

"CRITICAL THINKING OF SECONDARY SCHOOL STUDENTS"

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Abstract

Critical thinking is considered important in academic fields because it enables one to analyze, evaluate, explain and restructure their thinking, thereby decreasing the risk of adopting, acting on or thinking with a false belief. However ever with knowledge or the methods of logical inquiry and reasoning, mistake can happen due to a thinker's inability to apply the methods or because of character trait such as egocentrism. Critical thinking includes identification of case, bias, propaganda, self-deception, distortion and misinformation etc. virtually all human think critically at least to some degree, at least some of the time and critical thinking is specific to individual. So keeping in view the above all, the investigator made an attempt to find out the critical thinking ability of secondary school students.

Introduction

Critical thinking in its broadest sense has been described as "purposeful reflective judgment concerning what to believe or what to do." The list of core critical thinking skills includes observation, interpretation, analysis, inference, evaluation, explanation and meta-cognition. There is a reasonable level of consensus among experts that an individual or group engaged in

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strong critical thinking gives due consideration to the evidence, the context of judgment, the relevant criteria for making the judgment well, the applicable methods or techniques for forming the judgment, the applicable theoretical constructs for understanding the problem and the question at hand. In addition to processing strong critical thinking skills, one must be disposed to engage problem decisions using those skills. Critical thinking employs not only logic but broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth, significance and fairness. The positive habits of mind which characterize a person strongly disposed toward critical thinking include a courageous desire to follow reason and evidence wherever they may lead, open-mindedness, foresight attention to the possible consequences of choice, a systematic approach to problem solving, inquisitiveness, fair decision making using critical thinking one considers evidence, the context of judgment, the relevant criteria for making the judgment well, the applicable methods or techniques for forming the judgment and the applicable theoretical constructs for understanding the problem and the question at hand.

"Critical" as used in the expression "critical thinking" reflects the importance or centrality of the thinking to an issue, question or problem of concern. "Critical" in this context does not mean "disapproved" or "negative". There are many positive and useful uses of critical thinking for example formulating a workable solution to a complex personal problem, deliberating as a group about what course of action to take, or analyzing the assumption and quality of the methods used in scientifically arriving at a reasonable level of confidence about a given hypothesis. Using strong critical thinking we might evaluate an argument, for example, as worthy of acceptance because it is valid and based on the true premises. Upon reflection, a speaker may be evaluated as a credible source of knowledge on a given topic.

Contemporary cognitive psychology regards human reasoning as a complex process which is both reactive and reflective. The deliberation characteristics of strong critical thinking associates critical thinking with the reflective aspect of human reasoning. Those who would seek to improve our individual and collective capacity to engage problem using strong critical thinking skill are, therefore, recommending that we bring greater reflection and deliberation to decision making. John Dewey is just one of many educational leaders who recognized that a curriculum aimed at building thinking skills would be a benefit not only to the individual learner,

but to the community and to the entire democracy. In a seminal study on critical thinking and education in 1941, Edward Glaser writes that the ability to think critically involves three things

- (i) An attitude of being disposed to consider in thoughtful way the problems and subjects that comes with in the range of one's experience.
- (ii) Knowledge of the methods of logical inquiry and reasoning
- (iii) Some skill in applying those methods.

Educational programs aimed at developing critical thinking in children and adult learners, individually or in group problem solving and decision making contexts, continue to address these same three central elements.

Critical thinking call for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends. It also generally requires ability to recognize problems to find workable means for meeting those problems, to gather and marshal relevant information to recognize unstated assumptions and values, to comprehend and use language with accuracy, clarity and discrimination to interpret data to appraise evidence and evaluate arguments, to recognize the existence of logical relationship between propositions, to draw warranted conclusion and generalization, to put to test the results and conclusions at which one arrives, to reconstruct one's patterns of beliefs on the basis of wide experience and to render accurate judgment about specific things and qualities in everyday life.

Critical thinking can occur whenever one judges, decides or solves a problems, in general, whenever one must figure out what to believe or what to do, and do so in a reasonable and reflective way. Reading, writing, speaking and listening can all be done critically or uncritically. Critical thinking is crucial to becoming a close reader and a substantive writer. Expressed most generally, critical thinking is "a way of taking up the problems of life". Irrespective of the sphere of thought, "a well cultivated thinker":

- Raises important question and problems, formulating them clearly and precisely.
- Gather and assesses relevant information, using abstract ideas to interpret it effectively.
- Comes to well-reasoned conclusions and solution, testing them against relevant criteria and standards.

- Thinks open-mindedly with in alternative system of thought, recognizing and assessing, as need be, their assumptions, implications and practical consequences.

Rationale of the study:

Critical thinking is based on self-corrective concepts and principles, not on hard and fast, or step by step procedures.

Critical thinking employs not only logic (either formal or much more informal) but broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth, significance and fairness.

Critical thinking is an important element of all professional fields and academic disciplines (by referencing their respective sets of permissible question, evidence sources, criteria etc.) within the framework of scientific skepticism, the process of critical thinking the careful acquisition and interpretation of information and use of it to reach a well justified conclusion. The concept and principal of critical thinking can be applied to any case but only by reflecting upon the nature of that application. Critical thinking forms, therefore, a system of related and overlapping modes of thoughts such as anthropological thinking, sociological thinking, historical thinking, political thinking, psychological thinking, biological thinking, philosophical thinking, mathematical thinking, chemical thinking, ecological thinking, legal thinking, ethical thinking, musical thinking, thinking like a painter, engineer, business man etc. In other words, though application to disciplines requires a process of reflective contextualization.

Critical thinking is considered important in academic fields because it enables one to analyze, evaluate, explain and restructure their thinking, thereby decreasing the risk of adopting, acting on or thinking with a false belief. However ever with knowledge or the methods of logical inquiry and reasoning, mistake can happen due to a thinker's inability to apply the methods or because of character trait such as egocentrism. Critical thinking includes identification of case, bias, propaganda, self-deception, distortion and misinformation etc.

From the above description it may be said that virtually all human think critically at least to some degree, at least some of the time and critical thinking is specific to individual. So keeping in

view the above all, the investigator made an attempt to find out the critical thinking ability of secondary school students.

Statement of problem:

"A study of critical thinking of secondary school students:."

Objectives:

1. To find out the difference between male and female students in critical thinking ability of secondary school students.
2. To find out the difference between students of general and reserved category on their critical thinking ability.
3. To find out the difference between students of rural and urban background on their critical thinking ability.

Hypothesis:

To achieve the above objectives following hypothesis were formulated

1. There is no significant difference between male and female students on their critical thinking ability.
2. There is no significant difference between rural and urban students on their critical thinking ability.
3. There is no significant difference between general and reserved category students on their critical thinking ability.

Method of study:

The investigator has used the survey method of research for the present study.

Sample:

There are altogether 100 students from 10 different schools of Meerut district affiliated to U.P. Board constitute the total sample in which equal number of male and female students were present from different category and background.

Tool used:

To assess the critical thinking of students tool is developed by the Researcher in consultation with the experts.

Statistical analysis:

In descriptive statistics both central tendency and standard deviation were used in inferential statistics t-test was used to find out the significant difference between the categorized groups.

Analysis and Interpretation

Table showing Mean Difference of Male And Female Students On Their Critical Thinking Ability

Data presented in the table reveals that the mean of female students on their critical thinking ability is 35.93 with the corresponding S.D. of 9.58 whereas the mean value for the male students is 38.93 and S.D. is 13.18. It is clear from the table that the male students are better than female students on their critical thinking ability and differ significantly on the t-value 3.16 which is quite significant at both levels of significance.

SEX	MEAN	S.D.	t value	Level of significance
FEMALE	35.93	9.58	3.16	01
MALE	38.93	13.18		
LOCATION	MEAN	S.D.	t value	Level of significance
RURAL	35.02	11.18	4.51	01
URBAN	39.19	10.98		
CATEGORY	MEAN	S.D.	t value	Level of Significance
RESERVED	27.59	9.00	value	Significance
GENERAL	32.49	10.48		

The table also contains the t result of rural and urban students on their critical thinking ability. From the table 4.2 mean of rural students on critical thinking ability is 35.02 with S.D. value 11.18 and the mean score of urban students is 39.19 with the S.D. value 10.98. This data indicates that urban students have higher mean score in comparison to the rural background students and the t value comes out to be 4.51 which is significant.

From the table it is also clear that the critical thinking level of students from general category is much higher than the reserved category students. The mean score of general category students is 32.49 whereas the mean score for rural category students comes out to be 10.48. Also the S.D. value for general students is 10.48 and for the rural students is 9.00. In the above set of observation the t value is coming out to be 6.0 which is highly significant. So the formulated null hypothesis are reject.

Major findings:

The major finding obtained from each section of the analysis were given below.

1. Male students are found better in critical thinking ability than female students.
2. Urban students are superior to rural students in respect of their critical thinking ability.

General category students found good in critical thinking ability than reserve category students.

Educational Implications:

The finding emerging from the present study have significant implication for the development of critical thinking ability at senior secondary level. To incorporate this concept in teaching situation of teacher following suggestion are given.

1. It is evident from the finding of present research that male students are better than female students on their critical thinking ability. So it envisages that for improvement of critical thinking ability in female students need priority to argument the quality of education. Specially male students found better in the critical thinking ability than female students. Orienting them for self reflection in class room situation help them to reflect systematically on their academic expected result. This action will definitely improve their performance.
2. The critical thinking ability are process skills. So to improve such process, the students should be aware about it as a result of which they can examine, manipulate and if necessary modify it. Students required repertoire. When teaching the use of mental imagery as a form of elaboration, it is best to present a few example and then move on to practice session. Allowing students to practice with feedback is a more powerful teaching method than presenting many examples.

3. Some cognitive processes used by students are algorithmic in nature, that is, they have one right way or being implemented. So student be provided with opportunity to match their strategies with others or an established standard or copy the model.

4. When creating analogies to help explain a new or difficult concept, stop a moment and explain what you did. Telling student i) what you just did, ii) why it helps them to learn, iii) how they can do it by their own and iv) how they can use this method in other contexts, helps them to learn new method and expertise its use

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