21].

MATERIALS AND METHODS

Study Design: The twin investigation was conducted using the descriptive and experimental research design. The objective of the twin study design was to analyze the genetic and environmental impact on the intelligence level of twins. To conduct this study mainly two districts were selected randomly namely: Bhiwani (N = 174) and Hisar (N = 126) of Haryana state. To assess the intelligence of twins, total of 150 pairs of twins were selected from two districts with the age group 3-to-6 years. Total 55 villages of Bhiwani and Hisar district were selected to conduct a twin investigation.

Data collection: For data collection, various methods of data collection were used namely, assessment, interview, observation, and questionnaire method from the twins, parents of twins, and teachers of twins to gather relevant information. The snow ball sampling was also used to collect the twins in the required age group of twins.

Tool: Stanford Binet Intelligence Scale [1], Home Observation for Measurement of the Environment (HOME) [2], and Early Childhood Environment Rating Scale [3] were used to measure intelligence level, home environment, the preschool environment of twins respectively. The intervention programme was self-developed with

various activities as per the test of the Stanford Binet Intelligence scale and implemented in home-based settings to improve the intelligence level of twins.

Statistical Analysis: The software SPSS (Statistical Package for the Social Sciences) was used to analyze the data and draw inferences. Mean, Standard Deviation, z-test, ANOVA (Analysis of Variance), Paired t-test, Chi-square test and heritable estimate were used to meet the objectives of the twin investigation. Heritability estimates (h^2) were calculated by the following formula given by [22], $h^2 = 2(RMz - RDz)$ Where, h^2 is the heritability estimate, RMz is the correlation coefficient for monozygotic twin pairs and RDz is the correlation coefficient for dizygotic twins.

Research findings

The results obtained from the present twin investigation have been summarized under the following heads:

Comparison of intelligence level of twins from 3-6 years in two districts

As data presented in Table 1 there were highly significant (0.01%) differences in mean values observed on age 5-6 years ($Z=2.72^{**}$) for the intellectual level of twins. The significant (0.05%) difference was found between twins of the Bhiwani and Hisar districts on ages 3-4 years ($Z=2.08^*$), but no significant difference was found in the remaining age namely, 4-5 years ($Z=1.12$) over districts. The intellectual level of twins was more in the Bhiwani district as compared to the Hisar district.

Table 1: Comparison of intelligence level of twins from 3-6 years in two districts (N=300)

Age (in years)	Bhiwani (n=174) Mean±SD	Hisar (n=126) Mean±SD	Z Value
3-4	(n=56)	(n=44)	2.08*
	69.48±21.66	62.86±23.31	
4-5	(n=58)	(n=42)	1.12
	63.31±20.25	66.26±16.66	
5-6	(n=60)	(n=40)	2.72**
	65.32±19.99	57.37±21.29	

**Significant at 0.01% level of

significance;*Significant at 0.05% level of significance

Analysis of variance for various parameters among gender of twins

ANOVA was used for various parameters namely, 3-4 years, 4-5 years and 5-6 years of twins revealed that there was significant difference in age 3-4 years ($F=4.95^*$) among gender of twins but no significant differences were observed on remaining age of twins namely, 4-5 years ($F=0.68$) and 5-6 years ($F= 0.05$) among gender of twins.

Table 2: Analysis of variance for various parameters among gender of twins (N=300)

Age (in years)	Source of variations	Sum of Square	df	Mean of Square	F Value
3-4	Between Groups	2400.831	1	2400.831	4.95*
	Within Groups	47491.919	98	484.611	
	Total	49892.750	99		
4-5	Between Groups	241.114	1	241.114	0.68
	Within Groups	34717.636	98	354.262	
	Total	34958.750	99		
5-6	Between Groups	23.858	1	23.858	0.05
	Within Groups	42758.182	98	436.308	
	Total	42782.040	99		

*Significant at 5% level of significance

Heritability estimates for intelligence level of twins with age in Bhiwani and Hisar district

As data presented in Table 3 revealed that the heritability estimates for the intellectual level of twins with the age group 3-4 years in the Bhiwani district was 55.00 per cent. The interpretation of data indicated that the remaining 45.00 per cent variance in intellectual level in the Bhiwani district was attributed to environmental factors. Further, the data in this table indicated that the heritability estimates for the intellectual level of twins in the Hisar district was (52.00 %) and the remaining 48.00 per cent variance in intellectual level was due to environmental circumstances in the group age 3-4 years. The findings on heritability estimates showed that the genetic influence on the intelligence of twins in the Bhiwani district was

more than the environment. Similar results were obtained in the Hisar district. Further, this table also revealed that the heritability estimate for intelligence was 61.00 per cent in the age group 4-5 years which indicated that 39.00 per cent variance in the intelligence of twins was attributed to environmental circumstances in the Bhiwani district. In the Hisar district, the heritability estimates for the intelligence of twins was 59.00 per cent in the age group 4-5 years and remaining 41.00 per cent variance in the intelligence of twins was due to environmental situations. Further, this tables portrait that heritability estimates for the intelligence level of twins was 74.00 per cent in the age group 5-6 years in Bhiwani district. The interpretation of data indicated that the remaining 26.00 per cent variance in the intelligence of twins in the same age group was attributed to environmental factors, while in Hisar district the heritability estimate was 68.00 per cent in the same age group. The interpretation of data indicated that the remaining 32.00 per cent influence of environmental factors on the intelligence of twins in the same age group. On the conclusion of heritability estimates showed that the genetic influence on intelligence of twins as increasing scores on heritability estimates with increasing age of twins.

Table 3: Heritability estimates for intelligence level of twins with age in Bhiwani and Hisar district

District	Heritability (%)		
	3-4 years	4-5 years	5-6 years
Bhiwani	55.00	61.00	74.00
Hisar	52.00	59.00	68.00

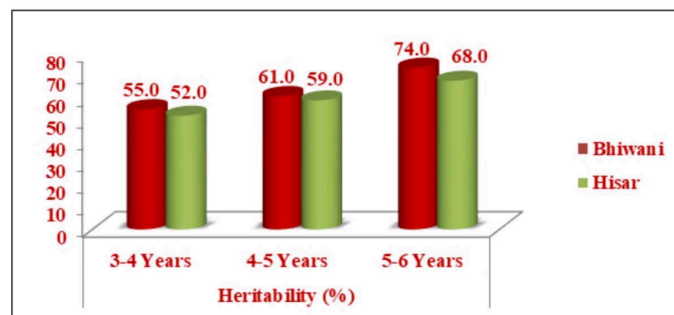


Fig. 3.1: Heritability estimates for intelligence level of twins with age in Bhiwani and Hisar district

Association of intelligence of twins with the preschool environment

As data presented in Table 4 revealed that there

was an association between the intelligence of twins and with preschool environment ($\chi^2=15.95^*$) in Bhiwani district. Further the data in this table also indicated that preschool environment ($\chi^2=10.69^*$) was associated with the intelligence of twins in Hisar district.

Table 4: Association of intelligence of twins with preschool environment

Preschool environment	Intelligence				
	Bhiwani				χ^2
	Low	Moderate	High	Total	
Low	29 (16.67)	24 (13.79)	13 (7.47)	66 (37.93)	15.95*
Moderate	26 (14.94)	35 (20.11)	13 (7.47)	74 (42.53)	
High	5 (2.87)	13 (7.47)	16 (9.20)	34 (19.54)	
Total	60 (34.48)	72 (41.38)	42 (24.14)	174 (100.00)	
Hisar					
Low	8 (6.35)	7 (5.56)	5 (3.97)	20 (15.87)	10.69*
Moderate	38 (30.16)	27 (21.43)	11 (8.73)	76 (60.32)	
High	5 (3.97)	16 (12.70)	9 (7.14)	30 (23.81)	
Total	51 (40.48)	50 (39.68)	25 (19.84)	126 (100.00)	

*Significant at 5% level of significance; Figures in parentheses denote percentages

Impact of intervention on intelligence of twins during 3-6 years

As data presented in Table 5 revealed that the highly significant differences in mean values were found on all ages of twins namely, 3-4 years ($t=12.23^{**}$), 4-5 years ($t=15.77^{**}$) and 5-6 years ($t=5.67^{**}$). Further the data in this table also showed that the highest increase in mean percentage was observed on age 3-4 years (53.91%) followed by 4-5 years (50.83%) and 5-6 years (27.45%).

Table 5: Impact of intervention on intelligence of twins during 3-6 years (N=90)

Age (in years)	Pre-test (n=90) Mean±SD	Post-test (n=90) Mean±SD	Increase in mean (%)	t Value
3-4 Years				
4-5 Years				
5-6 Years				

continued...

3-4	(n=30)	(n=30)	25.77	12.23**
	47.80±12.95	73.57±10.88	(53.91)	
4-5	(n=30)	(n=30)	22.94	15.77**
	45.13±7.99	68.07±8.71	(50.83)	
5-6	(n=30)	(n=30)	11.07	5.67**
	40.33±9.61	51.40±15.32	(27.45)	

**Significant at 0.01% level of significance; Figures in parentheses denote percentages

DISCUSSION

The mean score on ages, namely, 3-4 years, 4-5 years and 5-6 years for intelligence level of twins at over the Bhiwani and Hisar district as the difference was highly significant on age 5-6 years of twins, while the difference was significant on age 3-4 years but no significant difference was found on remaining age 4-5 years of twins in both Bhiwani and Hisar district. The results agree with [23] research found that twins regularly score nearly a standard deviation below the mean score on standardized measures of intellectual development and rapid gain in mean score in early childhood years. The findings were also in line with [24] in which the researcher assessed the contribution of genetic and environmental influence in the intelligence of twins and estimated that intelligence test scores are life-long stable traits. The present study results were in congruence with another twin study of [25] conducted twin study and revealed that the variability in intellectual abilities among different individuals is due to the interaction of genetic and environmental factors.

The results analysis of variance indicated that the significant difference was observed on age 3-4 years of twins among gender of twins but no significant differences were observed on the remaining ages of twins, namely, 4-5 years and 5-6 years. The results of the present study congruent with similar study of [26] concluded that gender differences are small to negligible in most intellectual traits. Another study revealed that some measures of intelligence show differences between males and females [27]. [28] found that males and females are quite similar in most-but not all-psychological traits.

The findings on heritability estimates showed that the impact of genetics on the intelligence of twins

was more in the age group 5-6 years followed by 4-5 years and 3-4 years [29]. Supported that heritability estimates for intelligence were moderate in early childhood and increased across development. The similar study provided supportive evidence that genetic influences on intelligence are highly stable and heritability estimates indicated that the genetic contribution on the intelligence of twins increases with age. Moreover, concluded that the impact of genes on intelligence overlaps largely in early childhood. [31] Eemphasized that the heritability of intelligence varies from 22 per cent to 80 per cent from early childhood to adulthood. The twin study also concluded that the substantial effect of shared environment is more during infancy, but not later in life. [32] Found that the contribution of genetics for variation in the intellectual level of twins was 50 per cent to 70 per cent. The study also indicated that the genetic influence on intelligence increase from infancy to adulthood. Genes account for intelligence maximized in a high advantaged socio-economic context. Further, twin classic study also revealed that the impact of genetics increases with the increase in age and increase environmental opportunity.

The preschool environment was associated with the intelligence of twins in over Bhiwani district and Hisar district. The present study related to another study [33] supported that the intellectual skills of twins are influenced by the preschool environment of twins. They also suggested the relative influence of genetic, shared family environment, and non-shared environment on individual differences at and across different stages of development. [34] Revealed substantial environmental influences on intelligence across the development. [35] Reported that monozygotic twins control for genes, gender, age, and aspects of the home and school environment shared by twins and observed that any difference between identical twins in academic outcomes can be attributed to the unique environment experienced by each twin.

The results of the present study highlighted that the intervention packages highly significantly improved the intelligence of twins in all ages of twins, namely, 3-4 years, 4-5 years and 5-6 years in both Bhiwani and Hisar districts. Another study also conducted an intervention study and revealed that intervention boosts the

intellectual level of twins [36]. [37] Revealed that individual differences in intelligence can be easily overcome with effective interventions that improve the intelligence of children by focusing on the strength and weaknesses of children. [5] revealed that improvement in the intelligence of twins produced by the most effective early childhood interventions and also suggested that early childhood interventions had remarkable effects on academic achievement and life outcomes. Another study provided similar results to present intervention study [38] revealed that the educational intervention provided during preschool years tends to boost the development of intelligences in the early years of life. Moreover, interventions have long-lasting influence on young children with respect to academic achievement, economic productivity and higher education.

CONCLUSION

Genes account for approximately 55-70% of variations in the intelligence level of twins. The intelligence of twins was more influenced by genetic factors than the home environment of twins over districts. Genetic contribution on the intelligence of twins increases as an increase in age of twins. The significant difference in the intelligence of twins among gender of twins was observed on age 3-4 years but not in 4-6 years of twins. The robust and consistently sized association between intelligence level and preschool environment boosted the intelligence level of twins in early years and that significantly positively affect the later life of children. Intervention programme in the early years of life significantly improves the intelligence level of twins.

Acknowledgment

I express my deep sense of gratitude to my speculative prudent and dignified revered guide Dr. Bimla Dhanda, Professor cum Dean and other advisory committee members, I.C college of Home Science, Chaudhary Charan Singh Haryana Agricultural University, Hisar for her valuable and gifted guidance, keen interest, unflinching source of inspiration, critical supervision and painstaking efforts during the entire course of study.

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Genetic and Environmental Diversity in Verbal and Non-verbal Intelligence of Twins from 3–5 years

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ABSTRACT

Genes accounted for 50–66% of the verbal and nonverbal intelligence of twins. Intelligence is considered the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experiences. The objective of the present twin study was to assess the diversity of genetic material and environmental factors in the verbal and non-verbal intelligence of twins. A twin study was conducted in two districts, namely, Bhirwani and Hisar of Haryana state. A sample of 100 pairs of twins in the age groups of 3–5 years was attained in villages of Bhirwani district and Hisar district. The intelligence of twins was assessed with help of the Stanford Binet Intelligence Scale [1], whereas the home environment of twins was assessed by using the Home Observation for Measurement of the Environment (HOME) [2]. Results of the present twin study indicated that a highly significant difference in mean values was observed in age of twins for verbal and non-verbal intelligence of twins with the age group 4–5 years of twins of Bhirwani and Hisar district on the basis of the standard test. The findings on heritability estimates showed that the influence of genetics on verbal and non-verbal intelligence level of twins was more than the environment in both districts. The non-verbal intelligence of twins was more influenced by genetic factors as compared to verbal intelligence. The home environment of twins especially learning stimulation in home settings improved the intelligence of twins in early years of life.

Keywords- Verbal intelligence, Non-verbal intelligence, Genetic, Environment and Twins

INTRODUCTION

The diversity of individual differences in intelligence of twins due to genetic and environmental factors has been one the major concern of behaviour genetics and neuroscience since the very beginning of the field. Intelligence is one of the most reliable psychological trait and characteristics of human behaviour. Individual differences in intelligence remain stable across the life span [3]. [4] revealed that intellectual abilities are one of the strongest predictors of lifelong success, health, longevity, educational outcomes, psychological wellbeing, income, and employment status. Intelligence is a strongly heritable psychological trait, and the integration of neuropsychology and genetics has become increasingly important as rapid advances in gene discoveries [5]. The influence of genetic on intelligence and other psychological traits was assessed by using heritability estimates. Heritability is a statistics that describes the amount of variance in a trait that can be attributed to genetic differences in a given population [6]. It is not a constant value and is varies for a trait depending on developmental processes like neonate, child and adult. Twin study design estimates the relative contribution of heritability in shaping the intelligence of twins [7]. The contribution of genetic predisposition increases in course of the development of intelligence [8]. Both genetic heritage and environmental circumstances are responsible for varies in the intelligence of twins starting from the prenatal period [9]. Genetic studies have shown that intellectual abilities are heritable, and highly polygenic, and that shared genetic factors account for part of their observed co-variation [10]. Genetic influences are an important component of variation for almost all human traits. The research is well agreed that intelligence is one of the most complex

ARTICLE HISTORY

Received: 14 September 2022
Revised: 22 December 2022
Accepted: 14 March 2023
Available Online: 09 April 2023

DOI:
<https://doi.org/10.5281/zenodo.7887684>

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behavioural trait, is highly polygenic [9]. The numbers of genes are responsible for affecting the different behavioural traits. [11] stated that specific intellectual abilities are determined by circumscribed sets of function-specific genes but that general intelligence is likely be affected by nearly any gene, anywhere on the genome. The genetic material is the strong driving force behind the stability in verbal and non-verbal intelligence of twins. The heritability of verbal and non-verbal intelligence increases with age, ranging from 48 per-cent for verbal intelligence to 64 per-cent for non-verbal intelligence at age 5 [12]. A longitudinal study

showed that the stability in verbal and non-verbal intelligence of twins was mainly due to genetic endowment during childhood. The variations in verbal and non-verbal intelligence of twins were accounted by heritability estimates which increase across the lifespan [13]. [14] conducted a longitudinal twin study to assess the genetic and environmental contributions to the temporal stability of verbal, non-verbal and general intelligence across a developmental period spanning childhood and adolescence and revealed that the high stability of additive genetic factors for verbal, non-verbal and general intelligence of twins and stability of environment was moderate. Early childhood is considered a valuable time for brain development by many researchers, which comprises cognitive, physical, socio-emotional and language development. Early childhood period is most important for intellectual development, later educational performance as well as for lifelong learning and well-being [15]. Early childhood is as a period in development in which the flow of gene-environment transactions is likely to begin. The differences in early intellectual performance have long-lasting consequences for later intellectual performance [16]. The shared family environment should possibly be the driving force behind an experiential influence on intellectual abilities, for the reason that shared family environmental influences are greatly correlated across different ages and their effects can accumulate across developmental patterns, while individual-specific environmental circumstances are likely to be more age-specific [17].

MATERIALS AND METHODS

Study Design: The descriptive and experimental research design was used to conduct a twin investigation. The twin research has been planned with the aim to analyze the influence of genetics and environment on verbal and non-verbal intelligence of twins. To conduct this study, mainly two districts were selected randomly namely, Bhiwani and Hisar of Haryana state. To assess the verbal and non-verbal intelligence of twins, total 100 pairs of twins were selected from two districts with the age group 3-to-5 years.

Data collection: For data collection, various methods of data collection were used namely, assessment, interview, observation, and questionnaire methods from the twins and parents of twins to gather relevant information. The snow ball sampling was also used to collect the twins in the required age group of twins.

Tool: Stanford Binet Intelligence Scale [1] was used to assess verbal and non-verbal intelligence of twins. The home environment of twins was measured through Home Observation for Measurement of the Environment (HOME) [2].

Statistical Analysis: The software SPSS (Statistical Package for the Social Sciences) was used to analyze the data and to draw inferences. Mean, Standard Deviation, z-test, Chi-square test, and Heritable estimate were used to meet the objectives of the twin investigation. Heritability estimates (h^2) were calculated by the following formula given by [18], $h^2 = 2(RMz - RDz)$ Where, h^2 is the heritability estimate, RMz is the correlation coefficient for monozygotic twin pairs and RDz is the correlation coefficient for dizygotic twins.

Research findings

The results obtained from the present twin investigation have been summarized under the following heads:

Comparison of verbal and non-verbal intelligence of twins from 3-5 years in two districts

As data presented in Table 1 there was a highly significant (0.01%) difference in mean values was observed at age 4-5 years ($Z=3.16^{**}$) for verbal intellectual twins, but no significant difference in mean values was found on age 3-4 years ($Z=1.84$) in both Bhiwani and Hisar district, while for non-verbal intelligence, the highly significant in mean values was observed at age 4-5 years ($Z=2.58^{**}$), but no significant difference was observed for remaining age at 3-4 years ($Z=1.60$) over the districts. The verbal and non-verbal intelligence of twins was more in Bhiwani district as compared to Hisar district.

Table 1: Comparison of verbal and non-verbal intelligence level of twins from 3-5 years in two districts

Age (in years)	Verbal intelligence		
	Bhiwani	Hisar	Z value
3-4	48.87±17.64	44.14±18.71	1.84
4-5	35.31±10.92	39.86±9.38	3.16**
Non-verbal intelligence			
3-4	20.16±5.05	18.95±5.65	1.60
4-5	22.03±11.42	25.69±8.43	2.58**

Heritability estimates for verbal and non-verbal intelligence of twins with the age group 3-4 years in both districts

The data in Table 2 showed that the heritability estimate for verbal intelligence of twins was 54.00 per cent in Bhiwani district and 50.00 per cent in Hisar district in the age group 3-4 years. The interpretation of data clearly revealed that the remaining 45.00 per cent and 50.00 per-cent variance in the intelligence of twins was attributed to environmental factors in Bhiwani and Hisar districts respectively. Further, this table also revealed that the heritability estimates for non-verbal intelligence of twins in the age group 3-4 years was 56.00 per cent in Bhiwani district. The interpretation of data indicated that the remaining 44.00 per-cent variance in the intelligence of twins was due to environmental circumstances in Bhiwani district. In Hisar district, the heritability estimate for the non-verbal intelligence of twins was 52.00 per-cent and the remaining 48.00 per-cent variance in non-verbal intelligence of twins was attributed to environmental circumstances. The findings on heritability estimates showed that the contribution of genetics was more on the non-verbal intelligence of twins than verbal intelligence in both Bhiwani and Hisar district.

Table 2: Heritability estimates for verbal and non-verbal intelligence of twins with the age group 3-4 years in both districts

District	Verbal Intelligence (%)	Non-verbal Intelligence (%)
Bhiwani	54.00	56.00
Hisar	50.00	52.00

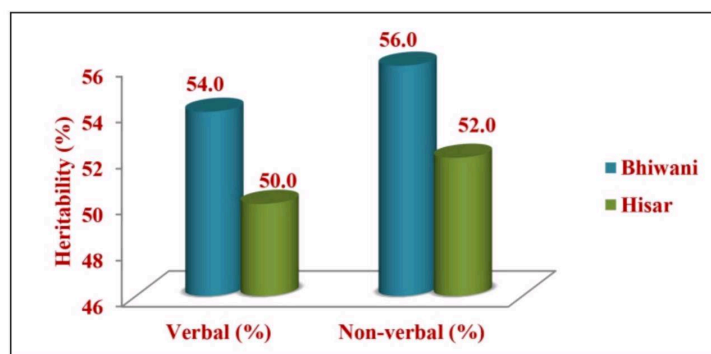


Fig. 1: Heritability estimates for verbal and non-verbal intelligence of twins with the age group 3-4 years in both districts

Heritability estimates for verbal and non-verbal intelligence of twins with the age group 4-5 years in both districts

As data presented in Table 3 indicated that the heritability estimates for verbal intelligence of twins in the age group 4-5 years were 59.00 per cent in Bhiwani district. The interpretation of data indicated that the remaining 41.00 per-cent variation in the verbal intelligence of twins was due to environmental factors. Further, this table also revealed that the heritability estimate for the verbal intelligence of twins was 54.00 per-cent and the remaining 46.00 per cent variations in verbal intelligence of twins was attributed to environmental factors in Hisar district. The heritability estimates for non-verbal intelligence was 66.00 per-cent and 60.00 per-cent in Bhiwani and Hisar district respectively. The interpretation of data clearly indicated that the remaining 34.00 per-cent and 40.00 per-cent variations in non-verbal intelligence of twins were due to environmental circumstances in Bhiwani and Hisar district respectively. The findings on heritability estimates revealed that the influence of genetics was more on the non-verbal intelligence of twins as compared to the verbal intelligence of twins in both Bhiwani and Hisar district during 4-5 years.

Table 3: Heritability estimates for verbal and non-verbal intelligence of twins with the age group 4-5 years in both districts

District	Verbal (%)	Non-verbal (%)
Bhiwani	59.00	66.00
Hisar	54.00	60.00

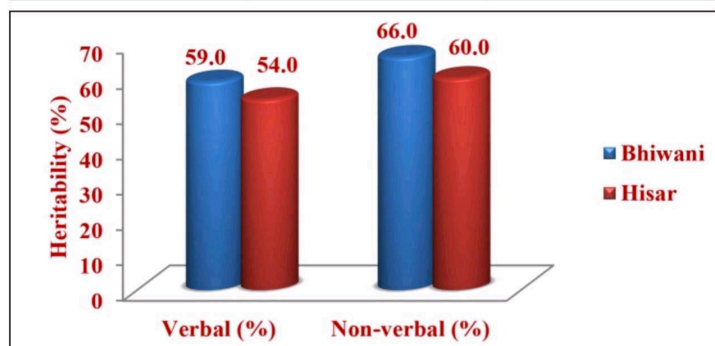


Fig.2: Heritability estimates for verbal and non-verbal intelligence of twins with the age group 4-5 years in both districts

Correlation co-efficient among monozygotic and dizygotic twins for verbal intelligence in both districts

The data in Table 4 revealed the correlation coefficient of monozygotic and dizygotic twins for verbal intelligence of twins from 3-4 years. The data clearly indicated that the correlation coefficient(r) of monozygotic twins for verbal intelligence in the age group 3-4 years was 0.36 in Bhiwani district and 0.46 in Hisar district. Further, the data in this table portrait regarding the dizygotic twins, the correlation coefficient(r) was 0.09 and 0.21 in Bhiwani and Hisar years respectively for the verbal intelligence of twins during 3-4 years. Further, this table also indicated that the correlation coefficient of monozygotic and dizygotic twins for verbal intelligence of twins from 4-5 years, the correlation coefficient of monozygotic twins was (r=0.89) in Bhiwani district and (r=0.51) in Hisar district, while for dizygotic twins, correlation coefficient was 0.59 and 0.24 in Bhiwani and Hisar district respectively. The result provided robust evidence that the monozygotic twins were more correlated with each other than the dizygotic twins for verbal intelligence.

Table 4: Correlation co-efficient among monozygotic and dizygotic twins for verbal intelligence in both districts

District	Correlation co -efficient (r) for verbal intelligence	
	Monozygotic twins	Dizygotic twins
3-4 years		
Bhiwani	0.36	0.09
Hisar	0.46	0.21
4-5 years		
Bhiwani	0.89	0.59
Hisar	0.51	0.24

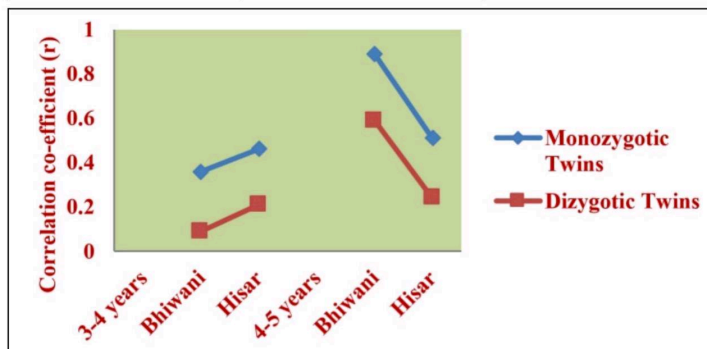


Fig.3: Correlation co-efficient among monozygotic and dizygotic twins for verbal intelligence in both districts

Correlation co-efficient among monozygotic and dizygotic twins for non-verbal intelligence in both districts

The data in Table 5 revealed the correlation coefficient of monozygotic and dizygotic twins for non-verbal intelligence of twins from 3-4 years. The data clearly indicated that the correlation coefficient(r) of monozygotic twins for non-verbal intelligence in age group 3-4 years was 0.44 in Bhiwani district and 0.47 in Hisar district. Further the data in this table portrait regarding the dizygotic twins, the correlation coefficient(r) was 0.15 and 0.20 in Bhiwani and Hisar years respectively for non- verbal intelligence of twins during 3-4 years. Further, this table also indicated that the correlation coefficient of monozygotic and dizygotic twins for non-verbal intelligence of twins from 4-5 years, the correlation coefficient of monozygotic twins was (r=0.86) in Bhiwani district and (r=0.41) in Hisar district, while for dizygotic twins, correlation coefficient was 0.53 and 0.11 in Bhiwani and Hisar district respectively. The result provided robust evidence that the monozygotic twins were more correlated with each other than the dizygotic twins for non-verbal intelligence.

Table 5: Correlation co-efficient among monozygotic and dizygotic twins for non-verbal intelligence in both districts

District	Correlation co -efficient (r) for non -verbal intelligence	
	Monozygotic twins	Dizygotic twins
3-4 years		
Bhiwani	0.44	0.15
Hisar	0.47	0.20
4-5 years		
Bhiwani	0.86	0.53
Hisar	0.41	0.11

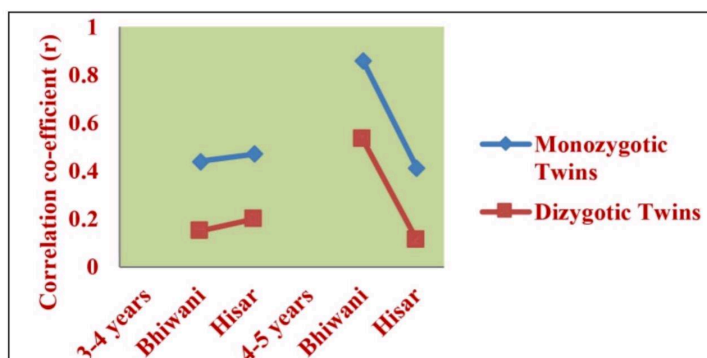


Fig.4: Correlation co-efficient among monozygotic and dizygotic twins for non-verbal intelligence in both districts

Association of intelligence of twins with home environment in Bhiwani district

The data in Table 6 indicated that the intelligence of twins was associated with dimensions of home environment, namely, learning stimulation ($\chi^2=32.44^*$), but no association was found between intelligence and one dimension of the home environment, namely, warmth and affection ($\chi^2=1.00$) at Bhiwani district.

Table 6: Association of intelligence of twins with home environment in Bhiwani district

Home environment	Intelligence				
	Low	Moderate	High	Total	2
Learning stimulation					
Below average	55(31.61)	57(32.76)	18(10.34)	130(74.71)	32.44*
Above average	5(2.87)	15(8.62)	24(13.79)	44(25.29)	
Total	60(34.48)	72(41.38)	42(24.14)	174(100.00)	
Warmth and affection					
Below average	5(2.87)	10(5.75)	5(2.87)	20(11.49)	1.00
Above average	55(31.61)	62(35.63)	37(21.26)	154(88.51)	
Total	60(34.48)	72(41.38)	42(24.14)	174(100.00)	

Association of intelligence of twins with home environment in Hisar district

The data in Table 7 revealed that the intelligence of twins was associated with the dimension of home environment, namely, learning stimulation ($\chi^2=8.11^*$), but no association was found between intelligence and one dimension of home environment, namely, warmth and affection ($\chi^2=3.59$) at Hisar district.

Table 7: Association of intelligence of twins with home environment in Hisar district

Home environment	Intelligence				
	Low	Moderate	High	Total	2
Learning stimulation					
Below average	46(36.51)	42(33.33)	16(12.70)	104(82.54)	8.11*
Above average	5(3.97)	8(6.35)	9(7.14)	22(17.46)	
Total	51(40.48)	50(39.68)	25(19.84)	126(100.00)	
Warmth and affection					
Below average	5(3.97)	5(3.97)	6(4.76)	16(12.70)	3.59
Above average	46(36.51)	45(35.71)	19(15.08)	110(87.30)	
Total	51(40.48)	50(39.68)	25(19.84)	126(100.00)	

DISCUSSION

The major findings of the twin investigation clearly stated that the verbal and non-verbal intelligence of twins were more influenced by genetic material than environmental factors over the districts. The impact was genetics was more observed on the non-verbal intelligence of twins than the verbal intelligence of twins during early childhood. The some similar findings, [19] supported the present twin investigation that the influence of genetics was more likely to the variation in the verbal and non-verbal intelligence of twins than non-shared environmental factors. [20] suggested that the G x E interaction exists for the verbal intelligence of twins in early childhood and tend to be in the direction of greater heritability in high environmental circumstances. Another twin investigation line with the present twin research and concluded that significant genetic and non-shared environmental influences were found for nonverbal intelligence at age 3 years. Moreover, the effect of genetic predisposition was approximately three-quarters of the variance in non-verbal intelligence of twins throughout the early childhood period [21]. Behavioral genetic studies have also the early verbal intelligence aspect such as vocabulary is more

influenced by shared environmental circumstances than the genetic factors in early childhood [22]. The high significance of parental and other inputs impact was observed on early verbal intelligence of twins than the non-verbal intelligence of twins in early years of life. [23] assessed the verbal and nonverbal intelligence of twins by conducting longitudinal twin studies at age 2, 3, and 4 years and reported that 2-year stability coefficients ranging from 0.36 to 0.49 and also suggested that the general cognitive ability can also be measured reliably in early life.

The results of study revealed that the monozygotic twins were more correlated than dizygotic twins for both verbal and non-verbal intelligence of twins over districts. The results of the study line with [24] examined correlations of intelligence heritability in identical and fraternal twins, and in adopted children as well and observed that the correlation is relatively higher in monozygotic twins than in dizygotic twins. The stability of intelligence and reported that intelligence is the most stable psychological trait, with a Pearson correlation coefficient of 0.54 for monozygotic twins which is more than the dizygotic twins for the intelligence of twins [25].

The home environment of twins boosted their intelligence of twins. Another twin study provided consistent results, [26] conducted twin studies have focused on assessing the role of environmental influences on intellectual abilities and applied genetically informative longitudinal methods and by using the monozygotic twin differences design allows for the examination of environmental influences that are unique to each twin, free from the confounds of genetic and shared environmental effects and revealed that monozygotic twins are genetically identical and grow up in the same home environment and may be similar in general intellectual abilities. [27] emphasized that the quality of home environment is considered as a predictor for intelligence, health, education and emotional outcomes. However, the differences in child's intelligence are related to home environment differences in the presence of maternal characteristics. [28] reported that a significant association between home environment, socioeconomic status, maternal intelligence and early intellectual development in children and also revealed that lower socioeconomic status was associated with smaller volumes of grey matter in several brain areas.

CONCLUSION

The present twin research concluded as the diversity of verbal and non-verbal intelligence of twins during early childhood is more influenced by genetic endowment than environmental circumstances. The genes are more responsible for variations in the non-verbal intelligence of twins than verbal intelligence of twins and environmental factors. The more similarity in verbal and non-verbal intelligence of twins was in monozygotic twins than dizygotic twins. The learning stimulation at home settings uplifts the intelligence of twins. The home environmental circumstances are significantly associated with the intelligence of twins in the early years of life.

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Genetic and Environmental Analysis for Verbal and Non-verbal Intelligence of 5-6 Years Twins: An Intervention Study

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(Received: 26 February 2023; Revised: 14 April 2023; Accepted: 18 April 2023; Published: 20 May 2023)

(Published by Research Trend)

ABSTRACT: The genetic variations accounted for around 60-70% in verbal and non-verbal intelligence of twins during early childhood. Intelligence is mental ability of a person towards planning, reasoning, problem-solving, abstract thinking, quick learning and learning through experiences. The main aim of twin investigation was to analyse the genetic and environmental variations in verbal and non-verbal intelligence of twins to assess the impact of intervention on intelligence of twins. The study was planned to examine the how much of variations in verbal and non-verbal intelligence of twins from the age 5-6 years due to genetic and environmental factors and assess the impact of intervention programme on intelligence of twins. Twin research was conducted in Bhiwani and Hisar district of Haryana state. Twins with age group of 5-6 years was selected from villages of Bhiwani district and Hisar district. Intelligence of twins was examined with help of Stanford Binet Intelligence Scale (Terman and Merrill 1960), whereas home environment of twins was measured by using the Home Observation for Measurement of the Environment (HOME) (Caldwell and Bradley, 1984). Results of present twin study revealed that the significant difference in mean values was observed on age 5-6 years for non-verbal intelligence of twins in Bhiwani and Hisar district on the basis of standard test. The findings on heritability estimates showed that the influence of genetic material on verbal and non-verbal intelligence level of twins was more than the environment in both districts. The contribution of genetics was more on verbal intelligence of twins than non-verbal intelligence of twins. Home environment of twins improve the intellectual abilities of twins in early childhood period. The findings of twin study revealed that identical twins were more correlated with each other as compared to fraternal twins for their both verbal and non-verbal intelligence. The result showed that significant increase in intelligence level of twins due to several activities related to intelligence provided through the intervention programme. Intervention programme was also responsible to improve the intelligence of twins.

Keywords: Verbal intelligence, Non-verbal intelligence, Genetics, Environment and Twins.

INTRODUCTION

Intelligence is a psychological trait that inculcates many behavioural and psychological consequences, including educational status, occupational status, health and longevity (Deary, 2012). Intelligence may be defined as the capability of an individual such as problem solving, reasoning and learning. Intelligence is the most important trait than any other trait to predict the outcomes of education, occupation and health and is highly heritable (von Stumm and Plomin 2015).

The several studies of behavioural genetic, comprising of identical and fraternal twins, are used to examine how much of variations in human abilities like intelligence which is the outcome of both genetic propensities and environmental circumstances. Twin study is the foremost method useful in quantitative genetics to evaluate the individual differences due to

genetic material and environmental situations. The twin investigation needs both identical and non-identical twins because the comparison between these twins indicated that differences were due to genetic and environmental influences at particular time (Hawortha *et al.*, 2008). The twin research designs govern causal interrelationships between brain function and structure, neuropsychological performance (Blokland *et al.*, 2017).

The twin investigations give a framework to analyse the contribution of heritability between pairs of identical twins, who share 100 per cent of their genetic material, and non-identical twins, who on average share 50 per cent of their segregating gene. Heritability is a statistics that describes the amount of variance in a trait that can be attributed to genetic differences in a given population (Malanchini *et al.*, 2020). It is not a constant value and varies for a trait depending on developmental

processes like neonate, child and adult (Greenspan, 2022). Monozygotic twins disclosed fairly closer similarities than dizygotic twin pairs as increase in the age of twins and that showed that the impact of genetics on variation in particular trait as the actual difference between these two kinds of twins and identical twins are twice as similar genetically (Herle *et al.*, 2017). The genetic studies like behaviour genetics focused on the fact that the contribution and influence of various genes vary at different ages of life as various genes influential in early years but some are influential at later years of life (King *et al.*, 2019).

Around 50 % of variation in level of intelligence of person was due to impact of genetic material (Deary *et al.*, 2009). The impacts of both genetic and environment on intellectual traits are dynamic as they change and shift as change in developmental patterns (Zheng *et al.*, 2019). Mitchell *et al.* (2012) gave suggestion across four longitudinal studies that changed in everyday intellectual activities with variation in various aspects of intellectual abilities were concomitant with relative change in intellectual performance. Austerberry *et al.* (2022) assessed the intelligence level and revealed that intelligence is highly heritable. Moreover, the verbal performances in early and middle childhood are early manifestations of genetic effects on later intellectual performance.

Twin studies suggested that the variance in verbal and non-verbal intelligence is linked to genetically framework because genetics may largely responsible than environmental factor in determining intelligence of individual (Zheng *et al.*, 2018). The effect of the environment depends on genetic variations, individual differences in intellectual abilities that result from environmental circumstances may come to be attributable to genetic endowment Rhemtulla and Tucker-Drob (2012). Dickens and Flynn (2001) have suggested that recurrence of environmental experience is a core necessity of intellectual development. Assary *et al.* (2020) investigated the genetic architecture of environmental sensitivity by estimating its heritability and suggested that heritability of sensitivity was 0.47 and individual differences in susceptibility to environmental influences have a genetic basis. Oommen (2014) revealed that nature engaged largely in determining Intelligence Quotient (IQ), various other modifiable nurture influences could influence the IQ of an individual. Nature and nurture worked dependently in shaping the intellectual level of human being.

Orri *et al.* (2019) found that the intervention positively impacted different home environment dimensions but these changes did not account for improvements in children's outcomes. They did not find that these positive changes in the home environment translated

into improvements in children's intelligence at 5 years of age. Burgoyne *et al.* (2020) designed intervention to alter the genetic and environmental contribution on psychological traits and found that designed interventions might be occasionally exerting their effects by changing the contribution of genetics on psychological traits.

MATERIALS AND METHODS

Study Design: This twin investigation was conducted by using descriptive and experimental research design. The aim of twin research was to assess the impact of genetic propensity and environmental factors on verbal and non-verbal intelligence of twins. Twin study was conducted in Bhiwani and Hisar District of Haryana state. The verbal and non-verbal intelligence of twins with the age group 5-6 years was assessed. Intervention Programme was developed and implemented in home-settings of twins in both Bhiwani and Hisar District.

Data collection: The data was collected by interview and questionnaire methods from the twins and parents of twins to gather relevant information. The snow ball sampling was also used to collect the twins in the required age group of twins.

Tool: Stanford Binet Intelligence Scale (Terman and Merrill 1960) was used to examine the verbal and non-verbal intelligence of twins. The home environment of twins was assessed through Home Observation for Measurement of the Environment (HOME) given by Caldwell and Bradley, 1984.

Statistical Analysis: The software SPSS (Statistical Package for the Social Sciences) was used to analyze the data and to draw inferences. Mean, Standard Deviation, z-test, t-test, Increase in Percentage, Chi-square test and Heritable estimate were used to examine the main objective of the twin investigation. Heritability estimates (h^2) were calculated by the following formula given by Falconer (1960), $h^2 = 2(RMz - RDz)$ Where, h^2 is the heritability estimate, RMz is the correlation coefficient for monozygotic twin pairs and RDz is the correlation coefficient for dizygotic twins.

Research finding. The results obtained from the present twin study have been summarized under following heads:

Comparison of verbal and non-verbal intelligence of twins from 5-6 years

As data presented in Table 1 there were significant (0.05%) difference in mean values was observed on age 5-6 years ($Z=2.43^*$) for non-verbal intellectual of twins, but no significant difference in mean values was found on age 5-6 years ($Z=0.90$) for verbal intelligence of twins in both Bhiwani and Hisar district.

Table 1: Comparison of verbal and non-verbal intelligence level of twins from 5-6 years.

Age (in years)	Verbal intelligence		
	Bhiwani	Hisar	Z value
5-6	39.11±13.27	36.77±12.77	0.90
	Non-verbal intelligence		
5-6	26.05±8.16	21.95±8.69	2.43*

Heritability estimates for verbal and non-verbal intelligence of twins with the age group 5-6 years. The data in Table 2 indicated that the heritability estimates for verbal intelligence of twins with the age group 5-6 years was 71.00 per cent and the remaining 29.00 per cent variations in verbal intelligence of twins were due to environmental factors in Bhiwani district. Further this table also revealed that the heritability estimates for verbal intelligence of twins was 60.00 per cent and remaining 40.00 per cent variations in verbal intelligence of twins was attributed to environmental factors in Hisar district. The heritability estimates for

non-verbal intelligence was 68.00 per cent and 59.00 per cent in Bhiwani and Hisar district respectively. The interpretation of data clearly indicated that remaining 32.00 per cent and 41.00 per cent variations in non-verbal intelligence of twins was due to environmental circumstances in Bhiwani and Hisar district respectively. The findings on heritability estimates revealed that the genetic influences were more important source of variation in verbal intelligence of twins as compared to non-verbal intelligence of twins during 5-6 years.

Table 2: Heritability estimates for verbal and non-verbal intelligence of twins with the age group 5-6 years.

District	Verbal Intelligence (%)	Non-verbal Intelligence (%)
Bhiwani	71.0	68.0
Hisar	60.0	59.0

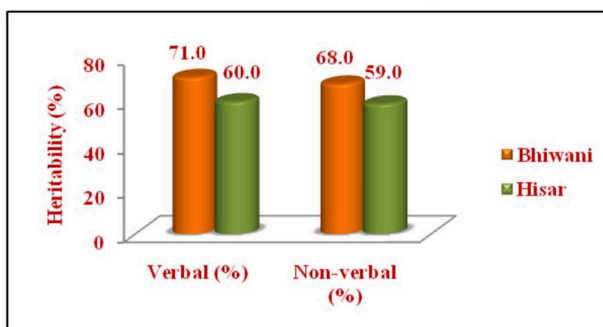


Fig. 1. Heritability estimates for verbal and non-verbal intelligence of twins with the age group 5-6 years.

Correlation co-efficient among monozygotic and dizygotic twins for verbal intelligence in both districts. The data in Table 3 revealed regarding the correlation coefficient of monozygotic and dizygotic twins for verbal and nonverbal intelligence of twins from 5-6 years. The data indicated that the correlation coefficient(r) of monozygotic twins for verbal intelligence was 0.95 in Bhiwani district and 0.64 in Hisar district. Further the data in this table portrait regarding the dizygotic twins, the correlation coefficient(r) was 0.60 and 0.34 in Bhiwani and Hisar district respectively for verbal intelligence of twins

during 5-6 years. Further, this table also indicated that the correlation coefficient of monozygotic and dizygotic twins for nonverbal intelligence of twins from 5-6 years, the correlation co-efficient of monozygotic twins was (r=0.64) in Bhiwani district and (r=0.80) in Hisar district, while for dizygotic twins, correlation co-efficient(r) was 0.30 and 0.51 in Bhiwani and Hisar district respectively. The result indicated that the monozygotic twins were more correlated with each other than the dizygotic twins for verbal and nonverbal intelligence of twins.

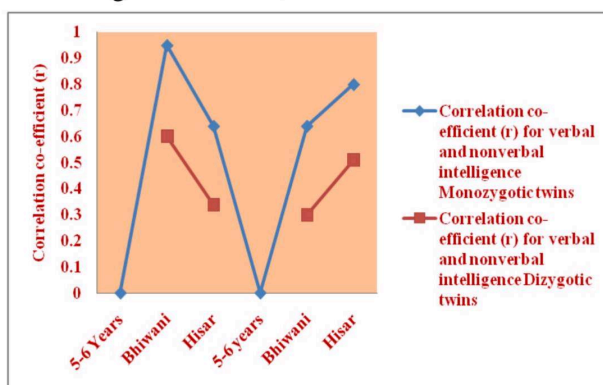


Fig. 2. Correlation co-efficient among monozygotic and dizygotic twins for verbal and nonverbal intelligence.

Association of intelligence of twins with home environment of twins. The data in Table 4 indicated that intelligence of twins was significantly associated with composite home environment of twins ($\chi^2=6.06^*$).

The data in this table clearly indicated that above average composite home environment of twins associated with moderate level of intelligence.

Table 3: Correlation co-efficient among monozygotic and dizygotic twins for verbal and nonverbal intelligence.

Age Districts	Correlation co-efficient (r) for verbal and nonverbal intelligence	
	Monozygotic twins	Dizygotic twins
5-6 Years	Verbal Intelligence	
Bhiwani	0.95	0.60
Hisar	0.64	0.34
5-6 years	Nonverbal Intelligence	
Bhiwani	0.64	0.30
Hisar	0.80	0.51

Table 4: Association of intelligence of twins with home environment of twins.

Composite Home environment	Intelligence				χ^2
	Low	Moderate	High	Total	
Below average	19(10.92)	14(8.05)	5(2.87)	38(21.84)	6.06*
Above average	41(23.56)	58(33.33)	37(21.26)	136(78.16)	
Total	60(34.48)	72(41.38)	42(24.14)	174(100.00)	

Impact of intervention on intelligence of twins during 5-6 years in two districts. As data presented in Table 5 indicated that the highly significant difference in mean values was observed at age 5-6 years ($t=3.40^{**}$) of twins in Bhiwani district and at age 5-6 years ($t=4.70^{**}$) in Hisar district. Further the data in

this table also showed that increase in mean percentage was observed on age 5-6 years (22.62%) in Bhiwani district and 5-6 years (30.21%) in Hisar district. The data indicated that impact of intervention on intelligence of twins at age 5-6 years was more found in Hisar district as compared to Bhiwani district.

Table 5: Impact of intervention on intelligence of twins during 5-6 years in two districts.

Age (in year)	Bhiwani				Hisar			
	Pre-test (n=10) Mean±SD	Post-test (n=10) Mean±SD	Increase in mean (%)	t Value	Pre-test (n=20) Mean±SD	Post-test (n=20) Mean±SD	Increase in mean (%)	t Value
5-6	38.90±8.75	47.70±12.53	8.8 (22.62)	3.40**	41.05±10.15	53.45±16.68	12.4 (30.21)	4.70**

DISCUSSION

The major findings of twin study stated that the impact of genetics was more on verbal intelligence of twins than non-verbal intelligence of twins. The influence of genetic material was more as compared to environmental factors on both verbal and non-verbal intelligence of twins in both Bhiwani and Hisar district. Indeed, research has acknowledged that verbal and non-verbal intellectual ability as the major source of variation due to genetic factors. The similar results were supported by other twin study; Plomin *et al.* (2013) provided the supportive evidence that heritability estimates are greater for verbal than non-verbal intelligence of twins. The results of present study consistent with Rosalind *et al.* (2018) reported that intelligence of twin was heritable and variation in verbal intelligence of twins was due to genetic predisposition. Spengler *et al.* (2018) provided supportive evidence for this finding that genetic factors are more responsible in shaping the non-verbal cognitive abilities of twins. Zheng *et al.* (2018) conducted a twin studies and portrait that the variance in intelligence is associated to genetics potential. This research of twins revealed that genetics heritage plays a bigger role than environmental circumstances in determining individual intelligence. Franić *et al.* (2014) conducted longitudinal twin study to assess the genetic and environmental contributions to the temporal stability of verbal, non-verbal and general intelligence

across a developmental period spanning childhood and adolescence and revealed that the high stability of additive genetic factors for verbal, non-verbal and general intelligence of twins and stability of environment was moderate. Van Soelen *et al.* (2011) assessed the contribution of genetic on verbal and performance intelligence of twins and found that the heritability contribution increased with age for both verbal and performance intelligence. The present study line with Canfield *et al.* (2017) revealed that more genetic influence on verbal and non-verbal intelligence of twins as compared to environmental circumstances. Manzano and Ullén (2018) found that genetic material was significantly associated with intelligence of twins. The result findings of correlation co-efficient for monozygotic and dizygotic twins indicated that monozygotic twins were more correlated than dizygotic twins in both districts. The present twin study was supported by Knopik *et al.* (2017) study, indicated that heritability of twins compares the similarity of monozygotic and dizygotic twins to estimate genetic and environmental components of variance. However, the classic twin study design portrait that the average 50 per cent of heritability estimate for intelligence of twins. Moreover, they also suggested that intelligence of children is substantially heritable, along with this, classical twin study design also revealed that the heritability estimates for intellectual abilities ranging from 50 per cent to 70 per cent. Deary *et al.* (2013) assessed the stability of intelligence and reported that

intelligence is the most stable psychological trait, with a Pearson correlation coefficient of 0.54. The intellectual home environment of twins enhanced the intelligence of twins. Another twin studies provided consistent results, Larsen *et al.* (2019) reported monozygotic twins control for genes, gender, age, and aspects of the home and school environment shared by twins and observed that any difference between identical twins in academic outcomes can be attributed to the unique environment. Brant *et al.* (2013) conducted cross-sectional twin study and this study has observed that individuals with higher intelligence, show high environmental influence on intelligence during early childhood. However, the study also emphasized that the individuals with lower intelligence, show high heritability estimate of intelligence. Turkheimer and Horn (2014) evidenced suggest that positive and significant influence of socio-economic status on the heritability estimates of intellectual abilities in childhood. Moreover, the study also depicted that the estimates of genetic variance tend to increase to 50 per cent of total variance in the highest socio-economic status groups. Manley *et al.* (2015) conducted twin study on pre-schoolers and found that the higher maternal education, higher paternal education and caregiver employment, all these three social variables are associated with to enhance the intellectual abilities during preschool years.

The results of present study highlighted that the intervention package highly significantly improved the intelligence scores of twins at age 5-6 years of twins. An intervention study also supported that intervention boost the intellectual level of twins (Torgesen, 2005). Sisk *et al.* (2018) revealed that the individual differences in intelligence can be easily overcome with effective interventions that improve the intelligence of children by focusing on strength and weaknesses of children. Nisbett *et al.* (2012) revealed that improvement in intelligence of twins produced by the most effective early childhood interventions and also suggested that early childhood interventions had remarkable effects on academic achievement and life outcomes. Another study provided the similar results of present intervention study Barnett (2011) revealed that the educational intervention provided during preschool years tend to boost the development of intelligence in early years of life. Moreover, interventions have long-lasting influence on young children with respect to academic achievement, economic productivity and higher education. Similarly, Burgoyne *et al.* (2018) found the genetic contribution to individual differences in mindset became stronger in an environment prior intervention. But after intervention that has become strongly associated with cognitive ability actions raised possibility that may have apprehended with general intelligence following the intervention.

CONCLUSIONS

Twin research concluded as the genetic and environmental variation in verbal and non-verbal intelligence of twins during early childhood, more influenced by genetic propensities than environmental

performances like verbal and non-verbal correlate at 0.3 level (Malykh *et al.*, 2016).

factors. The genes are more responsible for variations in verbal intelligence of twins than non-verbal intelligence of twins. The impact of genetic material was more as compared to the environmental circumstances. The more similarity in verbal and non-verbal intelligence of twins was in monozygotic twins than dizygotic twins. The home environmental circumstances significantly associated with intelligence of twins in early years of life. The composite home-environmental settings are responsible for enhancement of the intelligence level of twins. Intervention programme was enhanced the intelligence of twins in both Bhiwani and Hisar District.

FUTURE SCOPE

The future scope of twin study is to assess the cross-cultural differences in intelligence of twins at different ages. Examine the contribution of intelligence level of parents in shaping the intellectual abilities of their children by using the standardized scale of Adult Intelligence.

Acknowledgement. I express my deep sense of indebtedness and profound gratitude to guide Dr. Bimla Dhanda, Former Dean, I.C college of Home Science, Chaudhary Charan Singh Haryana Agricultural University, Hisar, for her valuable, gifted and sagacious guidance, during the entire course of study. I wish to convey my heartiest appreciation for guidance, understanding and continuous encouragement extended to me by my other advisory committee members.

Conflict of Interest. None.

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How to cite this article: Annu and Bimla Dhanda (2023). Genetic and Environmental Analysis for Verbal and Non-verbal Intelligence of 5-6 Years Twins: An Intervention Study. *Biological Forum – An International Journal*, 15(5): 39-44.



CONTRIBUTION OF PSYCHOLOGY IN THE PREVENTION OF CYBERCRIME

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Abstract:

The rise of cybercrime in recent years has led to increased attention to the potential of psychology to contribute to its prevention. Cybercrime is a multifaceted problem that requires a comprehensive approach to its prevention. This abstract will discuss the various ways in which psychology can contribute to the prevention of cybercrime. One way in which psychology can contribute to the prevention of cybercrime is by focusing on understanding the psychological factors that motivate individuals to engage in cybercrime. This involves studying the psychological mechanisms that underlie the decision-making process and the behavioral patterns that lead to cybercrime. By understanding these factors, psychologists can develop effective strategies for preventing cybercrime. Another way in which psychology can contribute to the prevention of cybercrime is by promoting cyber hygiene practices. Cyber hygiene refers to the set of practices that individuals can adopt to protect themselves from cybercrime. These practices include using strong passwords, updating software regularly, and avoiding suspicious emails. By promoting these practices, psychologists can help individuals to protect themselves from cybercrime. Furthermore, psychologists can work with law enforcement agencies to develop effective education and awareness programs for preventing cybercrime. This includes educating individuals on the risks and consequences of cybercrime and promoting safe online behaviors. By increasing awareness of cybercrime, psychologists can help reduce the incidence of cybercrime. In conclusion, psychology has the potential to make a significant contribution to the prevention of cybercrime. By understanding the psychological factors that motivate cybercrime, promoting cyber hygiene practices, and providing education and awareness, psychologists can help to prevent cybercrime and protect individuals from its harmful consequences. By working together with other disciplines, including law enforcement and technology, psychology can help create a safer and more secure online environment for everyone.

Introduction:

The rapid growth of technology and the internet has led to a surge in cybercrime, making it a significant challenge for law enforcement agencies and individuals alike. As cybercrime continues to evolve, it is increasingly clear that a comprehensive approach is needed to prevent it. In recent years, the potential of psychology to contribute to the prevention of cybercrime has gained attention.



This article focuses on how psychology can contribute to preventing cybercrime. Firstly, it highlights the importance of understanding the psychological factors that motivate individuals to engage in cybercrime. By studying the underlying mechanisms and behavioral patterns, psychologists can develop effective strategies to prevent cybercrime.

Secondly, the article emphasizes the role of promoting cyber hygiene practices. Cyber hygiene practices are essential for individuals to protect themselves from cybercrime. By promoting practices such as using strong passwords and updating software regularly, psychologists can help individuals adopt safe online behaviors.

Finally, the article emphasizes the need for education and awareness programs to prevent cybercrime. By working with law enforcement agencies, psychologists can develop effective education programs that increase awareness of cybercrime and its consequences. These programs can promote safe online behaviors and reduce the incidence of cybercrime. By understanding the psychological factors that motivate individuals to engage in cybercrime, promoting cyber hygiene practices, and providing education and awareness, psychologists can help create a safer and more secure online environment.

Overall, psychology can work in tandem with other disciplines, including technology and law enforcement, to create a safer online environment. This article provides a comprehensive overview of how psychology can contribute to the prevention of cybercrime and offers insights for future research and interventions.

Methods:

The Methods section of the article "Contribution of Psychology in the Prevention of Cyber Crime" describes the various research methods used to contribute to the prevention of cybercrime. We did primary research and secondary research and had the following observations:

Literature Review:

We conducted a comprehensive literature review such as Google Scholar, PubMed, and PsycINFO to identify the existing research on the contribution of psychology in the prevention of cybercrime. The study used a qualitative research approach, and data was collected using a systematic search strategy. The search strategy involved a combination of keywords such as "cybercrime," "psychology," "prevention," "motivation," "cyber hygiene," and "awareness." The search is limited to peer-reviewed journal articles published in English from the year 2010 to the present. The review focussed on studies that explore the psychological factors that motivate individuals to engage in cybercrime, cyber hygiene practices, and education and awareness



programs. The literature review covered a range of sources, including academic journals, books, and online resources.

In the primary surveys, we tried to explore the common man's thinking and beliefs regarding cybercrime and how psychologists can help in preventing cybercrime.

1. **Surveys and Interviews:** We conducted online surveys and interviews with individuals who have been victims of cybercrime, and the common man. The surveys and interviews aimed to understand the common man thinking and beliefs regarding cybercrime and how psychologists can help in preventing cybercrime. We also gathered information on cyber hygiene practices and awareness of cybercrime.
2. **Data Analysis:** Analysed the data collected from the literature review, surveys, and interviews, to identify patterns and trends. The data analysis was to assess the common man's perception and effectiveness of the psychological approaches in preventing cybercrime.
3. **Collaboration:** We collaborated with some of the cyber security experts, law enforcement personnel like police, and technology experts to ensure that the research incorporates their perspectives and expertise. This collaboration helped us to ensure that the research is relevant and applicable to the real-world context of cybercrime prevention.

RESULTS

Understanding the Psychological Factors of Cybercrime:

Some of the key findings suggest that individuals who commit cybercrime tend to have lower levels of empathy, higher levels of impulsivity, and a greater tolerance for risk-taking behavior.

Additionally, factors such as peer influence, perceived anonymity, and the perceived ease of committing cybercrime have also been identified as contributing factors. One of our understandings is that normally these things start at a juvenile stage when a child tries to hack Wi-Fi, mobile password, etc. and later on the same encourages him to do bigger crimes in this space.

By understanding these factors, psychologists can develop effective prevention strategies that target these underlying psychological mechanisms.



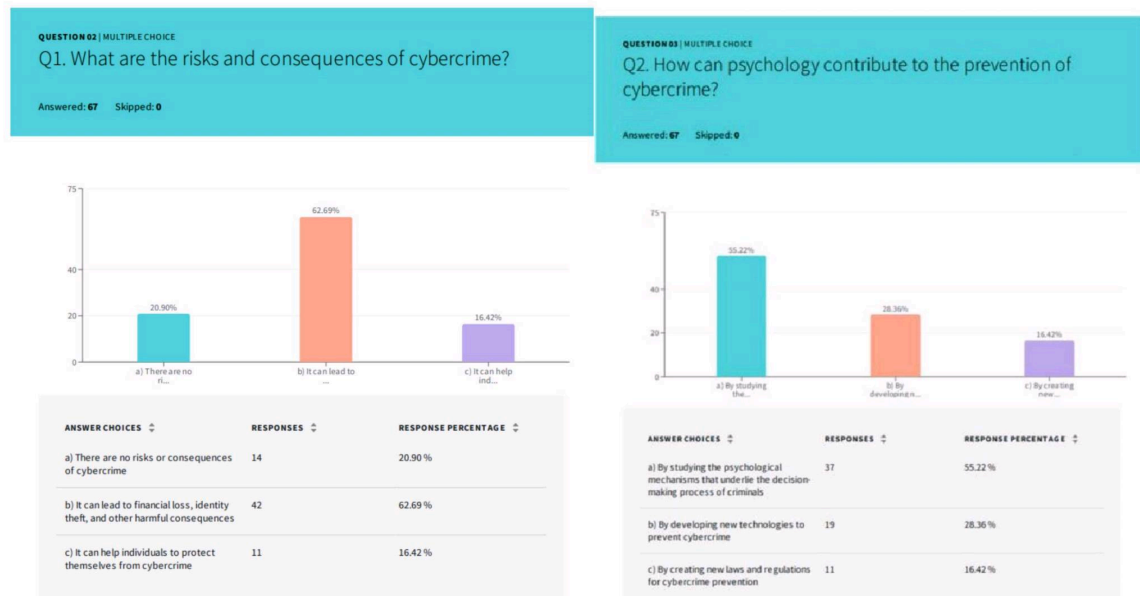
Promoting Cyber Hygiene Practices:

Psychologists can play a crucial role in promoting cyber hygiene practices among individuals. They can develop educational campaigns that emphasize the importance of using strong passwords, keeping software up-to-date, and avoiding suspicious emails. These campaigns have been effective in raising awareness and improving cyber security practices among individuals.

Developing Education and Awareness Programs:

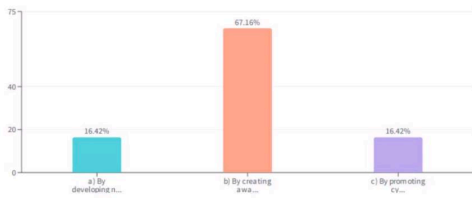
Psychologists can collaborate with law enforcement agencies to develop education and awareness programs to prevent cybercrime. These programs aim to educate individuals on the risks and consequences of cybercrime and promote safe online behavior. Such programs can be successful in reducing the incidence of cybercrime and creating a safer online environment.

The primary survey report done with 67 participants revealed the following insights from participants



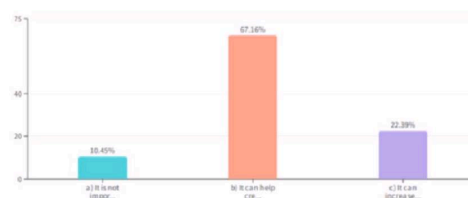


QUESTION 04 | MULTIPLE CHOICE
 Q3. How can psychologists help to promote cyber hygiene practices?
 Answered: 67 Skipped: 0



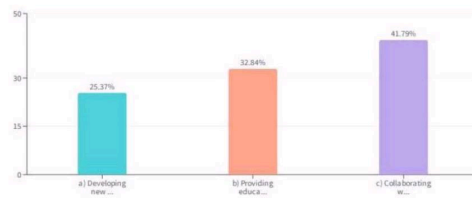
ANSWER CHOICES	RESPONSES	RESPONSE PERCENTAGE
a) By developing new technologies for cyber hygiene	11	16.42 %
b) By creating awareness programs for preventing cybercrime	45	67.16 %
c) By promoting cybercrime through social media	11	16.42 %

QUESTION 05 | MULTIPLE CHOICE
 Q4. What is the role of collaboration between different disciplines in preventing cybercrime?
 Answered: 67 Skipped: 0



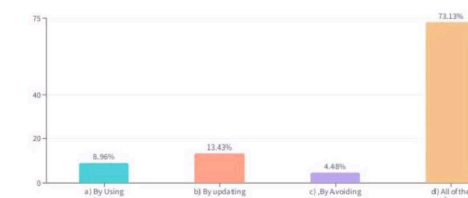
ANSWER CHOICES	RESPONSES	RESPONSE PERCENTAGE
a) It is not important	7	10.45 %
b) It can help create a safer and more secure online environment for everyone	45	67.16 %
c) It can increase the incidence of cybercrime	15	22.39 %

QUESTION 06 | MULTIPLE CHOICE
 Q5. How law enforcement agencies can play role in preventing cybercrime?
 Answered: 67 Skipped: 0



ANSWER CHOICES	RESPONSES	RESPONSE PERCENTAGE
a) Developing new technologies for cybercrime prevention	17	25.37 %
b) Providing education and awareness programs for preventing cybercrime	22	32.84 %
c) Collaborating with psychologists to develop effective education and awareness programs	28	41.79 %

QUESTION 07 | MULTIPLE CHOICE
 Q2. What cyber hygiene practices you follow to prevent yourself from cyberattack?
 Answered: 67 Skipped: 0



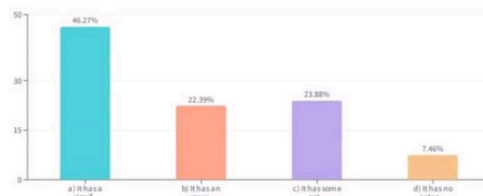
ANSWER CHOICES	RESPONSES	RESPONSE PERCENTAGE
a) By Using strong passwords	6	8.96 %
b) By updating software regularly	9	13.43 %
c) By Avoiding suspicious emails	3	4.48 %
d) All of the above	49	73.13 %



QUESTION 08 | MULTIPLE CHOICE

What is the importance of a comprehensive approach to preventing cybercrime?

Answered: 67 Skipped: 0



ANSWER CHOICES	RESPONSES	RESPONSE PERCENTAGE
a) It has a significant potential	31	46.27 %
b) It has an uncertain potential	15	22.39 %
c) It has some potential	16	23.88 %
d) It has no potential	5	7.46 %

DISCUSSION

The discussion section of this article highlights the potential ways in which psychology can contribute to the prevention of cybercrime. It emphasizes the multifaceted nature of cybercrime and the need for a comprehensive approach to its prevention.

One of how psychology can contribute to the prevention of cybercrime is by focusing on understanding the psychological factors that motivate individuals to engage in such behavior. Studies have shown that some individuals engage in cybercrime due to psychological factors such as impulsivity, sensation-seeking, and a lack of empathy. By understanding these factors, psychologists can develop effective prevention strategies, such as interventions that target these psychological vulnerabilities.

Another way in which psychology can contribute to the prevention of cybercrime is by promoting cyber hygiene practices. Cyber hygiene practices refer to the steps individuals can take to protect themselves from cybercrime. These include using strong passwords, regularly updating software, and avoiding suspicious emails. Psychologists can educate individuals on these practices, encourage their adoption, and evaluate the effectiveness of these practices in reducing the incidence of cybercrime.

Moreover, psychologists can work with law enforcement agencies to develop effective education and awareness programs for preventing cybercrime. These programs can educate individuals on the risks and consequences of cybercrime and promote safe online behavior. By



increasing awareness of cybercrime, psychologists can help to reduce its incidence and create a safer online environment for everyone.

In conclusion, psychology has the potential to make a significant contribution to the prevention of cybercrime. By understanding the psychological factors that motivate cybercrime, promoting cyber hygiene practices, and providing education and awareness, psychologists can help to prevent cybercrime and protect individuals from its harmful consequences. By working collaboratively with other disciplines, including law enforcement and technology, psychologists can help create a safer and more secure online environment for everyone

Conclusion:

Psychology can make significant contributions to the prevention of cybercrime by understanding the psychological factors that motivate individuals to engage in cybercrime, promoting cyber hygiene practices, and developing effective education and awareness programs. By working with other disciplines such as law enforcement and technology, psychologists can contribute to reducing the incidence of cybercrime and creating a safer and more secure online environment.

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THE IMPACT OF PSYCHOLOGICAL WELL-BEING ON HUMAN DEVELOPMENT & THE ROLE OF PSYCHOLOGISTS

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Abstract

The impact of psychological well-being on human development is a crucial area of study in psychology, with increasing attention given to the role of psychologists in promoting and maintaining psychological well-being. This research paper aims to explore the relationship between psychological well-being and human development, and the role of psychologists in promoting and maintaining psychological well-being. To achieve this aim, a comprehensive review of the existing literature was conducted, including studies on the theoretical and empirical links between psychological well-being and human development, as well as the role of psychologists in promoting and maintaining psychological well-being. The review was conducted using a systematic approach, which involved the use of databases such as PubMed, PsycINFO, and Google Scholar, and included articles published between 2000 and 2021. Additionally, the study employed a qualitative research design to obtain insights from experienced psychologists through in-depth interviews and surveys with the students. The study's main findings indicate that psychological well-being plays a critical role in human development, including physical, cognitive, and social aspects. Psychological well-being is a multi-dimensional construct that encompasses various factors such as positive emotions, life satisfaction, purpose in life, autonomy, self-acceptance, and personal growth. Psychologists can play a crucial role in promoting psychological well-being by providing effective interventions such as cognitive-behavioral therapy, positive psychology, mindfulness-based therapies, and humanistic approaches. The study's implications for psychology and human development are significant. The findings suggest that psychological well-being is a fundamental aspect of human development that cannot be ignored. The promotion of psychological well-being should be an integral part of psychological practice, research, and education. The study emphasizes the importance of incorporating positive psychology and humanistic approaches in psychological interventions to promote well-being, rather than just treating mental illnesses. Secondly, they underscore the critical role of psychologists in supporting individuals to achieve optimal mental health and well-being. Lastly, they suggest the need for continued research in this area, particularly about the effectiveness of psychological interventions and strategies for promoting and maintaining psychological well-being. Overall, this research paper provides important insights into the impact of psychological well-being on human development and the role of psychologists in promoting and maintaining psychological well-being. The findings suggest that



psychological well-being should be a central concern of psychology and human development, and interventions to promote it should be prioritized. The study's implications have significant implications for the future of psychology and human development, and further research in this area is crucial to promote well-being and improve the quality of life for individuals and society as a whole

Introduction

Psychological well-being is an important aspect of human development that has gained increasing attention in recent years. It is a multidimensional construct that refers to an individual's subjective experience of life satisfaction, positive emotions, and the absence of negative emotions. It refers to the state of being happy, healthy, and fulfilled, both mentally and emotionally. This aspect of human life is crucial for individuals to experience a good quality of life, reach their full potential, and maintain good mental health. The benefits of psychological well-being go beyond the individual level and are critical for the betterment of society as a whole. Psychological well-being has been defined in different ways by various researchers, but a commonly accepted definition is that it encompasses the presence of positive emotions, engagement, relationships, meaning, and accomplishment. Positive emotions are feelings of joy, contentment, and happiness. Engagement refers to being fully immersed in activities that challenge us and make us feel energized. Relationships refer to our connections with others, including family, friends, and colleagues. Meaning is the sense of purpose and direction in life, while accomplishment refers to our achievements and successes. In simpler terms, it refers to the positive experiences and feelings an individual experiences in life, including happiness, fulfillment, and contentment. Theories and models of psychological well-being have been proposed to understand and promote this aspect of human life. One of the most influential models is the PERMA model, which was introduced by psychologist Martin Seligman in 2011. The PERMA model posits that there are five components of psychological well-being: Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment. Each of these components contributes to an individual's overall well-being, and they are interconnected. Other theories that explain psychological well-being include Self-Determination Theory (SDT), which highlights the importance of autonomy, competence, and relatedness in promoting well-being, and Cognitive-Behavioral Therapy, which emphasizes the role of thoughts and beliefs in shaping behavior and emotions. Cognitive-Behavioral Therapy (CBT) is a practical therapeutic approach that aims to identify and challenge negative thought patterns to improve psychological well-being. Psychologists play a critical role in promoting psychological well-being and preventing psychological distress. They are trained professionals who specialize in the study of the mind and behavior. Psychologists employ a range of techniques and therapies to help individuals improve their mental and emotional health. Some of the methods they use include psychotherapy, counseling, cognitive-behavioral therapy, and positive psychology interventions.



They also work with other professionals, such as social workers and psychiatrists, to provide a comprehensive approach to mental health treatment. They help individuals identify and manage stress, cope with life transitions, and improve their relationships.

The importance of psychological well-being in human development cannot be overstated. It affects all aspects of an individual's life, including their physical health, relationships, and career. Numerous studies have demonstrated that when individual experiences good psychological well-being, they are better equipped to manage life's challenges and enjoy life's pleasures. On the other hand, when psychological well-being is lacking, it can lead to a range of negative outcomes, including depression, anxiety, and even physical health problems. They also have lower life satisfaction and productivity

In conclusion, this paper will explore the impact of psychological well-being on human development and the role of psychologists in promoting psychological well-being and preventing psychological distress. It is essential to prioritize our mental and emotional health to achieve optimal functioning and well-being. The PERMA model, Self-Determination Theory, and Cognitive-Behavioral Therapy are theories and models that provide a framework for understanding psychological well-being. By examining theories and models of psychological well-being, the paper aims to provide a comprehensive understanding of this important aspect of human life. The paper will also highlight the various interventions and strategies employed by psychologists to promote psychological well-being and prevent mental health problems. Ultimately, the paper aims to contribute to a greater understanding of psychological well-being and its importance in human development

Research Methodology

This research study employed a mixed-methods research design to explore the relationship between psychological well-being and human development, as well as the role of psychologists in promoting and maintaining psychological well-being. The research design included both qualitative and quantitative data collection and analysis techniques, enabling a comprehensive exploration of the research topic. This methodology allowed for an in-depth exploration of the experiences and perspectives of experienced psychologists and students regarding psychological well-being and its impact on human development.

Participant Sample

The study's participants consisted of experienced psychologists and students from various colleges. The participants were selected using a purposive sampling technique, which ensured that individuals with relevant experience and knowledge in the field of psychology were included in the study. The participants were selected based on their age, gender, and socio-



economic status. The age range of the participants was between 20 and 65 years old, with an even distribution of male and female participants. The participants represented various ethnic backgrounds and socio-economic statuses, ensuring a diverse sample.

Data Collection

Data were collected using two primary methods: in-depth interviews and surveys. The interviews were conducted face-to-face with experienced psychologists and via Zoom with students, and the surveys were conducted online using Survey Sparrow Forms. The interview questions were designed to elicit participants' experiences and perspectives regarding psychological well-being and its impact on human development. The survey questions were designed to gather quantitative data on participants' psychological well-being and their perceptions of the role of psychologists in promoting and maintaining psychological well-being.

Measures

Several instruments were used to assess participants' psychological well-being, including the PERMA Profiler, Satisfaction with Life Scale, and Flourishing Scale. The PERMA Profiler is a well-validated instrument that assesses five dimensions of psychological well-being: positive emotion, engagement, relationships, meaning, and accomplishment. The Satisfaction with Life Scale measures participants' overall satisfaction with their lives, while the Flourishing Scale measures participants' psychological well-being based on their experiences of personal growth, autonomy, purpose, environmental mastery, positive relationships, and self-acceptance.

Data Analysis

The data collected through interviews and surveys were analyzed using qualitative and quantitative data analysis techniques. Qualitative data obtained from the interviews were analyzed using thematic analysis to identify common themes and patterns in participants' experiences and perspectives. Descriptive statistics were used to summarize the participants' demographic characteristics, psychological well-being scores, and perceptions of the role of psychologists in promoting and maintaining psychological well-being. Correlation analysis was used to examine the relationships between psychological well-being factors, and regression analysis was used to determine the predictors of psychological well-being.

Conclusion

This research study employed a qualitative research design to explore the relationship between psychological well-being and human development, as well as the role of psychologists in promoting and maintaining psychological well-being. The study's findings suggest that psychological well-being is a fundamental aspect of human development and that psychologists

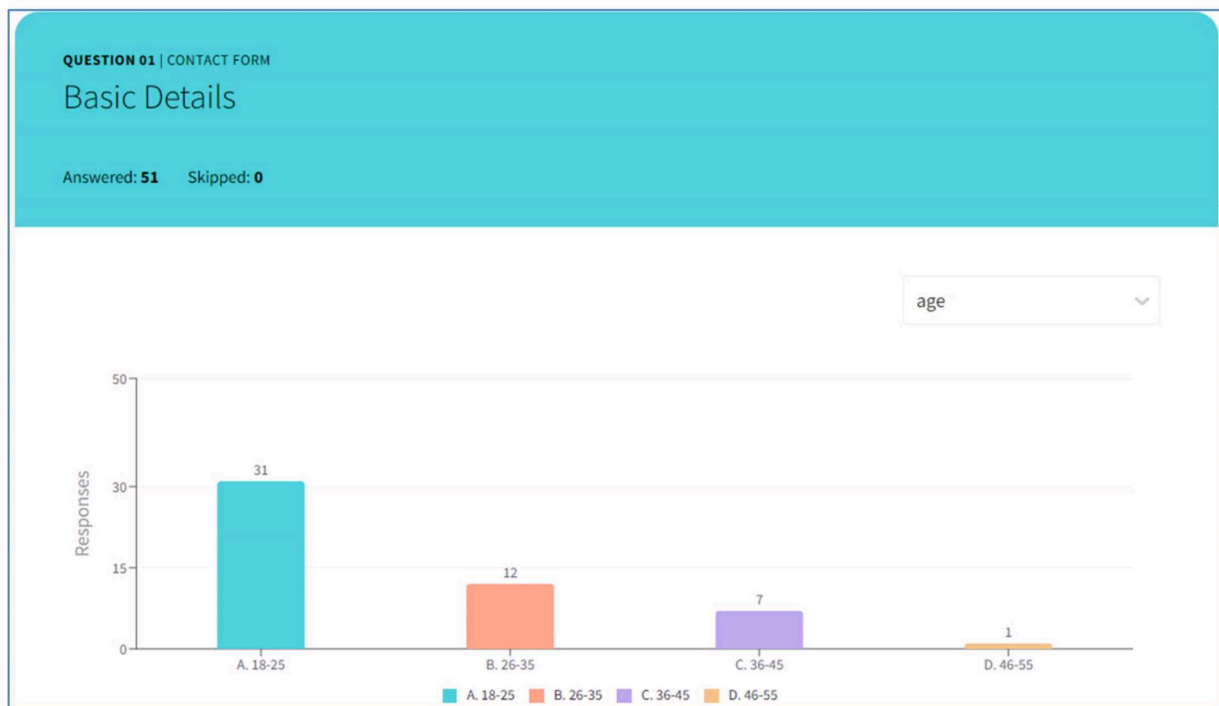


can play a crucial role in promoting and maintaining psychological well-being. The use of both quantitative and qualitative methods allowed for a comprehensive examination of the research questions and provided valuable insights into the experiences and perspectives of experienced psychologists and students. The study's implications have significant implications for the future of psychology and human development, and further research in this area is crucial to promote well-being and improve the quality of life for individuals and society as a whole.

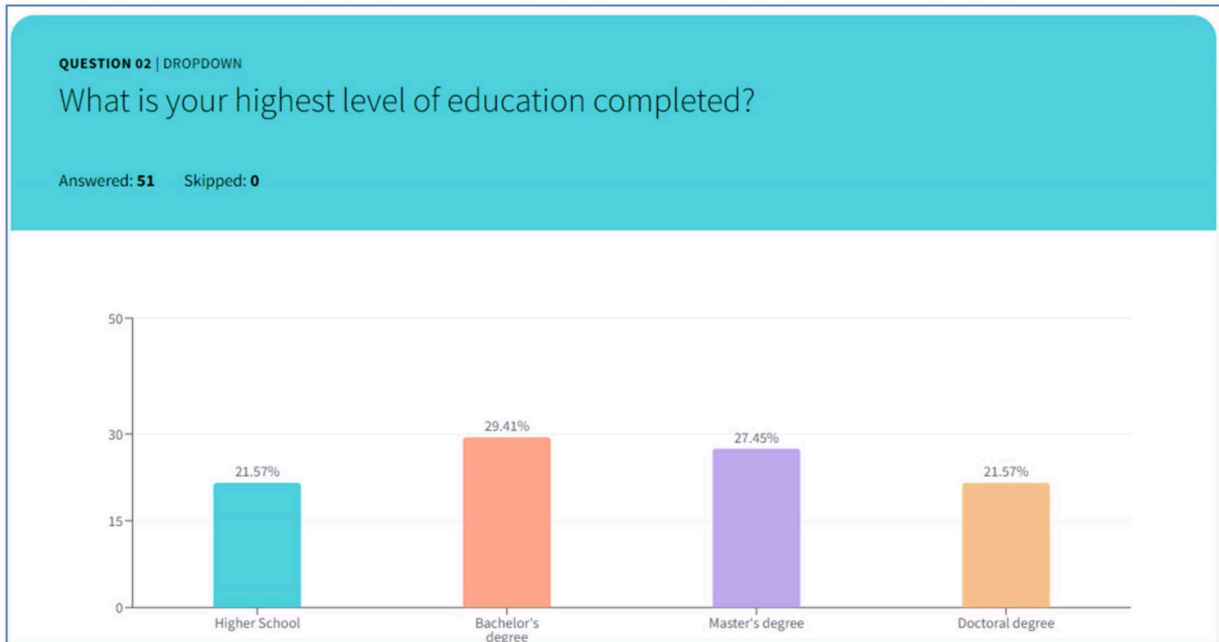
Results

Primary Research Data

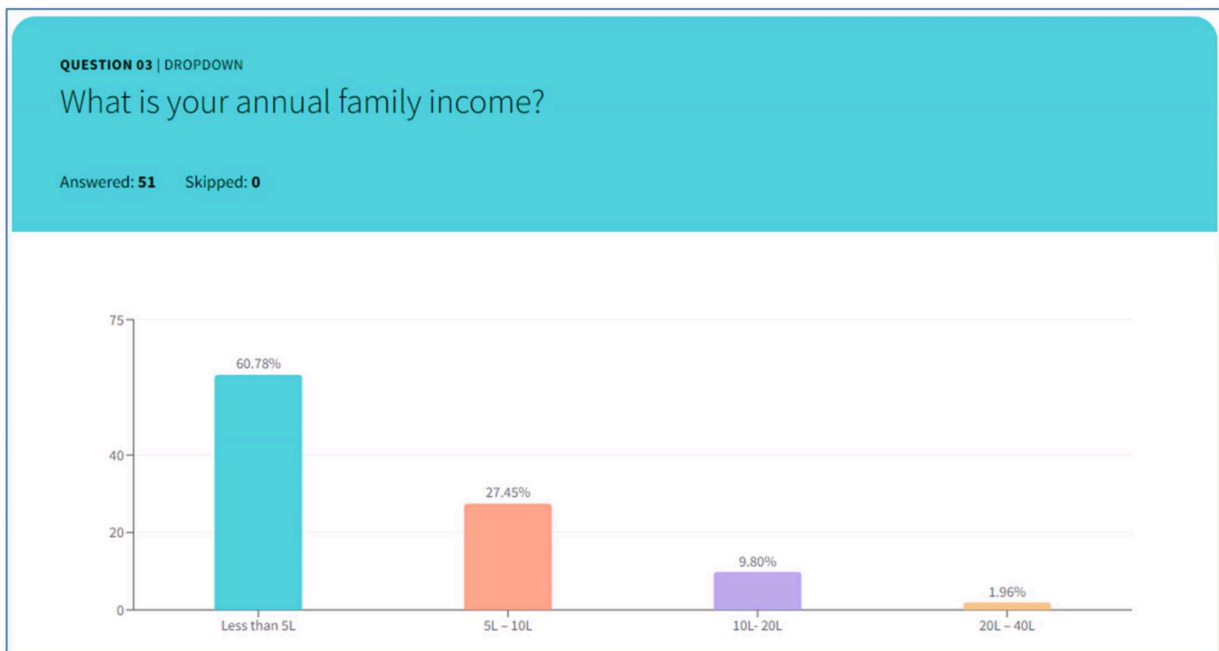
The online survey was conducted among Students, Teachers and Other professionals in Haryana state. Among the 51 respondents, approximately 60% were students.



Approximately, 80% were qualified graduate and above in their education level. The purpose of selecting mix sample was to have thorough understanding of the importance of education also on well being& development



Majority of the participants were of middle income group



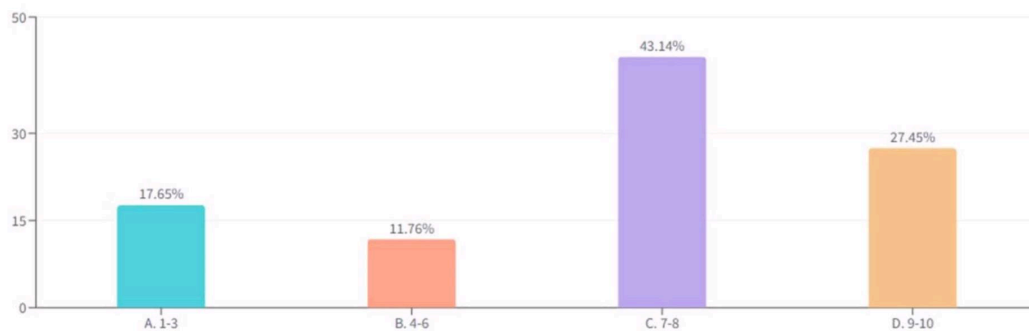
70% of the participants rated them high on overall psychological well-being.



QUESTION 04 | MULTIPLE CHOICE

On a scale of 1-10, how would you rate your overall psychological well-being?

Answered: 51 Skipped: 0

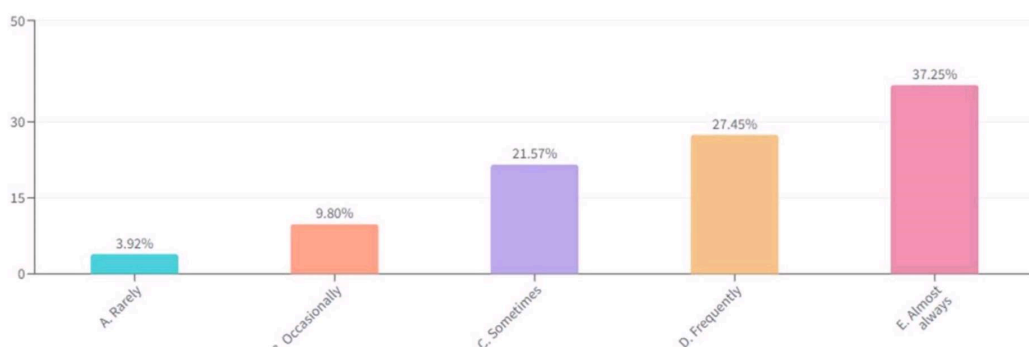


70% respondents experienced positive emotions (e.g. Joy, Happiness, Contentment, & Gratitude) in their life journey. These factors are very important for well-being and human development.

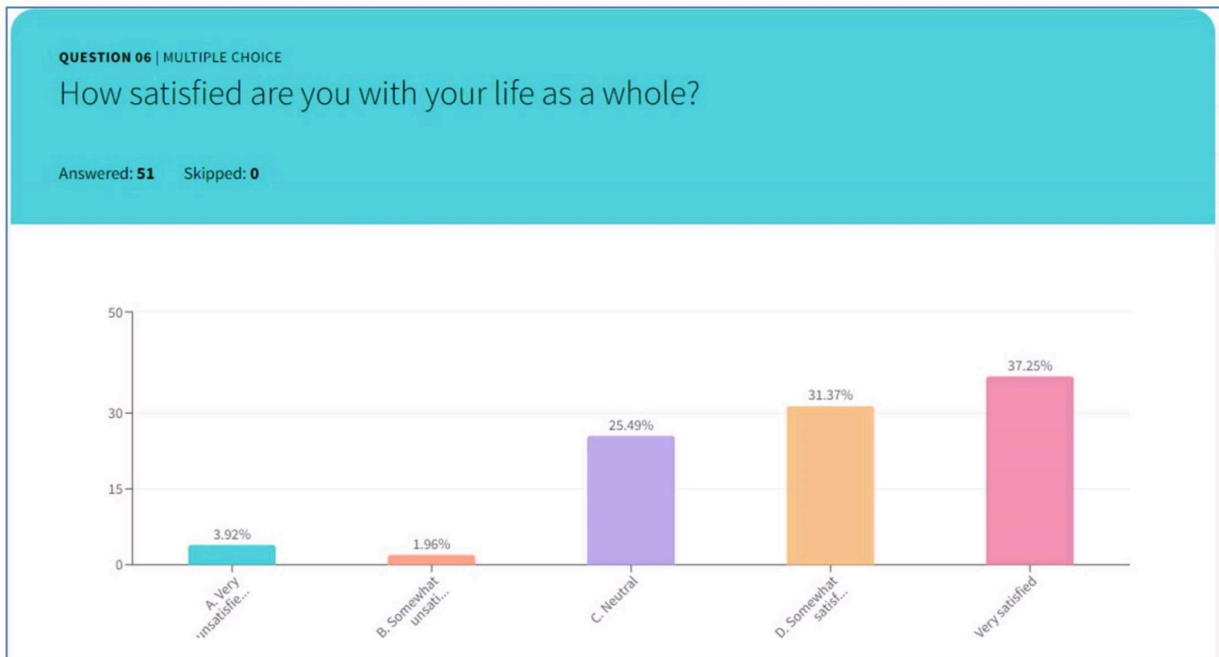
QUESTION 05 | MULTIPLE CHOICE

How often do you experience positive emotions (e.g., joy, happiness, contentment, gratitude)?

Answered: 51 Skipped: 0



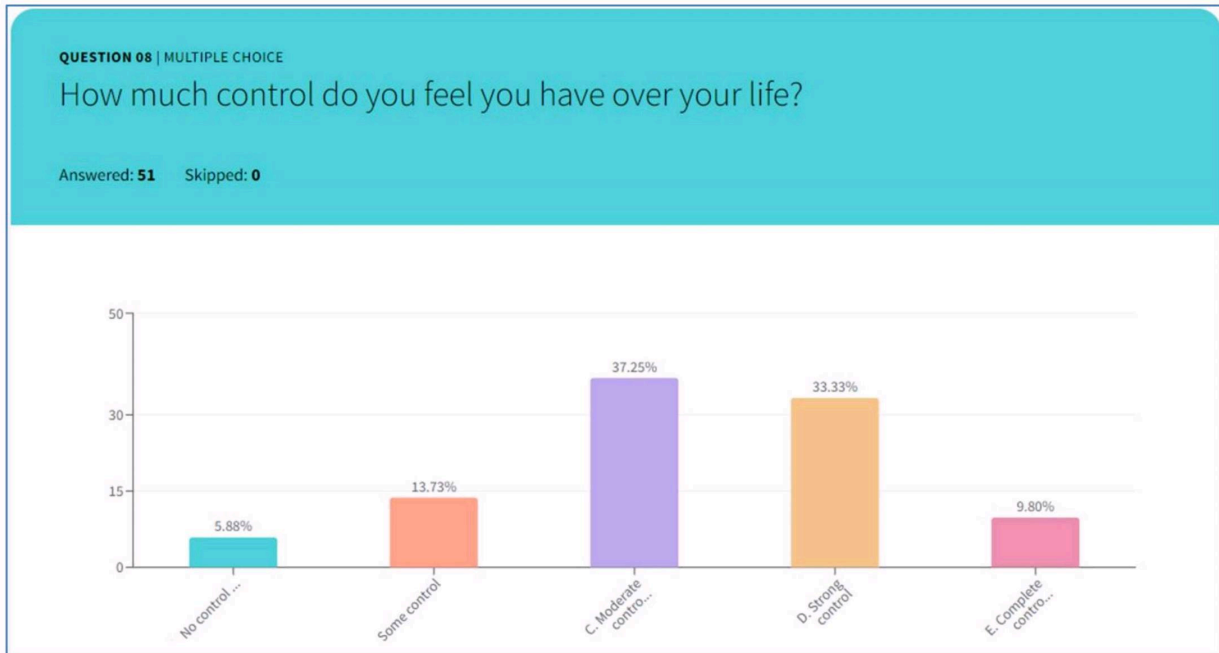
68% respondents are satisfied with their life as a whole



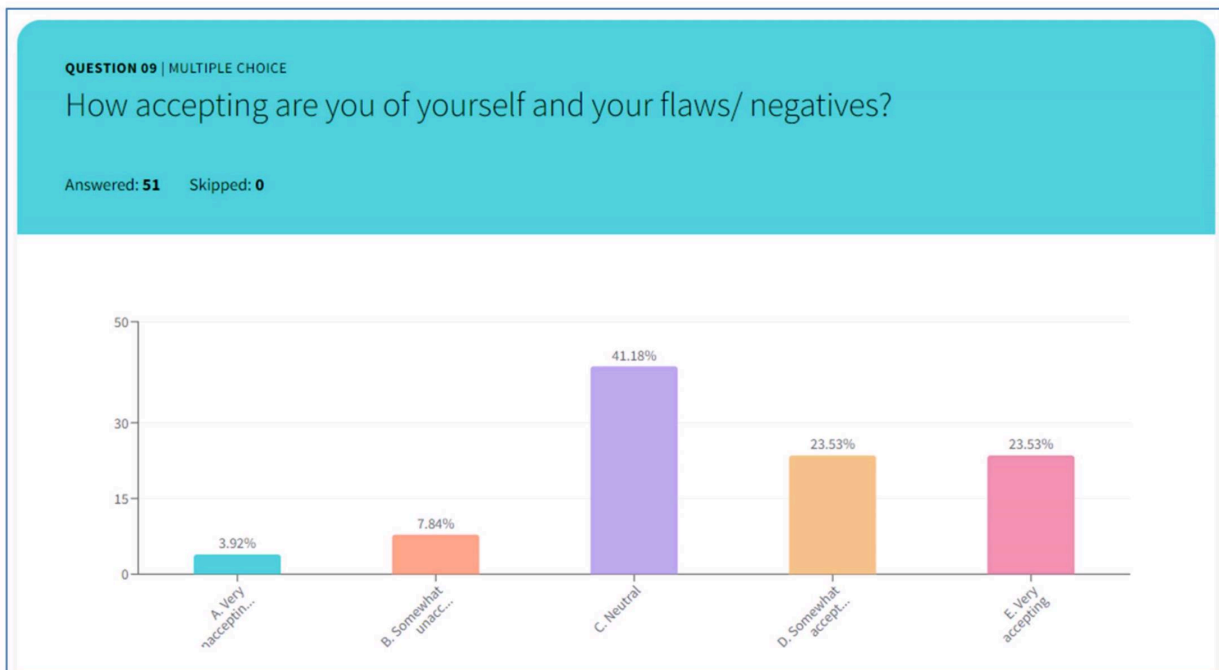
35% have moderate sense of purpose while 55% participants have strong sense of purpose to life their life



37% feel that they have moderate control on overall life while 43% feel that they are on driver seat to control their lives



1/4th of respondents are in complete acceptance of their life flaws



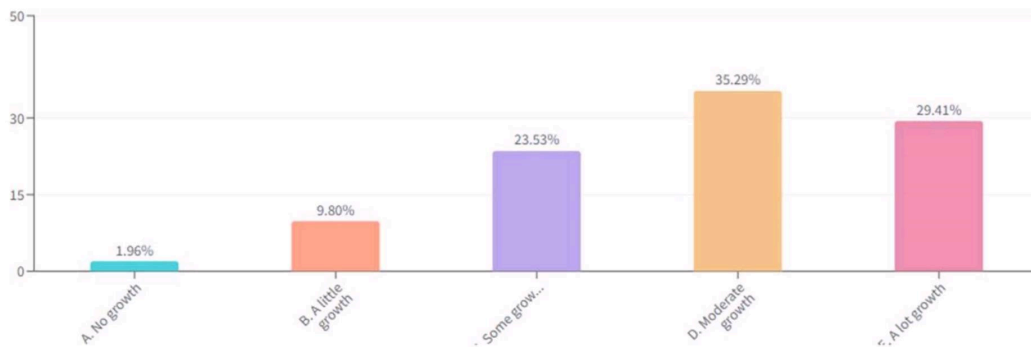
65% respondents have experienced moderate to high personal growth in the past year



QUESTION 10 | MULTIPLE CHOICE

How much personal growth do you feel you have experienced in the past year?

Answered: 51 Skipped: 0

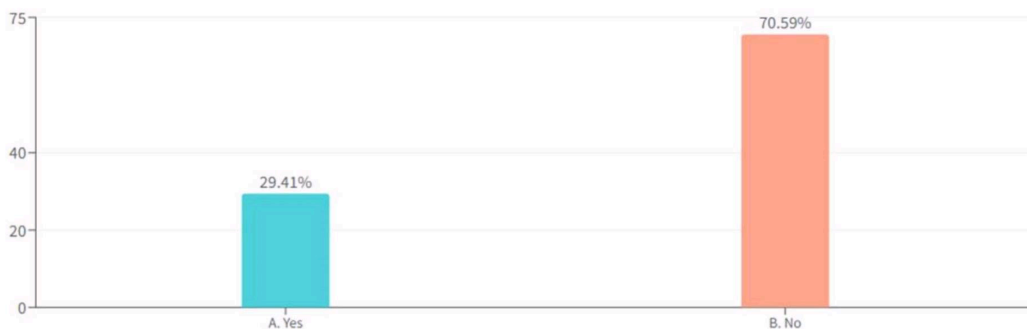


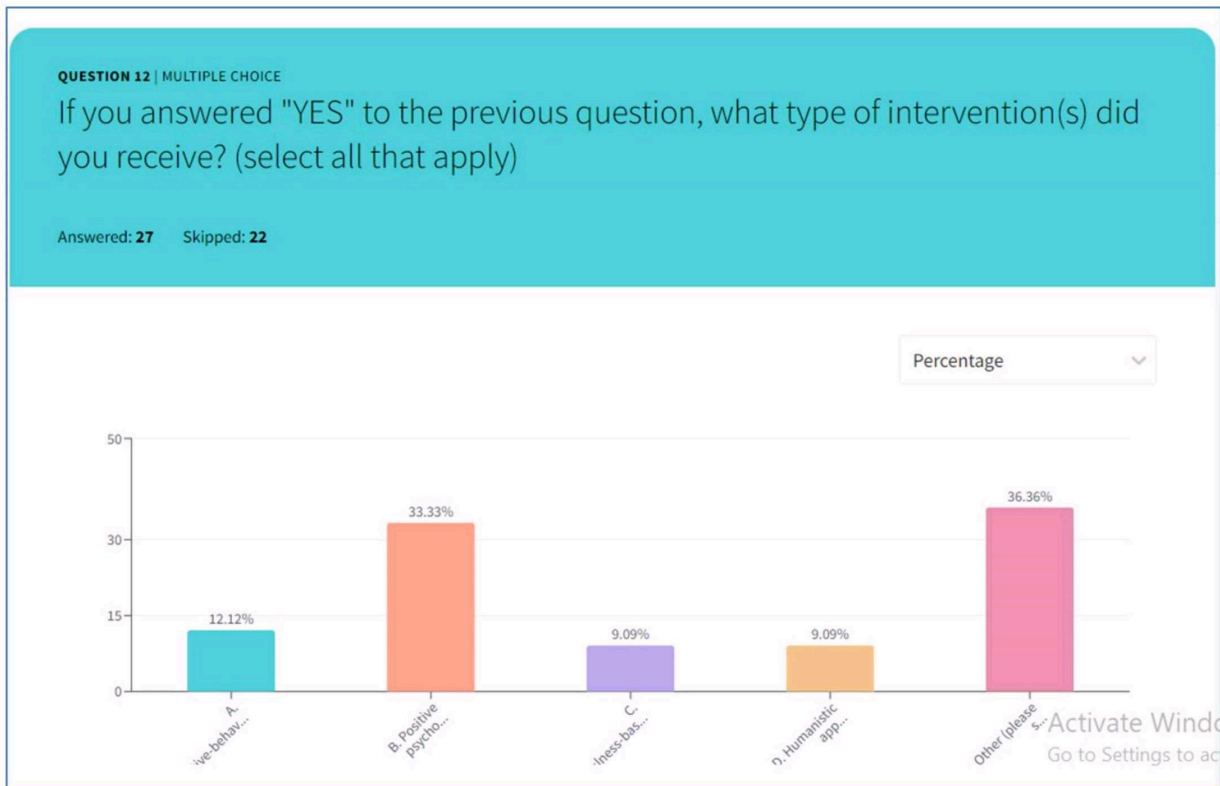
3 out of 10 participants have received psychological intervention (Therapy, Counselling, Coaching) in their life journey so far

QUESTION 11 | MULTIPLE CHOICE

Have you ever received any type of psychological intervention (e.g., therapy, counselling, coaching)?

Answered: 51 Skipped: 0





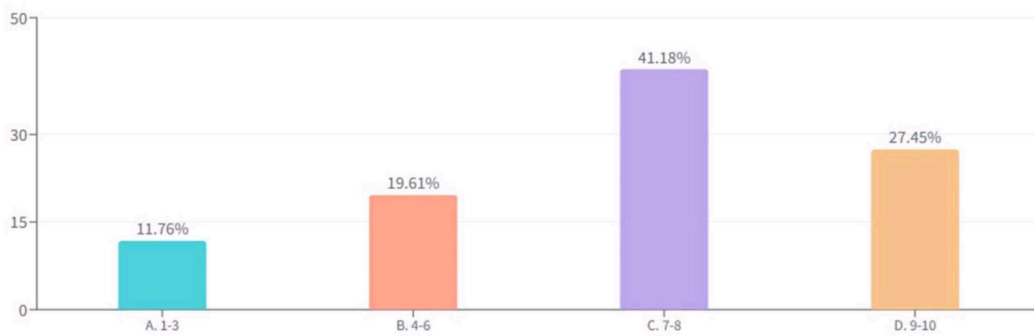
7 out of 10 believe that psychological interventions are very helpful in improving their psychological well-being



QUESTION 13 | MULTIPLE CHOICE

On a scale of 1-10, how effective was the intervention(s) in improving your psychological well-being?

Answered: 51 Skipped: 0

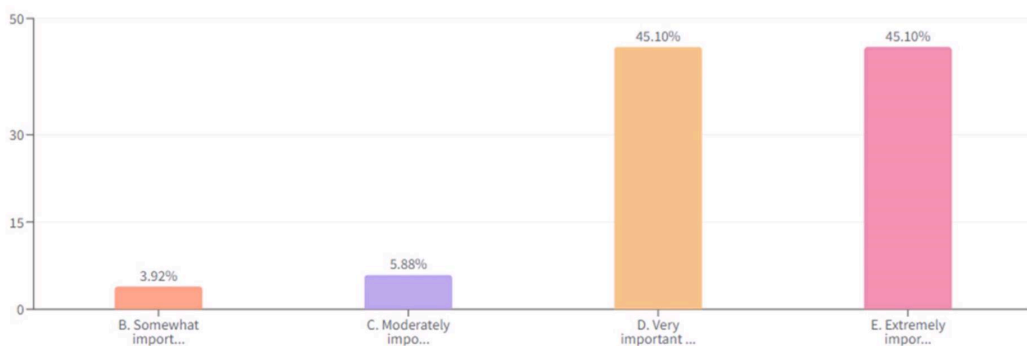


9 out of 10 believe that psychological well-being is very important for the human development

QUESTION 14 | MULTIPLE CHOICE

Overall, how important do you think psychological well-being is for human development?

Answered: 51 Skipped: 0





The results of this study provide a strong foundation for the discussion of the impact of psychological well-being on human development and the role of psychologists in promoting and maintaining psychological well-being. The findings suggest that psychological well-being is a critical aspect of human development and that it has a significant impact on various aspects of an individual's life, including physical, cognitive, and social development. The results of the descriptive statistics reveal that the majority of participants in the study had high levels of psychological well-being, indicating the potential for positive outcomes in individuals who prioritize psychological well-being.

Furthermore, the results of the analysis showed that psychological well-being is significantly related to human development. A positive relationship between all dimensions of psychological well-being is also observed, suggesting that individuals who experience high levels of positive emotion, engagement, relationships, meaning, and accomplishment tend to have higher levels of overall psychological well-being. Additionally, the results of the analysis showed that engagement, relationships, and meaning were significant predictors of psychological well-being, suggesting that fostering these dimensions may be particularly important for promoting and maintaining psychological well-being. The study also highlights the critical role of psychologists in promoting and maintaining psychological well-being. The survey results revealed that the majority of the participants believed that psychologists play a significant role in this area. Specifically, the participants believed that psychologists can help individuals develop coping strategies, improve communication and relationships, and promote personal growth and development. This aligns with the findings of previous studies that highlight the effectiveness of psychological interventions in improving psychological well-being. The study emphasizes the need for incorporating positive psychology by promoting mental health awareness and humanistic approaches in psychological interventions to promote well-being, rather than just treating mental illnesses. This way psychologists can contribute to society and reduce the stigma associated with seeking psychological help. The qualitative data analysis provided additional insights into the experiences and perspectives of experienced psychologists and students regarding psychological well-being and its impact on human development. The thematic analysis revealed several common themes, including the importance of resilience, the impact of early life experiences, and the role of social support and community engagement in promoting psychological well-being. The interviews also provided valuable insights into the challenges that psychologists face when promoting and maintaining psychological well-being, including the stigma associated with mental health, and limited access to mental health services. The findings of the qualitative analysis support the need for psychologists to focus on promoting resilience in individuals, as well as the need for greater collaboration between psychologists and other healthcare professionals. The study's findings have significant implications for psychology and human development. The results underscore the critical role of psychologists in supporting individuals to achieve optimal mental health and well-being. The promotion of psychological



well-being should be an integral part of psychological practice, research, and education. The study emphasizes the need for continued research in this area, particularly about the effectiveness of psychological interventions and strategies for promoting and maintaining psychological well-being. In conclusion, this study provides valuable insights into the impact of psychological well-being on human development and the promotion of psychological well-being should be an integral part of psychological practice, research, and education. The role of psychologists in promoting and maintaining psychological well-being is critical. The study's results suggest that psychological well-being is a critical aspect of human development and that psychologists play an essential role in promoting and maintaining psychological well-being. The use of both qualitative and quantitative methods allowed for a comprehensive examination of the research questions, providing valuable insights into the experiences and perspectives of experienced psychologists and students. These findings have significant implications for the future of psychology and human development, emphasizing the importance of promoting and prioritizing psychological well-being to improve the overall quality of life for individuals and society as a whole. Further research in this area is necessary to develop effective strategies for promoting psychological well-being and addressing the challenges that psychologists face in this area.

Discussion

The current study aimed to explore the relationship between psychological well-being and human development, and the role of psychologists in promoting and maintaining psychological well-being. The results of the study demonstrated that psychological well-being is a multi-dimensional construct that encompasses various factors, including positive emotions, life satisfaction, purpose in life, autonomy, self-acceptance, and personal growth. Furthermore, the findings showed that psychological well-being is strongly correlated with human development, indicating that individuals who experience higher levels of psychological well-being tend to have a better overall quality of life.

The study's descriptive statistics revealed that the majority of participants had high scores in the PERMA Profiler, Satisfaction with Life Scale, and Flourishing Scale, suggesting a generally positive level of psychological well-being among the participants. These findings are consistent with previous research, which has consistently demonstrated that psychological well-being is associated with better physical, cognitive, and social outcomes (Huppert & So, 2013). The correlation analysis further indicated a positive relationship between all dimensions of psychological well-being, suggesting that fostering positive emotions, engagement, relationships, meaning, and accomplishment may be particularly important for promoting and maintaining psychological well-being. The regression analysis showed that engagement, relationships, and meaning were significant predictors of psychological well-being. These results support previous research that has highlighted the importance of these dimensions in promoting well-being



(Keyes, 2002). Moreover, the survey results revealed that the majority of participants believed that psychologists play a significant role in promoting and maintaining psychological well-being. Specifically, participants believed that psychologists can help individuals develop coping strategies, improve communication and relationships, and promote personal growth and development. The qualitative data analysis provided additional insights into the experiences and perspectives of experienced psychologists and students regarding psychological well-being and its impact on human development. The thematic analysis revealed several common themes, including the importance of resilience, the impact of early life experiences, and the role of social support and community engagement in promoting psychological well-being. The study's findings have significant implications for the future of psychology and human development, emphasizing the importance of promoting and maintaining psychological well-being to improve the overall quality of life for individuals and society as a whole. The study underscores the critical role of psychologists in supporting individuals to achieve optimal mental health and well-being. Moreover, the study highlights the need for continued research in this area, particularly about the effectiveness of psychological interventions and strategies for promoting and maintaining psychological well-being. The study's limitations should also be acknowledged. The study employed a cross-sectional design, limiting the ability to infer causality. Future research could employ longitudinal designs to examine the relationship between psychological well-being and human development over time. Additionally, the study's sample was relatively small, comprising only experienced psychologists and students. Future research could explore the experiences and perspectives of individuals from diverse backgrounds and contexts to gain a more comprehensive understanding of the relationship between psychological well-being and human development.

In conclusion, the present study provides important insights into the impact of psychological well-being on human development and the role of psychologists in promoting and maintaining psychological well-being. The study's findings emphasize the importance of psychological well-being in human development and the critical role of psychologists in supporting individuals to achieve optimal mental health and well-being. The findings of this study have significant implications for the future of psychology and human development, highlighting the need to prioritize interventions that promote psychological well-being to improve the overall quality of life for individuals and society as a whole.

Conclusion

In conclusion, this research paper has shed light on the significance of psychological well-being in human development and the essential role of psychologists in promoting and maintaining it. The study has found that psychological well-being is a multidimensional construct encompassing various factors that play a vital role in an individual's physical, cognitive, and social development. The research has also highlighted the effectiveness of psychological interventions



such as cognitive-behavioral therapy, positive psychology, mindfulness-based therapies, and humanistic approaches in promoting psychological well-being. The study has underscored the need to incorporate positive psychology and humanistic approaches in psychological interventions to promote well-being, instead of just treating mental illnesses. The findings suggest that psychologists play a crucial role in supporting individuals to achieve optimal mental health and well-being by providing effective interventions, developing coping strategies, improving communication and relationships, and promoting personal growth and development. The research has significant implications for the future of psychology and human development, emphasizing the need to prioritize the promotion of psychological well-being as an integral part of psychological practice, research, and education. The study also highlights the need for continued research in this area, particularly about the effectiveness of psychological interventions and strategies for promoting and maintaining psychological well-being. In summary, this research paper has provided important insights into the role of psychological well-being in human development and the significance of psychologists' role in promoting and maintaining it.

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The Impact of social media on Adolescent Mental Health: A Comprehensive Analysis

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Abstract:

The purpose of this research is to examine the effects of social media on the psychological well-being of adolescents. The widespread usage of social media among teenagers makes it crucial to examine the psychological effects. This study takes a methodical look at the relevant literature to investigate the different facets of this intricate connection. The effects of social media use on adolescents' self-esteem, body image, loneliness, sadness, anxiety, and psychological well-being are explored. Mechanisms including social comparison, cyberbullying, and FOMO are analysed closely as possible causes of these consequences. This research focuses at potential moderators of the effect of social media on mental health, such as age, gender, and cultural variables. This study seeks to give a complete review of the problem by combining empirical research, so shedding light on the psychological repercussions of social media usage among teenagers. The results add to the existing research and provide valuable insight for mental health experts, teachers, and parents on the benefits and dangers of teens' social media usage. Positive mental health outcomes in the digital age are examined, along with the implications for therapeutic tactics and future research areas.

Keywords: social media, Adolescent, Mental health, Impact, Comprehensive analysis, Self-esteem

introduction

The massive use of social media platforms in recent years has dramatically altered the ways in which people worldwide engage with one another and disseminate information. Adolescents, more than any other user group, are fully embracing the digital world and incorporating social media into their everyday life. There is rising worry regarding the influence of social media on teenage mental health, despite the fact that social media provides various positives, such as increased connectedness and access to knowledge. In order to address the dangers and create successful intervention techniques, it is crucial to have a thorough understanding of the complex interaction between social media and mental health. Significant physical, emotional, and social changes define adolescence, a pivotal period in human



development. Adolescents are especially vulnerable to the affects of social media because they are in the process of forming their identities, comparing themselves to others, and developing connections with their peers. we still don't know the full extent of what being so exposed will do to our bodies. Therefore, it is important to conduct a thorough investigation of the effects of social media on numerous aspects of adolescents' psychological well-being. The purpose of this research is to examine the impact of social media on adolescents' mental health in depth. Our goal is to determine the impacts of social media use on important facets of mental health, such as self-esteem, body image, loneliness, sadness, anxiety, and general psychological health, by synthesising current studies. We also want to look at the factors like social comparison, cyberbullying, and FOMO that may reduce or even cancel out these impacts (FOMO).

The effect of social media on mental health outcomes will be analysed, with possible moderators including age, gender, and cultural influences taken into account. We may acquire a more sophisticated knowledge of the complexity of the social media-adolescent mental health interaction if we take these contextual elements into account. “The results of this in-depth investigation will add to the current literature and have real-world applications. It is important for mental health experts, teachers, and parents to be aware of the benefits and drawbacks of teens' social media usage. With this information, we can create interventions that have been shown to improve people's mental health in the modern digital age.

Effects of social media on Self-Esteem and Body Image in Adolescents

Adolescents in today's technological world rely heavily on social media. These sites serve as virtual meeting places where people may share ideas, make new friends, and learn about a wide range of topics. Concerns have been raised, however, about the effect that social media may have on adolescents' mental health, in particular with respect to adolescents' self-esteem and body image. Adolescents' growth and happiness rely heavily on their self-esteem, which can be thought of as an individual's subjective judgement of their worth and value. Body image, on the other hand, is how an individual thinks about and evaluates their physical attributes. Social media platforms may have a profound effect on one's sense of self-worth and body image via the exposure to various types of material and interactions. The impact of social media on young people's sense of self-worth is examined in the paper's first part. People often use social media to engage in social comparison, in which they evaluate their own social standing in relation to that of others. Social comparisons, especially with others' meticulously maintained profiles and highlight reels, may have a detrimental effect on one's sense of self-worth. Peer pressure



to project an idealised self-image online and the need for approval from peers may also have an impact on one's sense of self-worth online.

The second part explores how young people's views on their own bodies have changed as a result of their exposure to online media. Idealized physique photos that conform to mainstream beauty standards are often shown on social media. Body dissatisfaction and the adoption of false standards might result from prolonged exposure to such media. Adolescents' body image issues are compounded by the way social media encourages them to compare themselves to others. Objectification of bodies on social media may also encourage the development of unrealistic beauty standards and an inaccurate understanding of one's own body. The final part examines the role of mediating elements in the social media-self-esteem/body-image link, providing insight into the underlying psychological processes. Adolescents' senses of self-worth and body image are shaped in part by their internalisation of media messages, peer influence, and emotional reactions to online interactions. Intervention efforts may benefit from a deeper understanding of these processes. In the fourth part, we look at moderating variables to see how personal traits and environmental factors interact with the effects of social media. The effect of social media on feelings of worth and body image varies depending on gender, chronological age, and cultural context. Recognizing these moderators allows for a more sophisticated comprehension of the relationship's intricacies.

Studies that follow participants over time to see how their social media habits affect their sense of self-worth and body image are explored in the fifth section. Researchers may learn important information for intervention and preventative efforts by studying the relationship between social media usage and poor self-esteem and body satisfaction, or vice versa. In the sixth segment, we'll look at some of the interventions that have been shown to be effective in improving teenagers' sense of self-worth and body image in the modern information era. Approaches like as media literacy training, positive role Modeling, and empowerment campaigns may aid teens in navigating the social media ecosystem and forming a good sense of identity. In the seventh part, we address potential next steps, touching on topics including methodological issues, investigating underrepresented demographics, and analysing the impact of various social media platforms. The potential detrimental impacts of social media on teenage self-esteem and body image may be mitigated by more focused treatments and policies, which can be developed as our expertise in these areas improves.



The Relationship Between Social Media Use and Loneliness in Adolescents

Adolescents' mental health may be negatively affected by the all-too-common feeling of loneliness. Adolescents rely heavily on their social networks and the support of their peers throughout this formative stage of their lives. Concerns have been raised concerning whether or not the rise of social media is contributing to an increase in lonesomeness among adolescents. Adolescents nowadays have unparalleled options for connectedness because to social media platforms, allowing them to make and keep friends over vast geographic distances. However, others worry that isolation and loneliness among teens may increase as a result of their overuse of social media. The goal of this article is to investigate whether or not there is a correlation between teenage social media usage and feelings of isolation. In the first part, we examine how young people's use of social media has changed their experience of isolation. It looks at how spending too much time on social media—with its focus on virtual communication at the expense of in-person contact—may lead to isolation. Intensifying feelings of social isolation and loneliness among teenagers, social media has a propensity to generate an appearance of social connection without delivering actual and meaningful interactions.

The second part of this article investigates the processes at play between social media usage and isolation. It delves at the ways in which loneliness may be exacerbated by factors including social comparison, FOMO, and a lack of social skills”. Idealized portrayals of others' life on social media platforms may lead to unfavourable social comparisons and exacerbate feelings of inadequacy and isolation. Anxiety over being left out of online social circles is another factor that may amplify feelings of isolation. Over time, teenagers who spend too much time glued to their screens may lose the capacity to connect with others in the real world, which may amplify feelings of isolation. In the third part, we look at potential moderators of the social media-loneliness connection. Adolescents' experiences of loneliness may be influenced by their usage of social media as well as by other factors, such as their age, gender, and personality features. Because of their continuous developmental demands for social acceptability and belonging, for example, younger teenagers may be more vulnerable to the negative impacts of social media on loneliness. Perhaps gender plays a factor as well, with women perhaps being more susceptible to the negative impacts of social media on loneliness. The effect that social media usage has on loneliness may also be influenced by factors such as a person's level of extraversion and sense of self-worth. In order to create successful intervention techniques, we need a better understanding of the correlation between teenage social media usage and feelings of isolation. In the last segment, we look at how social media isolation may be helped via several forms of intervention. Adolescents may find success in both the online and offline worlds with the support of strategies like



those that promote good social media habits, encourage offline social contacts, nurture social and emotional skills, and provide digital literacy instruction.

Examining the Association Between Social Media and Depression in Adolescents

Many teenagers throughout the globe struggle with depression, making it an important issue in the field of mental health. Researchers and clinicians have paid more attention to the link between social media usage and depression in this at-risk demographic as these platforms have grown in popularity. In order to identify risk factors, provide preventative measures, and promote mental health among teenagers, knowledge of the complex interaction between social media and depression is essential. The goal of this article is to investigate whether or not there is a correlation between teenage social media usage and depressive symptoms. The effects of social media on teenage mental health are investigated in the first chapter. Adolescents may use social media as a means of communication, socialising, and information dissemination. Depression symptoms may be exacerbated by excessive social media usage and by seeing inappropriate or upsetting material online. “Adolescents' self-esteem may be damaged by their exposure to well crafted internet profiles, cyberbullying occurrences, and false comparisons, all of which may lead to feelings of inadequacy, despair, and eventually depression. Some researchers believe that unpleasant online interactions, social comparison, and FOMO might all play a role in exacerbating depressed symptoms. Idealized portrayals of other people's life on social media may lead to negative social comparisons and discontent, both of which are risk factors for depression. Feelings of isolation and despair may be exacerbated by the worry of missing out on social gatherings and experiences shown on social media. Depression is only one of the mental health issues that may be exacerbated by unpleasant online interactions like cyberbullying or exposure to dangerous information. In the third part, we look at potential moderators of the link between teenage depression and social media use. The likelihood of developing depression may be affected by a number of variables, including but not limited to age, gender, and personal qualities. For example, because of their still-developing social and cognitive skills, younger teenagers may be more susceptible to the harmful impacts of social media. It has also been noted that there are disparities between the sexes, with women usually reporting greater levels of depression and maybe being more vulnerable to the adverse effects of social media. Adolescents' reactions to social media experiences and their vulnerability to depression are affected by a variety of personal factors, such as their level of self-esteem, their ability to cope with stressful situations, and their network of offline friends and family.

Conclusion:



This all-encompassing review highlights the significance of identifying the many ways in which social media affects adolescents' psychological well-being. It highlights the need of taking precautions while yet reaping the advantages of social networking. Adolescents may benefit from increased digital literacy, positive online habits, and offline social interaction if mental health experts, teachers, parents, and politicians all work together. Resilience, coping, and positive self- and body-image promotion should also be central to any effective therapies. Research on the effects of social media on adolescents' mental health should keep up with the field's rapid development". Additional insights into the causative processes and complex experiences of teenagers in the digital era may be gained via longitudinal research, experimental methods, and qualitative techniques. Positive mental health outcomes in the context of social media usage are understudied, and further study of intervention tactics and identification of novel ways is needed.

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The Psychology of Emotion Regulation: Strategies and Implications for Mental Well-being

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Abstract:

Mental health depends on emotion management. Emotion management improves psychological health, resilience, and adaptation. This research examines emotion management methods and their effects on mental health. Antecedent-focused and response-focused techniques regulate emotions. Cognitive reappraisal or scenario selection are antecedent-focused procedures that alter the emotional experience. Reaction-focused methods, like expressive suppression or emotion suppression, modulate the emotional response after it occurs. Emotion control approach seems to affect mental health. Adaptive emotion regulation procedures like cognitive reappraisal promote psychological outcomes including anxiety and depression reduction, emotional well-being, and interpersonal connections. Reinterpreting a circumstance to change one's emotional reaction improves emotion management and psychological adjustment. Suppression and avoidance may harm mental health. Suppressing or ignoring emotions may bring short-term respite, but it may lead to emotional anguish, physiological arousal, and decreased interpersonal performance. These techniques limit emotional processing and expression, causing psychopathology and preventing adaptive coping.

keywords: Emotion regulation, Psychology, Strategies, Mental well-being, Adaptive, Maladaptive

Introduction:

The act of controlling and altering one's emotional experiences is referred to as emotion regulation, and it plays an important part in the mental health of people. It is important for adaptive functioning, psychological resilience, and general psychological health to have the capacity to successfully control one's emotions. It is vital to get an understanding of the psychology of emotion regulation in order to promote good psychological functioning. This understanding must include both the tactics that people use to regulate their emotions and the consequences these strategies have for mental health. Both antecedent-focused and response-focused methods may be considered to represent broad categories of techniques for emotion control. Antecedent-focused techniques entail changing the emotional experience by exerting influence on the circumstances or events that came immediately before the feeling. These strategies include cognitive reappraisal, which entails changing the interpretation or meaning of a situation to alter the emotional response, as well as situation selection, in which individuals deliberately choose or avoid certain situations to manage their emotions. Reappraising a situation involves changing the interpretation or meaning of a situation in order to change the emotional response. Altering the emotional reaction itself after it has already taken place is the goal of response-focused techniques, on the other hand. Expressive suppression and emotion suppression are two examples of response-focused tactics. Expressive suppression occurs when a person actively inhibits their outward emotional expression, while emotion suppression entails efforts to repress or avoid emotional experiences entirely.



According to research done on the topic, the method of emotion regulation that a person chooses has a substantial impact on the mental health of the individual. It has been shown that adaptive techniques for regulating emotions, such as cognitive reappraisal, are related with beneficial psychological consequences. People who make use of adaptive methods report less symptoms of anxiety and depression, better feelings of emotional well-being, and enhanced interpersonal connections. These techniques provide people the ability to properly manage their emotions, which in turn helps with psychological adjustment and improves mental health on a more general level. On the other hand, maladaptive tactics for emotion regulation, such as avoiding or repressing feelings, may have a negative impact on mental health. Maladaptive methods may, in the short term, give respite from or allow the avoidance of emotional pain; nevertheless, in the long run, these tactics may lead to greater emotional distress, higher physiological arousal, and decreased interpersonal functioning. These tactics impede the normal processing and expression of feelings, which in turn makes adaptive coping more difficult and may contribute to the development or maintenance of psychopathology. The knowledge of the techniques for emotion regulation has consequences for the practical use of mental health therapies. Many types of psychotherapy, including cognitive behavioural therapy (CBT), dialectical behaviour therapy (DBT), and mindfulness-based therapies, include training in adaptive emotion regulation skills as part of their treatment plans. The goal of these therapies is to provide people with the ability to recognise, comprehend, and control the emotional reactions they have. These therapies seek to strengthen emotional regulation abilities, increase psychological well-being, and reduce symptoms of psychopathology. They do this by encouraging the use of adaptive techniques while discouraging the use of maladaptive methods.

Adaptive Emotion Regulation Strategies: Enhancing Psychological Well-being

Adaptive techniques for emotion regulation play an important part in the process of improving psychological well-being. Individuals are able to more successfully navigate and react to their emotions when they have developed the skill of emotion regulation, which refers to the process of controlling and altering emotional experiences. When people make use of adaptive techniques, they are better able to manage their feelings in a manner that is beneficial to their mental health, resilience, and general well-being. Strategies for adaptive emotion regulation include making conscious attempts to comprehend, acknowledge, and constructively regulate one's feelings in a variety of situations. These techniques aim to encourage favourable psychological outcomes by promoting emotional balance, facilitating adaptive coping, and enhancing positive coping mechanisms. Individuals are able to harness the power of their feelings and improve their general psychological well-being when they use adaptive techniques in their lives. Cognitive reappraisal is a crucial adaptive emotion regulation method that includes reframing the perception or meaning of a circumstance in order to modify one's emotional reaction. This may be done in order to manage negative emotions. Individuals are able to successfully manage their emotional responses by altering the manner in which they see and interpret the events that occur. Cognitive reappraisal enables a reaction to emotional events that is more flexible and adaptable, so lessening the strength of negative feelings and increasing the frequency of happy emotions. This tactic has been linked to better mental health outcomes, such as less symptoms of anxiety and depression, higher levels of emotional well-being, and stronger interpersonal connections. Emotional acceptance is another adaptive approach that entails admitting and accepting one's emotions without



judgement or repression. This method calls for one to acknowledge and embrace their feelings. Individuals are better able to be emotionally real and compassionate toward themselves when they are given the opportunity to experience and validate their feelings via the practise of acceptance. Individuals may navigate through hard circumstances with higher emotional resilience and psychological well-being if they embrace their own feelings and acknowledge their significance. Adaptive emotion regulation may be achieved by the use of emotion regulation tactics such as problem-solving, seeking social support, and participating in positive reappraisal. Individuals are able to discover solutions to hard problems via the process of problem-solving, which in turn reduces the influence of negative emotions and promotes a feeling of control. Individuals are given the opportunity to share their emotional experiences with others, to broaden their perspectives, and to get aid from others around them when they seek social support. This helps to promote emotional validation and connection. Finding the good in bad circumstances, sometimes known as "finding the silver lining," and rethinking one's viewpoint in order to foster positive feelings and resiliency are both components of the process known as "positive reappraisal." The use of flexible techniques for the management of one's emotions may have significant effects on one's psychological health. Individuals may enjoy greater emotional well-being, less psychological suffering, and enhanced interpersonal functioning by adopting the aforementioned skills. The ability to regulate one's emotions in adaptive ways also leads to improved stress management, higher emotional intelligence, and enhanced overall life satisfaction. In recognition of the significance of adaptive techniques for emotion regulation, a variety of therapeutic methods and therapies, including cognitive-behavioral therapy (CBT), dialectical behaviour therapy (DBT), and mindfulness-based interventions, include training in these strategies. The purpose of these therapies is to improve people's awareness of their emotional experiences, foster the development of their capacity to control their emotions in a healthy way, and foster psychological well-being.

Maladaptive Emotion Regulation Strategies: Implications for Mental Health

Maladaptive emotion regulation mechanisms have major consequences for mental health because they may lead to psychological distress, decreased functioning, and the maintenance of psychopathology. These three factors all play a role in the development and maintenance of psychopathology. When people make poor choices about the tactics they use to regulate their emotions, it may have a negative impact on their mental health and well-being. Emotion regulation is the process of controlling and altering one's emotional experiences. Ineffective or detrimental methods of coping with one's feelings are included in the category of maladaptive emotion regulation techniques. However, in the long run, these tactics may make unpleasant feelings worse, make it more difficult to develop healthy coping mechanisms, and interfere with the process of psychological adjustment. In the short term, they may give respite or help avoid emotional pain. It is essential to have a solid understanding of the ramifications of maladaptive techniques for emotion regulation in order to identify possible areas of intervention and to promote healthy emotional well-being. Suppression is a typical maladaptive technique that includes actively restricting or suppressing the outward expression of emotions. It is one of the most prevalent maladaptive strategies. Suppression may result in an immediate decrease in outward emotional displays; nonetheless, it more frequently than not leads to greater physiological arousal, increased distress, and worse interpersonal functioning. Individuals who repress their feelings inhibit the normal processing and appropriate expression of their emotional experiences, which may



lead to emotional dysregulation and have potential adverse effects on mental health. Individuals who intentionally want to avoid or escape from emotional experiences totally engage in the maladaptive technique of avoidance, which is another maladaptive approach. A person may engage in avoidance in a number of ways, including avoiding circumstances that are known to elicit unpleasant feelings, diverting themselves from emotional misery by engaging in activities or drugs to an unhealthy degree, or distancing themselves from emotional experiences. These techniques of avoidance may make it more difficult to manage emotions, can stunt personal development, and can contribute to the cycle of emotional troubles.

Another maladaptive behaviour that exacerbates and extends the experience of emotional discomfort is rumination, which is defined as the persistent emphasis on unpleasant thoughts and emotions. People who ruminate often relive upsetting experiences in their minds, linger on unpleasant feelings, and engage in excessive self-reflection, yet they are unable to find resolution or creative answers to their problems. The act of dwelling on an issue may amplify unpleasant feelings, bring on an increase in depression symptoms, and make it more difficult to find solutions to problems. Inappropriate coping mechanisms, such as aggression or lashing out in reaction to unpleasant feelings, may be harmful to both the person and the others around them. When used as a form of emotional release, engaging in violent behaviours may contribute to the perpetuation of a vicious cycle that includes the escalation of anger, the straining of relationships, and the negative implications for mental health and general well-being. There are significant repercussions for one's mental health when they engage in maladaptive methods of emotion management. These tactics often lead to higher levels of psychological discomfort, raised feelings of anxiety and depression, lower levels of emotional well-being, damaged interpersonal connections, and the persistence of psychopathology. People who depend on maladaptive tactics may discover that it is difficult to successfully control their emotions, deal with pressures, and build psychological resilience in their lives. It is essential, in the interest of enhancing mental health and well-being, to deal with maladaptive mechanisms for emotion regulation. Cognitive-behavioral therapy (CBT) and dialectical behaviour therapy (DBT) are two examples of psychotherapeutic approaches that concentrate on recognising and correcting dysfunctional techniques while also advocating healthy alternatives. These therapies aim to improve emotional awareness, facilitate the development of adaptive coping skills, aid in the process of emotional regulation, and encourage good psychological consequences.

Cognitive Reappraisal: Altering the Meaning of Emotional Experiences

Altering one's meaning or interpretation of emotional events is the goal of the cognitive reappraisal emotion regulation approach, which is an adaptive method for managing one's feelings. It is an extremely important factor in the efficient management of feelings, the enhancement of psychological well-being, and the facilitation of adaptive coping. Cognitive reappraisal provides for more adaptive emotional reactions and improved psychological results because it reframes the manner in which people view and understand the events that occur in their lives. A cognitive reappraisal is a purposeful cognitive process in which people reinterpret the meaning of a situation in order to adjust their emotional responses. This is done in order to achieve a desired outcome. Changing one's point of view, concentrating on other facets of the circumstance, or taking into consideration multiple potential explanations are all required steps. Individuals are able to affect their emotional reactions, which may



lead to enhanced emotional regulation and improved psychological functioning. This is accomplished through altering the cognitive assessment of an experience. People who use cognitive reappraisal actively question and adjust their first instinctive emotional responses. This is done in order to improve their mental health. They may, for instance, reinterpret a difficult experience as a chance for progress or regard a setback as a temporary impediment rather than a permanent failure. Another example is that they may view a stressful situation as an opportunity for growth. Individuals are able to modulate their emotional reactions, lessen the severity of unpleasant emotions, and encourage more adaptive coping mechanisms by reappraising the scenario in which they find themselves.

According to the findings of multiple pieces of research, cognitive reappraisal is linked to a wide variety of beneficial psychological effects. People who engage in cognitive reappraisal on a regular basis are more likely to report less symptoms of anxiety and depression, higher emotional well-being, stronger interpersonal interactions, and increased resilience in the face of adversity. Individuals are afforded the opportunity to negotiate hard circumstances with better emotional flexibility and adaptability by virtue of this tactic. The capacity for cognitive reappraisal is a skill that, with practise and experience, may be improved. A person may learn to recognise automatic ideas and cognitive biases that contribute to emotional responses, and they can also learn to change such biases. An individual's capacity to reassess emotional experiences and effectively regulate their feelings can be improved through the consistent practise of cognitive reappraisal techniques such as taking a different point of view, looking for the positive in a negative situation, or considering alternative points of view. The use of cognitive reappraisal has significant consequences in a variety of settings, such as therapeutic treatments, the management of stress, and interpersonal interactions. Cognitive reappraisal is often used as a central component in therapeutic techniques such as cognitive-behavioral therapy (CBT), with the goal of assisting patients in reorienting their ideas and feelings in a way that is more conducive to healthy living. Cognitive reappraisal is a technique that may be used in stress management to reframe stressors as challenges rather than threats. This encourages a more positive and proactive attitude to dealing with stressful situations. Individuals who participate in cognitive reappraisal have the ability to create empathy, understanding, and constructive communication in their interpersonal interactions by taking into consideration other points of view.

Expressive Suppression: Inhibiting Outward Emotional Expression

Cognitive reappraisal is an adaptive emotion control method that includes reinterpreting emotions. It helps manage emotions, promote psychological well-being, and enable adaptive coping. Cognitive reappraisal improves psychological outcomes and emotional reactions by reframing situations. To change their emotions, people use cognitive reappraisal to reframe a scenario. Changing one's viewpoint, concentrating on various parts of the circumstance, or exploring alternate interpretations is required. Individuals may regulate their emotions and enhance psychological functioning by modifying their cognitive assessment of an experience. Cognitive reappraisal aggressively challenges and modifies initial instinctive emotional responses. For instance, they may see a difficult situation as a chance to progress or a setback as a temporary setback. Reappraising the situation helps people manage their emotions, reduce unpleasant emotions, and develop better coping skills.

Cognitive reappraisal has several favourable psychological effects, according to research. Cognitive reappraisal reduces anxiety and depression, improves emotional well-being, relationships, and



resilience in the face of adversity. This method improves emotional flexibility and adaptation in difficult circumstances. Over time, cognitive reappraisal may be improved. Individuals may recognise automatic ideas and cognitive biases that cause emotional responses. Cognitive reappraisal strategies like perspective-taking, identifying silver linings, and contemplating different views might help people better manage their emotions. Clinical therapies, stress management, and interpersonal interactions all benefit from cognitive reappraisal. Cognitive reappraisal is a key component of cognitive-behavioral therapy (CBT), which helps people rethink their ideas and feelings. Cognitive reappraisal may help manage stress by reinterpreting stressors as challenges rather than threats. Cognitive reappraisal may promote empathy, understanding, and constructive communication in interpersonal interactions by considering other views.

Conclusion

Emotion regulation psychology covers several ways people control their emotions, which may affect mental health. Effective emotion regulation promotes adaptive functioning, resilience, and psychological wellness. Interventions may improve emotion regulation and mental health by knowing these methods and their effects. Cognitive reappraisal, expressive suppression, emotional acceptance, problem-solving, and social support affect mental health differently. Cognitive reappraisal and emotional acceptance may decrease anxiety and depression, promote emotional well-being, and improve interpersonal relationships. These tactics improve emotional management and psychological resilience. Expressive repression and avoidance, however, may harm mental health. These tactics may temporarily relieve emotional pain, but they typically exacerbate suffering, hinder interpersonal functioning, and maintain psychopathology. Recognizing maladaptive methods' negative effects promotes better emotion control and mental wellness. Emotion regulation psychology affects relationships, stress management, and therapeutic therapies. Emotion control improves communication, empathy, and understanding. Emotion control improves stress management and life issues. Cognitive-behavioral therapy (CBT) and mindfulness-based therapies promote adaptive emotion control. Emotion regulation research includes studying individual variations in regulation techniques, the efficacy of therapies targeting particular strategies, and the influence of culture in emotion control. Interventions may be customised to individual requirements by understanding emotion regulation psychology better, improving mental health and quality of life.

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The Power of Positive Psychology: Promoting Happiness and Well-being

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Abstract:

Positive psychology studies and promotes pleasure, well-being, and thriving. Psychology now focuses on human potential and optimum functioning rather than mental health issues and pathology. This abstract describes how positive psychology promotes pleasure and well-being. Positive psychology stresses positive emotions, strengths, virtues, and experiences to improve well-being. It understands that well-being is more than just the absence of bad feelings or issues. Great psychology helps people develop their talents, build positive connections, and live a meaningful life by concentrating on the positive. Positive psychology research has shown that pleasure, appreciation, optimism, and love improve people. These emotions improve health, cognition, and social functioning. Practicing good emotions may boost life satisfaction and resilience. Positive psychology also emphasises character qualities. Using characteristics like creativity, compassion, bravery, and knowledge may make you feel fulfilled and successful. Positive psychologists recommend using strengths in work, relationships, and personal objectives to improve well-being and success. Good psychology stresses positive interactions and social ties. Well-being and happiness depend on social support and strong relationships. Positive psychologists recommend cultivating meaningful connections, showing appreciation and kindness, and being altruistic and compassionate to promote social connectivity.

keywords: Positive psychology, Happiness, Well-being, Flourishing, Positive emotions

introduction

The study of happiness, well-being, and flourishing in people and communities is the focus of positive psychology, a subfield of psychology that is both dynamic and changing and is committed to the understanding and promotion of these concepts. Positive psychology shifts the spotlight away from traditional approaches to psychology, which have primarily focused on addressing mental health disorders and alleviating negative symptoms. Instead, the goal of positive psychology is to investigate the factors that contribute to human potential and optimal functioning. Positive psychology is a branch of psychology that focuses on the study of the power of positive emotions, character strengths, positive relationships, and meaningful engagement. As a result of this research, positive psychology provides useful insights and actionable strategies for improving overall well-being. The concept that being happy is about more than just the absence of unpleasant feelings or challenges is central to the field of positive psychology. This is the theory that underpins the field. It places an emphasis on the existence of good aspects that contribute to living a life that is both full and meaningful. The field of positive psychology acknowledges that people have the ability to increase their levels of positive emotion, identify and build on their own strengths, foster good relationships, and locate a sense of purpose and meaning in their own lives. Positive psychology seeks to enable people to lead lives that are happier and more satisfying by putting an emphasis on the aforementioned strengths and virtues. The investigation of happy feelings is one of the most important aspects of positive psychology. Beneficial feelings, such as happiness, appreciation, optimism, and love, have been shown in studies to have considerable positive effects on



the persons who experience them. They improve not just one's subjective well-being but also one's physical health, cognitive talents, and their ability to operate socially. Individuals may enjoy more life happiness and develop resilience to better deal with the problems that life throws at them if they make a conscious effort to cultivate good emotions.

Positive psychology places a strong emphasis on a person's character qualities and virtues. Every single person contains a one-of-a-kind combination of positive qualities, including inventiveness, thoughtfulness, bravery, and experience. Gaining a feeling of contentment and achievement may result from correctly identifying and making use of one's skills. Positive psychologists encourage people to become aware of their own strengths and to find ways to apply those strengths in different facets of their lives, such as their careers, their personal relationships, and their pursuit of personal goals, in order to improve their well-being and their level of success. The field of positive psychology emphasises the significant part that healthy relationships and meaningful social interactions play in the promotion of well-being. Building solid social support networks and having pleasant relationships with other people are both necessary components of a happy and fulfilled life. In order to promote a sense of social connectivity, positive psychologists place an emphasis on the significance of developing and maintaining meaningful relationships, expressing appreciation and kindness, and participating in acts of charity and compassion. The field of positive psychology investigates the idea of flow, which refers to a state of being in which one is completely immersed and engaged in an activity. A person feels a profound feeling of satisfaction and pleasure when they are totally involved in an activity that plays to their strengths and challenges them in an appropriate manner. Positive psychologists urge people to seek out activities that promote flow and participate in meaningful pursuits that connect with their beliefs and interests. Positive psychologists also encourage individuals to seek out meaningful relationships. Individuals have the ability to develop a life that is fulfilling, resilient, and purposeful by adopting the ideas that are espoused in positive psychology. These principles not only have the ability to influence people, but also communities, organisations, and cultures in a good way so that well-being and flourishing are prioritised. In this sense, positive psychology provides a strong framework for fostering pleasure and well-being, both on the individual and the societal levels, and it does so by focusing on strengths rather than weaknesses.

The Evolution of Positive Psychology

The study of happiness, well-being, and human flourishing is the primary focus of positive psychology, which has developed into a distinct subfield of psychology over the course of its history. Positive psychologists seek to understand the factors that contribute to these outcomes in order to better promote their dissemination. This part of the article examines the development of positive psychology, going back to its beginnings and focusing on the most significant turning points along the way. The field of positive psychology originated in the latter half of the 20th century as a reaction to the dominant emphasis within the field of psychology placed on psychopathology and the treatment of mental disease. While traditional psychology had made significant strides in understanding and treating mental health disorders, it became apparent that there was a need to shift the focus towards exploring the positive aspects of human experience and well-being. This shift in emphasis was necessary because traditional psychology had made significant strides in understanding and treating mental health disorders. Dr. Martin Seligman, a well-known psychologist, is credited with having first introduced the concept of "positive psychology" in the latter half of the 1990s. According to Seligman, the field of psychology should not only seek to reduce human suffering but also to encourage human flourishing and the highest



possible level of functioning. He envisioned positive psychology as a science-based approach that could provide people the resources and the knowledge they needed to live lives that were both rewarding and meaningful. Positive psychology aimed to investigate the elements that lead to pleasure, well-being, and the growth of strengths and virtues by drawing inspiration from older schools of thought such as humanistic psychology and existential philosophy. The objective of the research was to investigate factors that lead to human flourishing, such as good emotions and connections, meaning and purpose, the ability to bounce back from setbacks, and so on. The field of positive psychology gained traction as academics and mental health professionals realised the need of focusing their attention on the study of positive emotions and traits. Because of this, study frameworks and evaluation techniques to measure and explain well-being, happiness, and related notions were developed as a result. Christopher Peterson, Mihaly Csikszentmihalyi, and Barbara Fredrickson are just a few of the researchers who were instrumental in the development of the area and the broadening of its scope. The field of positive psychology has also been impacted by developments in fields that are closely connected to it, such as social psychology, positive sociology, and neuroscience. Through collaboration with these areas of study, our knowledge of the fundamental processes and social aspects that lead to well-being and happiness has been significantly expanded. Over the course of time, positive psychology has garnered attention for its practical applications in a variety of fields, including therapeutic practise, community work, educational settings, and professional environments. Gratitude exercises, character strengths therapies, and positive relationship-building tactics are some examples of the evidence-based interventions and strategies that have been developed in this sector to improve well-being and happiness. Researchers and practitioners in the field of positive psychology are improving their knowledge of well-being while also exploring new territories as the field of positive psychology continues to develop. They are looking into themes such as the positive growth of kids and the positive ageing of adults, as well as the role that technology plays in the promotion of happiness.

Understanding Well-being and Happiness

The field of positive psychology focuses on the study of well-being and happiness as its central concerns. This section examines the notions of well-being and happiness by delving into their respective definitions, components, and the variables that lead to the achievement of these states. Positive psychology attempts to offer people with a greater knowledge of what it means to live a life that is satisfying and joyous by deconstructing the complexities of well-being and happiness. The term "well-being" refers to a multifaceted state that involves more than just experiencing enjoyment. It includes not just a person's physical, mental, and emotional health but also their social ties, their purpose in life, and their general level of pleasure with their existence. It is a state of being that takes into account all aspects of an individual's life and reflects that person's subjective impression of having had a fulfilling life.

On the other side, happiness is defined as the sensation of having pleasant feelings, a sense of satisfaction, and an overall sense of well-being. It is often connected to emotions like as elation, pleasure, and contentment in people. Despite the fact that pleasure is one of the most important aspects of well-being, it is a momentary condition of good affect, while well-being comprises a wider and more prolonged state of total thriving.

The field of positive psychology acknowledges that one's well-being and level of pleasure are impacted by a variety of circumstances, both internal and external. Internal variables include a person's attitude, thoughts, emotions, character qualities, and personal resources. External factors include an organization's environment. The availability of beneficial connections and experiences, as well as social



support, favourable environmental circumstances, and accessibility to resources, are all examples of external influences.

- Feelings That Are Generally Healthier And Happier For You To Experience Feelings That Are Generally Healthier And Happier For You To Experience Are Emotions Such As Joy, Gratitude, Love, And Awe. It is very necessary to work on maintaining a pleasant emotional state in order to improve the quality of one's own personal experience of life.
- Engagement and Flow: Engaging in activities that provide a sense of flow, in which one is fully absorbed and immersed in a challenging task that aligns with their strengths, leads to a profound sense of fulfilment and happiness. Flow can be achieved when one is fully absorbed and immersed in a task that challenges them but also aligns with their strengths.
- Meaning and Purpose: It is essential for one's well-being to have a feeling of meaning and purpose in life. This may be achieved via one's own ideals and aspirations or by contributions to something that is greater than oneself. It gives one a feeling of direction as well as the satisfaction of accomplishment.
- Relationships that are constructive Establishing and maintaining constructive relationships and social connections is an essential part of one's overall well-being. Happiness and a feeling of belonging and connectivity may be fostered via the development of meaningful relationships as well as through the receipt of social assistance.
- Setting meaningful objectives for oneself and attaining those goals, as well as having the feeling that one has accomplished something, are both factors that contribute to one's overall sense of well-being. The feeling of development and self-worth that comes along with accomplishing goals, whether they be professional or personal, is invaluable.
- Character Strengths: Recognizing and making use of one's character strengths, such as compassion, curiosity, bravery, and knowledge, may help one feel more fulfilled and improve their overall well-being. Utilizing these abilities in many aspects of one's life leads to an increase in pleasant experiences as well as beneficial connections.
- Developing resiliency, which is the capacity to recover after experiencing adversity, and adaptability, which is the ability to negotiate the problems that come up in life, both contribute to an individual's overall sense of well-being. People that are resilient are able to have a positive mindset and efficiently deal with the challenges in their lives.

Individuals have the potential to lead lives that are more satisfying if they have an understanding of and cultivate the many factors that contribute to well-being and happiness. Positive psychology offers treatments and techniques that are supported by research, which people may use to improve their general happiness and life satisfaction, as well as their well-being.

The Power of Positive Emotions

The study of positive psychology posits that happy feelings, which act as triggers for well-being and happiness, play an essential part in the discipline. The strength of happy emotions, their influence on people, and the ways in which they contribute to general flourishing are discussed in this section.



Individuals are able to improve their well-being and lead lives that are more rewarding when they comprehend the power of good emotions and learn to harness that power. Joy, happiness, appreciation, love, amazement, and tranquilly are all examples of positive emotions. Positive emotions comprise a wide spectrum of uplifting and pleasurable sentiments. Positive emotions, on the other hand, extend our cognitive capacities and expand our behavioural repertoires, in contrast to negative emotions, which have a tendency to cause us to become more narrowly focused and to trigger the fight-or-flight response. They set in motion a chain reaction of happy events, which in turn increases one's general well-being and capacity for bouncing back from setbacks. Positive emotions have been proved time and time again by research to confer several advantages on the persons who experience them. They not only have a good influence on one's subjective well-being and happiness, but also on one's physical health, cognitive performance, and social interactions. Feeling happy may act as a buffer against the negative effects of stress, boost creativity and the ability to solve problems, increase the functioning of the immune system, and encourage more altruistic conduct.

It has been shown that regularly engaging in happy emotional experiences is associated with higher levels of life satisfaction, general happiness, and overall psychological well-being. The more positive emotions we feel, the more our perspectives extend, the more flexible our thinking becomes, and the more creative our thinking becomes. They assist people in developing long-term resources, such as the ability to bounce back from adversity, to find support from others, and to maintain an optimistic outlook on life. Relationships and other forms of social contact are significantly impacted by the presence of positive emotions. Interpersonal connections are fostered, existing relationships are strengthened, and pro-social conduct is encouraged as a result. Individuals are more likely to participate in acts of compassion, empathy, and collaboration when they are experiencing happy emotions, which strengthens social relationships and contributes to a healthy social environment. Developing a more upbeat disposition requires making a concerted effort to seek out and appreciate the good things that occur in everyday life. Individuals may increase the amount of good emotions they feel by engaging in practises such as expressing appreciation, doing acts of kindness, cultivating positive relationships, practising mindfulness, and participating in activities that bring them joy and pleasure. Interventions in the field of positive psychology have shown the potential that pleasant emotions may have in improving overall well-being. It has been demonstrated that certain methods, such as practising loving-kindness meditation, cultivating an attitude of gratitude, and engaging in positive reappraisal, can lead to an increase in positive emotions, an improvement in overall well-being, and an improvement in an individual's ability to deal with adversity.

Unleashing Strengths and Virtues

The field of positive psychology places a primary emphasis on the concept of "unleashing strengths and virtues," which emphasises the significance of identifying and fostering the distinctive attributes that contribute to the overall well-being and development of an individual. In this part, the idea of strengths and virtues, as well as their relevance in positive psychology and the ways in which capitalising on those strengths and virtues may lead to a life that is more satisfying and flourishing, are investigated. Strengths are the innate characteristics and capabilities that a person has; these qualities and capabilities indicate an individual's fundamental skills and attributes of character. These characteristics may present themselves in a variety of spheres, such as cognitive talents, emotional intelligence, interpersonal skills, creativity, resiliency, and moral virtues. Positive psychology places an emphasis on recognising one's existing qualities as well as cultivating and making use of those talents in order to improve one's overall well-being and level of accomplishment. On the other hand, virtues are moral and ethical traits that direct an individual's conduct and activities. These attributes lead people' behaviour and acts. They



embody principles such as thoughtfulness, openness, honesty, bravery, sagacity, thankfulness, and justice. The cultivation of virtues offers people a structure that enables them to conduct their lives in accordance with their fundamental principles and to make positive contributions to their own and others' well-being.

According to the principles of positive psychology, a person will have a stronger sense of satisfaction, engagement, and general well-being when they are able to identify and make use of their own talents and virtues. Individuals are able to negotiate problems, seek meaningful objectives, and make great contributions to society by capitalising on their natural strengths and using those abilities to their advantage. Self-reflection, self-awareness, and the use of evaluation instruments that provide assistance to people in the process of determining their specific strengths and virtues are all necessary steps. Individuals are able to concentrate on areas in which they are both competent and passionate when they acknowledge and capitalise on their strengths, which in turn leads to improved levels of both self-confidence and drive. Individual flourishing is facilitated by the use of one's qualities of strength and character in different facets of life. Leveraging one's abilities at work may increase one's sense of accomplishment, productivity, and overall contentment with their work. The cultivation of deeper connections and exchanges that are more harmonious in romantic partnerships is encouraged by the practise of virtues such as compassion, empathy, and forgiveness. Interventions and practises within the field of positive psychology focus on the cultivation and use of one's strengths and virtues. This may be accomplished through participating in activities that create a feeling of flow and satisfaction, choosing objectives that correspond with one's strengths, and leveraging one's abilities to overcome problems. Individuals are able to live lives that are more moral and have a sense of purpose when they cultivate virtues via the use of activities such as gratitude exercises, acts of kindness, and ethical decision-making. Individuals are able to realise their full potential, live lives that are true to themselves, and make meaningful contributions to both the communities in which they live and society as a whole when they let loose their strengths and virtues. Individuals are given the ability to live lives that are more full, meaningful, and thriving when they gain an understanding of and cultivate the traits that are central to positive psychology.

Conclusion:

Positive psychology emphasises the significance of identifying and fostering unique traits that contribute to individual well-being and progress. Strengths and virtues are important in positive psychology, and this section discusses how using them might improve your life. Strengths are people's innate skills and character attributes. Cognitive talents, emotional intelligence, interpersonal skills, creativity, resilience, and morality are examples of these attributes. Positive psychology promotes the discovery, development, and use of these qualities to improve well-being and success. Virtues, on the other hand, lead moral and ethical conduct. Kindness, honesty, bravery, knowledge, gratitude, and justice are their ideals. Virtues enable people to live according to their ideals and benefit others.

Positive psychology claims that recognising and using one's abilities and virtues increases satisfaction, engagement, and well-being. Individuals may overcome obstacles, achieve meaningful objectives, and improve society by using these traits. Self-reflection, self-awareness, and evaluation tools assist people understand their strengths and virtues. Recognizing and using these talents helps people concentrate on their strengths and passions, which boosts confidence and drive. Individual flourishing comes from using abilities and virtues throughout life. Work happiness, productivity, and success may be improved by exploiting strengths. Kindness, empathy, and forgiveness improve relationships. Positive psychology therapies build and utilise strengths and virtues. Setting objectives that match strengths,



doing things that provide flow and satisfaction, and leveraging strengths to solve problems may help. Gratitude exercises, acts of kindness, and ethical decision-making help people live ethical and meaningful lives. Individuals may reach their maximum potential, live authentically, and positively impact their communities and society by releasing their talents and virtues. Understanding and strengthening these attributes helps people live more satisfying, meaningful, and prosperous lives.

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Family Environment and Academic Achievement of High School Students in relation to their Gender, Age and Socioeconomic Status in India

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ABSTRACT

Academic success appears to be influenced by the family environment. Families in general, and parents, have long been regarded as the child's most important support system. The bond between kids and their parents is the most challenging component in shaping their character or conduct. Students who have struggled academically in the past are more likely to miss school and eventually drop out than those who have been successful. However, for struggling students, school is frequently a location that merely serves to reinforce their poor self-esteem. The primary goal is to study the impact of family environment on academic success concerning gender, age, and socioeconomic status.

Keywords:*Family environment, High School students, gender, age, socioeconomic status.*

INTRODUCTION

The term "family" is used in a limited and wide sense. It is supposed to be a nuclear family consisting of parents and their children. In a larger sense, it refers to the extended family, which includes the parents and their offspring and additional blood or marriage-related relatives such as grandparents, uncles, aunts, cousins, nieces, and nephews. A family is an organisation in which parents and children live together and perform different duties for the entire family's growth, safety, and well-being. Consequently, it appears that family may be responsible for an individual's social, physical, and psychological well-being. A child's first impression of a family has a long-term impact on his development. Parents are responsible for creating a healthier family atmosphere at home, which encompasses all human and material resources that impact the child's overall development.

In today's culture, parental work, divorce, and physical mobility, among other things, are undergoing tremendous changes. These differences significantly impact the social fabric in which children and adolescents develop. Despite these changes, the family is expected to play an important role in developing age of child. The family environment might differ in various ways, including financial position, gender prejudice, educational environment, family type, and so on. Numerous factors impact a student's academic performance or attainment, including the parent's socioeconomic status, the children's residential neighbourhood, gender, age, the school and classroom environment, and many others. In addition, education determines a person's employment, income, social standing, and position in society. On the other hand, the socioeconomic status of a student's family or parents significantly influences the student's academic performance; they are mutually connected, but socioeconomic status is a significant contributing element in a student's academic achievement.

FAMILY: CONCEPT AND DEFINITIONS

The term "family" comes from the Latin word "familia," which means "home" and refers to a "group of humans living together at crucial stages of their lives and tied to one another by biological, social, and psychological ties." It is the most ubiquitous and universal social institution, and it is critical to the socialisation and healthy development of an individual's personality. Unlike western societies, which place a premium on "individualism," Indian civilization is "collectivistic" in that it encourages interdependence and cooperation, with the family as its focal point. "The family is the basic core group and the natural matrix of personality," Mack and Young write. According to the United States Census Bureau (U.S.A.) "A family is a group of two or more people who live together and are connected by blood, marriage, or adoption." "Family is a group of persons united by marriage, blood, or adoption; consisting of a single household, interacting and intercommunicating with each other in their social roles of husband and wife, mother and father, son and daughter, brother and sister, creating a common culture," according to Burgess and Locke. Even though the family is a universal institution, its structure and forms differ from one civilization to another. Sociologists and anthropologists have discussed the many forms of families in various cultures. Families are classified in this study based on their organisational structure (nuclear and joint).

FAMILY ENVIRONMENT:

"Family Environment" refers to the environment in the home, which differs from culture to culture, society to society, and family to family, according to Moos and Moos (1986). To describe a whole family environment, it includes father, mother, grandparents, sisters, brothers, uncles, and aunts. It also includes societal situations prevalent in the family.

ACADEMIC ACHIEVEMENT:

"Academic accomplishment" is defined by Good (1973) as "the information gained or abilities acquired in school subjects, as measured by test results, teacher marks, or both." According to Crow and Crow (1969), academic accomplishment is defined as "the amount to which a student benefits from instructions in a specific field of learning, i.e., achievement is indicated by the extent to which skill and knowledge have been transferred to him." The investigators considered the total marks earned by high school students in their previous year's final examination result as their academic success according to their school records in this investigation.

SOCIO-ECONOMIC STATUS

"Socio-economic Status (SES) is the term used to distinguish between people's relative position in society in terms of family money, political influence, educational background, and occupational status," according to Parson et al. (2001). The phrase Socio-economic Standing refers to an individual's or family's combination of social and economic status about others in society, as measured by income, education, career, and material possessions, among other factors. In general, socio-economic status refers to the socio-cultural characteristics, economics, education, and ownership of commodities and services available to a family.

HIGH SCHOOL

In India, high school lasts four years, as it does everywhere else. Still, after the tenth grade, you must choose between science, arts, or commerce to study for the eleventh and twelfth grades, determining which course you will be eligible to study in college.

FAMILY ENVIRONMENT AND ACADEMIC ACHIEVEMENT

The two most significant institutions that prepare children to become productive members of society are the family and the school. The development of specialised skills and knowledge aids social mobility upward, and society places a high value on educating its youth. Without adult care and affection, a human kid cannot mature. We would define love as the desire to be with, the yearning for touch and reaction, and the propensity to give to another person.

Every country's educational policymakers are concerned with academic attainment. It is well acknowledged that the environment in which a kid grows, both within and outside of school, significantly impacts the students' academic ability. Some of these characteristics include socioeconomic position, social phobia, anxiety, learning difficulties, parent styles, learning styles, classroom atmosphere, etc. As a result, caution should be exercised to raise the pace of performance and identify the obstacles that impede it. Academic accomplishment is the highest level of performance in all educational activities following a term of training. Achievement encompasses a student's ability and performance; it is multidimensional. It is intricately related to human growth and cognitive, emotional, social, and physical development.

As a result, the home environment, which includes parental encouragement, engagement, interest, behaviour, parental ambitions, parenting abilities, and parenting styles, directly impacts students' academic attainment. Parenting methods have been discovered to have a more significant effect on students' academic attainment. Educated parents provide a positive home environment that includes parental support, which catalyses increasing and sustaining achievement motivation in students, influencing their academic performance.

SIGNIFICANCE OF THE STUDY

- The study will help in understanding the effect of family environment of High School students in relation to the gender and age of the student.
- The study will help in understanding the relationship between Socioeconomic Status and Academic Achievement of a High School student.

OBJECTIVES OF STUDY

- To understand how socioeconomic status affects academic achievement of a High School student.
- To understand the effect of family environment on High School students in relation to their gender.

METHODOLOGY

- 100 students of 14-16 years of age were selected and a questionnaire was administered to them to understand the effect of family environment on Academic Achievement of High School Students in relation to their Gender, Age and Socioeconomic Status in India.

DATA COLLECTION PROCEDURE

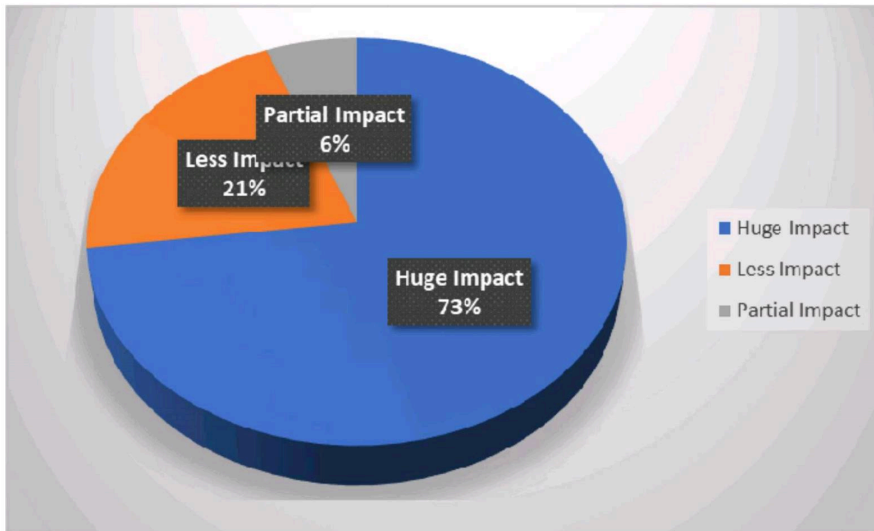
In this section we will be analysing the data collected through the short survey by circulation of questionnaire to 100 students' respondents of different age group.

1. How has the family environment impacted a student's academic life?
2. Does a Family's socioeconomic status affect students' academic life?

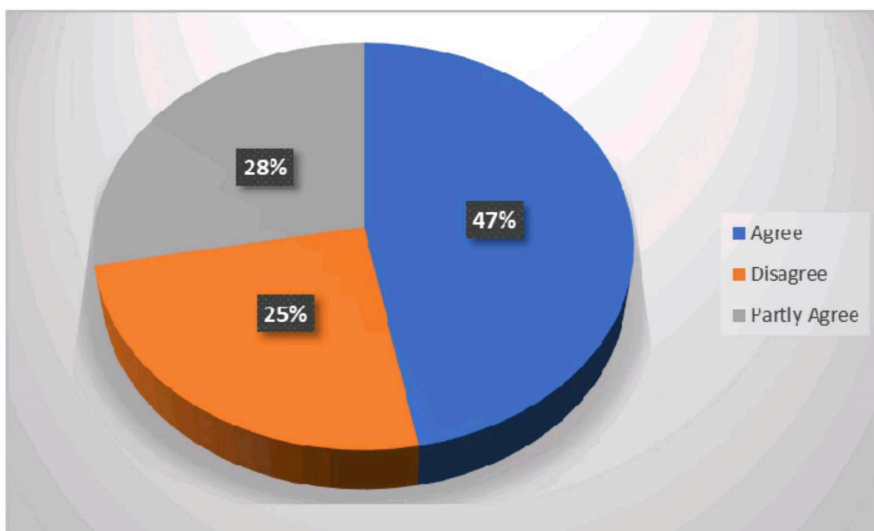
3. Has the gender of the student affected their academic achievement concerning the family environment?
4. How many students of age group 14 to 16 years thinks that family environment plays a vital role in their academic achievement?

The data collected through questionnaire is presented in the form pie-charts for easy representation and analysis.

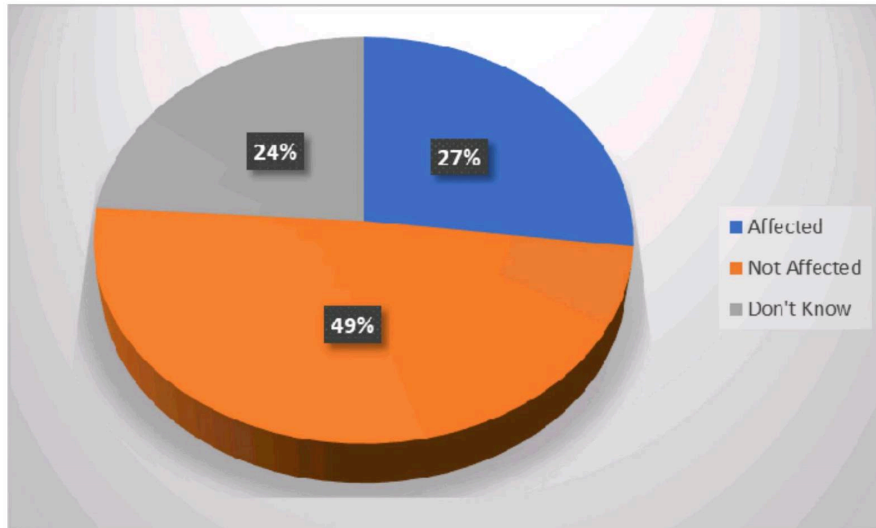
Has the family environment impacted a student’s academic life?



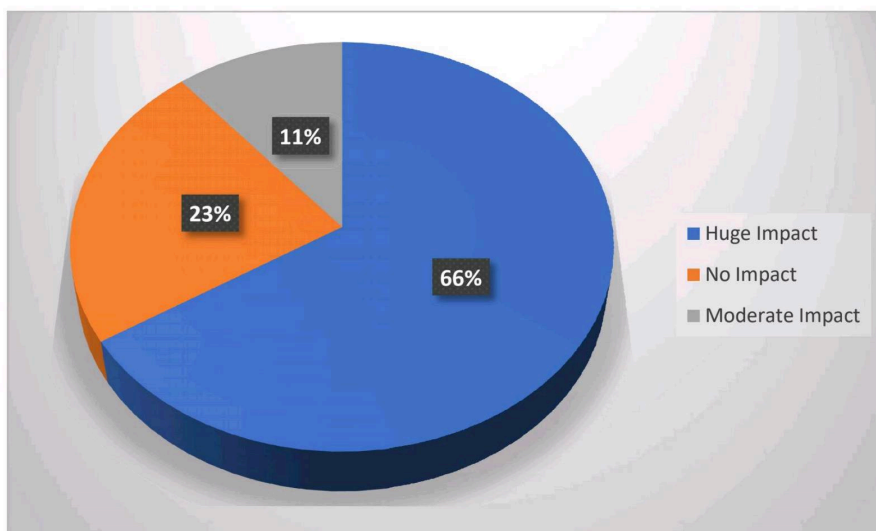
Family’s socioeconomic status affect students' academic life.



Has the gender of the student affected their academic achievement concerning the family environment?



Students of age group 14 to 16 years about family environment playing a vital role in their academic achievement.



INTERPRETATION

As far as the impact of the family environment on their academic achievement is concerned, most students agree that the family environment has a significant effect on their academics. At the same time, less than half of students think that the socioeconomic status of their families has an impact on their academic achievements. It is found that the academics are not affected because of the gender of the student in an Indian family, and the High School students of age between 14 to 16 agree that family environment has a massive impact on their academic achievements.

CONCLUSIONS

Academic achievement has a solid link to the family environment. As a result, parents must pay close attention to their children's academic growth by providing a pleasant atmosphere and quality time at home. Parents in rural, urban, and semi-urban settings must create a positive home environment for their children by giving all feasible support for their academic achievement. There is a need to raise awareness to decrease gender prejudice and ensure that females are treated equally to their male counterparts. Parents must be aware of their children's academic needs and support them by promoting and offering educational opportunities. In addition, they must be instructed to take full responsibility for their children's education at home, including setting up a correct homework and study schedule. Because the home environment has such a significant impact on kids' academic accomplishment, parents must establish a better family environment for their children through reinforcement and problem-solving abilities to improve their academic performance.

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Indian Journal of Social Concerns

इण्डियन जर्नल ऑफ सोशल कन्सर्न्स

(कला-मानविकी-समाजविज्ञान-जनसंचार-विधी-वाणिज्य-विज्ञान, वैचारिकी की अन्तर्राष्ट्रीय द्विमासिक शोध पत्रिका)

Volume -11:

Issue - 50

Nov. - Dec. 2022

Ghaziabad

A RESEARCH JOURNAL OF HUMANITIES AND SOCIAL SCIENCES
(An International Peer-Reviewed & Refereed Journal)

Journal Impact Factor No. : 7.01

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सारंश

सामान्यतः जब भी श्री मद्भगवद् गीता के संदर्भ में कोई कथन हमारे समक्ष आता है तब हमारे स्मृति पटल पर महाकाव्य महाभारत के भीष्म पर्व में वर्णित वह स्थिति दर्शित होने लगती है कि जब महान धनुर्धारी अर्जुन दोनों सेनाओं के बीच विभिन्न अंतर्द्वन्दों से ग्रसित खड़ा है और वह यह निर्णय नहीं कर पा रहा है कि उसका सही धर्म व कर्म क्या है ?

धर्म और कर्म का समन्वय यदि उचित सामंजस्य व गहनता के साथ कहीं दृष्टि गोचर होता है तो यह है श्रीमद्भगवद्गीता, जो किभगवान श्री कृष्ण के मुखारविन्द से निस्सृत हुई है। मार्ग शीर्ष शुक्ल पक्ष की एकादशी के दिन अर्जुन के द्वारा नंदीघोषरथ पर सारथि के रूप में विराजमान भगवान श्री कृष्ण से ग्रहण किया उपदेश ही श्री मद्भगवद्गीता के नाम से प्रसिद्ध है।

वर्तमान समय में मानव यदि श्री मद्भगवद्गीता का अध्ययन कर ले तो वह अपने जीवन में आंतरिक झंझावातों से मुक्ति पा सकता है। भारत के एक महान दार्शनिक एवं धर्मप्रवर्तक आदिगुरु शंकराचार्य ने "गीता महात्म्य" में सही कहा कि

मलिनमेचनंपुंसांजलस्नानदिनेदिने ।

सकृद्गीतामृतस्नानसंसारमलनाशनम् ॥३॥

अर्थात् जिस प्रकार मनुष्य नित्य जल में स्नान करके, अपनी शारीरिक मलिनता का निस्सारण कर सकता है, उसी प्रकार यदि मनुष्य भगवद्गीता—रूपी पवित्र ज्ञानगंगा—जलमें एक बार भीस्नान कर ले तो वह भौतिक जीवन (भवसागर) की मलिनता से सदा—सदा के लिए मुक्त हो जाता है।"

आधुनिक समय में गीता का ज्ञान प्रत्येक मनुष्य के लिए अति आवश्यक है ताकि वह डर, अवसाद, आत्मग्लानि, घृणा, प्रतिशोध, क्रोध, आलोचना, चिंता, निर्णय लेने में असमर्थता, उचित—अनुचितज्ञान का अभाव, अहंकार, लोभ, मोह, धैर्य अभाव, एकाग्रता की कमी, नकारात्मकता इत्यादि आंतरिक द्वंद से मुक्त हो सके। ये अंतर्द्वन्द मनुष्य को सुचारु रूप से कर्म नहीं करने देते।

वर्तमान समय में प्रत्येक मनुष्य किसी ना किसी अंतर्द्वन्द से ग्रसित दिखाई देता है, जिस कारण उचित व अनुचित का ज्ञान भी हमारे से कोसों दूर हो जाता है। इन्हें सब के कारण हमारी कार्य शैली भी प्रभावित होती है। इसका इलाज आज डॉक्टरों के पास भी

उपलब्ध नहीं है। इसका नियंत्रण केवल श्रीमद्भगवद् गीता—रूपी पवित्र ज्ञान से ही हो सकता है। श्रीमद् भगवद्गीता अथ द्वितीयोऽध्यायः जिसे सांख्य योग भी कहा जाता है, भगवान श्री कृष्ण, करुणा से व्याप्त और आँसुओं से पूर्ण तथा व्याकुल नेत्रों वाले शोकयुक्त अर्जुन से कहते हैं कि

व्यवसायात्मिकबुद्धिरेकेहकुरुनन्दन।

बहुशाखा ह्यनन्ताश्चबुद्धयोऽव्यवसायिनाम् ॥२४॥

अर्थात् हेकुरुनन्दन (अर्जुन)! इस कर्मयोग में व्यवसायात्मिक बुद्धि केवल एक ही होती है, किन्तु अव्यवसायी (अस्थिर विचार वाले विवेकहीनसकाम मनुष्य) मनुष्यों की बुद्धियाँ निश्चय ही अनन्त और बहु शाखा आँवाली ही होती हैं।

व्यवसायात्मिक बुद्धि अर्थात् आनंद का वह पथ जिसमें दृढ़ प्रकृति का केवल एक ही विचार है, एकचित्त दृढ़ संकल्प है। यह अकेला विचार ज्ञान के सही स्रोत से उत्पन्न होता है। व्यवसायात्मिक बुद्धि वाला मनुष्य, मन की सभी बिखरी हुई किरणों को एकत्रित कर लेता है। वह उन सभी को विवेक, वैराग्य और एकाग्रता के माध्यम से इकट्ठा करता है। वह मन को उगमगाने या दुलमुलपन से मुक्त है। वहीं अव्यवसायात्मिक बुद्धि वाला मनुष्य अर्थात् सांसारिक मन वाला मनुष्य जो सांसारिक कीचड़ में घँसा रहता है तथा जिसके पास एकनिष्ठ संकल्प नहीं है। वह अनगिनत विचारों में आनन्दित रहता है तथा उस का मन सदैव चंचल रहता है।

अगर किसी मनुष्य में विचार बंद हो जाएं तो यह संसार भी उस मनुष्य के लिए समाप्त हो जाता है। परंतु जब यह मन अनंत विचार उत्पन्न करता है और यह संसार भी अस्तित्व में आ जाता है। अतः यदि विचार नियंत्रित हैं तो मन वश में हो जाता है और योगी मुक्त हो जाता है।

यदि सफलता के पायदानपर चढ़ना है तो मनुष्य को निश्चय ही व्यवसायात्मिक बुद्धि तो ग्रहण करनी ही होगी। इसलिए यहां भगवान श्री कृष्ण ने अर्जुनको ऐसी निश्चयात्मक बुद्धि से युक्त होने के लिए कहा है। मानव के कर्म करने में भी उसकी बुद्धि का ही योगदान होता है और कर्म के परयात फल में भी। इन सब का निर्धारण केवल बुद्धि करती है। बुद्धि का निश्चयात्मक होना अत्यंत आवश्यक है। यदि बुद्धि

निश्चयात्मक नहीं है तो हमारा कर्म भी कामनाओं से युक्त होगा और इन्हीं कामनाओं के कारण ही मनुष्य की बुद्धि अव्यवसायात्मिक हो जाती है। जब कि मनुष्य सभी प्रकार की कामनाओं को त्याग कर ही सफलता पास कता है। वर्तमान समय में मानव के लिए यह अति आवश्यक है क्योंकि आज के समय में मानव के पास ऐसी बुद्धि का अभाव है जिसके कारण उसके अंतर्द्वंद निरंतर आरोह-अवरोह की स्थिति में झूझते रहते हैं। पवित्र विचारों वाले मनुष्य की बुद्धि भी एकाग्र हो जाती है, वही मनुष्य स्थित प्रज्ञ कहलाता है।

मनुष्य जीवन का सबसे बड़ा भय मृत्यु को माना जाता है। पतंजलि के योगदर्शन में भी, अभिनिवेश या हर कीमत पर जीवित रहने की सहज इच्छा का उल्लेख भौतिक बुद्धि के लक्षण के रूप में किया गया है। लेकिन जिसने जन्म लिया है उसकी मृत्यु अवश्यम्भावी है। तो जब मृत्यु अपरिहार्य है, तो उसके लिए विलापक्यों करें। महाभारत के वनपर्व के अंतर्गत आश्रम पर्व में यक्ष प्रश्न विषयक 313 अध्याय के अंतर्गत श्लोक 116 में युधिष्ठिर ने यक्ष के प्रश्न "किमाश्चर्यं" के उत्तर में कहा :-

अहन्यहनिभूतानिगच्छन्तीह यमालयनः।

शेषाः स्थावरमिच्छन्तिकिमाश्चर्यमतः परम् ॥116॥

अर्थात् इससंसार से रोज-रोज प्राणी यमलोक में जा रहे हैं किन्तु जो बचे हुए हैं वेसर्वदा जीवित रहने की इच्छा करते हैं इससे बढ़कर आश्चर्य और क्या होगा?

प्रत्येक मानव यह जानता है कि जिसने जन्म लिया है तो उसकी मृत्यु भी निश्चित है परंतु फिर भी अविवेकता के कारण वह इस का भली-भाँतिज्ञान नहीं कर पाता। भगवान श्री कृष्ण अर्जुन को जीवन की इस अत्याज्य स्थिति को समझते हुए कहते हैं कि एक दिन जीवन का अंत अपरिहार्य है इसलिए बुद्धि मान व्यक्तिको इस अवश्यं भावी मृत्यु के लिए शोक नहीं करना चाहिए।

जातस्तदि ध्रुवो मृत्युर्ध्रुवजन्ममृतस्य च ।

तरमादपरिहार्यस्य न त्वं शोचितुमर्हसि ॥2.27॥

अर्थात् जन्म मृत्यु रूपी प्रवाह के सत्य से मानव जान बूझकर अनभिज्ञता प्रदर्शित करता है लेकिन ऐसे अपरिहार्य विषय को वह टाल नहीं सकता। फिरभीवह घमंड करता है जिसे वह मृत्यु के पश्चात अपने साथ निर्वहन नहीं कर सकता। इसलिए भगवान श्री कृष्ण अर्जुन को कहते हैं कि यह धृतराष्ट्र के पुत्र जन्मे हैं तो मरेंगे भी अतश्च ही। ऐसा कोई भी उपाय तुम्हारे पास नहीं है जिससे तुम इन को बचास को। क्योंकि जन्म लेने वाले की तो मृत्यु निश्चित है। इस

संसार में कोई अमर नहीं है। परिवर्तनशीलता ही इस सृष्टि का नियम है। प्रकृति में प्रत्येक वस्तु उदय होने के साथ ही अस्त होने का समय निर्धारित करके प्रवाह मान होती है। जैसे सूर्य यदि उदय होता है तो अस्त भी होगा। इसी प्रकार यदि कोई मनुष्य उत्थान प्राप्त करता है या किसी ऊँचे पद को पाता है तो उसका भी पतन एक दिन अवश्य होता है। कोई भी वस्तु इस सृष्टि में स्थाई नहीं है तो फिर मानव कैसे यदि कोई सृष्टि के परिवर्तनशील स्वभाव की शिकायत करता है तो वह स्वयं की ही अज्ञानता को प्रदर्शित करता है। श्री कृष्ण का जीवन तो आनंद और उत्साह का संदेश देता है। रोपण तो अज्ञानता का लक्षण है तथा हंसना बुद्धिमत्ता का।

ध्यायतोविषयान्पुंसः संगस्तेषूपजायते ।

संगात्संजायतेकामः कामात्क्रोधोऽभिजायते ॥2.62॥

क्रोधादमृतिसम्प्लोहः सम्प्लोहात्स्मृतिविभ्रमः ।

स्मृतिभ्रंशाद् बुद्धिनाशोबुद्धिनाशात्प्रणश्यति ॥2.63॥

अर्थात् विषयों का ध्यान करने वाले पुरुष की उन विषयों में आसक्ति उत्पन्न हो जाती है। आसक्ति से कामना पैदा होती है। कामना से क्रोध और क्रोध होने पर संमोह हो जाता है। संमोह से स्मृति भ्रष्ट हो जाती है और स्मृति भ्रष्ट होने पर बुद्धि का नाश हो जाता है और बुद्धि का नाश होने पर मनुष्य का पतन हो जाता है।

जब मनुष्य विषयों, भोग विलासों का चिंतन करने लगता है तो शनैः शनैः उन विषयों में आसक्ति उत्पन्न होने लग जाती है। यह आसक्ति असद् विचारों से प्रारंभ होती है। जब मनुष्य भोग विलासों में अत्यंत रम जाता है तो केवल उसी को पाने की अभिलाषा करता है। यह अभिलाषा मनुष्य की आसक्ति या आकृष्टता से उत्पन्न होती है। संसार में इस प्रकार के उदाहरण बहुशः मात्रा में देखने को मिलते हैं कि कितने ही साधक एकमात्र कारण से ही असफल हो जाते हैं और वह एकमात्र कारण केवल उनका विषयों के शिकार होना ही है अर्थात् मनुष्य के नाश के प्रारंभ बिंदु के रूप में हम आसक्ति को मान सकते हैं या यूँ कह सकते हैं कि मनुष्य के नाश का आधार या नाश का बिंदु आसक्ति है। मूलदोषों का कारण केवल आसक्ति पर ही आधारित है। आसक्ति से मनुष्य के अंदर कामनाओं की उत्पत्ति होती है और यह कामनाएं असंख्य मात्रा में जन्म लेती हैं। इन कामनाओं की जब पूर्ति हो जाती है तो मनुष्य इसमें आनंद की अनुभूति करता है और यदि इनकी पूर्ति ना होतो मनुष्य में क्रोध पैदा हो जाता है अर्थात् क्रोध की उत्पत्ति का कारण केवल कामना है और क्रोध होने पर मानव में मूढ़ता का भाव आ जाता है। मूर्खता का भाव आ जाता है। बुद्धि सम्मोहित होने लग जाती है यानी कि मनुष्य का

अपनी इंद्रियों पर नियंत्रण नहीं रहता। जिस मनुष्य का इंद्रियों पर स्वामित्व समाप्त हो जाए उसका विनाश निश्चित है क्योंकि इससे आग का चरण तो स्मृति के भ्रष्ट करने वाला होता है। जब स्मृति भ्रष्ट हो जाती है तो बुद्धि का नाश तो स्वयं ही हो जाता है क्योंकि यह बुद्धि नष्ट हो जाए तो मनुष्य का मनुष्यत्व ही नष्ट हुआ समझना चाहिए क्योंकि केवल बुद्धि ही निषिद्ध कर्मों को करते समय हमें उससे प्रवृत्त करने का प्रयत्न करती है।

बुद्धि के नाश से तो मनुष्य पशु से भी ही नव्यवहार करता है तो फिर वह कभी जीवन में श्रेष्ठ और उच्च ध्येय को नहीं प्राप्त कर सकता है। बुद्धि के नाश से मनुष्य का नाश हो जाता। यहाँ मनुष्य के नाश से तात्पर्य है कि अपने शुद्ध स्वरूप को पहचान कर वह मनुष्य जीवन के परम पुरुषार्थ मोक्ष को प्राप्त करने के योग्य नहीं रह जाता। अतः विषयों के चिंतन को अनर्थों का मूल कारण बताया गया है।

अपने कर्तव्य पालन का अभा वही मनुष्य के अंतर्द्वंद का कारण है। कर्तव्य पालन से ही मनुष्य सफल हो पाता है।

स्वे स्वेकर्मण्यभिरतः संसिद्धिं लभते नरः ।

स्वकर्मनिरतः सिद्धिं यथाविन्दति तच्छृणु ॥ 18.45 ॥

अर्थात् अपने-अपने कर्म में तत्परता के साथ लगा हुआ मनुष्य परमात्मा को प्राप्त कर लेता है। अपने कर्म में लगा हुआ मनुष्य जिस प्रकार सिद्धि को प्राप्त होता है उसका वर्ण नहीं भगवान श्री कृष्ण यहाँ इस श्लोक में अर्जुन से करते हैं।

प्रत्येक मानव को अपने स्वभाव व विकास की स्थिति को पहचान कर ही अपने स्वाभाविक कर्म की पूरी साधना के साथ पालना करनी चाहिए। कर्तव्य का पालन करने से जहाँ प्रथमतः मनुष्य के चित्त की शुद्धि होती है वहीं इसके उपरान्त मनुष्य परमात्मा को भी प्राप्त कर लेता है। निरंतर अपने ही कर्तव्य पालन की पूर्णता में मनुष्य इतना अधिक लौ नहो जाता है कि उसे बाहरी अन्य वस्तुओं का आभास नहीं होता। यही कारण है कि वह परमात्मा के साथ धीरे-धीरे जुड़ता चला जाता है क्योंकि ऐसा मनुष्य अपना ध्यान केवल अपने कर्म पर ही रखता है, अपने कर्तव्य पालन पर ही रखता है, ताने कभी ध्यान फल पर केंद्रित नहीं करता। तो जब मनुष्य अपने कर्तव्य पालन में ही रत हो जाता है तो वह सिद्धि को प्राप्त कर लेता है। वह मानव आत्म संतुष्टि के लिए निरंतर अपने कर्तव्य की ओर प्रयासरत दिखाई देता है। क्योंकि प्रत्येक मनुष्य अपने स्वभाव के अनुरूप कार्य क्षेत्र में कार्य करते हुए ही सुख एवं पूर्णता का अनुभव करता है। उदाहरण के तौर पर एक छोटे बालक ने भेड़ पालन के कार्य को अस्वीकार कर दिया और वह पेरिस जा पहुंचा। जो कालांतर में विश्व

में पोलियन के नाम से प्रसिद्ध महानराम सेनापति बना। इसी प्रकार से अन्य उदाहरण भी जगत में दृश्य हैं। कोई भी मानव अपनी अभिरुचि के अनुसार यदि कर्तव्य करता है तो वह उस कर्तव्य का पालन भी पूर्णता करने में सक्षम हो जाता है और उसमें वह आनंद की अनुभूति भी करता है और यही आनंद की अनुभूति उसे परमात्मा के साथ जोड़ती है। जैसे यदि कोई कवि हो गाता वह सुख सुविधाओं से युक्त जीवन जीने की अपेक्षा एकांत में रहकर अपने काव्य रचना को करना ही अधिक उपयुक्त मानेगा क्योंकि क्योंकि उसे काव्य रचना करने में ही आनंद की प्राप्ति होती है और जहाँ कर्तव्य करने के पश्चात या कर्म करने के पश्चात अंतःकरण में आनंद की अनुभूति हो तो समझना चाहिए कि ईश्वर के साथ उसका जुड़ाव प्रारंभ हो गया है और यह सर्वदासत्य है कि जो मनुष्य अपने आंतरिक और बाह्य प्रयास अपने किसी उचित कर्म में लगा देता है तो वह कार्य अवश्य ही पूर्ण होता है। क्योंकि वह निष्काम भाव पर आधारित कर्म है। परमात्म सन्मय नैमी इत से सीख लेनी चाहिए कि मनुष्य को अपने कर्तव्य पालन की ओर अग्रसर रहना चाहिए। सब प्रकार के भांग विलासों को परे रखकर हमें केवल अपने कर्तव्यों का ध्यान रखना चाहिए, अन्य प्राणियों की क्रिया आपर नहीं। ऐसा मनुष्य जो घृणा, अहंकार सबको त्याज्य कर अपने कर्म में ही तत्परता के साथ लगा हुआ है उस मनुष्य को सिद्धि अवश्य प्राप्त होती है। मानव को अपने कर्तव्यों की ओर सदैव वही ध्यान रखना चाहिए जो आज के वर्तमान युग के लिए अत्यंत ही आवश्यक है।

निष्कर्ष:-

वस्तुतः श्रीमद्भगवद्गीता ही एक मात्र ऐसा ग्रंथ है जिससे मनुष्य ज्ञान, भक्ति, सांख्य, वेदांतमी मांसा इत्यादि का संपूर्ण ज्ञानगहनता से आत्मसात कर सकता है और जिस प्रकार महान धनुर्धारी अर्जुन ने श्रीमद्भगवद्गीता के ज्ञान को आत्मसात करके अपने सभी अन्तर्द्वन्दों से मुक्ति पाली उसी प्रकार आज सम्पूर्ण मानव जाति भी श्रीमद्भगवद्गीता के ज्ञान से अपने सभी अन्तर्द्वन्दों से मुक्ति पा सकती है।

संदर्भ :-

- गीताप्रेस गोरखपुर, श्रीमद्भागवतगीता
- गीताप्रेस गोरखपुर, महाभारत
- आदि शंकराचार्य, श्रीमद्भगवतगीता का महात्म्य

डॉ० सुमन

सहायक प्रवक्ता, संस्कृत

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भिवानी

Indian Journal of Social Concerns

इण्डियन जर्नल ऑफ सोशल कन्सर्न्स

(कला-मानविकी-समाजविज्ञान-जनसंचार-विधी-वाणिज्य-विज्ञान, वैचारिकी की अन्तर्राष्ट्रीय द्विमासिक शोध पत्रिका)

Volume -11:

Issue - 50

Nov. - Dec. 2022

Ghaziabad

A RESEARCH JOURNAL OF HUMANITIES AND SOCIAL SCIENCES

(An International Peer-Reviewed & Refereed Journal)

Journal Impact Factor No. : 7.01

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सारांश

वैदिक समय भारतीय ज्ञानगंगा का ऐसा प्रकाश पुंज है जिस से निःसृतदिव्य किरणें आज भी मानव जाति को प्रभूत प्रेरणा प्रदान करते हुए प्रकाश मान कर रही हैं। ऐसे स्वर्णिम वैदिककाल में जब हम नारी के परिप्रेक्ष्य के बारे में विचार करते हैं तो हमारे मस्तिष्क में नारी का पूजा-योग रूप उदात्त हो जाता है। वैदिक समय में स्त्रियों का स्थान अत्यंत ही गौरव पूर्ण था। उस समय स्त्रियां धर्म में निपुण, पूजा कार्य में दक्ष, कुल को अग्रणी बनाने में अपना योगदान देती थीं। इसीलिए गृहिणी, गृहस्थानिनी, सह वर्मिणी इत्यादि विशेषणों से संबोधित की गई हैं। न्याय युक्त समाज का निर्माण करने में इन नारियों का ही विशेष योगदान है।

यत्र नार्यस्तुपूज्यन्तेरमन्ते तत्र देवताः।

यत्रैतास्तु न पूज्यन्ते सर्वास्तत्राफलाः क्रियाः ॥

मनुस्मृति 3-56

सर्वप्रथम मनुस्मृति ग्रंथ में ही यदि देखें तो इसमें कहा गया है कि महिलाएं पूजा के योग्य हैं। घर में सभी के लिए ज्ञान का दीपक हैं। जिन घरों में महिलाओं की पूजा होती है, वहां देवता निवास करते हैं। जहां महिलाओं का सम्मान नहीं होता, वहां किए गए समस्त अच्छे कर्म भी निष्फल हो जाते हैं।

शोचन्तिजामयो यत्र विनश्यत्याशुतत्कुलम्।

ने शोचन्तितु यत्रैतावर्धते तद्धि सर्वदा ॥

मनुस्मृति 3-57

अर्थात् जिस कुल में महिलाएं कष्ट भोगती हैं, वह कुल शीघ्र ही नष्ट हो जाता है। जहां स्त्रियां प्रसन्न रहती हैं, वह कुल सदैव समृद्ध रहता है।

सामान्यतः वैदिक युग से अभिप्राय ईसा से 2500 ईसा पूर्व से 1000 ईसा पूर्व तक की अवधि को माना जाता है। उसी काल खण्ड में जब चार वेदों—ऋग्वेद, सामवेद, यजुर्वेद और अथर्ववेद को संकलित किया गया था। वेदों में वस्तुतः कर्मकांड, दर्शन आदि का वर्णन मिलता है। परंतु इसी वर्णन में हमें उस काल खण्ड की सामाजिक स्थिति की झलक भी मिलती है। साथ ही, इस सामाजिक स्थिति से हमें उस युग में महिलाओं की स्थिति का भी ज्ञान होता है।

वेदों में महिलाओं का परिचय

वैदिक समय में महिलाओं को महान गुणों और ज्ञान का अवतार माना

जाता था। भारतीय संस्कृति में आज भी ऐसा माना जाता है कि जहां महिलाओं की पूजा की जाती है, वहां देवताओं का वास होता है। रादियों से बली आर ही वैदिक संस्कृति में महिलाओं को सर्वोच्च स्तर का सम्मान और स्वतंत्रता, साथ ही संरक्षण और सुरक्षा प्रदान की गई है। प्रारंभिक वैदिक युग में महिलाओं को समाज में एक सम्मानित स्थान प्राप्त था। पानी धार की स्तम्भिन और अधीन स्थदासों पर अधिकार रखती थी। इसी धार्मिक समारोहों में वह अपने पति के साथ शामिल होती थी। पर्दा प्रथा समाज में प्रचलित नहीं थी। तत्पश्चात् भी वैदिक समाज में प्रचलित नहीं थी। वैदिककाल में लड़कियों की शिक्षा की उद्येक्षा नहीं थी। इसलिए हमें वेदों में इस बात के साक्ष्य मिलते हैं कि महिला ऋषियों ने समाज और वेदों के निर्माण में महत्वपूर्ण योगदान दिया था। हालांकि लिखित प्रमाण बहुत कम ही मिलते हैं, फिर भी वेदों में लगभग 30 महिला ऋषियों (ऋषिकी) का नाम मिलता है, जैसे विश्ववरा, अपाला और घोषा आदि जिन्होंने मंत्रों की रचना की और ऋषि का पद प्राप्त किया।

वैदिक समाज में महिलाएं

वेदों और अन्य हिंदू शास्त्रों के अनुसार, वैदिक युग के दौरान महिलाओं को समाज में एक उच्च स्थान दिया गया था, और सामान्यतया वे पुरुषों से श्रेष्ठ मानी जाती थी। इस बात के साहित्यिक प्रमाण हैं कि महिलाओं के पास शक्ति थी, जो राज्यां और शक्तिशाली शासकों को नष्ट कर सकती थी। 'शक्ति' की प्राचीन हिंदू दार्शनिक अवधारणा, ऊर्जा का स्त्री सिद्धांत, भी इसी युग का एक उत्पाद था। इसने महिला मूर्तियों या देवी की पूजा का रूप ले लिया।

"उष्ट्यमशायां यशस्तासमसुवीरंदासप्रवर्णरायमश्वबुद्धयम्।

सुंदस्सश्रावसा य विभासिवजप्रसुतासुभंगवृंहंतम्।"

ऋग्वेद, अध्याय 5, (सूक्त 92, श्लोक-8)

जो कहता है, "हे नारी! आप सौभाग्य, अच्छे कर्म, प्रसिद्धि, अनाज और अन्य खाद्य पदार्थों के निर्माता हैं, हे उषा! हमें आशीर्वाद दें, अच्छे बच्चे, नौकर, घोड़े, धन और प्रसिद्धि।" जिसका अर्थ है कि महिलाओं को न केवल एक नए जीवन के पुनरुत्पादक के रूप में सम्मानित किया जाता है, बल्कि बच्चों और परिवार के पालन-पोषण, संरक्षक और निर्वाहकर्ता के रूप में भी सम्मानित

किया जाता है।

भारतीय संस्कृति में माना जाता है कि लोकप्रिय हिंदू देवी-देवताओं के स्त्री रूपों ने वैदिक युग में आकार लिया था। ये स्त्री रूप ब्राह्मण के विभिन्न गुणों और ऊर्जाओं का प्रतिनिधित्व करने के लिए आए। देवीकाली विनाशकारी ऊर्जा, दुर्गा सुरक्षात्मक, लक्ष्मी पौष्टिक और सरस्वती रचनात्मक का निरूपण करती हैं। यहाँ यह उल्लेखनीय है कि हिंदू धर्म दिव्यता के पुल्लिंग और स्त्रीलिंग दोनों गुणों को मान्यता देता है उदाहरणतः राधा-कृष्ण, सीता-राम, उमा-महेश और लक्ष्मी-नारायण आदि। यह पहलू वैदिक काल में स्त्री रूप की दिव्यता को दर्शाता है। विश्व में सर्वप्रथम यदि किसी समाज ने नारी-पुरुष दिव्य युगल (अर्धनारीश्वर) को पहचान दी तो वह भारतीय वैदिक समाज ही था। वैदिककाल की यह स्थिति प्रमाणित करती है कि वैदिक समाज में स्त्री, पुरुषों से श्रेष्ठ मानी जाती थी।

शिक्षा

वैदिक समाज में कन्या के जन्म को देवी का अवतार माना जाता था और यही कारण है कि परिवार और समाज ने उनकी शिक्षा के लिए कोई प्रतिबंध नहीं लगाया था। महिलाएं उपनयन संस्कार में भी सम्मिलित होती थीं। वैदिककाल में कन्याएं विवाह किए बिना ज्ञान ग्रहण कर सकती थीं। वैदिक साहित्य में इन कन्याओं के लिए विशेष वैदिक शब्द 'अमजुर' (एक अविवाहित महिला) का प्रयोग मिलता है। जो विदुषी अपना संपूर्ण जीवन सत्य और ज्ञान की खोज में समर्पित कर देती थी उन्हें 'ब्रह्मवादिनी' के नाम से जाना जाता था। जो विदुषी अपने विवाह से पूर्वतः कथम शास्त्र और दर्शन शास्त्र का ज्ञान ग्रहण करती थी उन्हें 'सद्योद्वाह' के नाम से जाना जाता था।

वैदिक ऋषिकाएं वेतपरवी, विदुषी, श्रेष्ठगुणों से युक्त, विविधविधाओं में कुशल वह ज्ञानवती महिलाएं हैं जिन्होंने अपनी तपस्या से वेदों के मंत्रों की रचना करते हुए संसार को भी उस ज्ञान से परिचित करवाया। वेदमंत्रों का व्याख्यान एवं प्रकाशन भी केवल जनहिताय के लिए किया। जिन्होंने अपने योगदान से गूढ़ ज्ञानको दृश्य करके हमारे सम्मुख उपस्थित किया। अपनी तपश्चर्या से वैदिक मंत्रों के रहस्य से परिचित करवाया और उस असीमित, प्रकाशमयी ज्ञान से साक्षात्कार करवाया जो सर्वथा कल्याणकारी है। वैदिक ऋषिकाएं केवल ऋग्वेद में ही लगभग 30 हैं। ये महिला ऋषि वैदिक परिवार से ही संबंध रखती हैं। ये किसी ऋषि की पत्नी, पुत्री व बहन हैं तो कुछ देवताओं व ऋषियों की माता भी हैं। ऋग्वेद में महिला ऋषिकाओं द्वारा चितमंत्रों का संकलन भी है। जिनमें विशेषतः ऋग्वेद में रोमसा, लोपामुद्रा, अपाला, कद्रू, विश्ववारा, घोषा,

जुरु, जागृणी, मौलोनी, यनी, इन्द्राणी, सार्वित्री और देवजानी आदि ऋषिकाओं का विवरण मिलता है। इसी तरह सामवेद में नोधा, आकृत भाषा, शिकता निवावरी और गौपायन आदि ऋषिकाओं का उल्लेख मिलता है।

विवाह

वैदिक काल में, एक महिला परिपक्वता प्राप्त करने के बाद ही अपने पति का चयन कर सकती है। यदि उसके माता-पिता सक्षम ही हैं तो वह स्वयं अपने पति का चुनाव कर सकती है। इस प्रकार ननुकन्या को अपनावर चुनने का अधिकार प्रदान करते हैं। लक्ष्मिका अपनी इच्छा से या 'स्वयंवर' के माध्यम से अपनावर चुनने के लिए स्वतंत्र थीं। युवावस्था से पहले होने वाली शादियों का अपना साथी चुनने का मौका दिया गया। प्रेम विवाह के मामले में आए पति और पत्नी दोनों ने गृह का गठन किया और उन्हें 'गृहिणी' (पत्नी), 'अर्धाग्निनी' (उनके पति का आधा हिस्सा) या 'समराग्निनी' (सानी या मालकिन) माना गया। शादी के माध्यम से एक परिवार में आमंत्रित किया गया, वह जैसे एक नदी एक समुद्र में प्रवेश करती है 'और' परिवार के अन्य सदस्यों पर अपने पति के साथ रागी के रूप में शासन करने के लिए प्रवेश करती है।

प्राचीन संस्कृत में पत्नी के लिए प्रयुक्त होने वाली उपाधियाँ हैं—पत्नी—जो जीवन भर पति का नेतृत्व करती हैं। धर्मपत्नी—जो पति को धर्म करने के लिए मार्गदर्शन करती हैं। सहधर्म चारिणी—वह जो अपने पति के साथ धर्म और कर्तव्य के मार्ग पर चलती हैं। यद्यपि उस समय समाज पितृ सत्तात्मक था और गृहस्वामी द्वारा शासित था, जो कि परिवार के अन्य सभी सदस्यों पर लगभग पूर्ण नियंत्रण रखता था और उसको पत्नी आजीवन कर्तव्यों और आज्ञाकारिता के सख्त बंधन से बंधी थी, फिर भी पत्नी या सह धर्मचारिणी के रूप में, एक पत्नी का पूरा अधिकार था। वह अपने पति के साथ सभी सामाजिक और धार्मिक समारोहों में भाग लेने का अधिकार रखती थी। वह घर की अधीन स्थभागीदार और संयुक्त स्वामिनी थी। वेदकहते हैं, "पत्नी को 'अग्निहोत्र' (गृह), संख्याबंदना और अन्य सभी धार्मिक अनुष्ठान करने चाहिए। यदि किसी कारण से उसका पति मौजूद नहीं है, तो अकेले महिला को यज्ञ करने का पूरा अधिकार है।"

तलाक, पुनर्विवाह और विधवापन

बहुत ही विशेष परिस्थितियों में महिलाओं के तलाक और पुनर्विवाह की अनुमति थी। यदि महिला के पति की मृत्यु है, तो उसे पति की मृत्यु के बाद होने वाली निर्मम प्रथाओं से गुजरने के लिए मजबूर नहीं किया गया था। उसे अपना सिर मुड़ाने के लिए मजबूर नहीं किया गया था, न ही उसे लाल साड़ी पहनने और 'सहगमन' करने या

रूपमात्रे की पितृ पर भरणे के लिए मजबूर किया गया था। यदि वे चाहें, तो पति के गुजर जाने के बादवे एक 'सन्ध्याशी' का जीवन व्यतीत कर सकती हैं।

मातृत्व-

"आदिनमातसर्वविशद यारवा शुनिराहिरयमानतवियाविवाही ।
अनु यत पूर्वाअरुहतरसमाजुवी नि कसरीववराशुभावती ॥"

ऋग्वेद, मंडल-1, सूक्त-141, श्लोक-5

जो कहता है, "पत्नीत्व का आध्यात्मिक परिवर्तन है, मातृत्व। पत्नी नौंग सकती है और करती भी है, पर नौ देना अपना सौभाग्य समझती है। यदि पत्नी के रूप में स्त्री सामाजिक रूप से महत्वपूर्ण है, तो माँ के रूप में स्त्री आध्यात्मिक रूप से गौरवशाली है। वैदिक संस्कृति प्रत्येक पुरुष को सभी महिलाओं को एक दिव्य माँ के रूप में देखने के लिए प्रशिक्षित करती है। हमारे शास्त्रों के अनुसार माता-पिता या गुरु से भी अधिक पूजनीय हैं।

"तन्नोफक्तोमयोभुवतेभेषजतन्मनाप्रवीयातत्पिताधु,

तदग्रेवनः सोमसुतोमयोभुस्तदशिवनश्रुतमदिग्रयन युवाम ।"

ऋग्वेद, मंडल-1, सूक्त-89, श्लोक-4

यह पृथ्वी को माता और आकाश को पिता के रूप में दर्शाता है जो हमारे जीवन में निर्माता, संरक्षक और भरणे वाले क्षेत्र का स्रोत है। एक प्रमुख आधारशिला के रूपमें, एक माँ के कर्तव्य थे कि उसे सामाजिक और धार्मिक जिम्मेदारियों को पूरा करते हुए बच्चों को कोमलता से पालना था। उसे नौ महीने तक अपने गर्भ में एक बच्चे को पालने के लिए धरती माँ और बच्चे को पोषण देने और उसके बच्चे को शारीरिक, मानसिक, धार्मिक, सामाजिक और मानवीय रूप से विकास में सहायता करने के लिए माँ के रूप में मांगा जाता था। भीष्म पितामह ने महाभारत में भी कहा है-

"सच्चा ज्ञान सिखाने वाला शिक्षक दस शिक्षकों से अधिक महत्वपूर्ण होता है। सच्चे ज्ञान के ऐसे दस शिक्षकों की तुलना में पिता अधिक महत्वपूर्ण होता है, और ऐसे पिताओं की तुलना में माँ अधिक महत्वपूर्ण होती है। हमारे बड़ा कोई गुरु नहीं होता है।" माताओं ।" महाभारत, शांतिपर्व, 30.9

माँ बच्चे की पहली गुरु होती है, इससे पहले कि बच्चा घृणा या आक्रामकता सीखता है, वे सब से पहले माँ के माध्यम से मानवता और प्रेम को जानते हैं जो बच्चे में क्षमा और दया के तरीके स्थापित कर सकती है। दूसरोंको भी उनके सजने-संवरने और प्रेरणा दायक स्वभाव के कारण पथ-निर्णायक माना जाता है, वह आक्रामकता को संतुलित करती हैं और नैतिक और आध्यात्मिक सिद्धांतों को रखती हैं।

धर्म

प्रारंभिक वैदिक सभ्यता में, महिलाओं को हमेशा बिना किसी बाधा के

धर्म का पालन करने के लिए प्रोत्साहित किया जाता था। महिलाएं आध्यात्मिकता में एक निर्णायक शक्ति और नैतिक विकास की नींव के रूपमें खड़ी थीं। हमेशाशास्त्र ने एक पति व पत्नी का देवी के पद तक पहुँचाया है। वह पुरुष की तरह है जिसे कसकें बिना घर एक घने जंगल की तरह है। शाही परिवारों में कुछ हदतक बहु विवाह का प्रचलन था, लेकिन सामान्यतः एक पति व एक पत्नी का नियम था।

यदि कोई लड़की अविवाहित रहती है, तो उससे अपक्षा की जाती थी। वह अपने पिता और बाद में अपने भाइयों की छत्रछाया में रहे। हालाँकि, रिश्तों को आधिकारिक हस्तक्षेप से बहुत अधिक नुकसान नहीं हुआ। यद्यपि विवाह, सामाजिक और धार्मिक महत्व का था परन्तु फिर भी कन्या की प्रसन्न पर निर्भर करता था। ऋग्वेद में बाल विवाह का कोई उल्लेख नहीं मिलता है। घाघा जैसे अविवाहित लड़कियों का निरंतर उल्लेख, जो अपने माता-पिता के घर में पत्नी-बड़ी, प्रेमियों को जीतने के लिए उत्सव के अवसरों पर युवतियों द्वारा पहने जाने वाले आभूषणों के संदर्भ, युवकों के प्रेमालाप के लिए वह प्यार करता है, प्रेमी के सपहारों के लिए, उनके आपसी प्यार के लिए आदि। यह सभी साक्ष्य लड़कियों के दौवन तक पहुंचने के लंबे समय बाद शादी करने की प्रथा के पक्ष में बोलते हैं।

निष्कर्ष:

वेदों में यह इस बात वर्णन स्पष्टतः मिलता है कि महिलाएं अलग-अलग गतिविधियों में सक्रिय भागीदार थीं। वे समाज में स्वतंत्रता पूर्वक अपने सामाजिक, आर्थिक, राजनीतिक और धार्मिक आदि सभी अधिकारों का प्रयोग करती थीं। अतः यह स्पष्ट है कि वैदिक काल में महिलाओं को पुरुषों के रूप में नहीं माना जाता था।

संदर्भ:-

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Digital Learning : Scope and Challenges

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Abstract :-

The Education system all over the world has gone through a drastic change, with passage of time. The traditional Education system does not fulfill requirements of the present scenario where everything is dynamic. So, a modern way of Education is required to handle such transformation. Thus, to resolve the shortcomings of the traditional Education system, the world is moving towards digital Education which addresses all the issues and challenges of traditional Education. In this research paper, the focus is on the merits, challenges and scope of digital Education. Online Education has brought revolutionary changes in the field of knowledge on a global scale.

Keywords :- Digital Learning, Online Teaching, Education, E-Learning, Students, Teachers.

The Education system all over the world has gone through a drastic change, with passage of time. The traditional Education system doesn't fulfill requirements of the present scenario where everything is dynamic. A huge amount of transformation is taking place in the present scenario. So, a modern way of Education is required to handle such transformation. Thus, to resolve the shortcomings of the traditional Education system, the world is moving towards digital Education which addresses all the issues and challenges of traditional Education. 'Digital Learning' is a learning method based on the use of digital tools which enable learners to learn in a different way. It has been used as a powerful tool during the Pandemic. Although the process of digital learning has already started, the pandemic had hastened it leading to fundamental changes. The Pandemic has impacted Education at all levels in various ways. Institutions and teachers had to adopt an unexpected and forced transition from face to face to remote learning. This transformation required changes in teaching methods. The institutions had to create learning environment for both students and teachers. Due to closures of Educational Institutions (during Covid-19), a paradigm shift can be seen in the field of Education. Online Teaching was a totally different experience for the students and the teachers which they must adopt having no other alternatives available. Teachers and students were compelled to adopt a system for which they were not prepared.

The recent onslaught of Pandemic has shown the importance of out of the box thinking approach. Prior to the Pandemic, only a few institutions had established fully digital modes of teaching and learning. In traditional Education system, we were fully dependent on text books or teachers' speech but now in the present scenario it is easy for the learners to find any text book or other learning materials by using digital Education tools. During the Pandemic, the learners with a fixed mindset found it difficult to adopt and adjust whereas the learners with a growth

mindset quickly adopted to a new learning environment.

Digital learning can be defined as a process where the teachers and learners use computer, laptop, tablet, smartphones as learning tools to improve their knowledge and skills. All over the world, people are going through digitalization and our education system is one of the biggest fields where we can introduce digitalization. Though the traditional Education system has its own importance, Online Education provides more convenience than the former. Academic activities of an institution can be managed easily with the help of digital Education. During the Pandemic, Colleges have understood that online Education is the best way to deliver knowledge and educate students by keeping them at the safety of their homes. Through digital Education, time and money of an institution can be saved. It also saves efficiency of students as well as teachers. Online Teaching is a boon for physically disabled people who can build their career effortlessly.

Through online diploma courses, students can increase their qualifications doing their jobs and enhance their career opportunities. Teaching becomes accessible to students, even in the remote areas sitting at their homes with the help of advanced technology-based teaching tools. They don't need to commute anywhere or live far away from their family to pursue Education. Students are most benefitted by online Education. They can easily view their time table, class assignments, give tests as well as can study from home. It is economical for students as they have to pay only the course fee. There are no other charges like hostel fees, library fees, maintenance fees. Students can prepare their assignments and projects online. They can easily find teaching contents of missed lecture online. Everyone learns at a different pace. In a classroom many students find it difficult to follow the lessons. This is a serious disadvantage of classroom learning. When they learn online, everyone can learn at his own pace. They can access library online.

The time and energy that digital learning saves of students and teachers can be utilized in learning more and more. It saves resources also. Online teaching allows women, deprived people to achieve Education by breaking the barriers both geographically and socially. Online Education has also transformed the way that candidates prepare for competitive exams in India. At a global level, different online communication platforms are available to support digitalize the whole teaching learning process. Various methodologies have proved beneficial during the pandemic.

Through advanced video learning, teachers can interact face to face with students from various cultures. Through E-learning any student can choose the course of his own preference. Many certifications online courses are available in India now. Courses like MBA, MSC, MCA, Retail and Digital Marketing can be taken up online in India. Institutes like IIT Kanpur, IIM Bangalore, NIIT, IGNOU and many more offers online courses in India. Since digital courses require only a laptop, smartphone or tablet with an internet connection, students can easily learn from anywhere at convenient times. This flexibility ensures working people to pursue new courses simultaneously working full time jobs. Course materials are accessible which they can learn during weekends or in free time.

There are several challenges digital Education has to go through that we need to overcome. One of the challenges of digital Education is poor internet connectivity in rural areas. Majority of population across India has still no access to internet. A large population in rural areas is not technology friendly. They don't know how to use technology. A large number of populations is economically weak, unable to afford internet, smartphones,

laptopsetc,tools related to technology required for digital Education.

A major obstacle for the use of digital Education in rural areas is lack of digital knowledge. In rural areas, teachers are less interested in using digital tools for conducting online classes due to so many reasons as has been discussed earlier. So, they prefer traditional teaching method. Language is one of the main barriers for the development of digital Education in India. Digital Education lacks face to face interaction of teachers and students, sharing of ideas cannot be done. Communication skill of students cannot develop. Digital learning is an economical burden on the pockets of the parents who are unable to afford digital tools. The major challenge for students in adopting online learning is technical problem. An engineering course or any other course that needs labs or practical work, cannot be completed online. Also, in courses such as MBA, students miss opportunities for professional networking, international experience and other course components.

Feeling of boredom, sense of isolation, lack of self-organizing capabilities are the main challenges for the students. From the teacher's perspective, Digital Learning is stressful also as they had to adopt new online techniques with little or no training at all. In a diverse Country as India, it creates so many problems in terms of caste, class, regional, linguistic, gender and socioeconomic status. Since the students spend their maximum time in studies on Computer, they also engage themselves in playing online games instead of outdoor games. It leads them towards obesity, heart disease, neck pain, wrong posture, physical as well as mental stress. In spite of reducing the physical distance among people, it has increased the emotional distance among them as they are always busy in their own virtual world.

Despite all these challenges, universities are quite positive about Digital Learning. In a recent survey conducted on institutions of Higher Education in all countries, most universities have admitted that they wish to explore new ways of teaching and enhance online teaching learning environment beyond the crisis. There was a time when Education and learning were confined to colleges and universities.

In the digital era learning is accessible to all. Online Education has brought revolutionary changes in the field of knowledge on a global scale. Online courses certification programs eliminate the geographical and financial barriers in receiving high quality Education. There is a misplaced notion that employees prefer students with traditional college degrees. On the contrary, corporate organizations in India are recognizing the high skill levels of students who have undergone online course certification programs from highly acclaimed educational institutions. MBA through online learning can provide flexibility to the students. Access to innovative technologies and global opportunities help to build mastery over business technology. The online Education scenario in India has tremendous potential and opportunities for the youths. Online courses are being accepted by mainstream employers. As the technology has taken a greater turn in recognition, E-learning method of teaching holds more importance in this age. E learning provides a flexible time schedule and growth in every aspect and exclusive job opportunities on the forefront.

To conclude we can say that a paradigm shift has occurred in the field of Education. Online teaching has ensured its continuance even after the pandemic. Today we don't know what will be the future of higher Education through digital learning at global level. But it is evident that in the present scenario, institutions should develop a

combination of face to face and online learning to meet students' expectations in the present digital environment. Online Education has proved the quality of Education as it has become easy not only for students who can learn as per their convenience but also for the teachers to teach creatively without needing a classroom interaction. But we can hope that this transformation will bring a positive revolution in the field of Education due to its own benefits. Need of the time is that the institutions must improve their technological infrastructure. They will have to fulfill some basic requirements for digital learning. It requires financial investment for real digital transformation. The digital learning leads to ethical questions related to online security and rights to data privacy. Institutions must tackle these issues by developing codes of conduct to ensure a safe process for Digital Learning. However, there is tremendous opportunity for growth and this is the perfect time to tap into it.

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