
Unraveling the Layers: A Comprehensive Analysis of MBSE Secondary Science Curriculum with a Focus on Life Skills Integration

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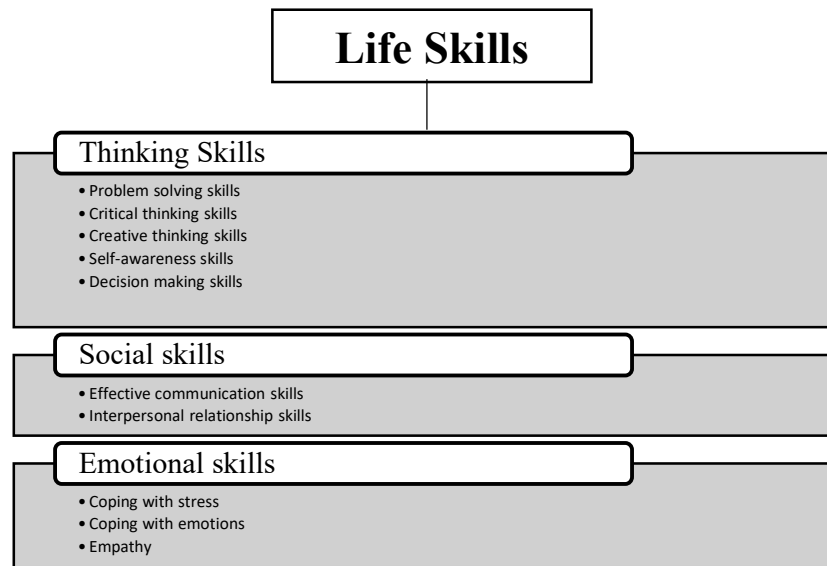
Abstract

In today's contemporary world, it has become increasingly important for educational institutions to provide students with a curriculum that not only imparts academic knowledge but also equips them with essential life skills which can be incorporated into our daily life. This article delves into a comprehensive analysis of the Mizoram Board of School Education (MBSE) Secondary Science Curriculum, with a specific focus on the integration of life skills components in the Class-IX textbook. The content analysis of the textbook is done by following the Life Skills Components proposed by the World Health Organization (WHO) which are in three domains – Thinking skills, social skills, and Emotional skills while keeping in mind the criteria of the ideal science curriculum given by NCF – 2005. From the analysis of the textbook, it is identified that Critical thinking skills are the majority in number with a percentage of 39.63%, followed by Problem-solving skills with 35.45% and Creative thinking skills with 24.91% but ignored Social Skills and Emotional Skills domain in the textbook. The science textbook employed by the Mizoram Board of School Education (MBSE) enabled the students to utilize their Critical Thinking Skills and enabled the students to understand science theoretically and meaningfully in their daily lives.

Keywords: Life skills, Secondary education, Science textbook, Curriculum, MBSE.

Introduction

Life-Skills Education as defined by the UNICEF is "an approach to behavior development or behavior modification that balances knowledge, attitude, and skills". The ability to convert information, attitudes, and beliefs into practical abilities—that is, "what to do and how to do it"—is known as life skills. The abilities that enable people to behave healthily when given the chance, opportunity, and motivation to do so are known as life skills. They are not a panacea since conduct is influenced by more than just "how to do" abilities. Life skills are, in essence, the abilities that help young people maintain their mental health and maturity while navigating the obstacles of adulthood. Most development professionals agree that life skills are frequently applied in connection to social and health-related circumstances. The term also includes education for development, livelihood, and revenue production, as well as education about consumers, the environment, and peace. To put it succinctly, life skills enable youth to take proactive measures to safeguard themselves, encourage good health, and foster pleasant social interactions. The WHO, UNESCO, UNICEF, and other international organizations list the 10 essential life skills as Empathy, Self Awareness Skills, Creative Thinking Skills, Critical Thinking Skills, Problem Solving Skills, Decision Making Skills, Effective Communication skills, Interpersonal Relationship Skills, Coping with Stress and Coping with Emotions. These skills are further divided into three dimensions – Thinking skills which consist of Problem solving skills, Creative thinking skills, Critical thinking skills, Self-awareness and Decision making skills. Social skills which comprises of Effective communication and Interpersonal relationship skills. Emotional skills which include Coping with stress, Coping with emotions and Empathy.



Problem-solving skills allow us to address issues in our lives in a positive way. Unresolved major issues might result in tension in the mind and the accompanying physical strain. Problem-solving is the process of identifying and resolving conflicts or challenges. It involves breaking down a problem into its component parts, weighing numerous strategies, and choosing the best one.

Critical thinking skills are the capacity for impartial analysis of data and experiences. Critical thinking may help us become healthier by assisting us in recognizing and assessing the factors—like media, peer pressure, and values—that influence our attitudes and actions.

Self-awareness skills entails accepting who we are—our character, our likes and dislikes, our talents and shortcomings. Being more self-aware might make it easier for us to identify times when we feel pressured or anxious. It is frequently a requirement for establishing empathy for other people as well as for successful interpersonal relationships and communication.

Decision making skills assist us in making decisions regarding our life in a positive way. There may be negative health effects from this. It can teach people how to actively pick their course of action based on a health assessment of numerous options and the expected repercussions of those decisions.

Creative thinking skills give four qualities that define an innovative manner of thinking or acting: originality (thinking of something new), flexibility (changing perspectives with ease), fluency (producing new ideas), and elaboration (building on prior ideas).

Effective communication skills that we possess the ability to communicate both orally and nonverbally in ways that are appropriate for our cultures and situations. This means being able to express needs, concerns, and opinions. It could also mean being able to ask for advice and support when required.

Interpersonal relationship skills assist us in developing healthy relationships with the individuals we engage with. This may involve the capacity to establish and sustain friendly relationships, which is essential to preserving our mental and social health. It could be required to keep up good interactions with family members, who are an important source of social support. It could also mean being able to end relationships respectfully.

Coping with stress is about recognizing the stresses in our lives, comprehending the effects they have on us, and acting appropriately to help control our stress levels. This might entail changing our physical surroundings or way of life.

Coping with emotions entails understanding how emotions affect behavior, recognizing emotions in both ourselves and others, and knowing how to react correctly to emotions. Strong feelings, such as grief or rage, can be harmful to our health if we don't handle them well.

Empathy is the capacity to picture life from another person's perspective. Our interactions with other people will be one-way if we lack empathy. Accepting someone who may be extremely different from us might be made easier with empathy. This can enhance social relations in particular when there is a range of ethnicities or cultures.

The WHO is encouraging the teaching of skills that are frequently taken for granted by advocating the education of life skills. However, there is growing recognition that a large number of youth lack the life skills needed to manage the increased demands and pressures they face as a result of shifting cultural and lifestyle norms. It doesn't seem like they receive the support they need to acquire and use life skills. It is probable that the traditional means of teaching life skills—

such as familial and cultural influences—no longer work given the factors impacting the development of young people. Among these are the effects of media exposure and the outcomes of growing up in a culturally and ethnically varied setting. In addition, the fast pace of societal change that is seen around the world causes young people's opportunities, values, and expectations to diverge greatly from those of their parents. Thus by inculcating Life Skills among the children, students who get life skills education actively participate in a dynamic teaching and learning process. To encourage this active participation, activities such as brainstorming, role-playing, games, discussions, and working in small groups and pairs are employed inside the classroom. So learning process becomes more productive when there is equilibrium between knowledge, skills, attitudes and values.

Statement of the Problem

The present research paper is an attempt to analyze the current Class – IX Science textbook prescribed by the Mizoram Board of School Education (MBSE) published by Arya Publishing Company, New Delhi.

Objective of the study

To identify Life Skills components from the class – IX Science textbook prescribed by the Mizoram Board of School Education (MBSE).

To analyze Mizoram Board of School Education (MBSE) Class – IX Science textbook by giving special reference to WHO Life Skills components.

Methodology of the study

The current study is descriptive and qualitative in character as it seeks to identify and explore Life Skills components proposed by WHO from each chapter of the Mizoram Board of School Education (MBSE) Class – IX Science textbook. The researcher collected a total of 599 items of Life Skills components from the textbook by keeping in mind on the basis of the ideal science curriculum given by NCF – 2005 while administering the content analysis.

Objective 1: Identification of Life Skills Components from MBSE Class – IX Science Textbook

IDENTIFICATION/MAPPING OF LIFE SKILLS COMPONENTS IN MBSE SCIENCE CURRICULUM GRADE – 9											
CHA PTE R No.	CHA PTE R NAM E	CRIT ICAL THI NKI NG SKIL LS	PRO BLE M- SOL VIN Gri SKIL LS	CREA TIVE THIN KING SKILL S	SELF - AWA REN ESS SKIL LS	DECI SION MAKI NG SKIL LS	INTER PERSO NAL RELA TIONS HIP SKILL S	COMM UNICA TION SKILL S	EMP ATH Y	COPI NG WITH STRE SS	COPI NG WITH EMO TION S
1	Moti on	6	38	11	0	0	0	0	0	0	0
2	Force and Laws of Moti on	18	29	7	0	0	0	0	0	0	0
3	Gravi tation and Float ation	20	23	9	0	0	0	0	0	0	0
4	Work and Energ y	10	38	6	0	0	0	0	0	0	0

5	Sound	10	16	6	0	0	0	0	0	0	0
6	Matter in our Surroundings	12	3	7	0	0	0	0	0	0	0
7	Is Matter Around us Pure	9	5	16	0	0	0	0	0	0	0
8	Atoms and Molecules	11	24	9	0	0	0	0	0	0	0
9	Structure of Atom	9	9	6	0	0	0	0	0	0	0
10	The Fundamental Unit of Life	10	0	5	0	0	0	0	0	0	0
11	Tissues	13	3	8	0	0	0	0	0	0	0
12	Diversity in Living Organism	14	4	18	0	0	0	0	0	0	0
13	Why do we fall Ill	35	6	19	0	0	0	0	0	0	0
14	Natural Resources	23	8	9	0	0	0	0	0	0	0
15	Improvement in Food Resources	32	6	19	0	0	0	0	0	0	0

TOTAL	232	212	155	0	0	0	0	0	0	0
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From the identification/mapping of Life Skills components to the textbook that the Mizoram Board of School Education (MBSE) recommended for science class IX, it completely ignored the thinking skills domain components of self-awareness skills and decision-making skills, giving priority to critical thinking skills, creative thinking skills, and problem-solving skills. The social and emotional skills domains, which are essential for assisting students in enhancing their social skills, interacting with peers, leading sustainable lives, and developing their decision-making skills, are absent from the textbook.

Objective 2 : Analysis of the textbook

Mizoram Board of School Education (MBSE) Class-IX science textbook for secondary level is a theoretical textbook which consist of scientific practical and activity correlated with life skills components given by World Health Organisation (WHO). The fifteen (15) chapters in this textbook cover the following topics: motion, force and laws of motion, gravitation and floatation, work and energy, sound, matter in our surroundings, is matter around us pure, atoms and molecules, atom structure, the basic building block of life, tissues, diversity in living organisms, the causes of illness, natural resources, and improvements in food resources. Analysis of the textbook is administered by considering the following three domains :

Dimensions given by WHO		
Thinking Skills	Social Skills	Emotional Skills
Critical thinking skills	Effective Communication skills	Coping with stress
Creative thinking skills	Inter-personal relationship skills	Coping with emotions
Problem solving skills		Empathy
Decision making skills		
Self-awareness skills		

CHAPTER – 1 : Motion

In this chapter, the students learn about what is distance, displacement, motion with its type, speed and its different types and other different concepts which can assist the students to think more about some physical properties of science and its applications in our daily life. The concept explanation is clear from the beginning and adding further information box in the chapter can add new concept and knowledge to the students while reading it from the different Life Skills components initiated. The textual questions are too lengthy in some sections but its paper quality is good enough to last for a year to be used by students. This chapter does not cover life skills components in the concept explanation but most of the Life Skills components are identified in In-text box and textual questions provided.

Around 69.09% of Problem solving skills, 20% of Creative thinking skills and only 10.9% of Critical thinking skills is found to be huge in number while analyzing the chapter but Self-awareness skills and Decision making skills which are part of thinking skills domain is not found in the chapter. Besides, Social skills and Emotional skills domains is totally neglected in the chapter which plays an important role in developing confidence and emotional clarity among the students so that they can deal with mental conflict that occur in their life.

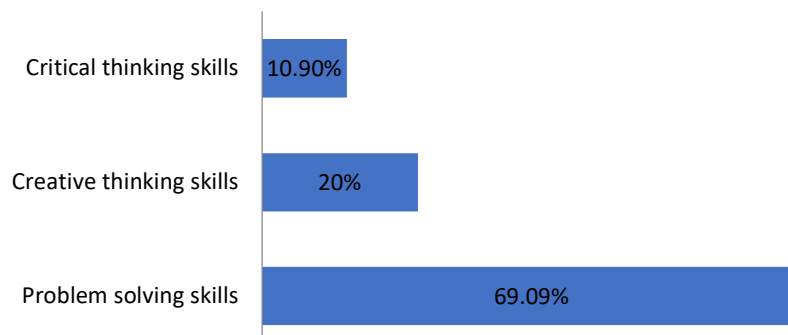


Fig 2. Percentage of Life Skills Components in chapter -1

CHAPTER – 2 : Force and Laws of Motion

This chapter gives a great emphasis to different principles of physical properties and its applications in varied ways of life. It teaches the students what is force and its significance, types of motions and its exertion on external properties. The languages and vocabulary used in this chapter is simple and can be easily grasps up accordingly by the students. Besides, the examples used in the explanation of concept are simple and adding figures, pictures makes the chapter more clearly and understandable for the student with the help of different Life Skills components inculcated. In this chapter, Life Skills Components are identified in the concept explanations of the chapter but the number of components identified are not satisfactory as they are insufficient in number. Majority of the Life Skills Components are identified in In-text box and textual questions provided in the chapter. In the present chapter, around 53.7% of Problem solving skills, 33.3% of Critical thinking skills and only 12.9% of Creative thinking skills under Thinking skills domain are present in this unit but Self-awareness skills and Decision making skills are absent while analyzing the chapter. Moreover, other Life Skills Domains such as Social skills and Emotional skills are lacking from this chapter which plays a great role in developing the students interpersonal relationship, building great communication with peers and solving emotional problems in life and inside the classroom.

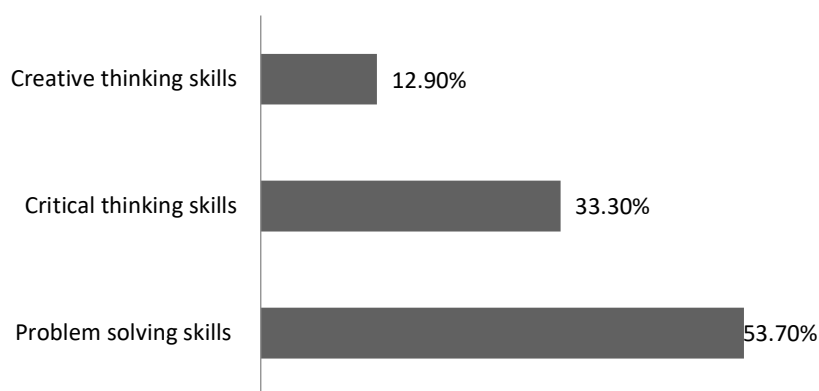


Fig 3.Percentage of Life Skills Components in chapter -2

CHAPTER – 3 : Gravitation and Floatation

In this unit, the textbook enlightened the students with various gravitational principles with detailed explanations and examples, forces and its implications on a surface of body in motion. Concept explanation of the chapter is clear and detailed from the starting of the unit and giving In-text box after the end of each concept for testing student's understanding of the meaning is good which can help the pupils to be clear more about the chapter studied with the help of different Life Skills components initiated.

From this unit, Life Skills Components are found at the explanation of concept but majority of the Life Skills components are present at the In-text box section and textual questions provided by the textbook in which Critical thinking skills and Problem solving skills from Thinking Skills Domain plays a dominant role in this chapter with 44.23% for Problem solving skills, 38.46% for Critical thinking skills and for Creative thinking skills only 17.3% are identified from the chapter leaving behind Self-awareness skills and Decision making skills. Apart from this, Social Skills Domain and Emotional Skills Domain are totally neglected in the present chapter as these skills are crucial in shaping the pupils thinking so that students can combat certain psychological problems and maladjustment in their daily life.

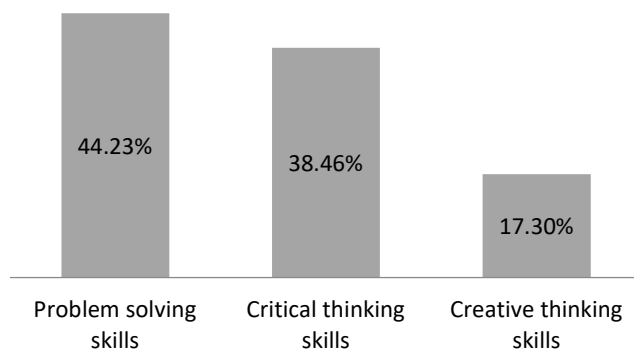


Fig. 4 Percentage of Life Skills Components in chapter - 3

CHAPTER – 4 : Work and Energy

In this chapter, the textbook enlightened the students with different concepts like work and its type of quantity, mechanical energy with varied types, physical quantities and energy which can be applied in our day to day life. The textbook provide a detailed explanation in each pages by adding clear examples, diagrams and tables for further understanding about the concept taught in the classroom from the different Life Skills components initiated. Moreover, number of Life Skills Components is not satisfactory in this chapter and large number of the Life Skills Components are identified in example questions given after each concept explanation, In – text box question and textual questions provided at the end of the chapter.

From this unit, around 70 % of Problem solving skills, 18.5% of Critical thinking skills and 11.1% of Creative thinking skills which belong to Thinking skills domain are identified but leaving behind Decision making skills and Self Awareness skills which is also part of Thinking Skills domain. Besides this, Social skills and Emotional Skills is totally in absent which plays a significant role in building positive relationship and learning to curb mental illness among the pupils in order to face the

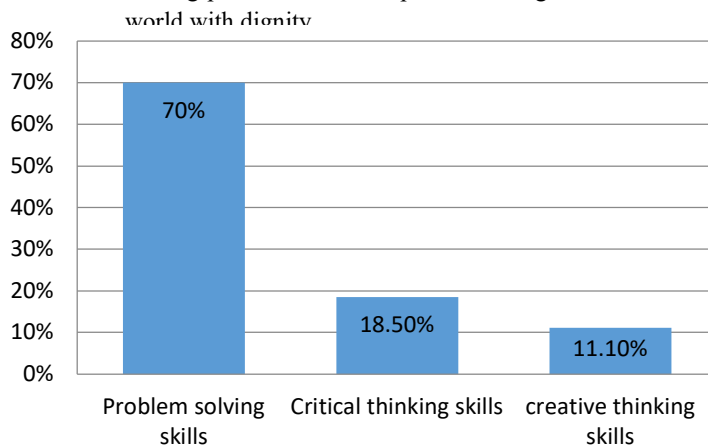


Fig 5. Percentage of Life Skills Components in Chapter - 4

CHAPTER- 5 : Sound

From the analysis of the chapter, it is clearly identified that the unit is explain systematically and concept explanation is simple, detailed and can be easily grasp up by the students. A small number of classroom activity is inculcated in the pages, if more scientific activity be added students will understanding more about the concept and can applied those activities beyond their classroom from the Life Skills activities inculcated. Moreover, Life Skills Components are found in the concept explanation but not large in number. Majority of the Components are identified in the example questions provided at end of each concept, in-text box question and textual questions given at the end of the chapter.

From this chapter, around 50% of Problem solving skills, 31% of Critical thinking skills and 18% of Creative thinking skills are identified from the chapter which is from Thinking skills domain but Decision making skills and Self Awareness skills are absent here. Beyond this, Social skills and Emotional skills are totally neglected as these domains can boost the students to build strong emotional foundations within themselves, family and peers and become a mentally healthy person.

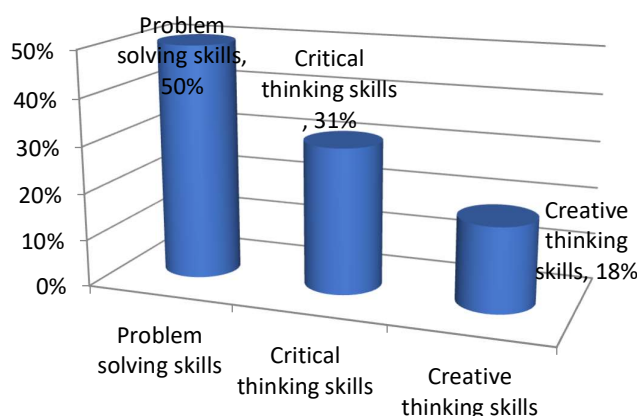


Fig 6. Percentage of Life Skills Components from chapter-5

CHAPTER – 6 : Matter in our Surrounding

In this chapter, the textbook imbibes by starting off with the concept of matter and explain its implication by adding activity for further understanding of the meaning, come up with different types of particles and atmosphere around us. Textual questions provided are strong and detailed enough to test the students understanding and learning of the chapter taught within the four walls of room and further information box tag along with the pages strengthened the students with advance knowledge systematically from the different Life Skills components initiated. This chapter contains less number of Life Skills Components in the explanation and emphasized more in Thinking Skills domain by derelicting Social skills and Emotional skills. Mostly, within thinking skills domain around 54% of Critical thinking skills, 31% of Creative thinking skills and 14% of Problem solving skills are identified while examining the chapter. This chapter neglected Social skills and Emotional skills which are an important skills for improving the students wellbeing and their ways of developing awareness about t

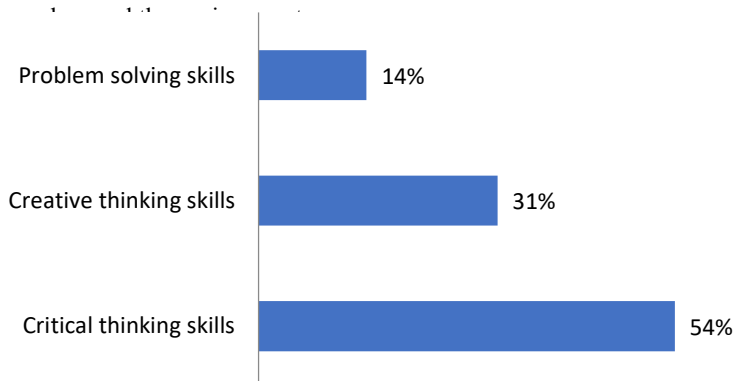


Fig 7. Percentage of Life Skills Components in Chapter- 6

CHAPTER – 7 : Is Matter around us Pure

In this unit, the chapter expresses the concept of mixture and its type, solutions with its physical changes and characteristics, components of physical properties and solutions are explain in in-depth which are easy to understand by the students. After each concept explanation, there is an activity that students may complete in the classroom or at home to help them comprehend the material better. In addition, the concept explanations included with tables, graphs, and examples help students better understand the many life skills components they are being taught.

Although the idea description of the Life Skills Components in this chapter is good, the statistics are not. Many elements were discernible in the text box, the examples given at the conclusion of each concept description, and the textual questions. This lesson emphasized more with Thinking skills domain in which Problem solving skills, Critical thinking skills and Creative thinking skills are stressed; but Decision making skills and Self-awareness skills are absent. Moreover, social skills and emotional skills are totally neglected in the chapter which are an important form in solving emotional problems, social constraints and academic struggle among the students. Thus, around 53% of Creative thinking skills, 30% of Critical thinking skills and 17% of Problem solving skills are identified from the chapter.

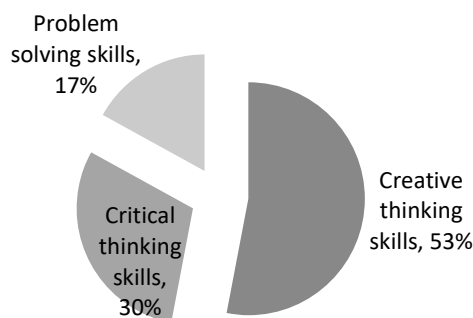


Fig 8. Percentage of Life Skills Components in chapter - 7

CHAPTER – 8 : Atoms and Molecules

In this chapter, the textbook encourage the students to be clear with the concept of law of masses, atomic theory with its applications in different elements, molecules with its classification and its chemical calculations by including varied examples for better understanding of the law of chemical combination. The chapter opens with a clear description of the topic, and the textual questions that follow are sufficient to gauge how well students have understood the lesson from the many Life Skills components that were used in the classroom. In addition, including additional information boxes in the pages might help pupils' thinking abilities grow, which is to their advantage. This chapter completely lacks the activity column, which is quite useful in helping students bridge their critical thinking skills by working through some of the equations on their own to have a deeper knowledge of the material.

Furthermore, upon thorough page analysis, less Life Skills Components are discovered. Moreover, the Life Skills components are limited to In-text box questions, examples, and textual questions, which are given insufficiently. The in-depth analysis of this chapter highlights about 55% of Problem Solving Skills, 25% of Critical Thinking Skills, and 20% of Creative Thinking Skills, leaving behind Self Awareness and Decision Making Skills, which are within the Thinking Skills domain. The Social skills and Emotional skill domain, which are critical to a child's mental development, are also overlooked in this chapter.

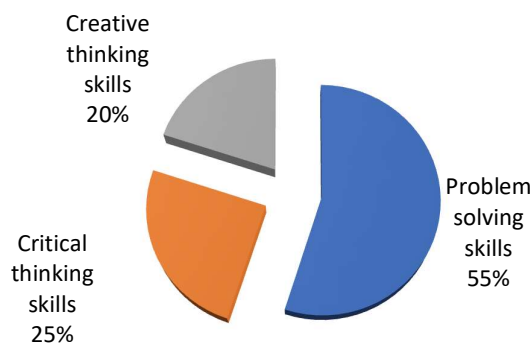


Fig 9. Percentage of Life Skills Components in chapter-8

CHAPTER – 9 : Structure of Atom

From the analysis of the chapter, it is identified that the textbook emphasized with Rutherford's model of atom and its structure, by adding figures, diagrams and tables to give precise clarification on the concept. The chapter begins with a comprehensive explanation of the topic along with a full scientific experiment tag and a brief summary that the learner may readily comprehend from the many Life Skills components introduced. This chapter lacks a classroom exercise that would enable students to apply what they have learned to improve their own understanding. This is unfortunate because the textbook focused more on providing a detailed explanation of the material than on examining the students' capacity for independent problem-solving.

This chapter stressed with Thinking skills domain by inculcating Problem solving skills, Critical thinking skills and Creative thinking skills but Self awareness skills and Decision making skills is neglected here. Beyond this, Social skills and Emotional skills are absent from this chapter which plays a crucial role in developing the child's capacity to

understand the emotional state of others, regulate their own feelings and learning to get along with their peers. This chapter contains around 38% of Problem solving skills, 38% of Critical thinking skills and 25% of Creative thinking skills.

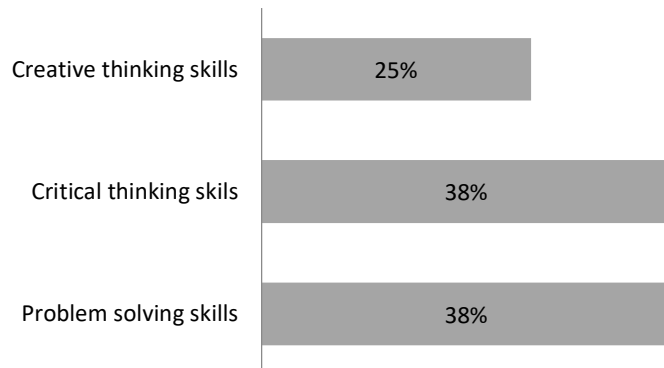


Fig 10. Percentage of Life Skills Components in chapter - 9

CHAPTER – 10 : The Fundamental Unit of Life

In this chapter, the textbook emphasize by starting with Robert Hooke's findings and give a clear concept about cells and its function, different types of cell and its structure by inculcating detailed figures, diagrams and tables for easy understanding for the pupils. The chapter is introduced with a concise explanation supported by theory and a boxed summary of additional material from the many Life Skills components that are taught. The languages used in the textbook make it simple to read and informative, however the amount of activity work that students must complete to fully comprehend each chapter is pitiful and needs improvement.

Moreover, from the exploration of the chapter it is identified that Life Skills Components is less in number from the explanation of the concept. The components could be identified from the In – text box and textual questions provided. From this unit, Thinking Skills domains which comprises of Critical thinking skills 67% and Creative thinking skills 33% are identified but surprisingly in this chapter Problem solving skills are absent on analyzing it. This chapter totally neglected Social Skills and Emotional Skills which play a crucial role in encouraging the students to develop the ability to balance their own personality, to be contented with themselves and most importantly to have a resilient heart.

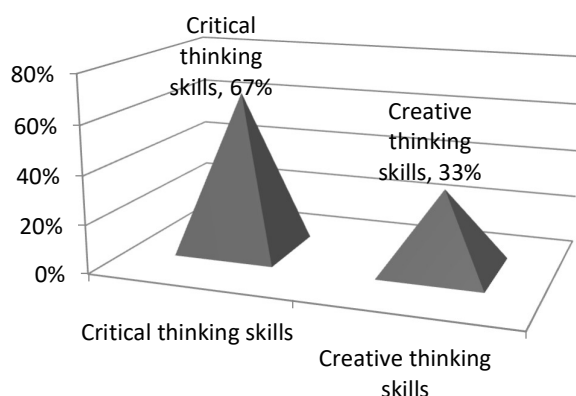


Fig 11. Percentage of Life Skills Components in chapter-10

CHAPTER – 11 : Tissues

From the analysis of the chapter, it is identified that the unit explain the concept of tissues with a clear statement from the beginning by adding with different types of tissues and its function, its features and significance on a living organisms. Through the addition of additional information boxes, figures, and tables to the pages along with many Life Skills components, it provided the students with a thorough and educational explanation. It is not satisfactory that there is no

activity work for students to perform in this chapter as it is part of their subsequent learning. In addition, there are fewer Life Skills Components described in the idea description; they can only be found in the in-text box and textual questions. From this chapter, Thinking skills domain which consisted of Problem solving skills 13%, Critical thinking skills 54% and Creative thinking skills 33% could be identified but Social skills and Emotional skills are entirely neglected which are an important skills for the students to develop perseverance, improving self knowledge and making wise decisions within themselves.

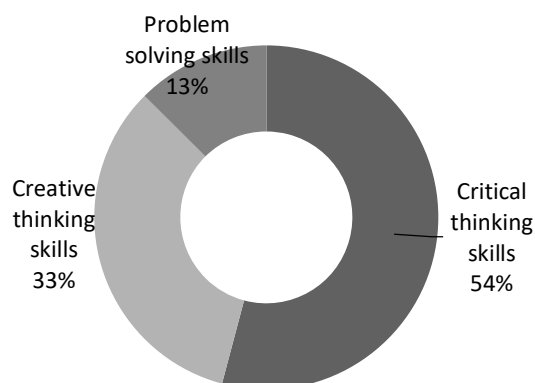


Fig 12. Percentage of Life Skills Components in chapter - 11

CHAPTER – 12 : Diversity in Living Organisms

In this unit, the chapter starts off with the classification of organisms given by Aristotle and continues with the drawbacks and importance of classification for biologists. With the aid of several Life Skills components introduced in the chapter, it provides a clear explanation of the categorization of creatures by providing figures, tables, and diagrams for simple comprehension of the bullet points mentioned in the pages. Examples of usage are straightforward, understandable, and uncomplicated for pupils. However, regrettably, the concept explanation does not include Life Skills Components; instead, they are only mentioned in the in-text box and the accompanying textual questions. In this chapter, around 50% of Creative thinking skills, 38.8% of Critical thinking skills and 11.1% of Problem solving skills which belongs to Thinking skills domains are identified from the analysis but leaving behind Social skills and Emotional skills which is playing an important role in developing the students emotional intelligence in their everyday life.

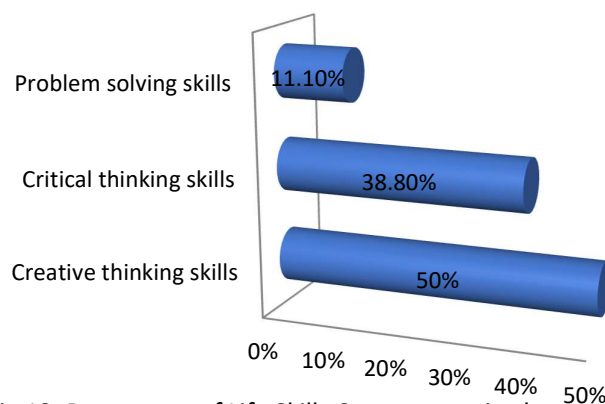


Fig 13. Percentage of Life Skills Components in chapter -12

CHAPTER – 13 : Why do we Fall Ill

From this unit, the chapter highlighted with the concept of distinction between healthy and unhealthy, disease and its causes, transmission of diseases; its treatment and ways to prevent, awareness program and measures taken by the Government to eradicate some viral diseases among its people. This chapter is an informative yet detailed study which is up-to date for adding up the knowledge of the pupils from the different Life Skills components incorporated. Classroom activity and Further Information box given in the pages are beneficial for the students systematic learning. This chapter consist of 31.6% of Creative thinking skills, 58.3% of Critical thinking skills and 10% of Problem solving skills which

is not adequate in numbers. Besides, this chapter exclude Social Skills and Emotional skills domains which play a crucial role among the students by building a positive bond within peer, oversee everyday tasks and conquering obstacles.

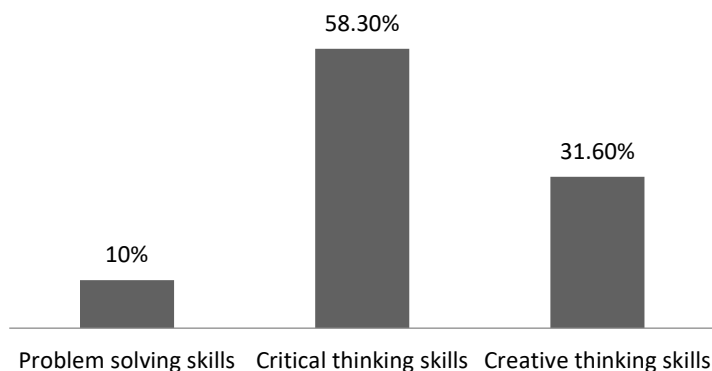


Fig 14. Percentage of Life Skills Components in chapter - 13

CHAPTER – 14 : Natural Resources

From the analysis of the chapter, it is identified that the unit emphasized with the importance of natural resources for living things, expressing the crucial points about protecting our environment and what measures to be taken in order to prevent or control pollution around us. The concept is explained clearly right away through the use of straightforward examples, figures, diagrams, and tables. Additionally, there are plenty of classroom activities that students can complete to help them understand the material and gain practical experience with the various Life Skills components that are offered. The textbook also includes a box of additional material that might help students learn more and broaden their horizons. Sadly, there are not enough Life Skills Components to help kids' minds grow and become more sharp when faced with a challenging assignment.

In this chapter, Life Skills Components are identified at the concept explanation, in-text box questions and textual questions given at the end of the chapter. Around 20% of Problem solving skills, 22.5% of Creative thinking skills and 57.5% of Critical thinking skills which are under Thinking Skills domains are present in this chapter but lagging behind Social skills and Emotional skills domains which are important for the pupils cognitive growth, social development and forming meaningful relationship.

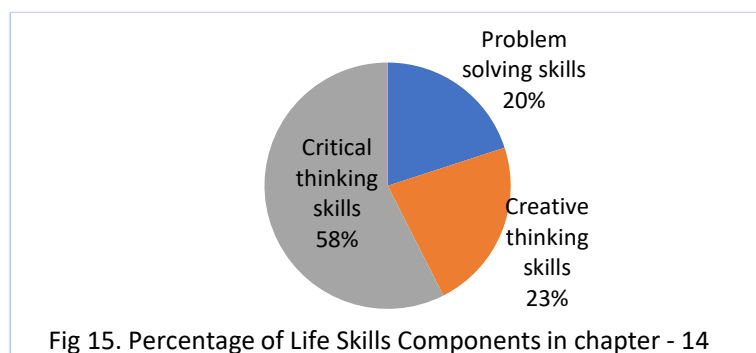


Fig 15. Percentage of Life Skills Components in chapter - 14

CHAPTER – 15 : Improvement in Food Resources

In this chapter, the unit enlightened the students with the introduction of agricultural practices, how to develop production for the farmers, management and limitations of crops and animal husbandry for improving the output in agriculture with a clear concept explanation from the start of the chapter. The textbook provide detail explanation in each pages by adding figures, diagrams and tables for the students better understanding of the concept but the number of Life Skills components identified are not satisfactory and distribution of different Life Skills components are not uniform. Besides, adding further information box is very beneficial for the pupils additional knowledge apart from the concept explanation.

From this chapter, around 10.5% of Problem solving skills, 56.1% of Critical thinking skills and 33.3% of Creative thinking skills which are from Thinking Skills domains are identified from the chapter but neglecting Social Skills and Emotional Skills which is helpful for the systematic development of the pupils learning.

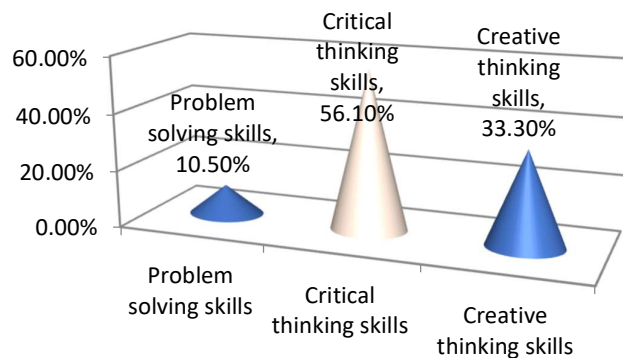


Fig 16. Percentage of Life Skills Components in chapter - 15

CONCLUSION:

From the present study, it is examined that the present Mizoram Board of School Education (MBSE) textbook given more importance to few Life Skills components such as Thinking skills domains with Critical thinking skills of 39.63%, Problem solving skills of 35.45% and Creative thinking skills of 24.91% from the overall analysis of each chapter but the textbook leave behind Self-awareness skills and Decision making skills which belongs to Thinking Skills domains too. The textbook totally neglected Social skills and Emotional skills which can assist the pupils to developed positive attitude towards themselves, their peers and the people around them. Besides, successful social and emotional skills inculcate in the students can help the learner to have a healthy practices within their family, developed a high self-esteem, improving their academic performance, learning to work together, combatting behavioral problems such as anxiety, depression and psychological disorder. Moreover, the textbook stressed more with theoretical aspects rather than practical and scientific activity; and the textual questions tag along in each chapter is not scientific enough to know the pupils aptitude towards science subject. The textbook contain less number of Life Skills Components especially in the concept explanation in each chapter and learners are given less opportunities to experience in the field of science experiments with the help of different Life skills components. Thus, if students are given more opportunity to explore the beauty of science by inculcating more Life Skills components through scientific activity and experimental work related to their daily life; it will have an immense progress in the future. The science textbook employed by the Mizoram Board of School Education (MBSE) allowed pupils to utilize their critical thinking skills and to comprehend science in a theoretical and practical sense by understanding life skills.

RECOMMENDATION:

After critically analyzing the textbook and drawing conclusions, we can conclude that the class-IX science textbook recommended by the Mizoram Board of School Education (MBSE) completely ignored the thinking skills domains components of self-awareness skills and decision-making skills, but prioritized to critical thinking skills, creative thinking skills, and problem-solving skills. This textbook lacks the social skills and emotional skills domain, which are crucial for helping students improve their self-efficacy, communicate with others, live sustainably, and advance in their decision-making abilities. Thus, it is recommended that :

1. The science textbook for class – IX prescribed by MBSE need systematic updating by highlighting each concept explanation using diagrams, photos, and tables; classroom exercises that students do to gain a deeper knowledge of ideas from various Life Skills components should be incorporated into majority of the explanation.
2. By introducing specific chapters or sections focusing on self-awareness and decision-making skills as they are absent in the textbook. These skills are crucial for holistic development and should be integrated into various scientific contexts to help students understand their importance in everyday life.
3. The textbook should emphasized on practical and scientific activities throughout the textbook. Increase the number of practical exercises and applications that let students use their academic understanding in practical settings. This method will help pupils become more creative and proficient at solving problems while also improving their comprehension.

4. Revising the textual questions and activities from each chapter to understand that they are more scientific and reflective of the depth of understanding required in science subjects. By incorporating questions that encourage critical thinking, analysis, and application rather than simple recall should be emphasized.
5. A broader range of Life Skills components should be incorporated throughout the textbook. Explicitly linking these components with scientific concepts and experiments to show students how life skills are interconnected with scientific learning. This could include teamwork, communication, resilience, and adaptability.
6. By developing chapters or activities that explicitly teach and reinforce social and emotional skills as these skills are important for fostering positive connection, managing emotions effectively, and promoting overall well-being among students. Thus, incorporating scenarios and discussions related to peer interaction, empathy, and emotional management within scientific contexts is crucial.

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