

An Analysis of Learning Outcomes in Single National Curriculum for Grade Pre-I in Punjab, Pakistan

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ABSTRACT

The present study aims to identify the levels of critical thinking skills in learning outcomes of the single national curriculum (SNC) 2020 for early childhood care and education grade pre-I in Pakistan. The Objectives of the study are supposed; to find out the frequency of learning outcomes designed by adopting different levels of critical thinking skills, to identify balance between learning outcomes designed keeping in view LOTS and HOTS, and to highlight the elements or action verbs being used to make the statements of learning outcomes at different levels of critical thinking skills. Quantitative data analysis approach is deployed to find out the frequency of different levels of critical thinking skills-based learning outcomes in SNC for grade pre-I. A Stratified type of sampling is used to make decisions about the selection of a single national curriculum for grade pre-I and purposive sampling was adopted to select the learning outcomes of SNC for grade pre-I. The critical Thinking Evaluation Model is implied to evaluate the learning outcomes at different levels of LOTS and HOTS. Findings indicate that LOTS are more focus of curriculum designers. SNC designers for grade pre-I are supposed to prepare students most prominently at the knowledge level, more frequently at the implementation level, and least frequently at self-directed learning level. This research is significant for curriculum designers, syllabus designers, teachers, and teacher trainers to make sure the balance between LOTS and HOTS, and the balance between the learning at each level of critical thinking skills while designing, teaching, and training.

Introduction

Ennis (2011) states that critical thinking skills enable learners to analyse, focus on questions, judge credibility, make the judgments, value the judgements, clarify, refine and support viewpoints, and imaginatively supposed to create a logic of viewpoint. Hader (2007) said that critical thinking helps the learners to be creative and find out the ways to manage the time. Halpern (2003) asserts that critical thinking can be described as thinking with some purposes and reasons, through which problems are to be solved, inferences are to be formulated, decision are to be made and likelihood is to be calculated. Lipman (2003) stated that strengthening the thinking of a child should be the first business of education, and it should not incidental that if it will be happened. Unfortunately, students are not free to think independantly and they rarely pick up these skills (Ladsmann & Gorski, 2007; Lundquist, 1999; Rippen, Booth, Bowie, & Jordan, 2002). Ladyshevsky (2006) suggested that peer coaching is helpful to provide the opportunities to develop the critical thinking skills actively. He also stated that the instructor should have idea about the initial resistance of students and tell them to think about the answer instead of having an answer. Hutchinson and Torres (1994) asserted that textbooks help teacher to potentially change the process, demonstrate new methodologies, and create scaffolding on which teachers can built their own creative methodology, and textbooks are key to innovations. Lipman (1984) states that the purpose of education is being shifted from the acquisition of facts to the process of thinking. The goal is to prepare students to think for themselves. Some of the related researches have been done such Fayyaz, Parveen, and Hassan (2021) conducted research to evaluate the learning outcomes of compulsory English textbooks (grade6-10). Critical Thinking Evaluation Model was utilized to analyze the learning outcomes at different levels of critical thinking skills. Findings indicated that lower order thinking skills were more prevalently being used to design the statements of learning outcomes in compulsory English textbooks (6-10). Febriyani et al. (2020) evaluated “Bahasa Inggris SMA/MA/SMK/MAK kelas XII Edisi Revisi 2018” and identified the task relevant to teach critical thinking skills by using Krathwohl taxonomy. Findings indicated that lower-order thinking skills were the more focus. Fayyaz (2019) evaluated the exercises and activities in compulsory English textbooks under the CTEM. Findings indicated that exercises and activities in compulsory English textbooks were designed by focusing on lower-order critical thinking skills. Alsulami (2021) evaluated ‘Traveller 4’ textbook in terms of general appearance, design content, exercises, tasks, cultural and social context, activities, and usefulness to develop four basic skills of language. Findings indicated that ‘Traveller 4’ textbook needs to be modified to meet the criteria of a good textbook. Qasrawi and Abdelrahman (2020) evaluated the first and second edition of Unlock English Reading, Writing and Critical Thinking Skills Textbooks under the light of Bloom’s taxonomy. Findings revealed that LOTS were more

prevalent in both editions of selected textbooks. Comprehension level was appeared with most frequency under LOTS on the other HOTS were dominant within Analysis level. Salhi and Elfatihi (2019) evaluated a textbook titled Gateway to English 2 (GTE2 henceforth) in order to levels of LOTS and HOTS in Blooms taxonomy. Findings showed that LOTS were the more focus of textbook (GTE2) designers. Fayyaz, Danish, and Hassan (2019) evaluated questions in MA English question papers by Punjab University in the light of Bloom's taxonomy. Results indicated that LOTS were most frequently assessed by MA English questions in examination paper. Baig et al (2021) evaluated English textbook by PTB of 8th grade in terms of communication skills, thinking skills, formal lexical aspects, reading and writing. Consequences showed that though 8th grade English textbooks only comprehension reading skills are supposed to be developed. By keeping in view the importance of critical thinking skills and relation of textbooks with education the current study has designed to analyze the single national curriculum of grade pre-I to check the levels of critical thinking skills in learning outcomes.

Objectives

Keeping in view the evaluation of learning outcomes of curriculum for grade pre-I following are the objectives of present study;

1. To find out the frequency of learning outcomes designed by adopting different levels of critical thinking skills
2. To highlight the balance between learning outcomes designed by keeping in view LOTS and HOTS,
3. To identify the elements or action verbs being used to make the statements of learning outcomes at different levels of critical thinking skills.

Statement of the Problem

As taxonomies of learning critical thinking skills are being developed day by day, therefore analysis of educational material especially curriculum and textbooks must be done to meet the criteria of daily development. To fulfill this gap a recently introduced model namely Critical Thinking Evaluation Model is supposed to be used for evaluation of the learning outcomes in SNC for grade pre-1. Secondly, the present study has conducted to answer the question how far single national curriculum 2020 of grade pre-I has designed to teach and learn the critical thinking skills?

Significance of the Study

The present study is about the evaluation of learning outcomes in order to enhance critical thinking skills at different levels. Keeping in view the findings of given research, it is significant for curriculum designers, syllabus designers, lesson planners, course outline setters, teaching material setters, teachers, teacher trainers, examiners and for whole education system to learn

critical thinking skills pertinently. It is beneficial in designing objectives, learning outcomes, exercises, activities, questions and contents of curriculum, textbooks, lesson plans, course outlines, examination papers and all teaching materials at each level of CTEM appropriately.

Research Questions

To fulfill the objectives, the present study is supposed to answer the following research questions;

1. How far curriculum designers of SNC for grade pre-I designed the learning outcomes in order to enhance critical thinking skills of infants?

- a. What is the frequency distribution of learning outcomes in SNC for grade pre-I in terms of critical thinking skills' levels?
- b. Which level of critical thinking skills is the most and least prevalent in learning outcomes of SNC for grade pre-I?
- c. What are the elements of CTEM are being used by curriculum designers to set the learning outcomes in SNC for grade pre-I?

Theoretical Interpretation

Fayyaz (2019) introduced a modified version for designing and evaluation of objectives, learning outcomes, exercises, activities, contents and all teaching materials in curriculum, textbooks, lesson plans, course outlines at different level of critical thinking skills. Visual representation of CTEM (Critical Thinking Evaluation Model) is given below:

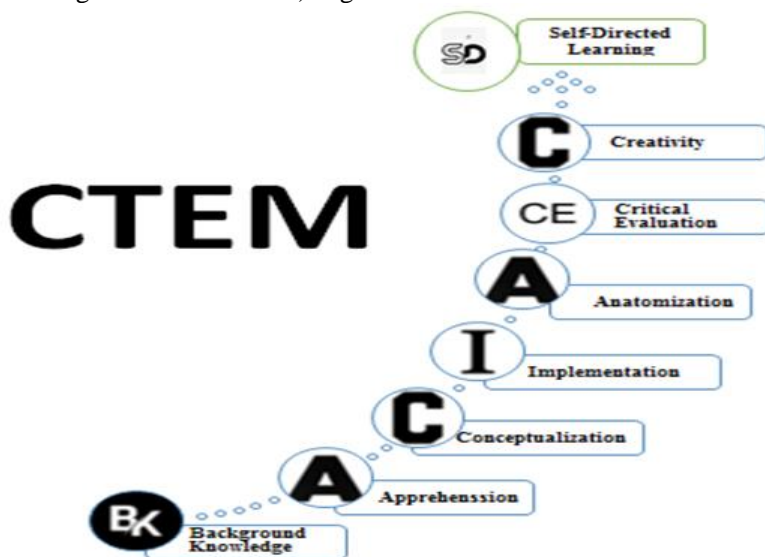


Figure 1: Critical Thinking Evaluation Model.

CTEM consists of total eight levels of learning critical thinking skills;

1. Background Knowledge, 2. Apprehension, 3. Conceptualization, 4. Implementation, 5. Anatomization, 6. Critical Evaluation, 7. Creativity, and the last is Self-Directed Learning level.

Methodology

Research Method and Research Design

Quantitative data analysis approach is deployed to find out the frequency of different levels of critical thinking skills based learning outcomes of SNC for grad pre-I. Exploratory research design implied to explore the learning outcomes of SNC for grade pre-I in order to the levels of CTEM.

Population and Sampling

Curriculum for grade pre-I was supposed to be analyzed on different levels of critical thinking skills. Stratified type of sampling was used to make decision about the selection of single national curriculum for pre grade-I, and purposive sampling was implied to collect the learning outcomes from SNC for grade-pre-I.

Instrumentation

Critical Thinking Evaluation Model is implied to evaluate the learning outcomes at different levels of LOTS and HOTS. List of imperative verbs under CTEM is utilized to find the frequency of elements or imperative verbs used in the statements of learning outcomes of curriculum for grade pre-I. Pdf, MS Word, MS Excel, Notepad, and Antconc were used to process the analysis towards frequency.

Data Collection Procedure

Curriculum for grade pre-I is collected by online web in Pdf. To collect the learning outcomes of curriculum for grade pre-I Pdf file was converted into MS Word. After getting the MS Word file all points except learning outcomes were removed. Files consisted of learning outcomes were supposed to be converted into text file to precede the file into Antconc for frequencies.

Data Analysis Procedure

Learning outcomes in curriculum for grade pre-I were analyzed by using Critical Thinking Evaluation Model to identify the levels of critical thinking skills. Frequency of different elements was got by putting the file into Antconc. Ms Excel was used to convert the frequencies into graph and table form.

Results and Discussion

Learning outcomes in Single National Curriculum for grade pre-I was analyzed to check the frequency distribution of different levels of Critical

Thinking Evaluation Model. Elements or actions verbs, LOTS and HOTS of CTEM were also identified in learning outcomes.

Learning Outcomes in SNC for Grade Pre-I Conferring to CTEM

Learning outcomes in SNC for grade pre-I was evaluated at different levels (Background Knowledge, Apprehension, Conceptualization, Implementation, Anatomization, Critical Evaluation, Creativity, and Self-Directed Learning) of CTEM, and variation in the frequency of different level was identified. Background knowledge level learning was the main focus of curriculum designers. The fundamental level of critical thinking skills was appeared with 64 frequencies. Second most frequent level in learning outcomes was implementation with 49 and third most prevalent level was Apprehension with 40 numbers of occurrences. Self-Directed Learning level was appeared with least frequency 1. Frequency distribution of other levels is as following; conceptualization 7, Anatomization 19, Creativity 18, and critical evaluation level of critical thinking skills were found with 3 numbers of occurrences. Figure given below provides the clear picture of percentage for different levels of critical thinking skills.

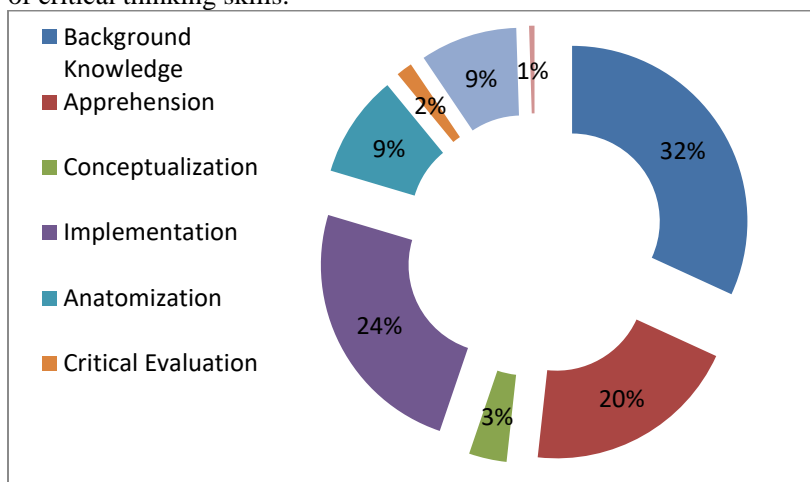


Figure: 2 Percentages of Different Levels of Critical Thinking Skills in Learning Outcomes

Totally of results showed that learning outcome in SNC for grade pre-I was designed with more focus to provide the knowledge of objects to the learners as Background Knowledge level was found with highest 32 percentage than all other levels of critical thinking skills. To fulfill the purpose of understanding of learners about the objects 20% learning outcomes were included in SNC for grade pre-I. Next to understanding clarification of concepts is mandatory and to get the command on different subjects only 3% learning outcomes were designed. Learners were supposed to be able for

application of knowledge, understanding and concepts on projects, and 24% learning outcomes were added in SNC for grade pre-I for learning at implementation of critical thinking skills. In order to enhance the ability to breakdown and analyze the objects only 9% learning outcomes were involved in SNC for grade pre-I. To develop the learners' skills to critically evaluate the specific objects only 2% Critical Evaluation level was included in learning outcomes. Preparation of learners at Creativity level of critical thinking skills was conducted with 9% of learning outcomes. Independent learning was not the focus of SNC for grade-pre-I designers as Self-Directed Learning level appeared with only 1% of learning outcomes.

Elements of CTEM used in Learning Outcomes of SNC for Grade pre-I

Learning outcomes in SNC for grade pre-I were designed by keeping in view elements or action verbs to make learning at different levels of critical thinking skills. Total 51 elements or action verbs were used to design the learning outcomes at variant levels of critical thinking skills. 13 out of total elements were found as to provide the knowledge about specific objects. Apprehension level of critical thinking skills was added in the learning outcomes in SNC for grade pre-I with 12 frequencies. Only 4 elements were used to design the learning outcomes at conceptualization. Implementation level was appeared as second most frequent level but only 9 elements were used to include this level to enhance critical thinking skills. 5 out of total elements were used to add Anatomization level of critical thinking skills. Critical Evaluation level was included in learning outcomes by using 2 elements. To prepare the learners as creative, creativity level of critical thinking skills was added with 5 elements. Final level of learning critical thinking skills Self-Directed Learning was designed by using only 1 element. Table below shows the frequency distribution of different elements at each level of CTEM.

Table 1

Frequency distribution of elements of CTEM in learning outcomes

Levels	Elements	Frequency
Background Knowledge	Identify	30
	Describe	9
	Order	1
	Read	4
	List	1
	Recite	3
	Produce	2
	Answer	2
	recognize	3

Levels	Elements	Frequency
Apprehension	Write	6
	Record	1
	Repeat	1
	Match	1
	Express	8
	Explain	3
	Compare	3
	demonstrate	5
	Tell	4
	Discuss	4
	Extend	3
	Estimate	1
	Report	2
	Retell	2
	Choose	2
Conceptualization	Respond	3
	represent	3
	think	2
	relate	1
	compare	1
Implementation	apply	1
	use	22
	develop	12
	complete	1
	add	2
	practice	5
	show	4
	support	1
	verify	1
	Anatomization	classify
relate		1
differentiate		15
plan		1
initiate		1

Levels	Elements	Frequency
Critical Evaluation	choose	2
	support	1
Creativity	create	6
	manage	1
	arrange	2
	make	7
	predict	2
Self-Directed Learning	set	1

Table 1 provides the clear picture of elements or action verbs with frequency distribution used in learning outcomes of SNC for grade pre-I. At Background Knowledge the most frequent element was 'identify' with frequency 30, second frequent element was 'describe' with 9 numbers of occurrences and third most frequent level was 'read' with 4 frequencies. Apprehension level of critical thinking skills was found as second frequent in order to the use of elements, and 'express' was appeared with the most frequency 8, second most prominent element was 'demonstrate' with 5 frequency, and third dominant element 'tell' was used with 4 frequency to make the learning outcomes at the understanding level. To design the learning outcomes at Conceptualization level of critical thinking skills only 4 elements 'represent' with 3 frequency, 'think' with 3 number of occurrences, 'relate' with 1 frequency and 'compare with 1 number of learning outcome' were used in total learning outcomes. At the implementation level of critical thinking skills 'use' was appeared with highest frequency 22 among other elements, and second most frequent level was 'develop' with 12 frequency and third most frequent level was 'practice' with 5 number of occurrences. Anatomization level was designed by using 'differentiate' element with the most frequency 15, and other 4 elements were appeared with 1 frequency. Development of skills at Critical Evaluation level was the less focus of SNC for grade pre-I designers, total two elements 'choose' with 2 frequency and 'select' with 1 frequency was found in learning outcomes. The most frequent level at the Creativity level of critical thinking skills was 'make' with 7 frequency, second most frequent element found to enhance the creativity was 'create' with 6 frequency. Self-Directed Learning level was adopted with least frequency by using only 1 element 'set' with 1 appearance to design the learning outcomes in SNC for grade-pre-I. Results got by evaluating the learning outcomes in SNC for grade pre-I indicated that curriculum designers has less focus to make the learning at conceptualization and self-directed learning. Frequency showed that SNC designers have added the learning outcomes by focusing to provide the knowledge to the learners. Overall findings of this study revealed that LOTS are the more focus of SNC designers for grade-pre-I and the same results has found by Fayyaz, Parveen, and Hassan (2021) for the learning outcomes of compulsory English

textbooks (grade 6-10). Lower order thinking skills are the more focus of assessment even as it has found by Fayyaz, Danish, and Hassan (2019) by evaluating question papers of MA English by Punjab University, Pakistan. Same results are noticed in an Mphil thesis by Fayyaz (2019) in which researcher evaluate the exercises and activities of compulsory English textbooks (6-10).

Conclusions

The present study aimed to evaluate the learning outcomes in SNC for grade pre-I in terms of CTEM. Overall result showed that SNC for grade-pre-I designed the learning outcomes by focusing on LOTS. Background Knowledge as fundamental level of learning was the most focus while adding the learning outcomes in SNC for grade-I. Implementation was the second most focus of SNC for grade pre-I and Apprehension was the third most frequent level of critical thinking skills in learning outcomes of SNC. Self-Directed learning was almost missing in learning outcomes of SNC for grade pre-I and learning to enhance the critical evaluation skills was appeared with least frequency. Total 52 elements of CTEM were used by SNC designers for grade pre-I and 'identify' was most frequently being used by SNC designers for grade-pre-I. Second most frequent element was 'use' to make the learning at implementation level. Third most frequently used element was 'differentiate' to prepare the students at anatomization level. Many elements 'record, repeat, estimate, relate, compare, apply, complete, support, verify, classify, relate, plan, initiate, support, manage, and set' were appeared with the least frequency. This study is significant for SNC designers to redesign the learning outcomes by keeping the balance between LOTS and HOTS.

Recommendations

Other researches can be conducted to evaluate the learning outcomes of, textbooks, lesson plans, course outlines, syllabus, curriculum and SNC for other grades by using Critical Thinking Evaluation Model.

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Appendix

Details of Critical Thinking Evaluation Model (CTEM) including description and imperative verbs of each level are given below;

Background Knowledge

Background Knowledge is very first learning point or level, it is crucial to start learning about anything (such as critical thinking skills, practical and survival skills based learning) around the universe. Background Knowledge is useful to make appropriate decisions, to sort out daily life problems, and to understand, conceptualize, implement, analyze, evaluate, synthesize and for self-directed learning level. To fulfill the requirement of learning at background knowledge, it is mandatory to get command, grip, education, skills, learning, accomplishment, philosophy, enlightenment, proficiency, and schooling about a subject. Following is the list of action verbs to design and evaluate the statements of learning outcomes, exercises, activities, policies, questions, and many other professional and academic tasks at Background Knowledge level of critical thinking skills.

Identify	List the name	Underline	Cite	List
Show	Recite	Describe	Recognize	Answer
Memorize	State	Outlines	Record	Recall
Repeat	Circle	Order	Record	Match
Point	Remember	Reproduce	Label	Record
Write	Define	Read		

Apprehension

After getting the knowledge about a particular subject, it is mandatory to understand the points to achieve the apprehension as a second level of learning critical thinking skills. For moving towards the conceptualization, and implementation of a particular knowledge in daily life, it is compulsory to have the understanding of that subject. Following is the list of action verbs which is useful to make education at apprehension level;

Summarize	Contrast	Restate	Paraphrase	Determine
Respond	Discuss	Review	Report	Distinguish
Select	Demonstrate	Interpret	Locate	Indicate
Estimate	Extend	Defend	Compare	Express
Rephrase	Explain	Tell	Translate	Generalize
Reorder	Convert	Retell	Choose	Illustrate

Conceptualization

Conceptualization is second to apprehension, because learning at the apprehension level is about the understanding of particular phenomena in a particular situation, while on the other hand learning at conceptualization level enables learners to create new ideas by utilizing the particular learning to deal with daily life activities. List of action verbs to make the teaching and learning statements at conceptualization level is given below:

think over	relate	think over	gather	deduce
Reason	resolve	peer	compare	consider
Provoke	recreate	represent	precaution	passionate

Implementation

Implementation level of critical thinking skills involves knowledge, understanding, and concepts about particular educational theories, approached and models to deal with daily life situations. To get command on the level of critical thinking skills learning, it is crucial to have polished cognitive skills (Background Knowledge, Apprehension, and Conceptualization). Following is the list of action verbs to design activities, exercises, learning outcomes and many other education based statements to teach and learn the implementation.

Find	Act out	Rewrite	Sketch	Verify
Transfer	Produce	manipulate	Prepare	Employ
Generalize	Solve	Prove	Operate	Schedule
Divide	Practice	Complete	Develop	Show
Use	Change	Select	Support	Calculate
Add	Apply	Utilize		

Anatomization

Anatomization is very first level to learn higher order critical thinking skills. By utilizing the lower order critical thinking skills, the learners will be able to break down, analyze, examine, investigate, interpret and draw conclusion about particular subject. Action verbs to make the educational statements at anatomization learning level are listed below;

Distinguish	Deduce	Order	Discriminate	Diagram
Formulate	Examine	Detect	Classify	Propose
Value	Conclude	Break down	Hypothesize	Modify
Separate	Compose	Act out	Connect	Inspect
Generalize	Blend	Survey	Differentiate	Organize
Subdivide	Categorize	Analyze	Plan	Relate
Verify	Initiate	Investigate	Infer	Unite

Critical Evaluation

After getting the mastery on anatomization students must be moved towards the learning of critical evaluation. Because after analyzing something learners must be able to critically evaluate, judge, assess the daily life engagements. Action verbs listed below are useful to design critical evaluation learning based statements;

Decide	Debate	Validate	Consider	Prioritize
Evaluate	Standardize	Rate	Defend	Justify
Attach	Criticize	Select	Grade	Value
Contrast	Measure	Rank	Assess	Test
Value	Judge	Critique	Choose	Appraise
Choose	Support			

Creativity

Creativity is the level of critical thinking skills on which students can create, discover and invent new things, but to introduce new things, it is mandatory for learners to have strong background knowledge, apprehension, conceptualization, implementation, anatomization and critical evaluation skills. Following is the list of action verbs to make the statements for teaching and learning as creativity;

Device	Design	Formulate	Collect	Compose
Produce	Relate	Synthesize	Arrange	Organize
Originate	Construct	Manage	Systematize	Invent
Modify	Develop	Reorganize	Combine	Propose
Rearrange	Create	Plan	Predict	Make
Reconstruct				

Independent learning / Self-Directed Learning

Self-directed and independent learning is crucial to meet the criteria of rapidly developing era. Self-directed learning enables learners to be more competent than those who are completely dependent on their teachers, tutors and instructors. Independent learners can inquire, develop or create a plan, identify his/her needs about a specific subject. Following are the phrases or words to construct learning at Self-Directed Learning level.

Self-regulate	Identify needs	Take responsibility	Formulate questions	Predict performance
Research	Self-monitor	Reflect	Generalize knowledge	Describe how to
Construct knowledge	Develop a learning plan	Create a plan	Transfer knowledge	Set goals
Inquire	Self-assess	Analyze		

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