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Assessing the impact of adolescent critical thinking on decision-making

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Abstract
Critical thinking plays a pivotal role in supporting decision-making through teenagers, affecting cognitive development through social interactions and learning environments, permitting well-informed choices, and providing individuals with leadership positions in the future. This study investigates Kolkata teenagers' critical thinking skills (CTS) and decision-making (DM). Cross-sectional research includes 249 secondary and higher-secondary students from five Kolkata metropolitan schools. Gender, education level, caste, parental education, and family income on CTS and DM scores were considered. This study illuminates that decision-making significantly influences critical thinking, explaining 14.3% of its variation, supporting a crucial connection. Female students were better at decision-making, while male students were better at critical thinking. Scheduled caste students had more of both. Students in secondary school have better skills than those in higher education. Students with mothers' graduation degrees and family incomes between 15,000 and 20,000 had better critical thinking and decision-making skills. Further review will be needed to comprehensively understand the impact of the environment on the cognitive processes of critical thinking and decision-making in adolescents. Future concerns might improve the scope of analysis to encompass a broader range of geographic areas and deal with qualitative research approaches.

Keywords: Life skill, critical thinking, decision making, teenagers

Introduction
Life skills are essential abilities and knowledge for effective daily life navigation, personal development, workplace success, and overall well-being. Life skills education is crucial for individuals to adapt to a rapidly changing society, providing self-empowerment and coping strategies for understanding, managing, and creating the future. Critical thinking is a crucial skill that involves analyzing, evaluating, and synthesizing information and ideas logically and systematically. It is essential in various aspects of life, including education, work, problem-solving, and decision-making. Evaluating evidence, assumptions, biases, conclusions, objectivity, relevance, reliability, consistency, accessibility, and detachment is part of critical thinking. (Petress, K. 2004) [15]. According to Tshiwilowilo, J. (2010) [19], influential decision-makers combine intuition and logic to make optimal decisions by analyzing information, evaluating possibilities, and choosing the best course of action. Decision-making within a practice involves analyzing data, selecting alternatives, and verifying the chosen alternative to resolve a problem. Critical thinking and decision-making are intricately linked processes. A strong critical thinker will likely make well-informed decisions as they question assumptions, recognize biases, and assess evidence. Both skills require cognitive flexibility, problem-solving abilities, and a commitment to sound reasoning. By fostering critical thinking, individuals enhance their capacity for effective decision-making, creating a symbiotic relationship that contributes to informed and rational choices in personal and professional contexts. Critical thinking is a crucial intellectual skill that enhances decision-making in personal and institutional settings, benefiting academic and professional fields. (Haase, F. 2010) [9]. Adolescence is a period marked by profound transformations-physiological, psychological, and social-that shape individuals into the adults they will become. Teenagers often grapple with a myriad of decisions that have far-reaching consequences, from academic choices to peer relationships, from ethical dilemmas to personal identity. At the heart of these deliberations lies a fundamental cognitive process that is both the anchor and the compass: critical thinking.

The educational environment is pivotal in nurturing and honing teenagers' critical thinking skills. Schools are not only institutions for academic learning but also laboratories for developing cognitive processes. Critical thinking is vital for managers in the 21st century, enhancing decision-making and action-taking and preparing students for future leadership success. (Knap-Stefaniuk, A., & Ambrozová, E. 2021) [14]. Classroom discussions, challenging assignments, and exposure to diverse perspectives contribute to cultivating critical thinking abilities. A teenager who can scrutinize information, question assumptions, and construct well-reasoned arguments is better equipped to navigate the complexities of decision-making. Beyond the classroom, the social landscape of adolescence provides a fertile ground for applying critical thinking. Interactions with peers, exposure to diverse belief systems, and negotiation of conflicting values offer opportunities for teenagers to refine their analytical skills. In a world inundated with information, the ability to sift through the noise and discern credible sources becomes paramount. The interplay between critical thinking skills and adolescent decision-making is not a unidirectional process. Each choice becomes a learning experience, a lesson in consequences, and an opportunity for self-reflection. The decisions teenagers make become a canvas upon which the brushstrokes of critical thinking paint a portrait of their cognitive maturation.

Objectives

1. To predict critical thinking skills in their decision-making thinking in teenage students.
2. To understand the variation of various demographic and socioeconomic variables *viz* Gender, Educational level, Family income, caste, Father education and mother education.

Hypothesis of the study

H_{01}: Teenager students' critical Thinking Skills do not significantly vary with their Gender.
H_{02}: Teenager students' critical Thinking Skills do not significantly vary with Educational Level.
H_{03}: Teenager students' critical Thinking Skills do not significantly vary with Family Income.
H_{04}: Teenager students' critical Thinking Skills do not significantly vary with Caste.
H_{05}: Teenager students' critical Thinking Skills do not significantly vary with Fathers' Education.
H_{06}: Teenager students' critical Thinking Skills do not significantly vary with Mothers' Education.
H_{07}: Teenager students' Decision-making do not significantly Vary with their Gender.
H_{08}: Teenager students' Decision-making do not significantly Vary with Educational Level.
H_{09}: Teenager students' Decision-making do not significantly Vary with Family Income.
H_{010}: Teenager students' Decision-making do not significantly Vary with Caste.
H_{011}: Teenager students' Decision-making do not significantly Vary with Fathers' Education.
H_{012}: Teenager students' Decision-making do not significantly Vary with Mothers' Education.
H_{013}: Teenager Students' Critical thinking skills do not predict their Decision-making.

Methodology

This study analyzed 249 secondary and Higher-secondary students from five Kolkata metropolitan schools using a cross-sectional method and simple random sampling. Demographic variables such as gender, education level, caste, parental education, and family income were considered to impact critical thinking and decision-making scores. CTS and DM are essential life skills in the study; hence, the developer used questions from Veranda's Life Skills Scale (2009). Before using the framed questionnaire, the researcher verified the modified questionnaire's reliability and validity. Data was analyzed using descriptive statistics in MS Excel, t-test, ANOVA, and regression using IBM SPSS version 20. The study ensured data normality using a one-sample K-S test.

Results

The researcher collected individual raw data and tabulated it in an Excel spreadsheet. Data sets were systematically and sequentially drawn to draw inferences.

Table 1: Mean and standard deviation of Critical Thinking of Teenager students'

	I.V	Mean	Std.
Gender	Male (134)	38.2388	6.86517
	Female (115)	38.1478	6.29988
Education Level	Secondary (122)	38.6639	6.29786
	Higher-Secondary (127)	37.7480	6.86719
Caste	Gen (80)	37.9125	6.76775
	SC (76)	38.4868	6.71812
	ST (17)	38.2353	7.25887
	OBC (76)	38.1974	6.25464
Family Income	5000-10000 (63)	38.3968	6.01219
	10001-15000 (88)	38.5000	6.95139
	150001-20000 (55)	37.8727	7.07645
	20000-onwards (43)	37.6977	6.20497
Fathers' Education	Illiterate (18)	37.0000	7.66965
	Primary (31)	38.0645	5.63877
	Secondary (93)	38.1398	6.68319
	H.S(45)	39.0889	7.12174
	Graduation (33)	40.3030	5.00927
	Higher Education (29)	35.4828	6.74336
Mother Education	Illiterate (39)	36.9231	6.22129
	Primary (52)	38.0385	6.26838

	Secondary (86)	38.4884	6.89201
	H.S (32)	38.0000	7.83293
	Graduation (30)	40.2000	4.97857
	Higher Education (10)	36.1000	6.85484

Table 1.1 Shows distributions of mean scores of critical thinking among teenagers based on various independent variables *viz* Gender, Educational Level, caste, family income, fathers' education, and Mothers' education. Gender-wise mean distributions showed that male and female were Male and Female students were 31.67 and 33.14, respectively. Caste-wise mean distributions showed mean scores of Gen, SC, and ST, OBC were 37.92, 38.49, 38.24, 38.20 respectively. Family income-wise mean distributions showed that 5000-10000, 10001-15000, and 150001-20000, 20001-onwards mean scores were 38.40, 38.50, 37.87, 37.70 respectively. Father education-wise mean distributions showed that illiterate, Primary, Secondary, and Higher-Secondary Graduation, Higher-Education were 37.00, 38.13, 39.08, 40.30, 35.48 respectively. Mother education-wise mean distributions showed that illiterate, Primary, Secondary, and Higher-Secondary, Graduation, Higher- Education were 36.92, 38.02, 38.48, 38.00, 40.20, 36.10 respectively.

Table 2: Mean and standard deviation of decision-making of Teenager students

IV		Mean	SD
Gender	Male (134)	33.4701	5.53008
	Female (115)	33.5043	5.29875
Education Level	Secondary (122)	33.7131	5.59587
	Higher-Secondary (127)	33.2677	5.24548
caste	General (80)	33.3250	5.89738
	SC (76)	34.3026	5.17692
	ST (17)	32.9412	4.60259
Family Income	5000-10000 (63)	38.3968	6.01219
	100001-15000 (88)	38.5000	6.95139
	150001-20000 (55)	37.8727	7.07645
	200001-onwards (43)	37.6977	6.20497
Fathers' Education	Illiterate (18)	33.2778	3.89276
	Primary (31)	31.9677	6.13451
	Secondary (93)	33.4301	5.46808
	Higher-Secondary (45)	34.5556	5.41276
	Graduation (33)	34.4545	4.78338
	Higher-Education (29)	32.6552	5.77727
Mothers' Education	Illiterate (39)	33.7436	4.47636
	Primary (52)	33.1154	5.80282
	Secondary (86)	33.3140	5.38246
	Higher-secondary (32)	32.5625	5.26668
	Graduation (30)	36.8667	3.82130
	Higher-Education (10)	28.7000	6.92901

Table 1.2 Shows distributions of mean decision-making scores among teenagers based on various independent variables *viz* Gender, Educational Level, caste, family income, fathers' education, and Mothers' education. Gender-wise mean distributions showed that male and female were Male and Female students were 33.48 and 33.50, respectively. Caste-wise mean distributions showed mean scores of Gen, SC, and ST, OBC were 33.32, 34.30, 32.94, 32.96 respectively. Family income-wise mean distributions showed that 5000-10000, 10001-15000, and 150001-20000, 20001-onwards mean scores were 38.40, 38.50, 37.87, 37.69 respectively. Father education-wise mean distributions showed that illiterate, Primary, Secondary, and Higher-Secondary, Graduation, Higher-Education were 33.37, 31.96, 33.43, 34.45, 32.65 respectively. Mother education-wise mean distributions showed that illiterate, Primary, Secondary, and Higher-Secondary Graduation and higher education were 33.74, 33.11, 33.31, 32.56, 36.86, 28.70 respectively**.**

Table 3: Showing t-test and ANOVA based on H01 to H06

Categorical variable	Independent variable	Test value	DF	p-value	Remarks
Gender	Male	t= -.050	247	.960	*NS
	Female				
Education Level	Secondary	t =1.096	247	.274	*NS
	H.S				
Caste	Gen	F=.098	3,245	.961	*NS
	SC				
	ST				
	OBC				
Family Income	5000-10000	F=.206	3,245	.892	*NS
	100001-15000				
	150001-20000				

	20001- Onwards				
Fathers' Education	Illiterate	F=1.980	5,243	.082	*NS
	Primary				
	Secondary				
	Higher-Secondary				
	Graduation				
	Higher Education				
Mothers' Education	Illiterate	F=1.093	5,243	.365	*NS
	Primary				
	Secondary				
	Higher-Secondary				
	Graduation				
	Higher-Education				

Table 1.3 shows that the t-test between males and females revealed a t-value of -0.050 with a high p-value of 0.960. This is no significant difference between Male and Female. The t-test between Secondary and High School (H.S.) education levels resulted in a t-value of 1.096 with a p-value of 0.274. This suggests no significant difference between these two education levels. The ANOVA test across different caste categories (General, SC, ST, OBC) yielded an F-value of 0.098 with a p-value of 0.961. The high p-value suggests that there is no significant variation of different castes. ANOVA test for other family income groups showed an F-value of 0.206 with a p-value of 0.892. This implies that family income does not have a significant impact on critical thinking. The ANOVA test among various levels of fathers' education, with an F-value of 1.980 and a p-value of 0.082, suggests that there may be a weak indication of a relationship. Still, it is not strong enough to be considered significant. The ANOVA test for mothers' education levels produced an F-value of 1.093 with a p-value of 0.365, indicating no significant difference in critical thinking scores based on mothers' education.

Table 4: Showing t-test and ANOVA based on H_{07} to H_{012}

Categorical variable	Dependent variable	Test value	DF	p-value	Remarks
Gender	Male	t =.108	247	.960	*NS
	Female				
Education Level	Secondary	t =.648	247	.547	*NS
	H.S				
Caste	Gen	F=.098	3,245	.444	*NS
	SC				
	ST				
	OBC				
Family Income	5000-10000	F=.508	3,245	.677	*NS
	10001-15000				
	150001-20000				
	20000-Onwards				
Fathers' Education	Illiterate	F=1.199	5,243	.310	*NS
	Primary				
	Secondary				
	Higher-Secondary				
	Graduation				
	Higher-Education				
Mothers' Education	Illiterate	F=4.464	5,243	.001	*S
	Primary				
	Secondary				
	Higher-Secondary				
	Graduation				
	Higher-Education				

Table 1.4 shows that Gender has no significant differences on the dependent variable, as the p-value is high (p = 0.960). This suggests that decision-making is not influenced by gender. The Education Level variable also shows a non-significant relationship (p = 0.547), implying that one's education level, whether secondary or higher secondary, does not significantly affect decision-making. The Caste variable is analyzed among gen, SC, ST, and OBC results (p = 0.444) suggesting that caste does not play a significant role in decision-making. Family Income, divided into four categories, is also non-significant (p = 0.677). This implies that the family's income level does not significantly influence decision-making. Fathers' Education and Mothers' Education are tested separately. Fathers' Education shows a non-significant result (p = 0.310), indicating that the education level of fathers does not significantly impact decision-making. However, Mothers' Education has a significant effect (p = 0.001), suggesting that a mother's education level has a significant influence on decision-making.

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.378[a]	.143	.139	6.12022
a. Predictors: (Constant), DECISIONMAKING				

ANOVA						
Model		**Sum of Squares**	**DF**	**Mean Square**	**F**	**Sig.**
1.	Regression	1541.464	1	1541.464	41.153	.000[b]
	Residual	9251.893	247	37.457		
	Total	10793.357	248			
a. Dependent Variable: Critical Thinking						
b. Predictors: (Constant), Decision Making						

Coefficients							
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**
		B	**Std. Error**	**Beta**			**Lower Bound** / **Upper Bound**
1.	(Constant)	22.776	2.435		9.354	.000	17.980 / 27.572
	Decision making	.461	.072	.378	6.415	.000	.319 / .602
a. Dependent Variable: Critical Thinking							

The study reveals a significant positive relationship between decision-making and critical thinking, with decision-making accounting for 14.3% of the variation in critical thinking. The regression model, which has a mean square of 1541.464 and a sum of squares of 1541.464 with 1 degree of freedom, is significant with an F-statistic of 41.153 and a p-value of 0.000. The coefficients for decision-making and critical thinking indicate that a unit increase in decision-making corresponds to a 0.461 unit increase in critical thinking. The confidence interval for decision-making is 95.0%, and the study concludes that decision-making is a crucial factor in influencing essential thinking.

Conclusion

The main objective of this study was to determine how teenagers' decision-making thinking has been affected by their capacity for critical thinking in the present situation. This study had only one district Kolkata chosen. Gender, caste, mothers and father's education, family income, and educational level were among the many variables considered. That teenagers' skills in critical thinking are strongly influenced by how well. The findings show that teenagers' decision-making abilities significantly differ from their ability to engage in critical thinking. The more critical thinking disposition, the more rational decision-making is developed. (Kim, E., Lim, J.Y., & Choi, K. 2008) [12]. Although female students are better at making decisions, male students are better at critical thinking. Compared to students from other social categories, students from scheduled caste backgrounds students showed higher levels of CTS and DM. Students in secondary schools are better at critical thinking and making decisions than higher secondary school students. Student necessary and decision-making skills are more significant among families with income between 15000 and 20000. Whose mothers have graduated from college, showing high critical thinking and decision-making abilities. This research aimed to explain and compare several scenarios addressing, rather than offering a definitive solution.

References

1. Arbeláez-Campillo D, Tatsiy V, Rojas-Bahamón M, Danilyan O. Contributions of critical thinking as a form of participation and political deliberation. Artificial Intelligence. 2020;9:5-12. https://doi.org/10.34069/ai/2020.27.03.1.
2. Bailin S, Case R, Coombs J, Daniels L. Conceptualizing critical thinking. Journal of Curriculum Studies. 1999;31:285-302. https://doi.org/10.1080/002202799183133.
3. Battersby M. Enhancing Rationality: Heuristics, Biases, and The Critical Thinking Project. Informal Logic. 2016;36:99-120. https://doi.org/10.22329/IL.V36I2.4662.
4. Browne M, Freeman K. Distinguishing Features of Critical Thinking Classrooms. Teaching in Higher Education. 2000;5:301-309. https://doi.org/10.1080/713699143.
5. Case B. Walking around the elephant: A critical-thinking strategy for decision making. Journal of continuing education in nursing. 1994;25(3):101-9. https://doi.org/10.3928/0022-0124-19940501-05.
6. Dwyer C, Hogan M, Stewart I. An integrated critical thinking framework for the 21st century. Thinking Skills and Creativity. 2014;12:43-52. https://doi.org/10.1016/J.TSC.2013.12.004.
7. Dwyer C, Hogan M, Harney O, O'Reilly J. Using interactive management to facilitate a student-centred conceptualization of critical thinking: A case study. Educational Technology Research and Development. 2014;62:687-709. https://doi.org/10.1007/S11423-014-9360-7.
8. Greenawalt M. Fostering Students Critical Thinking Skills: Cost Analysis and Budgeting Project Approach; c1999. p. 239-253. https://doi.org/10.1007/978-94-015-9181-2_14.
9. Haase F. Categories of Critical Thinking in Information Management. A study of Critical Thinking in decision-making processes. Nómadas: Critical Journal of Social and Juridical Sciences. 2010;27:257-275. https://doi.org/10.5209/NOMA.26947.
10. Halpern D. Teaching critical thinking for transfer across domains. American Psychologist. 1998;53:449-455. https://doi.org/10.1037//0003-066X.53.4.449.
11. Heizmann H. Promoting Critical Thinking in Virtual Teams: A Dialogic Approach. 2013, 201-215. https://doi.org/10.4018/978-1-4666-4478-6.CH011.

12. Kim E, Lim JY, Choi K. The Correlations between Critical Thinking Disposition and Decision-Making Styles. Journal of Korean Academy of Nursing Administration. 2008;14:144-149.
13. Kuhn D. A Developmental Model of Critical Thinking. Educational Researcher. 1999;28:16-46. https://doi.org/10.3102/0013189X028002016.
14. Knap-Stefaniuk A, Ambrozová E. Critical Thinking – the Basic Competency for Leadership in the 21st century. Perspektywy Kultury; c2021. https://doi.org/10.35765/PK.2021.3302.10.
15. Petress K. Critical Thinking: An Extended Definition. Education 3-13. 2004;124:461.
16. Paryad E, Javadi N, Roshan Z, Fadakar K, Asiri S. Relationship between Critical Thinking and Clinical Decision Making in Nursing Students. Iran Journal of Nursing. 2011;24:63-71.
17. Rye K. Critical Thinking in Respiratory Therapy. Respiratory Care. 2011;56:364-365. https://doi.org/10.4187/respcare.01245.
18. Stanton N, Wong W, Gore J, Sevdalis N, Strub. M. Critical thinking. Theoretical Issues in Ergonomics Science. 2011;12:204-209. https://doi.org/10.1080/1464536X.2011.564479.
19. Tshiwilowilo JM. Dispelling the myth of transformation: Transformation. Professional Accountant. 2010 Oct 1;2010(1):26-7.