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SELF-DISCLOSURE OF SECONDARY SCHOOL STUDENTS IN RELATION TO DEMOGRAPHIC VARIABLES

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Abstract

Self-disclosure is letting another person know what you think, feel or want. It is the most direct means by which an individual can make himself known to another person. The present study was taken up with the aim of studying self-disclosure of secondary school students in relation to demographic variables such as type of school and gender. The sample of the study included 200 secondary school students of Class IX in the age group of 14-16 years from randomly selected govt. and private schools of Chandigarh. The tool used for data collection was Self-Disclosure Inventory for adolescents by Dr. Virendra Sinha (1971).The findings of the study were that significant differences were found between govt. and private school students with regard to Money, Personality, Study, Body, Interest, Feeling & Ideas; whereas no significant differences were found on the areas of Vocation and sex. Significant differences were found between boys and girls on only two aspects of self-disclosure i.e. 'Money' (girls talk more about it than boys) and 'Sex' (boys discuss more freely than girls). The educational implications of the study have been discussed.

Keywords: *Self-disclosure, Govt. school students, Private school students*

Introduction

In today's world the adolescents face numerous challenges and many a times they want to confine their problems to themselves and not discuss freely with their elders and friends. An adolescent lacking in self-disclosure feels inferior, discouraged and helpless in dealing with different situations of environment.

The variable self-disclosure consists of two words, self and disclosure. 'Self' refers to the inner image of one's own conscious and reflective personality of an individual. Disclosure is a general term used, wherein a stress moment one person (self) speaks to another about himself. Disclosure is both the conscious and unconscious act of revealing more about oneself to others. This may include, but is not limited to, thoughts, feelings, aspirations, goals, failures, successes, fears, dreams as well as one's likes, dislikes, and favorites.

Freud (1938), Allport (1955) have proved that whenever a person discloses himself to another they feel better.

Horney (1939) has remarked that more the individual ignores his real feelings, wishes and wants, more alienated he is from the real self. This estrangement- alienation from one's real self is at the root of the neurotic personality of our times.

According to Jourard (1959), self-disclosure is a means of talking about one to another person. He further states self-disclosure is the extent to which a person reveals things about himself to others.

According to Sinha(1971), self-disclosure is the ability to express one's real self to others.

According to International Encyclopedia of Psychology (1996), self-disclosure is the process of

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communicating personal information to another individual, It involves a willingness to reveal intimate thoughts and feelings rather than superficial or obvious characteristics.

Self-disclosure is a process of communication through which one person reveals information about himself or herself to another (Sprecher et al. 2013).

So, it may be concluded that self-disclosure is the extent to which a person reveals things about himself to others and a willingness to reveal intimate thoughts and feelings rather than superficial or obvious characteristics. It implies how much a person express his/her desires, ideas and feelings in whom a person will disclose more and it differs from person to person.

The purpose of the present study is to probe into various aspects of self-disclosure and study them with certain demographic variables of type of school i.e govt. and private and also with regard to gender i.e. boys and girls. In the past attempts have been made to find out the relationship of self-disclosure with other variables but very few studies have been conducted to study it in depth. This has motivated the investigator to unfold the intricacies involved in its various aspects.

Review of Related Literature

The research studies conducted on the variable under study are reported as follows:

Singleton (1976) found that males were as open as females in the willingness to self-disclosure and indicate a readiness to communicate. The findings revealed significant difference in the amount and content of personal information disclosure to target person.

Gill (1984) conducted a study of self-disclosure of boys and girl adolescents. This indicated that boys were more likely to disclose to their closest friends than the girls, because of their extroversion qualities. Girls disclosed themselves lesser than the boys because of their secretive and submissive nature.

Kaur (1986) conducted a study on self-disclosure among adolescents results indicated that there was no significant difference between the adolescents of English medium school and non-English medium schools with respect to different areas and target person.

Vidyapati (1987) conducted a study on "self-disclosure pattern in vocations of male and female adolescents in Allahabad city". The study that was conducted on 20 male and 20 female Indian adolescents (aged 12–18 yrs), who completed a self-disclosure inventory. Results show insignificant gender differences in self-disclosure.

Sprecher, Treger, & Wondra (2012) experimentally examined whether giving or receiving self-disclosure leads to greater liking and other positive impressions (e.g., closeness) in initial

interactions. Pairs of unacquainted undergraduates completed a structured self-disclosure task. One subject was randomly assigned to disclose while the other listened in a first interaction; participants switched roles for a second interaction. After the first interaction, listeners (vs. disclosers) reported more liking and other positive interpersonal impressions. These differences disappeared after participants switched roles in the second interaction. Furthermore, listening was associated with greater degrees of perceived similarity.

The study by Aldahadha(2023)aims to test how self-disclosure relates to mindfulness, whether self-disclosure or mindfulness best predicts happiness and well-being, and whether there are significant differences between happiness and well-being levels due to self-disclosure and mindfulness. Data from a public sample was collected using e-mails and social media platforms (N = 486).The findings demonstrated a weak relationship between mindfulness and self-disclosure (r = 0.16) and acting with awareness but a strong relationship between happiness, wellness, mindfulness, and its factors.

The review of related literature presented above clearly indicates that although some studies have been conducted on self-disclosure by taking into consideration variables such asliking, closeness, mindfulness,happiness and well-being but not in relation to demographic variables. Thus, the investigator felt a need to study the variable self-disclosure in relation todemographic variables such as type of school and gender.amongof secondary school students.

Objectives

The study was carried out with the following objectives:

1. To compare the self-disclosure among Government and Private school students.
2. To compare the self-disclosure among secondary school boys and girls.

Hypotheses

The null hypotheses formulated for the study were:

1. There will be no significant difference in the self-disclosure of Government and Private school students.
2. There will be no significant difference in the self-disclosure among secondary school boys and girls.

Method and Procedure

The study followed descriptive survey method for data collection (Best & Kahn, 1981). In accordance with the various objectives and the stated hypothesis, the investigator tried to obtain pertinent and precise information concerning the current status of phenomena and wherever possible draw valid conclusions from the

facts that were discovered.

The sample in the present study comprised of 200 Class IX students in the age group of 14-16 years. Equal number of students (boys and girls) were taken from Govt. and private schools. Simple random sampling technique was applied to select the sample.

The tools used for data collection were Self-Disclosure Inventory for adolescents by Dr. Virendra Sinha (1971). The investigator collected the data personally for present study.

Analysis of Data and Interpretation of Results

Hypothesis 1

Hypothesis 1 stating "there will be no significant difference in the self-disclosure of Government and Private school students" was tested by employing t-test. The results are entered in table 1 and its graphical form is given in fig 1.

Table-1 Comparison of Mean scores of Self-Disclosure between Government (N=100) and Private school students (N=100)

Areas of self-disclosure	Group	Mean	SD	t-ratio	Level of significance
Money	Govt.	33.82	13.87	5.96	0.01
	Private	44.91	12.41		
Personality	Govt.	34.71	14.31	4.59	0.01
	Private	43.81	13.74		
Study	Govt.	46.60	20.26	6.35	0.01
	Private	65.47	21.74		
Body	Govt.	42.05	17.40	3.39	0.01
	Private	50.56	18.11		
Interests	Govt.	53.33	21.44	3.54	0.01
	Private	63.76	20.24		
Feelings and Ideas	Govt.	43.68	18.10	4.61	0.01
	Private	56.73	21.67		
Vocation	Govt.	50.22	20.82	1.23	N.S.
	Private	53.89	21.45		
Sex	Govt.	23.90	13.01	1.43	N.S.
	Private	21.03	15.26		

Discussion of Results

Table 1 shows the area wise mean scores, standard deviation and t-ratio of self-disclosure of the secondary school students in different areas i.e. Money, Personality, Study, Body, Interests, Feelings and Ideas, Vocation and Sex.

Money

The mean scores of secondary school students studying in Government school was 33.82 and that of Private school was 44.91 respectively. The standard deviation of government school students was 13.87 and that of private school students was 12.41. The calculated t-ratio between the two mean scores was 5.96 which is significant at 0.01 level.

Personality

The mean scores of secondary school students studying in Government school was 34.71 and that of Private school was 43.81 respectively. The standard deviation of government school students was 14.31 and that of private school students was 13.74. The calculated t-ratio between the two mean scores was 4.59 which is significant at 0.01 level.

Study

The mean scores of secondary school students studying in Government school was 46.60 and that of Private school was 65.47 respectively. The standard deviation of government school students was 20.26 and that of private school students was 21.74. The calculated t-ratio between the two mean scores was 6.35 which is significant at 0.01 level.

Body

The mean scores of secondary school students studying in Government school was 42.05 and that of Private school was 50.56 respectively. The standard deviation of government school students was 17.40 and that of private school students was 18.11. The calculated t-ratio between the two mean scores was 3.39 which is significant at 0.01 level.

Interests

The mean scores of secondary school students studying in Government school was 53.33 and that of Private school was 63.76 respectively. The standard deviation of government school students was 21.44 and that of private school students was 20.24. The calculated t-ratio between the two mean scores was 3.54 which is significant at 0.01 level.

Feelings and Ideas

The mean scores of secondary school students studying in Government school was 43.68 and that of Private school was 56.73 respectively. The standard deviation of government school students was 18.10 and that of private school students was 21.67. The calculated t-ratio between the two mean scores was 4.61 which is significant at 0.01 level.

Vocation

The mean scores of secondary school students studying in Government school was 50.22 and that of Private school was 53.89 respectively. The standard deviation of government school students was 20.82 and that of private school students was 21.45. The calculated t-ratio between the two mean scores was 1.23 which is not significant.

Sex

The mean scores of secondary school students studying in Government school was 23.90 and that of Private school was 21.03 respectively. The standard deviation of government school students was 13.01 and that of private school students was 15.26. The calculated t-ratio between the two mean scores was 1.43 which is not significant

Conclusions

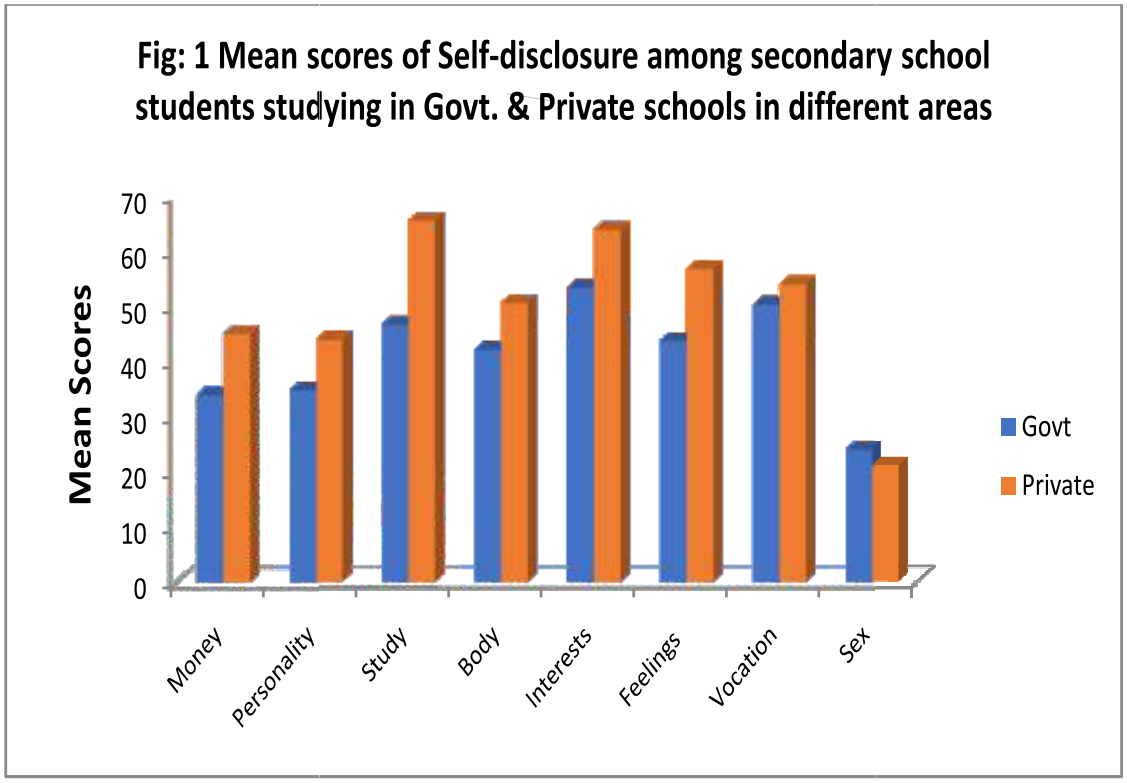
The descriptive analysis reveals that students of private schools show higher means in the area of Money, Personality, Study, Body, Interest, Feeling & Ideas and Vocation as compared to the secondary school students studying in govt. schools, except for the area 'sex' which was found to be higher among Govt. school students, which implies that they are more open about sex than their counterparts studying in private schools.

The calculated 't' ratiobetween secondary school students studying Govt and Private Schools are significant in the area of Money *(t=5.96)*, Personality (*t=4.59*), Study (*t=6.35*), Body (*t=*

3.39), Interest (*t=3.54*) and Feelings and Ideas (*t=4.61*). However, the 't' ratio between secondary school students studying in Govt and Private schools in the area of Vocation (*t=1.23*) and Sex (*t=1.43*) were not found to be significant.

Thus, the first null hypothesis that, "there will be no significant difference in the self-disclosure of Government and Private school students" is rejected to a great extent. These results are further clear from fig 1 showing higher means of private school students on various aspects of self-disclosure than private school students, except for the area of sex.

Fig. 1



Hypothesis 2

Hypothesis 2 stating "there will be no significant difference in the self-disclosure among secondary school boys and girls" was tested by employing t-test. The results are entered in table 2 and its graphical form is given in fig.2.

Table-2 Comparison of Mean scores of Self-Disclosure of Secondary School Boys (N=100) and Girls (N=100)

Areas of self-disclosure	Group	Mean	SD	t-ratio	Level of significance
Money	Boys	37.20	15.11	2.17	0.05
	Girls	41.53	13.06		
Personality	Boys	38.24	15.61	0.98	N.S.
	Girls	40.28	13.77		
Study	Boys	55.37	25.06	0.41	N.S.
	Girls	56.70	20.82		
Body	Boys	48.38	20.63	1.62	N.S.
	Girls	44.23	15.26		
Interests	Boys	56.50	22.85	1.35	N.S.
	Girls	60.59	19.85		
Feelings and Ideas	Boys	50.96	22.91	0.53	N.S.
	Girls	49.39	18.90		
Vocation	Boys	49.21	22.48	1.91	N.S.
	Girls	54.90	19.45		
Sex	Boys	24.98	13.88	2.54	0.05
	Girls	19.95	14.17		

Discussion of Results

Table 2 shows the area wise mean scores, standard deviation and t-ratio of self-disclosure of secondary school boys and girls in different areas i.e. Money, Personality, Study, Body, Interests, Feelings and Ideas, Vocation and Sex.

Money

The mean score of secondary school boys was 37.20 and that of girls was 41.53 respectively. The standard deviation of boys was 15.11 and that of girls was 13.16. The calculated t-ratio between the two mean scores was 2.17 which is significant at 0.05 level.

Personality

The mean score of secondary school boys was 38.24 and that of girls was 40.28 respectively. The standard deviation of boys was 15.61 and that of girls was 13.77. The calculated t-ratio between the two mean scores was 0.98 which is not significant.

Study

The mean score of secondary school boys was 55.37 and that of girls was 56.70 respectively. The standard deviation of boys was 25.06 and that of girls was 20.82. The calculated t-ratio between the two mean scores was 0.41 which is not significant.

Body

The mean score of secondary school boys was 48.38 and that of girls was 44.23 respectively. The standard deviation of boys was 20.63 and that of girls was 15.26. The calculated t-ratio between the two mean scores was 1.62 which is not significant.

Interests

The mean score of secondary school boys was 56.50 and that of girls was 60.59 respectively. The standard deviation of boys was 22.85 and that of girls was 19.85. The calculated t-ratio between the two mean scores was 1.35 which is not significant.

Feelings and Ideas

The mean score of secondary school boys was 50.96 and that of girls was 49.39 respectively. The standard deviation of boys was 22.91 and that of girls was 18.90. The calculated t-ratio between the two mean scores was 0.53 which is not significant.

Vocation

The mean score of secondary school boys was 49.21 and that of girls was 54.90 respectively. The standard deviation of boys was 22.48 and that of girls was 19.45. The calculated t-ratio between the two mean scores was 1.91 which is not significant.

Sex

The mean score of secondary school boys was 24.98 and that of girls was 19.95 respectively. The standard deviation of boys was 13.88 and that of girls was 14.17. The calculated t-ratio between the two mean scores was 2.54 which is significant at 0.05 level.

Conclusions

The descriptive analysis reveals that mean scores of boys are higher than girls in the area of Body, Feeling & Ideas and Sex. It is indicated that boys disclose more about their body, feelings and ideas and sex as compared to girls. Moreover, higher means of girls as compared to boys were found in the areas of Money, Personality, Study, Interests and Vocation. It indicates that girls like to disclose more about their Money, Personality, Study, Interests and Vocation as compared to boys.

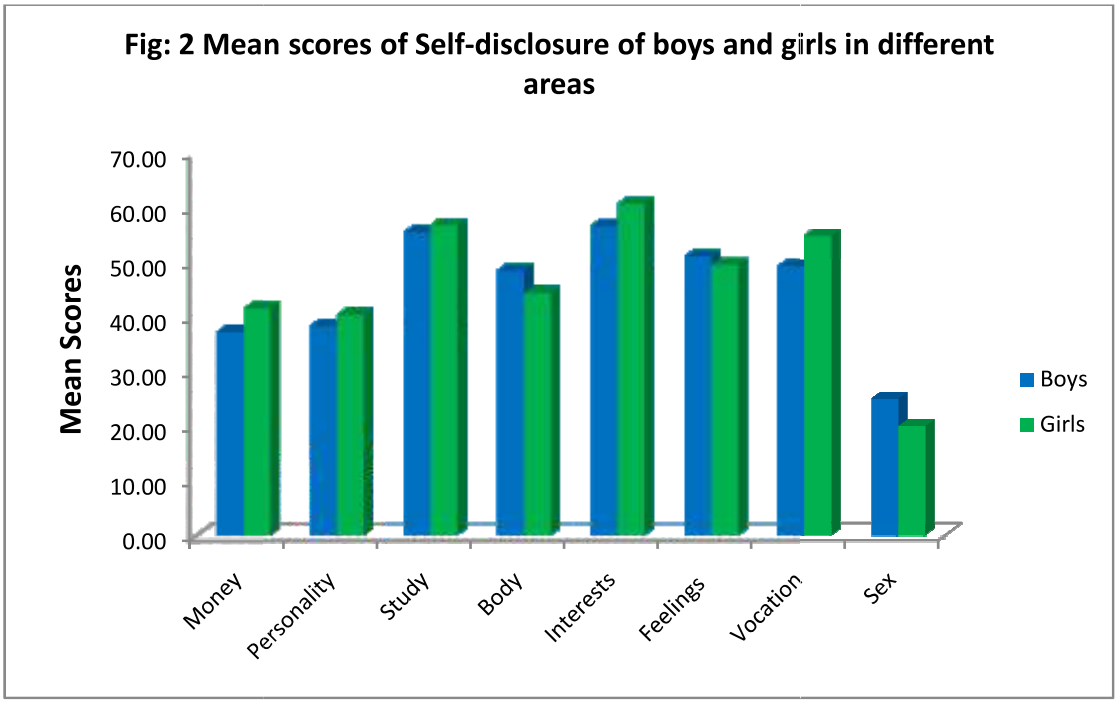
The calculated 't' ratio between secondary school boys and girls in the areas of Self-disclosure i.e. personality (*t=0.98*), Study (*t=0.41*), Body (*t= 1.62*), Interest (*t=1.35*) Feelings and Ideas (*t=0.53*) and Vocation (*t=1.91*) are not significant. Significant 't' ratio was found between boys and girls only in the area of Money *(t=2.17*) and Sex (*t=2.54*). It shows that money and sex are two major areas what adolescent boys and girls like to discuss.

Thus, the second null hypothesis that "There will be no significant difference in the self-disclosure among secondary school boys and girls" is accepted to a great extent.

The findings of present study have been supported by Vidyapati (1987) who has also reported no difference in self-disclosure of boys & girls.

These results are further clear from fig 2 showing mean scores of boys are higher than girls in the area of Body, Feeling & Ideas and Sex. Higher mean scores of girls are evident in the areas of Money, Personality, Study, Interests and Vocation as compared to boys.

Fig. 2



Findings of the Study

The findings of the present study are as follows:

1. Significant differences were found on self-disclosure between Govt and Private Schools in the area of Money, Personality, Study, Body, Interest, Feelings & Ideas. However, no significant difference was reported in the areas of Vocation and Sex.

2. No significant differences were found on self-disclosure between secondary school boys and girls in the areas of Personality, Study, Body, Interest, Feelings & Ideas and Vocation except for two areas of self-disclosure i.e. Money and Sex, where there was significant difference among boys and girls.

Educational Implications

The study finds various educational implications that may be useful for the teachers, administrators, policy makers and planners.

1. The findings bring to the light the fact that private school students talk freely about their Money, Personality, Study, Body, Interest, Feeling & Ideas and Vocation as compared to the Govt. school students. The higher mean scores of Govt. School students with respect to Sex indicate they are more open about sex than their counterparts in private schools. The teachers have to ensure and guide students that

there is optimum level of self-disclosure among students irrespective of type of school i.e. Govt. or private.

2. Another finding that emerged out of the study was that the secondary school level boys talk more about their body, feelings and ideas and sex as compared to girls as indicated by their higher means scores. On the contrary it was found that the girls talk freely more about their Money, Personality, Study, Interests and Vocation as compared to boys. This gives a reflection to the educators about what they should guide to the girls and boys of this age group. Their discussions and disclosures need to be healthier and more focused about making the present efforts more fruitful to help them achieve their future goals rather than wasting their precious time and energy on matters that are just materialistic and that may lead them to a less constructive path.

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OCCUPATIONAL SELF-EFFICACY OF SCHOOL TEACHERS IN RELATION TO PERCEIVED ADMINISTRATIVE EFFECTIVENESS OF PRINCIPALS

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Abstract

Background: *Well-organized Administrative skills are required for an effective organization in the schools to attain the set aims and objectives related to the best outcomes of the teaching learning process. Dimock and Dimock (1960) defined administration as "a planned approach to the solving of all kinds of problems in almost every individual group activity, both public and private" Principal of the school play crucial role in the same by his/her Administrative effectiveness. Occupational self-efficacy of the teachers in the school is also an important factor for the success of an organization and principal play effective role in enhancing the same.* ***Aim:*** *This study was conducted to study the occupational self- efficacy of the school teachers in relation to perceived administrative effectiveness of the principals. .****Methodology:*** *The study was conducted on sample of 400 secondary school teachers of Govt. & Private secondary schools of U.T.CHD.* ***Conclusion:*** *Private secondary school teachers are found to be high in occupational self-efficacy level than their Government school counterparts. Administrative effectiveness is responsible for the enhancement of occupational self-efficacy of the teachers.*

Keywords: *Administrative Effectiveness, Occupational self-efficacy*

Introduction

The environment of the school is one of the major determining factors to the extent to which the envisaged objectives & goals of education could be accomplished. To create a conducive environment of accountability, respect, kindness & cognizance, effective administration at school is of utmost importance. The role of head/principal can never be over-estimated to develop learning communities, work for professional development of teachers, engage in constructive decision making, always plan for instructional leadership, and give respect to the needs and aspirations of the society. With a clear vision and bonafide mission the principal can be a major driving force for realizing the aims of education in real sense. So it is true that the behaviour of the leader is important but we cannot ignore the qualities of the leader which makes him/her an effective administrator. Any school/institution requires effective leadership and sound administration i.e. "Leader of thoughts" who consistently energizes the minds of his/her co-workers/colleagues and helps them to achieve the goals of organization.

Teacher play crucial role in the teaching learning process in the school and also to attain the set aims and objectives of the organization. Occupational self-efficacy of the teachers is a motivating factor for bringing the change in the system with respect to learning outcomes, working for vision and mission of the school and curriculum reflections.

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Modern schools with skilled teachers and intellectually alert students need leaders with exceptional personality, charismatic power, wide vision, passionate commitment and zeal to use the talent of people to attain the organizational goals. Hence the importance and requirement of management in education is much more vital as in other organizations. Educational management involves the role of principal of school as a leader and administrator who influences his/her followers with his/her behaviour, effectiveness, understanding, and his/her ability to motivate the staff. Teachers must be inspired at most as their self-efficacy will be directly affected by school leadership. Therefore the human behaviour reflected by principal should be more influencing for teachers to enhance their occupational self-efficacy.

OCCUPATIONAL SELF-EFFICACY

Self-Efficacy

One's own ability and capability to perform various result oriented tasks with different challenges is known as the self-efficacy of a particular individual.

According to staple, Huland and Higgin's (1998), self-efficacy is the ability of an individual to set and fulfil a specific task. Thus the level of organizational performance will increase with increase in the level of self-efficacy

Akhtar (2008) "self-efficacy is the belief an individual has in his/her own abilities, specifically it is an ability to meet the challenges ahead of him/her and complete a task successfully".

Magnitude, strength and generalization are mainly three basic dimensions for self-efficacy. These three dimensions can be used to assess and measure the self-efficacy of an individual. Level of task difficulty is represented by magnitude. High level of magnitude in self-efficacy proves that a person is capable of completing the difficult tasks and the person with low level of magnitude in self-efficacy will be able to perform only simple tasks and responsibilities.

Meaning of occupational self-efficacy

Occupational self-efficacy is the limit at which an individual is capable of judging oneself with respect to a particular task assigned to him/her in a career he/she has chosen for vocation. Wood et al., (1990) defined "occupational self-efficacy as the ability to perform better as a team". Mitchell et al., (1994) defined "occupational self-efficacy as the ability to acquire more skills".

There are three different parameters for occupational self-efficacy which represent implications for performance:-

(A) The perceived level of task complexity by an individual to perform.

(B) The strong belief of capability of individuals to perform that complex task.

(C) The ability of individuals to analyze and generalize the abilities to apply them in different situations or areas.

OCCUPATIONAL SELF-EFFICACY OF TEACHERS

Occupational Self Efficacy has always been significant for teachers in the sense that it makes them confident of handling day to day challenges in teaching learning interactions. It not only makes them efficient teachers but also makes them very effective. It is all the more significant for teachers today as the job of teachers has become more challenging specially after Covid-19 pandemic and the response as well as the expectations of students, parents and institutions have become more complex in comparison to pre-Covid times. Occupational self-efficacy of teachers depends upon many factors like their Self-Confidence, Self Esteem, academic achievement, professional training and commitment, personal experiences, feedback and support from senior colleagues, particularly the principal and exposures to challenging situations. Most of the well-trained teachers have a high degree of occupational self-

efficacy as it is this factor which is emphasized during their field-training and mentoring.

The dimensions of occupational self-efficacy studied in the present study are as follows:

Confidence: confidence is dependence on one's own abilities..

Command: it is a sense of control over the situation.

Adaptability: it is the ability to adjust and overcome the disabling influence on occupational functioning irrespective of the environment at the workplace.

Personal effectiveness: it is inclination towards continuous development and to integrate some ideas from the power of positive thinking and positive psychology for self-helping to deal with success, goals and related concepts in occupation.

Positive attitude: positive attitude is ability to evaluate optimistically.

Individuality: it is independence in making decisions and setting standards for performance.

ADMINISTRATIVE EFFECTIVENESS

In the world every school has its broad and specific aims and objectives. An effective administration is required for the attainment of these aims and objectives. It needs well-organized administrative machinery. The school life will be full of chaos and confusions without efficient and effective administrative machinery. It can be conferred that an organization is a muddle of men and machines without any proper administration. For the success of any organization good administration plays a vital role besides the capital, material and technical know-how. To survive in the world of this competition and technology environment every organization needs an effective administrator (Mudasir, 2012).

A good administrator should ensure that the associated efforts of individuals are productive. To attain this, administrators should possess most creative and best efforts on the part of the members of the organization. L.D.White (1958) defined administration as an art of directing, coordinating, and controlling humans to attain some purpose or goal.

Daniel Kartz and Robert Kahn (1974) suggest that it is mandatory for the principal of a school to play the role of manager because it is the most important aspect of school leadership. They divide the managerial roles and skills into three major areas:-

Technical:-It involves good planning, organizing, coordinating, supervising, and controlling techniques.

Human: - dealing with human relations and people skills, good motivating and morale building skills.

Conceptual: - emphasizing knowledge and technical skills related to the service (or product) of the organization.

POSDCORB

The daily activities of the school administrator for effectively managing the school affairs totally depends upon the POSDCORB which includes planning, organizing, staffing, directing, coordinating, reporting and budgeting. POSDCORB for the schools is equally important for practical use as in any other organization in all over the world. Administration in the form of function, elements ensures the hierarchical structure in the process of organization to attain the desirable components in the system of education. Hence, it defines the role of principal as an administrator in the day to day activities in the school for their efficient execution as a leader or head. It was Gullick and Urwick(1937) who proceeded the original work of Henri Fayol (1911) 'POCCC'(Plan, organize, control, coordinate and command) to give the term POSDCORB to explain the functions of an administrator and manager. They emphasize the use of it by every principal or head of school or any organization as a necessary function of effective administration. Mullins (2005) therefore upheld that the process of

managing an institution is responsible for the supervision of efforts of members of the institution are coordinated, directed, and guided towards the attainment of the organizational goals. Sequence of administrative process as modified by Enaohwo & Eferakeya (1989):-

Planning: - planning involves the thinking process with analysis for the present and futuristic circumstances. It is recommended as the techniques followed and mentioned for the completion of tasks to be performed by the head of any organization by utilizing the available resources.

Organizing: school administrators are always responsible for the well organization of the activities and their execution in the school to attain the set objectives and goals of the organization. Hence it is the prime duty of the principal to organize the activities in a well manner.

Staffing:- Planning and management of the staff in terms of their selection, promotion, training and transfer is the main element of staffing on the part of principal/administrator of the school. It demands errorless efforts by the head of the organization. The role of principal as a manager involves managing the proper and effective selection, appraisal, and development of personnel to fill the roles designed into the structure

Directing:- The principal of the school always directs upon the specificity of attainment of the educational objectives and goals. Direction is to direct the staff what to do and also to do it with their best abilities.

Coordinating:- coordination is balancing and maintaining the team by ensuring a suitable division of work and seeing that the tasks are performed in harmony. Hence all the activities of the school should be under the well coordination by the principal for timely attainment of the goals.

Reporting:- Reporting can be considered as the glamour of any school or organization because it provides a base for the actions to be taken by providing relevant information.

Budgeting: - As the planning, organizing, staffing, directing, coordinating, reporting are major steps of effective administration, budgeting is also a crucial part of any school or organization. It serves as a statement of priorities, resources allocation, and control tool for management, reporting and accountability.

SIGNIFICANCE OF THE STUDY

The present study is very significant in contextualizing the roles of teachers and principals in helping them do their work more confidently and effectively. Study is useful for the teachers to better understand the concept of occupational self-efficacy and also to work upon the same to improve one's working ability. If a teacher has a high level of occupational self-efficacy i.e. beliefs in one's capabilities, confidence, personal effectiveness, positive attitude, adaptability etc. then it will be helpful in effective outcome of the teaching and learning process. Policy makers may also be benefited to work upon the strategies and policies to improve the outcomes of the teaching learning process.

In education, the principal/head of the school acts as decision maker because we found him/her at the top position in the form of authority and responsibility within the schools. Hence the study of administrative effectiveness of them will definitely gives us the better analysis of school organization and administration.

The purpose of this study is to provide a critical review of the relation between occupational self-efficacy of secondary school teachers with perceived administrative effectiveness of principals as key element of educational system and to determine and consider some useful and relevant information.

OBJECTIVES OF THE STUDY

1. To study the interaction effect of type of management and perceived Administrative effectiveness of principals on occupational

self-efficacy of secondary school teachers.

2. To study the difference in perceived Administrative effectiveness among government and private secondary school principals as perceived by teachers.
3. To study the difference in occupational self-efficacy of teachers with respect to perceived Administrative effectiveness of secondary school principals.

HYPOTHESES OF THE STUDY

1. There will be no interaction effect of type of management and perceived Administrative effectiveness on occupational self-efficacy of secondary school teachers.
2. There will be no significant difference in perceived Administrative effectiveness among government and private secondary school principals as perceived by teachers.
3. There will be no significant difference in occupational self-efficacy of teachers with respect to perceived Administrative effectiveness of secondary school principals.

DELIMITATIONS OF THE STUDY

Keeping time and resource constraints in view, the study was delimited to the following:

1. Present study was delimited to the secondary school teachers and principals of Government and private schools affiliated to C.B.S.E. situated in U.T Chandigarh.
2. Study was delimited to two variables only i.e., occupational self- efficacy and administrative effectiveness of principals.
3. Study was delimited to 400 secondary school teachers and 40 principals.

SAMPLE OF THE STUDY

For the present study, stratified random sampling method was used. 40 secondary schools (20 Govt. and 20 Priv.) of U.T. Chandigarh were taken for the study. 01 principal and 10 teachers from each school were taken as a sample for the study. In this way, 40 principals and 400 teachers comprised the total sample.

TOOLS USED

In the present study, the following tools were used to collect data:

1) Occupational self-efficacy scale by Pethe, Chaudhary and Dhar, (2006).
2) Principal administrative effectiveness scale developed and validated by the investigator.

Testing of Hypotheses

Hypothesis 1

There will be no interaction effect of type of management and perceived Administrative effectiveness on occupational self-efficacy of secondary school teachers.

Table 1.1: Test of Between-Subject Effects Dependent Variable: Occupational Self-Efficacy

Source	Type III Sum of Squares	df	Mean Square	F	p
Type of Management	275.219	1	275.219	3.4338*	0.023
Perceived Administrative Effectiveness	3.543	1	3.543	0.044	0.834
Type of Management* Perceived Administrative Effectiveness	23.038	1	23.038	0.287	0.593
Error	8656	108	80157		
Total	749175	116			

Conclusions drawn from the table 1.1 to check the effect of type of management, perceived administrative effectiveness of principals of secondary schools on occupational self-efficacy of secondary school teachers is as follows:

➢ **Effect of type of management (Government & private) on the variable of occupational self-efficacy of secondary school teachers.**

Table 1.1 reveals that the F-statistic corresponding to type of management (Government and private) is 3.433, which is significant (p>0.05). It is found that the private secondary school teachers have higher occupational self-efficacy than their government counterparts..The value of mean for occupational self-efficacy of government secondary school teachers is 77.61 and private secondary school teachers is81.86. The value of t-ratio is 5.26, which is significant (p<0.01). It indicates significant difference in occupational self-efficacy of government and private secondary school teachers.

Effect of perceived administrative effectiveness (High and low) on the variable of occupational self-efficacy of secondary school teachers.

The F-statistic corresponding to perceived administrative effectiveness (high and low) is 0.044, which is non-significant (p>0.05). It shows that perceived administrative effectiveness of principals of secondary schools do not have any effect on occupational self-efficacy of teachers of government and private secondary schools. It might be due to overemphasis on the administration of principals in the schools.

The interaction between type of management and perceived administrative effectiveness is non-significant as p=0.593 with F statistic 0.287.Research studies conducted by (Ibukun, Oyewole& Abe, 2011); Oluwadare (2011); (Gupta &Sawhney, 2010); (Kwong, Paula & Allan, 2010); (Roya & Fatehmeh, 2016 favoured the present findings. Hypothesis 1 which states that "There will be no significant effect of type of management and perceived administrative effectiveness on occupational self-efficacy of secondary school teachers", is accepted.

Hypothesis 2

There will be no significant difference in perceived administrative effectiveness among government and private secondary school principals as perceived by teachers

Table 1.2: Difference in Perceived Administrative Effectiveness of Government and Private Secondary School Teachers

Groups	N	Mean	Standard Deviation	t-ratio
Government secondary school teachers	200	197.66	18.33	7.48*
Private secondary school teachers	200	212.48	21.18	

**Significant at 0.01 level of significance*

Table 1.2 shows that the values of mean for perceived administrative effectiveness of government and private secondary school teachers 197.66 and 212.48 respectively. The value of t-ratio is 7.48, which is significant ($p<0.01$). It indicates that there is significant difference in perceived administrative effectiveness of government and private secondary school teachers. This leads to rejection of hypothesis 2 which states that "There will be no significant difference in perceived administrative effectiveness of principals among government and private secondary schools as perceived by teachers".

Perceived administrative effectiveness of private secondary school teachers (mean=212.48) is significantly higher than their government school counterparts (mean=197.66). Results from the research studies of Comfort (2012); & Arya (2014); supported the present findings.

Figure 1.1 : Perceived Administrative Effectiveness of Government and Private Secondary School Teachers

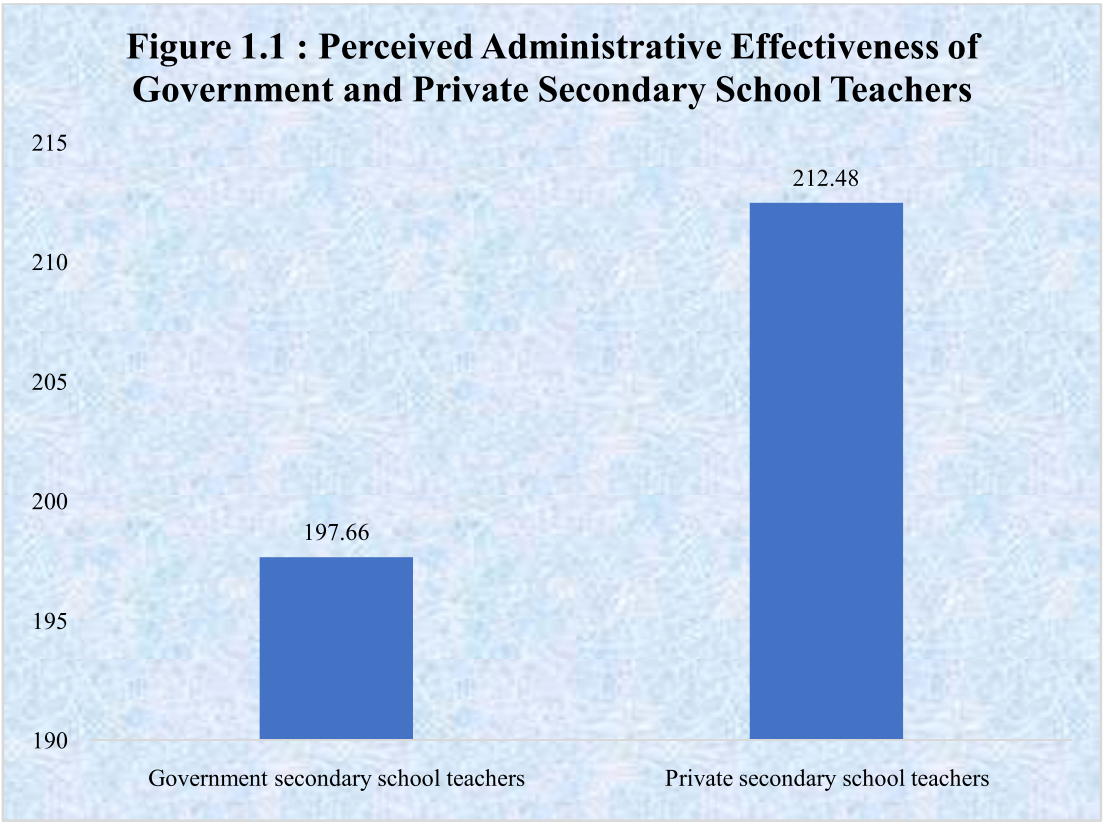

Figure 1.1 gives comparative view of perceived administrative effectiveness of government and private secondary school teachers.

Hypothesis 3

There will be no significant difference in occupational self-efficacy of teachers with respect to perceived administrative effectiveness of secondary school principals.

Table 1.3: Difference in Occupational Self-Efficacy of Secondary School Teachers with respect to Perceived Administrative Effectiveness

Groups	N	Mean	Standard Deviation	t-ratio
High perceived administrative effectiveness	108	81.28	8.68	1.85 (NS)
Low perceived administrative effectiveness	108	79.18	7.57	

NS means non-significant

Table 1.3 shows that the values of mean for occupational self-efficacy of High and low perceived administrative effectiveness of secondary school teachers are 81.28 and 79.18 respectively. The value of t-ratio is 1.85 which is non-significant ($p>0.05$). It indicates that there is no significant difference in occupational self-efficacy of teachers of secondary schools with high and low perceived administrative effectiveness. Researchers like (Ibukun, Oyewole& Abe, 2011); Oluwadare (2011); (Gupta & Sawhney, 2010); (Kwong, Paula & Allan, 2010); (Roya & Fatehmeh 2016); supported the present results. Hypothesis 3 which states that 'There will be no significant difference in occupational self-efficacy of teachers with respect to perceived administrative effectiveness of principals of secondary schools', is accepted.

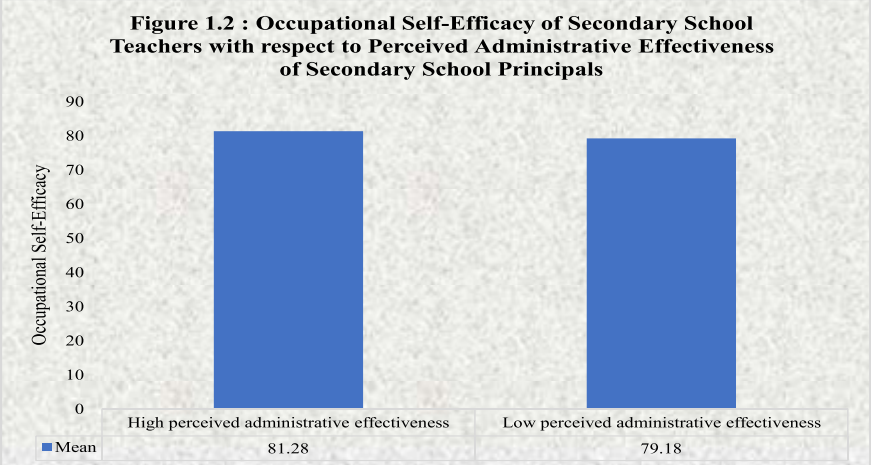

Figure 1.2 give comparative view of occupational self-efficacy of secondary school teachers having low and high administrative effectiveness.

MAJOR FINDINGS

a) F static value (0.287) indicates that the interaction between type of management and perceived administrative effectiveness is non-significant.

b) There is significant difference (t-value=5.26) in occupational self-efficacy between government and private secondary school teachers of U.T. Chandigarh. The mean of occupational self-efficacy (M=81.86) of private secondary school teachers of Chandigarh is higher than the mean of the occupational self-efficacy (M=77.61) of government secondary school teachers of Chandigarh.

c) There is significant difference (t-value=7.48) in perceived administrative effectiveness between government and private Secondary school principals of U.T. Chandigarh. The mean of perceived administrative effectiveness (M=212.48) of private secondary school principals of Chandigarh is more than the mean of the perceived administrative effectiveness (M=197.66) of government secondary school principals of Chandigarh

d) T-value (1.85) between high and low perceived administrative effectiveness of principals indicates that secondary school teachers do not differ significantly in the occupational self-efficacy on the basis of their perceived administrative effectiveness of principals.

GENERAL DISCUSSION AND EDUCATIONAL IMPLICATIONS

Occupational self efficacy in case of Private secondary school teachers found to be higher as compared to Government School teachers. Hence private management in secondary schools may be provided more favorable conditions for the variable of occupational self efficacy of the secondary school teachers. Administrative effectiveness of private school principals' as perceived by teachers was better as compared to their government counterparts. However secondary school teachers of private and government managements do not differ in their occupational self-efficacy level on the basis of high and low perceived administrative effectiveness.

The findings of the present research work may be beneficial for both the teachers as well as principals of the schools to improve the quality of teaching learning process. Administration studied in the study was based upon the POSDCORB model of administration. Various programmes for the principals can be organized in the schools to improve their administrative effectiveness.

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Hailakandi Block under Hailakandi Status of Anganwadi workers in Early Childhood Care and Education of District of Assam

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Abstract

In India the Anganwadi centres emerged for early childhood care and education as a part of ICDS scheme. Present study mainly focuses on to survey the facilities available in the Anganwadi centres of Hailakandi district of Barak valley Assam and assesses the knowledge, and role and responsibilities of Anganwadi workers. The study was used descriptive survey method followed by mixed approach and taken data from the 30Anganwadi centres of Hailakandi block of Uttarkanchanpur, Bakrihawar New, Kalinagar New and Panchgram cluster of Hailakandi district. The study finds out that maximum number of workers in Anganwadi centre are not aware of the ECCE concepts.They are not trained and around 55% of teachers are low qualified. As NEP 2020 aims to make education system in India more inclusive, equitable and relevant to the needs of the 21st century. But here in above mentioned Clusters most of the centre are kept closed during class hours. They are not following the arrival and departure timing. Proper monitoring and supervision are not tracking by the department.It also finds out the problem of centres lacking water facility, seating arrangement, lack of rooms and proper infrastructure. So, it is visible that the role and responsibility are affectingthe teaching and learning process.

Keywords: Facilities in Anganwadi Centres, Anganwadi workers, Knowledge, Role and Responsibilities.

INTRODUCTION

Early childhood care and education (ECCE) play a foundational role in shaping the development and well-being of young children. The formative years, from birth to age eight, represent a critical period during which children experience rapid cognitive, emotional, social, and physical growth. The quality of care and education provided during this time profoundly influences their future outcomes, including academic achievement, socio-emotional competence, and lifelong health. In recent decades, there has been a growing recognition of the importance of investing in early childhood development as a means to promote equity, foster economic prosperity, and build resilient societies. Research consistently demonstrates that high-quality ECCE programs not only prepare children for school success but also yield significant long-term benefits, including higher educational attainment, increased earning potential, and reduced rates of crime and delinquency. This report aims to explore various aspects of early childhood care and education, ranging from theoretical frameworks to practical implementation strategies. It will examine key components of quality ECCE programs, such as curriculum design, teacher qualifications, family engagement, and the role of early intervention services. Additionally, the report will investigate current challenges and opportunities in the field, including access disparities, funding issues, and emerging trends in pedagogy and technology. By shedding light on the importance of early childhood care and education and offering insights

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Review of Related Literature-

Baliga and Walvekar (2017)- the study titled as "A study on knowledge of Anganwadi workers about integrated child development services at three urban health centres". The study finds out that only 45.39% had knowledge regarding its services and 88.16% of Anganwadi workers had good knowledge on health, nutrition and immunization. The workers had no relation with the education services.

Makadia et al. (2016)- The study titled as "comparative study to assess function of Non-profit organization and the Government". The study finds out that NGOs are doing better jobs than the Government Anganwadi centres. The study explained statistically about the malnutrition children among the NGOs and Anganwadi centres.

Kumar and Gupta (2014)- the study titled as "Evaluation of Integrated Child Development Services scheme (ICDS). This study was based on comparative method. The study findings were that there was absolutely no difference lies between the ICDS and non ICDS. The study also says that occupation of agriculture was not the main reason for difference among the children.

Postdoctoral Research, Yuki Ohara of Japan (2013)- The titled of the study was ECE in Indian context- In her study it is stated that India demands for ECCE from various centres because of developing standard of living of Indian people for example double income in a family, etc. According to her ECCE gained attention in India because of the following reasons In India children under the age five die than anywhere else in the world. In India under the age of three found to be underweight. So ECCE program will improve the physical conditions of children, will promote the intellectual, social, cognitive and will also help to reduce the dropout rates. ECCE centres will also take care of health, nutrition of children, lactating mother, pregnant women and participation of women in different workforce. Her study also discussed about the ECCE providers and their various programs. Such as MWCD has been providing ICDS free of charge through Anganwadi Centres. Since 1975 it has been

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Table 1- Sample Collection and Distribution

Sl No	Name of the Cluster	Name of the Revenue Village
1	Uttarkanchanpur Cluster	Dolidoha Grant
		Dakhin Badarpur
		Uttarkanchanpur-I Pt
		Nabashantipur
		Uttarkanchanpur-II Pt
2	Panchgram	Panchgram
		Uttarbadarpur
		Badarpur Grant
		Thandapur
3	Bakrihawar New	Bakrihawar-Pt
		Bakrihawar-Pt-II
		Bakrihawar-Pt-I
4	Kalinagar New	Kalinagar-Pt
		Kalinagar-Pt-II
		Kalinagar-Pt
		Polarpar
Total	04	16

TOOLS

Researcher has used self-made tool for the study. Two tools had been used to conduct the survey.

(i) To know about the facilities provided to the Anganwadi centre by the government, a check-list with 13 items were prepared for the study.

(ii) A questionnaire was made and standardized to know the knowledge, and role and responsibilities of Anganwadi workers about Early Childhood Care and Education. 19 items were made for the questionnaire (9 for knowledge and 10 for Role and Responsibilities).

DATA ANALYSIS, INTERPRETATION:

Table –2: Facility index at Anganwadi centers

Item No	Facilities	Responses	
		Yes	No
1.	Room	73.08%	26.92%
2.	SittingArrangement	57%	42%
3.	Toilet	30%	70%
4	Teaching Material	65.38%	34.62%
5	Playroom	11.54%	88.46%
6	Hot Cooked Meal	30%	70%
7	Weight Machine	100%	0%
8	First Aid Kit	100%	0%
9	Health Checkup	100%	0%
10	Vaccination	100%	0%
11	Different Activity	19.23%	18.77%
12	Curriculum	100%	0%
13	Water	19.23%	80.77%

Interpretation: After the data collection, the researcher had observed that all facilities were not available in each Anganwadi centre. On the basis of table, the status of different facilities of Anganwadi centres are one by one interpreted in bellow.

- Room is an important part of Anganwadi centre. From the table it is clear that the room were available at 19 out of 26Anganwadi centres whereas at 7Anganwadi centres don't have own room, it means 73.08% Anganwadi centres had rooms whereas 26.92% Anganwadi centres had no rooms. The Anganwadi worker had worked in the home of other people, field, or courtyard area where rooms were not available at Anganwadi Centres.
- Anganwadi centres had no sitting arrangement facilities but the Anganwadi worker teach the students in a small area. The community members had arranged a sitting place for children for reading, writing and other activities.

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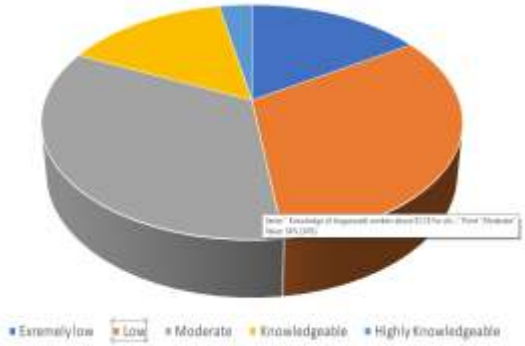
- Anganwadi centres had no sitting arrangement facilities but the Anganwadi worker teach the students in a small area. The community members had arranged a sitting place for children for reading, writing and

Table–3: Knowledge of Anganwadi workers about ECCE for children below 6 years

1.	Extremely low level of Knowledge	16%
2.	Low level of knowledge	32%
3.	Moderately Know ledged	34%
4.	Knowledgeable	15%
5.	HighlyKnowledgeable	3%

Knowledge of Anganwadi workers about ECCE for children below 6 years



Interapatation- It is found that maximum number of Anganwadi workers are not aware about the concept of ECCE learning. 3% of workers are aware and had clear concept about the ECE learning and also acquired the training from different source such as SWAYAM app. 34% of workers are moderately aware about the ECE training module. Around 32% of workers have low idea about ECE, whereas 16% workers have extremely low level of awareness about ECE program. Again, it is found that out of 100% only 15% workers are aware and 34% are moderately aware about ECE.

DISCUSSION AND CONCLUSION: It is found that maximum number of workers in Anganwadi centers are not aware of ECCE concepts. In Anganwadi Centers the workers working in teaching learning process are less qualified. Most of the teachers only possess higher secondary and maximum are only secondary or under matriculation. It has been noticed that the teachers teaching in pre-schools such as Ka-shreni are more qualified and trained teachers. It finds out the problems of a centers such as lack of infrastructure, drinking water facility, lack of seating arrangements, lack of Teachers, irregularity of children, etc. Moreover, there are many centers without building, taking class in an open ground under a tree, verandah, or in their own residences. Lack of proper training. It is found that the last training they attend in the year 2016, after that no training was received. Early Childhood Care and Education was totally a new concept for many of them. The study also finds that Anganwadi workers teaching are not effective. The children after acquiring their pre-school maximum number of the children had no basic knowledge of reading

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ADJUSTMENT IN RELATION TO EMOTIONAL INTELLIGENCE OF ADOLESCENTS

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Sector-20-D, Chandigarh

Abstract

Aim of the research is to find out the relationship between adjustment and emotional intelligence among adolescents. A sample of 100 students of class IX were taken from Government Model Sr. Sec. Schools of Chandigarh. Standardized tools were used for the collection of data and to ascertain the relation of Emotional Intelligence and Adjustment. Emotional Intelligence test developed bySoni and Sharma (2009) and High School Adjustment Inventory by Singh and Gupta (1987) were administered to collect the data.The study was delimited toclass IX students of Govt. Model Sr. Sec. Schools of Chandigarh.The sample was selected randomly through lottery method. Pearson's correlation technique and t-test were employed to analyze the data and compute coefficient of correlation value and t- ratio value respectively. The study revealed positive correlation between emotional Intelligence and adjustment among adolescents. Girls and boys adolescent students did not show any significant difference for adjustment and emotional intelligence between them.

Keywords: Adjustment, Emotional Intelligence, adolescents

INTRODUCTION

Adolescence is said to be an important stage of growth and development. It is considered as the most critical period in life of an individual. Adolescents have to face various difficult situations. It is said that adolescence is period of stress and strain, storms and strives. . In adolescent period, equilibrium of physical, mental and social forces is lost with the result that individual has to make new adjustments with his own self, family and with the society. An adolescent child is emotionally unstable and has to face problems of adjustment. They face various challenges at home, school, peers groups. All these affect emotional intelligence of adolescents and they have difficulty in adjustment. Adjustment is defined as an individual's adjustment is adequate, wholesome or healthful to the extent that he has established harmonious relationship between himself and the conditions, situations and persons who compromise his physical and social environment (Crow and Crow (1956). Our emotions also play quite a significant role in guiding and directing our behavior. Many times they seem to dominate in us in such a way that we have no solution other than behaving as they want us to. Emotional processes are based on the acceptance and rejection of objects and facts and have an emotional relation to the world (Kuhl, 1980). Emotional Intelligence is a form of social intelligence and involves the ability to monitor one's own and others feelings and emotions to discriminate among them, and to use this information to guide one's thinking and action (Salovey and Mayer, 1990). Thus we may understand that one's emotional intelligence is helping in knowing, feeling and judging emotions in close cooperation with one's thinking process to behave in proper way for ultimate realization of happiness and welfare of self in tune with others. In a nutshell, Emotional Intelligence plays a major role in home, school and peer adjustment.

Review of related literature

Sasikumar (2018)studied correlation between emotional intelligence and social adjustment among adolescent students of Karaikudi, Tamil Nadu, South India. The sample of the study confinedto onlyninth standard students those were selected randomly from eight schools of Karaikudi. The results revealed a positive correlation between Emotional Intelligence and

social adjustment among adolescents.

Kumar(2019) studied the relationship of Teacher Training students between adjustment and emotional intelligence.This study shows that most of the components of emotional intelligence have no direct influence on the adjustment of students of B.Ed. class of Govt. College of Teacher Education.

Singh(2022)investigated the significance of relationship of adjustment with emotional intelligence and mental health of senior secondary school students. The study was conducted on 600 senior secondary school students selected from Government Schools from seven districts of Punjab. Indian adaptations of adjustment inventory Sharma (1988), Emotional intelligence scale by Hyde, Pethi, and Dhar, (2002), and Mental health battery by Singh and Sengupta (2009) were used for data collection. Results of the study revealed significant positive relationship between adjustment and emotional intelligence and also between adjustment and mental health.

Objectives

Following are the objectives of the study:

1. To study correlation between adjustment and Emotional Intelligence of adolescent students.
2. To study the significance difference of adjustment between male and female adolescent students.
3. To study the significance difference of Emotional Intelligence between male and female adolescent students.

Hypotheses

1. There exists no significant correlation between emotional intelligence and adjustment of adolescent students.
2. There exists no significant difference of adjustment between male and female adolescent students.
3. There exists no significant difference of Emotional Intelligence between male and female adolescent students.

Design of the study

Descriptive survey method was adopted for the study.

Sample of the study

The population of the study was all class IX students studying in Government Model Senior Secondary Schools of Chandigarh.A sample of 100 students of class IX was taken from the various Government Model Sr. Sec. Schools of Chandigarh. Schools were selected randomly by lottery method. Sections in the school were also selected randomly through lottery method. Students were takenenmass from the each selected section.

Collection of data

The data were collected from the selected schools of Chandigarh. Permission to collect data was sought from the concerned officer. Selected class IX students were approached and the purpose of meeting them was explained to them. After making the students comfortable Emotional Intelligence Test and Adjustment Inventory were administered one by one. Before starting the testing session it was assured to subjects that their responses would be kept confidential and would be used purely for the research purpose. They were asked to respond to the statements honestly.

TOOLS USED

1. High School adjustment Inventory by Singh and Gupta (1987).

2. Emotional Intelligence Test by Soni and Sharma(2009).

Statistical tools used

The data were analyzed by calculating coefficient of correlation value by employing Pearson's Correlation technique and t- ratio values by calculating means through SPSS.

Analysis of the data

The raw data were analyzed by employing statistical techniques. The objective wise analysis is given as under:

1. To study the relationship between adjustment and Emotional Intelligence of adolescent students.

Table 1: Coefficient of correlation value for the correlation between adjustment and emotional intelligence

Variable s	N	Coeff. of correlation	Level of Significance
A	100	0.648	0.01
B	100		

Table 1 shows coefficient of correlation value for the correlation between adjustment and emotional intelligence of adolescents studying in government model senior secondary schools of Chandigarh. The coefficient of correlation value has been found to be .648 which is significant at .01 levels of significance. The positive value shows that there is a direct correlation between emotional intelligence and adjustment among adolescents. Hence hypothesis "There exists no significant correlation between emotional intelligence and adjustment of adolescent students" may not be accepted. Higher the emotional intelligence better will be the adjustment of students.The result is supported by the studies of Kar,Saha,Mondal(2016); Punia,Shakuntala&Sangwan,Santosh(2011); Kumar (2018).; Suyatno,Nur,Hidayat(2018); Sharma(2019); Kadlimatti(2020); Singh(2022).

1. To study the significant difference of adjustment between male and female adolescent students.

Table 2: Means and t-ratio value between female and male adolescent students for adjustment

Category	N	Mean	Std. Deviation	Std. Error Mean	df	t	Sig (2 tailed)
Female	42	95.45	7.918	1.222	98	0.999	NS
Male	58	93.12	8.970	1.178			

Table 2 shows that the mean adjustment values for male and female adolescents have been foundto be 93.12 and 95.45 respectively. T-ratio was found to be 0.999 at 98 degrees of freedom, which is not significant at .05 levels. Hence the hypothesis "There exists no significant difference of adjustment between male and female adolescent students" stands accepted.

1. To study the significant difference of Emotional Intelligence between male and female adolescent students.

Table 3:Means and t-ratio value between female and male adolescent students for emotional intelligence

Category	N	Mean	Std. Deviation	Std. Error Mean	df	t	Sig (2 tailed)
Female	42	88.69	8.242	1.272	98	0.999	NS
Male	58	88.50	10.327	1.356			

Table 3 shows that mean emotional intelligence values for male and female adolescents have been found to be 88.69 and 88 .50 respectively. T-ratio was found to be 0.999 at 98 degrees of freedom, which is not significant at .05 levels. Hence, the hypothesis "There exists no significant difference of emotional intelligence between male and female adolescent students" stands accepted.

Results and discussion

The present study showed that emotional intelligence of adolescents studying in Government Model senior secondary schools of Chandigarh is directly correlated with their adjustment. This means that students with higher emotional intelligence are better adjusted. Further, male and female students do not show any significant difference in their emotional intelligence and adjustment.

Conclusion

In the present study male and female adolescent students of Chandigarh showed similar emotional intelligence and adjustment levels. This also shows a direct correlation between emotional intelligence and adjustment. Since there is no difference in emotional intelligence and adjustment between male and female students so more study needs to be done to see whether students with variable emotional intelligence and adjustment also show similar results or not.

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Interapatation- It is found that maximum number of Anganwadi workers are not aware about the concept of ECCE learning. 3% of workers are aware and had clear concept about the ECE learning and also acquired the training from different source such as SWAYAM app. 34% of workers are moderately aware about the ECE training module. Around 32% of workers have low idea about ECE, whereas 16% workers have extremely low level of awareness about ECE program. Again, it is found that out of 100% only 15% workers are aware and 34% are moderately aware about ECE.

DISCUSSION AND CONCLUSION: It is found that maximum number of workers in Anganwadi centers are not aware of ECCE concepts. In Anganwadi Centers the workers working in teaching learning process are less qualified. Most of the teachers only possess higher secondary and maximum are only secondary or under matriculation. It has been noticed that the teachers teaching in pre-schools such as Ka-shreni are more qualified and trained teachers. It finds out the problems of a centers such as lack of infrastructure, drinking water facility, lack of seating arrangements, lack of Teachers, irregularity of children, etc. Moreover, there are many centers without building, taking class in an open ground under a tree, verandah, or in their own residences. Lack of proper training. It is found that the last training they attend in the year 2016, after that no training was received. Early Childhood Care and Education was totally a new concept for many of them. The study also finds that Anganwadi workers teaching are not effective. The children after acquiring their pre-school maximum number of the children had no basic knowledge of reading and writing of letters, words and numbers. The study also finds that there are no special provisions for Child with Special Needs (CWSN) children. The study also finds that no innovative practices were conducted in the centers. The Children sitting idle with their pen and paper. Teachers are lacking in their strategies and methodologies. In these studies, it is found that the Anganwadi workers are also not aware of child portfolio and proper assessments. The study also finds POSHAN, nutrition's and supplementary are also not regularly given by the workers. Most of the centers are often found closed, lacking in monitorization and supervision.

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Exploring Shadow Education Practices: Implications for Educational Equity and Social Justice

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Abstract

This research paper critically examines the intricate relationship between shadow education and socioeconomic disparities, focusing on its profound impact on sustainable development. Shadow education, comprising private tutoring, coaching, and other informal educational practices, has gained prominence globally as a supplement to formal schooling. However, its implications for socioeconomic equality and sustainable development are complex and need immediate attention. The methodology used was conducting a systematic literature review and data was drawn from secondary sources. The paper scrutinizes the unequal access to shadow education, considering factors such as parental income, geographic location and educational background. It also explores how the prevalence of shadow education widens the educational achievement gap, contributing to social stratification. By examining the correlation between shadow education and key indicators of sustainable development, such as quality education, reduced inequalities and social justice, the study aims to shed light on the potential hindrances posed by shadow education. The findings of this research provide insights into policy implications and intervention strategies to mitigate the adverse effects of shadow education on socioeconomic disparities. By critically analyzing its impact on sustainable development, the paper contributes to the ongoing discourse on educational equity and advocates for inclusive educational practices that align with broader societal goals of social justice. Ultimately, the research aims to inform policymakers, educators, and stakeholders on the need for a balanced and equitable approach to education that fosters sustainable development for all.

Keywords: shadow education, sustainable development, socio-economic disparities, educational equity, social stratification

INTRODUCTION

Education serves as a catalyst for individual empowerment and collective advancement, providing the knowledge and skills necessary for personal growth and societal innovation (United Nations, 2015). It has traditionally been upheld as a public good, with public institutions entrusted to ensure equitable access to educational opportunities for all members of society (OECD, 2019). It has been seen as a societal benefit, with public entities responsible for providing and funding educational opportunities to enhance social mobility and minimize disparities (UNESCO, 2018). However, the fundamental idea of education is encountering obstacles due to the increasing involvement of various entities and funding channels in education, influenced by global educational trends (Daviet, 2016). The era of neoliberalism has seen a rise in profit-oriented educational institutions that prioritize financial gain over educational quality, resulting in the commercialization of education (Tilak, 2011). Private entities have entered the educational domain, leading to the establishment of private schools, colleges, and universities (UNESCO, 2016). These private institutions often lack a sense of community and substantive discourse. Such an educational framework lacks liberating attributes; it lacks democratic principles, tends toward conservatism, and perpetuates the prevailing social hierarchy (Pathak, 2019).

In contemporary educational landscape, the

phenomenon of shadow education has garnered increasing attention as a significant adjunct to formal schooling systems. Shadow education, which entails offering supplementary tutoring outside regular school hours, has garnered increasing scholarly interest since the 1980s and 1990s, although its roots trace back to the mid-nineteenth century (Zhang and Bray, 2020). It comprises of various supplementary educational activities undertaken outside the traditional classroom setting and has become a ubiquitous feature of many societies worldwide. Tutoring enterprises, operating in parallel with formal education, strategically maneuver around the schooling system by leveraging their flexibility in timing rather than aiming to replace formal institutions (Gupta, 2022). The increasing demand for admissions to prestigious universities, both domestically and internationally, has propelled the expansion of shadow education. Competitive entrance examinations compel students to seek specialized assistance beyond the scope of traditional schooling (Singh, 2019).From private tutoring and test preparation courses to online learning platforms and enrichment programs, shadow education practices have proliferated and diversified, catering to the academic needs and aspirations of students across diverse socio-cultural contexts. As the educational landscape continues to evolve, understanding the nuanced dynamics of shadow education is imperative for educators, policymakers, and stakeholders alike.Thus, this paper embarks to explore the shadow education practices, aiming to illuminate their prevalence, implications for educational equityand the influence of socioeconomic factors.

Review of literature

Recent decades have witnessed a significant expansion of shadow education. This phenomenon, while having a longstanding history, has proliferated notably. In West Bengal, India, for instance, approximately 60% of primary school students engage in private supplementary tutoring (Asian Development Bank, 2012). Notably, access to higher quantities and superior quality of shadow education tends to be more attainable for affluent families. Research conducted in Mauritius by Joynathsing et al. (1988) revealed stark income disparities in private tutoring participation among students. In Grade 1, children from the highest income bracket were 7.5 times more likely to receive private tutoring compared to those from lower income groups, a trend that lessened to a ratio of 1.6 to 1 by Grade 6 (UNESCO IIEP, 2009). Such coaching institutions have been implicated in exacerbating existing socio-economic and educational inequalities by conferring advantages to financially privileged students, thus widening the gap between the affluent and the less privileged. Moreover, the affordability of private education in India presents a significant barrier for many families, further compounding the issue (Asian Development Bank, 2012).Research on private tutoring, such as De's (2009) study, underscores its global proliferation, particularly prominent in Asian countries across socio-economic divides, driven by market forces and parental aspirations. This growth raises concerns about its impact on mainstream education, necessitating comprehensive investigations into its societal, economic, and pedagogical implications. Bray and Kwo (2013) highlight the tension between the Universal Declaration of Human Rights' ideal of free education and the increasing reliance on shadow education, suggesting it represents covert privatization within public systems, prompting reflection on its compatibility with the declaration's principles. Rabidas (2014) critiques the commercialization of education, lamenting its focus on conformity over intellectual enlightenment, perpetuating societal inequalities. Bharucha (2016) discusses the burgeoning coaching industry in India, proposing policy measures to address challenges posed by intense academic competition. Orberg (2017) examines

shadow education's unequal accessibility and its potential to supplement or replace traditional schooling, calling for research and policy initiatives to ensure equitable opportunities. Agarwal and Agarwal (2017) highlight the demand for coaching services in shaping career trajectories, particularly for high-demand professions. Mishra and Singh (2017) underscore concerns about parental pressure and the lack of support services in coaching institutes, advocating for holistic approaches to education. Sharma (2019) analyzes private tutoring's evolution from academic support to a marker of social status, advocating for policies to promote equitable access to quality education. Singh (2019) characterizes the rise of coaching institutes as part of a broader shift towards a new education economy, advocating for interdisciplinary research to understand its complex dynamics. Kim and Jung (2020) highlight challenges faced by public institutions in meeting students' diverse needs, advocating for collaboration between public and private sectors to enhance educational quality and equity.In essence, the expanding influence of private tutoring demands nuanced understanding and targeted interventions to mitigate its exacerbation of educational inequalities and its evolving role within modern education systems, emphasizing the imperative of holistic policy approaches tailored to address its multifaceted implications.

Research questions

1. What are the prevalent forms of shadow education practices and how do they vary across different socio-cultural contexts?

2. In what ways does shadow education contribute to existing educational inequalities and social stratification?

Objectives

1. To explore the prevalent forms of shadow education practices and understand how do they vary across different socio-cultural contexts.

2. To examine the ways in which shadow education contribute to existing educational inequalities and social stratification.

Methodology

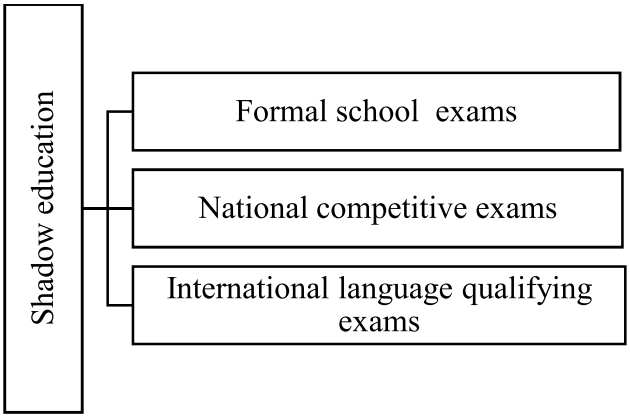
The methodology employed in this study involved conducting a systematic literature review, which encompassed a comprehensive and structured approach to gathering, analyzing, and synthesizing existing research findings relevant to the research questions and the title of the study. This systematic process included defining search criteria, identifying relevant databases and sources, screening and selecting studies based on predetermined inclusion and exclusion criteria, extracting data from selected studies, and synthesizing the findings to provide a comprehensive overview of the existing literature on the subject. The search criteria for this systematic literature review focused on identifying relevant studies pertaining to shadow education practices and their implications for educational equity and social justice. The search encompassed studies published in the last decade (2014-2024), written in English, and included peer-reviewed journal articles, conference papers, and reports. Geographically, the search was global, with an emphasis on diverse socio-economic contexts. The selected studies were required to address the impact of shadow education on educational equity and social justice, employing qualitative, quantitative, or mixed-methods approaches. Studies not directly related to these implications were excluded from consideration.

Findings and results

1. Prevalent forms of shadow education practices and their variance across different socio-cultural contexts.

Shadow education, commonly known as the "coaching culture," encompasses diverse educational endeavors, including tutoring and supplementary classes, occurring beyond the formal confines of the educational

system(Buchmann, Condron, and Roscigno, 2010). It operates across various categories, delineating institutes offering such services based on the academic level they serve. This categorization hinges on factors such as the academic level catered to; for instance, some institutes specialize in providing tutoring services for elementary school students, while others focus on high school or college-level students. Additionally, the classification is informed by the subject matter covered, with some institutes offering tutoring services in mathematics, language arts, or science. Moreover, specialization plays a pivotal role, with certain institutes focusing on test preparation services or providing support to students with learning disabilities. For ease of classification, shadow education can be segmented into three primary types: shadow institutes catering to formal school exams (K-12 school education), those targeting national competitive exams (such as JEE, NEET, IAS, PCS, SSC, and other state exams), and those dedicated to international language qualification exams (such as IELTS, TOEFL, GRE, etc.).



The institutions of shadow education, whether conducted face-to-face or virtually through platforms like live internet lectures or recorded classes, have become pervasive in India, particularly in the form of coaching institutes. Termed "India's Tuition Republic," this culture has permeated various regions, from Madhya Pradesh to Maharashtra, Bihar to Kerala, engulfing both traditional and digital platforms (The Print, December 2022). These coaching centers cater to different educational needs, classified into three primary categories: coaching for formal school examinations, coaching for national competitive exams, and coaching for international language qualifying exams like IELTS and TOEFL.

The first category focuses on preparing students for official school examinations, starting as early as Class 6, with coaching centers strategically targeting young students to ensure early preparation and efficient time management (The Economic Times, 2014). Similarly, the second category, coaching for national competitive exams, such as the UPSC-CSE, has witnessed significant growth due to the soaring number of aspirants competing for limited seats (Vinayak, 2022).The third category, coaching for international language qualifying exams, reflects the global aspirations of Indian students, driven by the desire for better career opportunities abroad. Data illustrates the escalating fees charged by coaching institutes for various examinations, indicative of the burgeoning shadow education system in India. There is a

substantial increase in average coaching fees over the eight-year period from 2009 till 2017, for exams such as IIT-JEE, CLAT, BBA/BMS, Medical, and Civil Services (IAS). For instance, the average fee for IIT-JEE coaching rose from ₹45,000 in 2009 to ₹80,702 in 2017, indicating a significant escalation in the cost of educational preparation across various disciplines during this period. Similarly, fees for other exams like CLAT, BBA/BMS, Medical, and Civil Services (IAS) also witnessed notable increases from 2009 to 2017, reflecting the growing financial burden associated with exam preparation in India.This growth is further underscored by the estimated $31 billion size of the private tutoring industry in 2017, catering to diverse student needs with a range of coaching packages, including residential options (Fortune Business Insights, 2021; The Hindu, 2023).However, this commercialization of education raises concerns about its implications for societal equity and access to education. The rapid expansion of private tutoring institutes, particularly in rural areas, risks perpetuating educational inequalities and commodifying education, thus undermining its role as a tool for social upliftment (The Tribune, 2019).

1. Contribution of shadow education to existing educational inequalities and social stratification

The findings indicate that shadow education significantly contributes to existing educational inequalities and social stratification. Firstly, the proliferation of shadow education widens the gap between privileged and underprivileged students by favoring those with financial resources. Students from affluent backgrounds can afford private tutoring and coaching services, thereby gaining an academic advantage over their less fortunate counterparts who cannot access such resources (Bray & Kwo, 2013).Moreover, shadow education reinforces existing social hierarchies by perpetuating disparities in educational outcomes. Privileged students, already positioned at the top of the social ladder, can further consolidate their advantage through additional educational support, while marginalized students struggle to compete on an uneven playing field (Buchmann, Condron, & Roscigno, 2010).Furthermore, the expansion of shadow education exacerbates societal inequalities by diverting resources away from public education systems. Both rational action theory and socio-cultural reproduction theory offer insights into the disparities in participation in shadow education among students from diverse socio-economic backgrounds. Rational action theory posits that social class disparities in educational decisions stem from individuals' calculations of the costs and benefits associated with education, with higher SES students more inclined to pursue educational opportunities to maintain or enhance their social status (Breen & Goldthorpe, 1997). Conversely, socio-cultural reproduction theories emphasize the intergenerational transmission of economic, social, and cultural resources, with higher SES parents employing strategies such as intensive parenting and concerted cultivation to ensure their children's educational success (Lareau, 2003). These theories suggest that higher SES families are more likely to invest in shadow education due to their financial resources, access to information, and cultural capital (Bourdieu, 1977). Empirical research across various countries supports the positive association between SES and participation in shadow education (Ireson & Rushforth, 2005; Smyth, 2009; Stevenson & Baker, 1992).Additionally, the findings reveal that shadow education intensifies competition for academic success, particularly in high-stakes examinations. As students flock to private tutoring and coaching centers to gain a competitive edge, the pressure to excel academically escalates, exacerbating stress and mental health issues among students. This heightened competition disproportionately affects marginalized students who may lack access to supplementary educational support, further entrenching social inequalities.

Furthermore, shadow education perpetuates a culture of credentialism, wherein academic qualifications become paramount for social mobility and success. Students feel compelled to engage in private tutoring and coaching to secure admission to prestigious universities or lucrative career paths, reinforcing the belief that educational attainment is the primary determinant of social status. This emphasis on academic credentials can disadvantage individuals from disadvantaged backgrounds who may lack access to resources and opportunities for academic advancement (Kim and Jung, 2020).Moreover, the findings suggest that shadow education fosters a culture of dependency on private tutoring services, undermining the autonomy and self-efficacy of students. As reliance on external educational support grows, students may become passive recipients of knowledge rather than active participants in their own learning journey. This dependence on tutoring can perpetuate educational inequalities by limiting students' ability to develop independent learning skills and critical thinking abilities (Sharma, 2019).Overall, the expansion of shadow education exacerbates educational inequities by diverting resources and attention away from public schools, reinforcing the advantages of privileged students (Joynathsing et al., 2015).Overall, the findings underscore the multifaceted ways in which shadow education exacerbates existing educational inequalities and social stratification, highlighting the need for comprehensive strategies to address these systemic issues and promote equitable access to education for all students.

Conclusion

The research shed light on the shadow education practices and its implications for educational equity and social justice. It became evident that shadow education manifests in various forms, ranging from preparatory tutoring for formal school examinations to coaching for national competitive exams and international language qualifications. These practices not only vary across socio-cultural contexts but also perpetuate existing educational inequalities and social stratification.The prevalence of shadow education underscores the complexities of educational systems worldwide, with differential access to supplementary educational opportunities driven by socio-economic disparities. Rational action theory and socio-cultural reproduction perspectives offer insights into the mechanisms underlying participation in shadow education, highlighting the role of cost-benefit calculations, relative risk aversion, and the transmission of cultural capital. The findings underscore the urgent need for policies and interventions aimed at promoting educational equity and social justice. Efforts should prioritize addressing the socio-economic barriers that hinder equitable access to shadow education, ensuring that all students have equal opportunities to benefit from supplementary learning activities. Additionally, initiatives should focus on enhancing transparency, accountability, and quality assurance within the shadow education sector to mitigate its exacerbation of existing educational inequalities. By addressing these challenges, society can move towards a more inclusive and equitable educational landscape, where every individual has the opportunity to thrive and succeed, regardless of their socio-economic background.

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INTEGRATION OF SYNECTIC MODEL OF TEACHING TO ENHANCE MATHEMATICAL COMMUNICATION SKILLS OF STUDENTS

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Abstract

The Synectic model helps in achieving learning goals in mathematics by encouraging learners to relate their contextual knowledge to real life situations and by making use of analogies. Communication in Mathematics plays a key role to understanding concepts in Mathematics. Students who are able to comprehend the language and words used to solve mathematical problems possess critical thinking skills. Mathematical communication skills enable the learners to draw and interpret mathematical ideas through the use of graphs, pictures, diagrams and tables. The present study aimed to analyse the effect of using Synectic model of teaching to improve mathematical communication skills of students. This study made use of experimental method. A total of 190 subjects studying in grade VI in urban and rural schools of Shillong, Meghalaya, were chosen for the study. The results show that mean gain achievement scores of the group taught using Synectic model was significantly higher than those taught by conventional method.

KEYWORDS: Synectic Model, Mathematical Communication, Pedagogy, Mathematics

INTRODUCTION

The advancement in technology offers a plethora of approaches of teaching and learning to choose from. In today's fast paced world, it is imperative to impart knowledge to students by encouraging them to think out of the box. It is of prime importance that students are able to relate the knowledge being grasped with the real life situations. The learners of generation alpha deny to be a part of mundane routine. They look forward to gain something that not only develops their interest throughout but also provides them an opportunity to be active participants rather than passive listeners. In today's rapidly evolving education landscapes, a variety of models of teaching, each having its own unique strengths and limitations, have found their way into the classrooms

The Annual Status of Education Report was published in January 2025, prior to which a deep dive exercise was conducted in 24 schools spread across 8 states all over India. This exercise showed thatless than 2% of the students were observed doing play-based learning activities.This situation demands that instructional strategies adopted for teaching should promote thinking capabilities of students along with catering to diverse learning styles in classrooms. Synectic Model of teaching assists in promoting these capabilities by fostering critical thinking and creative problem-solving. Synectic model operates on the principle that by using mind's remarkable capacity to connect seemingly irrelevant elements of thought, surprising new ideas can be sparked that may later be developed into feasible solutions to problems

Incorporating Synectics procedures into classroom discussions helps to create a dynamic environment that fosters critical thinking. This model helps in understanding some of the core subjects like mathematics in a much simpler way by making use of analogies. Mathematics is essential to learning since it paves way for many other subjects thus leading to holistic development. Branca stated that mathematical problem solving is one of the important goals in learning mathematics, called the heart of mathematics To develop this art of problem solving, it is important that students understand and comprehend the language and vocabulary of mathematics. Mathematics makes use of universally accepted symbols and language while expressing a solution to a problem. Anyone having appropriate knowledge of these symbols and language can understand the problem. Mathematical educators agree that communication is an essential component in learning, doing and understanding mathematics. As mentioned in Principles and Standards for School Mathematics, 'Communication is an essential part of school and school mathematics. It is a way of sharing ideas and clarifying understanding. Through communication, ideas become objects of reflection, refinement, discussion and amendment.'

In the present study, the researcher has employed Synectic Model of teaching mathematics as an innovative math pedagogy. The present research was planned to study the integration of Synectic model of teaching to enhance mathematical communication skills of elementary school students of Shillong district.

REVIEW OF LITERATURE

investigated the effectiveness of Synectic Model and Gaming Strategy on Achievement and Creativity in Mathematics among secondary school students. A sample of 240 students of grade IX were selected using multi-stage sampling technique. Two experimental groups and one control group of students were taught using Synectic Model, Gaming Strategy and conventional method respectively. The results of the study revealed that Synectic Model and Gaming Strategy were equally effective with Activity Oriented Method on Retention of Achievement in Mathematics among secondary school students.

Conducted a study to explore the Effect of Synectic model of teaching in enhancing students' understanding of abstract concepts of mathematics. This quasi experimental study used non-equivalent control group design. The findings of the study revealed that the experimental group performed better than control group. The better performance of experimental group was the contribution of Synectic model of teaching.

Conducted a study on Improving students' mathematical communication skills and learning interest through problem-solving learning models. Classroom action research method was used to conduct the study. A test for examining students' mathematical communication skills formed one of the instruments used for testing the communication skills of students. The results of the study revealed that there was an increase in students' mathematical communication skills through PBL models.

Investigated the impact of Bybee and Synectics model on creativity, creative problem-solving and students' performance in geometry. Cluster sampling method was used to choose ninety ninth-grade female students of public high schools in Tehran. Two experimental groups and one control group each including 30 students were selected. These groups were taught using Bybee, Synectic and conventional methods. The results of the study indicated that using the patterns of Bybee and Synectics on students' creativity, creative problem-solving and performance in geometry were more influential as compared to conventional method of

teaching.

Studied the effect of interactive multimedia based learning on students' mathematical communication ability. The sample of the study included 32 students enrolled in Algebraic Course structure in two universities. While the control group was given instructional material in form of worksheets, the experimental group used interactive multimedia based teaching materials. The results of the study concluded that students who learn with the help of interactive multimedia-based teaching materials showed an improvement in their ability to communicate mathematically.

The studies reviewed above showed that Synectic model of teaching is a creative tool. It is an effective approach to mathematical literacy and helps students to have a better understanding of vocabulary used in mathematics via use of analogies. The common language of symbols, expressions and notations provides a common platform to learners all around the globe to understand each other's thoughts and share their ideas. The use of Synectic model of teaching would certainly prove beneficial to enhance the mathematical communication skills of students.

OBJECTIVES OF THE STUDY

The objectives of the study are :

1. To study the effect of two instructional treatments on Mathematical Communication.

2. To study the effect of two instructional treatments on Mathematical Communication for male and female students.

HYPOTHESIS OF THE STUDY

The hypothesis of the study are :

1. The two instructional treatments will yield no comparable mean gain scores on mathematical communication.

2. The two instructional treatments will yield no comparable mean gain scores on mathematical communication for male and female students.

3. There will be no significant interaction effect of instructional treatments on mathematical communication.

RESEARCH DESIGN

The study was conducted on two intact groups i.e. the experimental group and the control group. Since the subjects of the study were chosen randomly, so true experimental research design was used. The two groups, so selected, were designated as experimental group and control group. While the students in experimental group were taught using Synectic model teaching strategy, the students in control group were taught using conventional teaching strategy. 2 x 2 factorial design was employed in which mean gain scores on mathematical communication viz. male and female students were studied. The researcher used following tools for the present study:

1. Instructional material based on Synectic model for teaching mathematics developed by investigator.

2. Mathematical Communication test developed and validated by the investigator.

SAMPLE OF THE STUDY

The sample for the investigation comprised of 190 students of grade VI studying in urban and rural schools of Shillong district, Meghalaya affiliated to Central Board of Secondary education, New Delhi. The findings of the study are based on a sample of 190 students, 96 in the experimental group and 94 in control group, who were taught using two different instructional strategies.

RESEARCH PROCEDURE

After taking permissions from the heads of concerned schools, the researcher approached the subjects under study. From two randomly selected schools, four intact sections were selected at random. The students were then randomly allocated to experimental and control groups to analyse their mathematical communication skills.

RESULTS AND DISCUSSION

Analysis and interpretation of data for determining the gain mathematical communication test scores, ANOVA was computed to evaluate the main effects and interaction of variables of instructional strategies i.e. Synectic Model and Conventional Approach.

Pre-Test Comparison of Experimental and Control Group on Mathematical Communication on the basis of Instructional Strategies

The mean scores of mathematical communication for experimental and control group have been given in Table 1. Pre-mathematical communication test was administered to check the mathematical communication on experimental and control group separately, before the experimental treatment. The pre-mathematical communication test helped in analysing the effect of instructional strategies by comparing the students with post-mathematical communication test.

Table 1

Pre-Test Comparison of Experimental and Control Group on Mathematical Communication

Variable	Group	N	Mean	Std. Deviation	t-value
Mathematical Communication	Control	94	7.638	4.227	.298
	Experiment	96	7.813	3.812	

It is evident from Table 1 that pre-mean scores of mathematical communication of the experimental group was 7.813 and that of control group was 7.638 respectively. The values of SD of experimental group and control group were 3.812 and 4.227 respectively. It is further indicated that the obtained t value of mathematical communication test score is 0.298. The t value is less than the table value (1.98) at 0.05 level of significance. Therefore, there is no significant difference in mathematical communication of experimental and control groups of students before treatment. Hence, both the groups were found to be almost equal as far as their previous mathematical communication on the basis of instructional strategy is concerned.

Pre-Test Comparison of Mathematical Communication on the basis of Gender

This section comprises the mathematical communication scores of grade VI students on the basis of gender before experimental treatment as shown in Table 2.

Table 2

Pre-Test Comparison of Male and Female students on Mathematical Communication

Variable	Gender	N	Mean	Std. Deviation	t-value
Mathematics Communication	Boys	113	8.044	4.156	1.326
	Girls	77	7.260	3.771	

It is evident from Table 2 that mean score of mathematical communication for male students before experimental treatment was given was 8.044 and that of female students is 7.260. The values of SD for male students was 4.156 and that of female students was 3.771 respectively. The obtained t-value testing the significance of mean difference on mathematical communication on the basis of gender was 1.326 which in comparison to the table value was not found to be significant at 0.05 level of significance. Hence, the table indicates that there exists no significant difference in mathematical communication of male and female students.

Analysis of Mean Gain Scores of Gender on Mathematical Communication Test

Table 3 shows the mean gain scores of male and female students on mathematical communication for experimental and control groups. From Table 3, it is evident that mean gain scores on mathematical communication of male students of experimental group were 1.847 and that of control group were 0.759. This indicates that mean gain scores of male students in experimental group was higher as compared to the ones in control group.

Table 3

Mean and SD of Gain Scores of Male and Female students on Mathematical Communication of Experimental and Control Groups

Variable	Group	Gender	Mean	Std. Deviation	N
Mathematical Communication	Control	Boys	.759	2.733	54
		Girls	.350	2.617	40
	Experiment	Boys	1.847	4.213	59
		Girls	3.216	4.638	37

Further, from the table it can be seen that mean gain scores on mathematical communication of female students of experimental group were 3.216 and that of control group were 0.350. This indicates that mean gain scores of female students in experimental group was higher as compared to the ones in control group.

The table also shows that standard deviation of male students on mathematical communication of the group taught via Synectic model was 4.213 and for those taught via conventional method was 2.733. The standard deviation of female students on mathematical communication of the group taught via Synectic model was 4.638 and for those taught via conventional method was 2.617.

Analysis of Variance of Gain Scores on Mathematical Communication in relation to their Instructional Strategy

The mean of different sub-groups, sum of squares, degree of freedom, mean sum of squares and F-ratio have been presented in Table 4.

Main Effect

Instructional Strategy

Table 4 clearly shows that F-ratio for difference in the mean gain scores on mathematical communication for group taught with Synectic

Model and Conventional Method of teaching is 13.476, which in comparison to the table value was found to be significant at 0.05 level of significance. It reveals that there is significant difference in the mean gain scores of mathematical communication of elementary school studentswhen taught using Synectic model as compared to conventional method of teaching.

Table 4
Summary of Analysis of Variance (2x2) Factorial Design

Dependent Variable	Source of Variation	Sum of Squares	df	Mean Square	F-value
Mathematical Communication	Instructional Strategy	178.724	1	178.724	13.476
	Gender	10.522	1	10.522	0.793
	Instructional Strategy x Gender	36.132	1	36.132	2.724
	Error	2466.868	186	13.263	
	Total	2665.479	189		

It may thus be concluded that the use of different instructional strategies to impart instruction in Mathematics attributed to development of difference in mean gain scores of mathematical communication. The hypothesis H_1 viz "The two instructional treatments will yield no comparable mean gain scores on mathematical communication" was rejected as the students of experimental group , who were taught using Synectic model, exhibited better level of mathematical communication as compared to students of control group who were taught using conventional teaching strategy.

Gender

Table 4 clearly shows that F-ratio for difference in the mean gain scores on mathematical communication for male and female students is 0.793, which was found to be not significant at 0.05 level of significance. It reveals that there is no significant difference in the mean gain scores of mathematical communication of elementary school students in relation to its gender. It may thus be concluded that the gender does not play a key part to development of difference in mean gain scores of mathematical communication. The hypothesis H_2 viz "The two instructional treatments will yield no comparable mean gain scores on mathematical communication for male and female students" was thus accepted.

Interaction between Instructional Strategy and Gender on Mathematical Communication

It may be observed from Table 4 that F-ratio for interaction between instructional strategy and gender on mathematical communication is 2.724, which in comparison to the table value was not found to be significant at 0.05 level of significance. It reveals that there is no significant difference in the gain scores of mathematical communication due to interaction effect of instructional strategy and gender. The hypothesis H_3 viz "There will be no significant interaction effect of instructional treatments on mathematical communication" was accepted.

The results of the study can be summarised as follows:

1. The Synectic Model is found to be significantly more effective in teaching Mathematics as compared to conventional method of teaching.

2. The mean gain mathematical communication of the group taught via Synectic Model was found to be significantly higher than the group taught through conventional method of teaching.

3. The mean gain mathematical communication of male and female students did not show any significant difference.

4. The interaction effect of different instructional strategies with respect to scores on gender was found to be insignificant.

CONCLUSION OF THE STUDY

Synectics is a useful instructional methodology that enhances the critical thinking and problem solving skills of students. This method of instruction proved to be beneficial in enabling students to grasp language of mathematics, thus, improving their mathematical communication skills. The model enabled the students to form analogies and have a better understanding of the words used in mathematics. The students taught through Synectic Model showed higher mathematical communication skills than the ones taught using conventional method of instruction.

Overall, it is the responsibility of the parents, schools and teachers to work together to promote the mathematical communication skills of students and encourage students to participate and work towards grasping concepts in mathematics. It is suggested that more activities that involve participation of students must be conducted in classrooms and students should be encouraged to think out of the box.

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Greening Educational Institutions: Advancing Sustainability in Chandigarh through NEP 2020 and SDG Initiatives

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Abstract

In the face of escalating environmental challenges, the role of educational institutions in promoting sustainability has never been more critical. This research paper explores how Chandigarh's educational institutions are incorporating sustainability principles into their operations and curricula through the implementation of the National Education Policy (NEP) 2020 and the United Nations Sustainable Development Goals (SDGs). By examining key initiatives such as green chemistry education, digital libraries, renewable energy adoption, waste management systems, and water conservation techniques, the paper assesses the current status of sustainability efforts. The research highlights how these initiatives align with specific SDGs such as Quality Education (SDG 4), Clean Energy (SDG 7), Responsible Consumption and Production (SDG 12), and Climate Action (SDG 13). The paper concludes with recommendations for scaling up these practices to foster a sustainable and environmentally responsible education system.

Keywords

Sustainability, NEP 2020, SDGs, Green Chemistry, Digital Libraries, Renewable Energy, Waste Management, Water Conservation, Educational Institutions, Chandigarh

INTRODUCTION

Environmental degradation, defined as the deterioration of the natural environment due to harmful human activities like deforestation, pollution, and the overuse of natural resources, poses a serious threat to the planet's ecosystems. This is further compounded by **climate change**, a long-term alteration in global and regional weather patterns primarily caused by the increased concentration of greenhouse gases from activities like burning fossil fuels. Additionally, the **depletion of natural resources**, which occurs when renewable and non-renewable resources such as forests, water, and fossil fuels are consumed at a rate faster than they can be replenished, has made it crucial for educational institutions to embrace and promote sustainability in every aspect of their operations.

Education plays a pivotal role in addressing these challenges by fostering environmentally conscious individuals who can develop innovative solutions to mitigate these threats. In India, the **National Education Policy (NEP) 2020** has introduced a progressive and holistic educational framework that emphasizes the need for interdisciplinary learning and the integration of sustainability across academic curricula and institutional practices. The policy encourages critical thinking and a deep understanding of environmental issues, preparing students to contribute to sustainable development.

Globally, the **United Nations Sustainable**

Development Goals (SDGs) provide a clear roadmap for addressing sustainability challenges, with specific goals tied directly to education (SDG 4), clean energy (SDG 7), water conservation (SDG 6), and responsible consumption (SDG 12). These goals emphasize the interconnectedness of environmental stewardship, resource management, and education, highlighting the role of academic institutions in achieving these targets.

Chandigarh, renowned for its progressive education system, stands at the forefront of this sustainability movement. Many colleges and universities in the city have adopted **green initiatives** such as energy-efficient infrastructure, water conservation systems, waste management, and eco-friendly campus designs. These institutions are not only aligning with NEP 2020 and SDG objectives but also serving as exemplary models for other regions. By incorporating sustainable practices in both academic and operational aspects, they contribute significantly to national and global sustainability efforts. However, despite these strides, institutions still face challenges, including financial constraints, limited awareness, and infrastructural limitations, which must be addressed to achieve full sustainability. This paper delves into the sustainability initiatives undertaken by educational institutions in Chandigarh, their alignment with NEP 2020 and the SDGs, and the obstacles they encounter in their journey toward achieving comprehensive sustainability.

Review of Related Literature

The concept of sustainability has become integral to the evolution of educational institutions, particularly with the rise of initiatives such as green chemistry, eco-friendly libraries, and digital resource management. Green chemistry, a discipline coined by Anastas and Warner (1998), emphasizes reducing hazardous substances in chemical processes and is increasingly being integrated into educational curricula. This approach fosters environmentally sustainable laboratory practices, resonating with the goals of **SDG 12** (Responsible Consumption and Production). Lancaster (2002) has highlighted the importance of incorporating green chemistry into academic institutions to produce environmentally conscious professionals who can tackle future environmental challenges. However, DeVolder and Sharma (2012) pointed out that while awareness of green chemistry is growing, its practical implementation in laboratories remains limited, emphasizing the need for a proactive shift toward more eco-friendly academic practices. Goswami and Sood (2021) suggest that integrating green chemistry principles into Indian institutions is in line with the **NEP 2020**, which encourages interdisciplinary learning and environmental awareness.

Parallel to green chemistry is the evolving role of libraries in educational institutions. As noted by Johnson and Wedge (2013), the concept of "green libraries" is gaining traction, emphasizing energy-efficient spaces and digital resources that minimize paper use. The shift toward digital libraries aligns with **SDG 4** (Quality Education), promoting wider access to learning resources and reducing the environmental footprint of educational practices. Smith (2016) explores how digitization of resources not only fosters eco-friendly campus environments but also expands global access to educational materials. This transformation from traditional to digital libraries has been accelerated by the demands of **NEP 2020**, which stresses the importance of technology-enabled learning. Chopra (2019) supports this by demonstrating how digital libraries, when properly managed, can

substantially reduce the carbon footprint of educational institutions while enhancing accessibility.

The National Education Policy (NEP) 2020 has been a major driver in promoting sustainable practices within Indian higher education. Banerjee and Bhattacharya (2020) argue that NEP 2020's emphasis on a flexible and interdisciplinary approach to education is closely aligned with the Sustainable Development Goals (SDGs), particularly **SDG 4** and **SDG 12**. The policy encourages the integration of environmental sustainability into the curriculum, including initiatives such as green chemistry and the digitization of resources, thus ensuring that students receive a holistic education that prepares them for global challenges. Sharma (2021) discusses how NEP 2020 encourages a shift toward eco-friendly educational practices, pushing institutions to adopt sustainable technologies and green initiatives.

Further supporting these efforts is the alignment of educational reforms with the SDGs, particularly **SDG 4** (Quality Education) and **SDG 12** (Responsible Consumption and Production). According to the UNESCO Global Education Monitoring Report (2016), educational institutions are essential in promoting sustainable practices and can act as catalysts for change through curriculum reforms and green initiatives. Purohit and Gill (2020) emphasize that educational institutions must adopt responsible consumption practices, making green chemistry and eco-friendly infrastructure central to their operational and educational strategies. In Chandigarh, educational institutions have already undertaken initiatives to implement green chemistry, digital libraries, and sustainability practices, aligning their goals with both NEP 2020 and the global SDG agenda.

SDG, NEP, and Green Colleges in Chandigarh

1. Integration of Green Chemistry in Curriculum

Colleges of Chandigarh come under the jurisdiction of Panjab University, Chandigarh. From 2024, Panjab University has implemented NEP in the colleges and several colleges have opted the course in Green Chemistry and integrated the principles of green chemistry into their science curricula. has implemented green chemistry principles, where students are taught to minimize hazardous waste and use eco-friendly chemicals. These practices align with SDG 12 (Responsible Consumption and Production), which focuses on reducing waste and promoting sustainable materials. By reducing the use of toxic substances in their labs, these institutions are also creating safer learning environments for students.

2. Establishment of Green Laboratories

The colleges of Chandigarh are known for their academic excellence and progressive approach to education. Institutions such as Panjab University, Post Graduate Government College for Girls (PGGCG-42), and Government College for Men are at the forefront of implementing innovative practices in both academics and campus sustainability. These colleges offer a diverse range of programs in the arts, sciences, commerce, and humanities, catering to a large student population. Additionally, many of these institutions are actively integrating green initiatives in line with the National Education Policy (NEP) 2020 and the United Nations Sustainable Development Goals (SDGs). From establishing green laboratories and digital libraries to promoting renewable energy usage and water conservation, Chandigarh's colleges are playing a crucial role in fostering

sustainability and environmental stewardship, making them exemplary institutions in India's education landscape.

3. Development of Digital Libraries

Digital libraries have become an essential component of sustainable education practices. To encourage sustainable collection services such as e-book, e-journal which reduces paper consumption, colleges of Chandigarh have developed fully digital libraries that provide access to a wealth of resources without the need for physical materials. In addition to airtight construction and efforts for efficient air ventilation systems, green building design initiatives including, tree plantation, and the use of LED lights and solar power are also made. Many libraries are also taking measures to reduce paper waste. These actions contribute to SDG 4 (Quality Education) by expanding access to knowledge and SDG 13 (Climate Action) by reducing the environmental impact associated with paper production and transportation. The digitization of educational resources ensures that learning is more inclusive and eco-friendly, reducing both costs and the carbon footprint.

4. Establishment of Renewable Energy Systems

Chandigarh's educational institutions are also making strides in the adoption of renewable energy. Colleges of Chandigarh have installed solar panels on its main administrative buildings and several academic departments. Colleges of Chandigarh, have enormous incentive to go solar, not just to save money, but to make students aware of the huge environmental challenges we are facing and thus make them stewards of sustainability that benefit their community. With Solar systems, students are able to see firsthand how the sunlight is converted into electricity and solar installations have been integrated into curriculum to improve test scores in those fields. The solar panel provides them with the practical knowledge of solar energy. Under the process of retro-fitting, LED lights are installed in the building to reduce the energy consumption and it is observed that the energy consumption has reduced compared to the relevant years. This transition to clean energy significantly reduces reliance on non-renewable energy sources, supporting SDG 7 (Affordable and Clean Energy). By reducing electricity consumption and carbon emissions, these institutions are setting an example for other sectors.

5. Water Conservation Measures

In line with SDG 6 (Clean Water and Sanitation), institutions like Government College for Men, Sector 11 Post Graduate Government College for Girls, Sector 42 and MCM DAV College for Women have introduced water conservation practices such as rainwater harvesting and greywater recycling. These systems capture and recycle water, ensuring its efficient use in landscaping and campus maintenance. To conserve and to prevent the wastage of potable fresh water, the most colleges has taken connection of tertiary water supply from sewerage treatment plant (STP) situated in nearby areas. This treated water is used to water the lawns and all floriculture and Landscaping operations, hence meeting 100% demand of all floriculture and horticulture activities of the college campuses with the help of 15 hydrants. Colleges in Chandigarh are adopting grey water recycling systems to promote sustainability on campus. By reusing grey water from sources like water coolers and filters, these institutions reduce their dependence on potable water for tasks such as mopping, horticulture, and landscaping. This initiative helps conserve water

resources and lowers environmental impact, aligning with the city's green practices. Additionally, these colleges conduct regular workshops to raise awareness among students about the importance of water conservation in combating water scarcity.

6. Comprehensive Waste Management

Effective waste management is another key sustainability initiative in Chandigarh's educational institutions. Chandigarh College of Architecture and Dev Samaj College for Women have implemented comprehensive waste segregation systems, separating organic, recyclable, and hazardous waste at the source. Organic waste is composted and used to maintain campus greenery, while non-recyclable waste is disposed of responsibly. Colleges promote environmental consciousness by observing days like Car Pool Day, World Environment Day, and Energy Conservation Day, raising awareness about sustainable practices. Students are encouraged to submit assignments digitally to reduce e-waste, which is safely disposed of in e-waste bins. Colleges regularly organize donation drives, which promotes the reuse of old materials, fostering sustainability. Additionally, the college ensures the safe disposal of various electronic items to minimize environmental impact. These initiatives align with SDG 12, which promotes responsible consumption and waste reduction. The implementation of these waste management systems has not only improved campus cleanliness but also reduced the overall environmental impact of the institutions.

7. Green Campus Initiatives

All the colleges of Chandigarh have made concerted efforts to integrate sustainability into their campuses by enhancing greenery and fostering biodiversity. In alignment with the National Education Policy (NEP) 2020 and Sustainable Development Goal 15 (Life on Land), these institutions are actively engaging in tree plantation drives, the cultivation of indigenous plant species, and biodiversity conservation programs. These initiatives are not only aimed at beautifying campuses but also at creating environmentally responsible institutions that contribute to long-term ecological balance. By focusing on native species, these colleges support local ecosystems, ensuring the survival of flora and fauna unique to the region. This green initiative directly reflects NEP 2020's emphasis on holistic and multidisciplinary learning, which includes environmental education and awareness. Students actively participate in these greening efforts, which provide practical learning experiences about biodiversity, sustainability, and conservation, thus fostering environmental stewardship. Improved air quality, cooler campus environments, and the creation of green spaces enhance the well-being of students and staff while serving as a living example of sustainable practices. Moreover, these efforts contribute to reducing the carbon footprint of the institution and mitigating urban environmental degradation, aligning with broader environmental goals outlined in the SDGs, particularly SDG 13 (Climate Action) and SDG 15 (Life on Land). Through these actions, Chandigarh's colleges are setting an example for how educational institutions can be transformed into hubs of environmental sustainability and conservation education.

8. Sustainability Workshops and Capacity Building

In line with NEP 2020's focus on holistic and multidisciplinary education, many colleges in Chandigarh are organizing sustainability workshops and capacity-building programs to

raise awareness and promote sustainable practices among students and staff. These workshops are designed to provide practical knowledge on topics such as waste management, renewable energy, green chemistry, and sustainable development. By incorporating such workshops into the academic curriculum, these institutions are contributing to Sustainable Development Goal 4 (Quality Education), which emphasizes inclusive and equitable quality education and lifelong learning opportunities for all. For example, institutions like Panjab University and Post Graduate Government College for Girls (PGGCG-42) regularly host seminars and workshops on environmental sustainability, inviting experts from various fields to discuss contemporary challenges and solutions related to climate change, biodiversity conservation, and responsible consumption. These capacity-building initiatives help students develop a deep understanding of sustainability issues and equip them with the skills necessary to tackle these challenges in their future careers. Furthermore, these programs foster a sense of environmental responsibility, preparing students to be active participants in sustainable development and environmental stewardship.

9. Research Collaborations for Sustainability

Chandigarh's colleges are actively engaging in research collaborations with industries, research institutions, and non-governmental organizations (NGOs) to drive innovation in sustainable practices. Aligned with NEP 2020's vision of promoting research and innovation, these collaborations focus on developing sustainable technologies, green chemistry solutions, and eco-friendly industrial processes. This effort directly supports Sustainable Development Goal 9 (Industry, Innovation, and Infrastructure), which emphasizes building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation.

Institutions such as Panjab University and Government College of Men, Sector 11, are at the forefront of such collaborations, working on projects that aim to reduce carbon emissions, improve energy efficiency, and promote sustainable resource management. These partnerships not only advance scientific knowledge but also ensure that research findings are applied in real-world settings, contributing to sustainable development at the local and global levels. Students and faculty members involved in these research initiatives gain hands-on experience in addressing environmental challenges through innovation, fostering a culture of sustainability in scientific research and development.

10. Paperless Administration and Communication

In response to NEP 2020's push for digitization and modernized educational processes, many colleges in Chandigarh have transitioned towards paperless administration and communication systems. By adopting digital platforms for managing administrative tasks, student records, and communication, these institutions are reducing their reliance on paper, contributing to both Sustainable Development Goal 12 (Responsible Consumption and Production) and SDG 13 (Climate Action). This shift toward paperless operations not only streamlines processes but also significantly reduces the carbon footprint associated with paper production and waste. Colleges have implemented comprehensive digital systems for admissions, examinations, and internal communications, drastically cutting down on paper usage. Email notifications, digital assignments, and online databases for academic resources have become the norm, furthering the goal of sustainable operations. This digital

transformation not only supports environmental sustainability but also enhances efficiency and transparency in administrative functions, making these institutions more responsive and adaptive to modern educational demands. By embracing paperless administration, Chandigarh's colleges are setting an example for how educational institutions can contribute to environmental conservation while improving operational efficiency.

Challenges in Implementing Sustainability Initiatives

Despite the significant progress made by Chandigarh's educational institutions, challenges remain in fully integrating sustainability into their operations and curricula. These challenges include:

- **Funding Constraints:** The installation of renewable energy systems, rainwater harvesting infrastructure, and green laboratories requires substantial financial investment. Not all institutions have the budget or external funding to implement these technologies on a large scale.
- **Resistance to Change:** There is often resistance to adopting paperless administrative processes and green practices due to the logistical challenges involved in changing established systems.
- **Limited Awareness and Training:** While some institutions have conducted sustainability workshops, there is a need for more widespread awareness and training programs for both faculty and students. These initiatives would help embed sustainability into the culture of the institution.

Conclusion

Chandigarh's educational institutions have made impressive strides in advancing sustainability through their alignment with NEP 2020 and the SDGs. By integrating green chemistry into their curricula, adopting renewable energy, digitizing resources, and implementing water and waste management systems, these institutions are setting a benchmark for environmental responsibility in education. However, to fully realize the potential of these initiatives, further efforts are required to overcome challenges such as limited funding, logistical barriers, and a lack of widespread awareness.

Suggestions

1. Increased Funding for Green Infrastructure: The government and private sector should collaborate to provide financial support for green infrastructure projects such as solar energy systems, rainwater harvesting, and energy-efficient laboratories.
2. Comprehensive Sustainability Workshops: Regular workshops, seminars, and capacity-building programs should be organized for students, faculty, and administrative staff. These programs can raise awareness about sustainable practices and foster a culture of environmental responsibility.
3. Collaboration with Industry and Research Institutions: Educational institutions should collaborate with industries, NGOs, and research bodies to enhance research and innovation in green technologies. This can also help secure

funding and technical expertise for sustainability projects.

4. Incentivizing Sustainability: Government bodies and accreditation agencies should introduce incentives for institutions that implement green practices. Awards, recognition programs, or additional grants could encourage more colleges to adopt sustainability measures.
5. Monitoring and Evaluation Systems: A standardized system for monitoring and evaluating the sustainability efforts of educational institutions should be established. This would ensure accountability and provide insights into areas where further improvements are needed.

By addressing these challenges and scaling up existing initiatives, Chandigarh's educational institutions can not only contribute to national and global sustainability goals but also inspire other regions to follow suit in promoting a more sustainable future.

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