

A Study of HOTS and Empowerment of Adolescent Girl Students with Internal LOC

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Abstract

The study examines higher order thinking skills (HOTS) and empowerment among adolescent girl students with an internal locus of control (LOC) and investigates their relationship and difference in significance. Results show that most students exhibit moderate higher order thinking skills (53.91%) and high empowerment (72.66%). The correlation between HOTS and empowerment is negligible ($r = -0.07$), indicating minimal association. However, a noteworthy difference occurs between the two variables. The study emphasizes the need to strengthen both cognitive skills and empowerment through supportive educational practices for holistic development.

Keywords: Internal LOC, HOTS, Empowerment, Adolescent Girl Students

Introduction

The present study has focused on three psychological constructs - Internal LOC, HOTS and Empowerment among adolescent girl students. Internal LOC constitutes a significant dimension within the broader construct of LOC. The concept of LOC was first introduced by Julian B. Rotter as part of his *Social Learning Theory of Personality* (1954). In his work published in *Psychological Monographs* (1966), Rotter stated that individuals with a high external locus of control tend to perceive outcomes as being determined by external factors such as fate, luck or powerful others and thus, attribute rewards and reinforcement to these forces. In contrast, individuals with a high internal LOC perceive that outcomes depend

in their individual efforts and abilities, leading them to undertake greater individual obligation for their actions.

HOTS are derived from Bloom's taxonomy of cognitive domain, which categorizes cognitive processes into six hierarchical levels: knowledge, comprehension, application, analysis, synthesis and evaluation. The first three levels signify LOTS, while the latter three constitute HOTS. Anderson and Krathwohl (2001) later revised this taxonomy by transforming the categories from nouns into action-oriented verbs. In this revised framework, "analysis" became analyzing, "synthesis" was redefined as creating and "evaluation" as evaluating. This modification emphasizes active cognitive engagement and highlights the importance of higher-level processes such as analyzing, creating and evaluating for deeper and more meaningful learning.

Empowerment means gaining power or capability to make decisions and yield control of one's own life. It is the process of enabling or authorizing an individual to think, behave and take action and work in an autonomous way. It can help one to gain control over one's destiny and the circumstances of their lives, to participate various social and developmental activities, to become aware in social, political and legal affairs, to build capacity to undertake socio-economic and socio-political activities and to use mass-media such as radio, television, newspapers, library resources effectively. Furthermore, empowerment can be understood as the creation of a supportive social environment where individuals can make decisions and choices, either independently or collectively, thereby contributing to broader social transformation.

Students exhibiting an internal LOC believe that their success and failures are largely governed by their individual efforts and capabilities. When such a belief system is combined with well-developed higher order thinking skills, it fosters a sense of autonomy and responsibility among girl students. This, in turn, leads to their empowerment, both academically and socially. Empowered girls are

more likely to participate actively in classroom discussions and make well-informed decisions regarding their future.

Statement of the Problem

The problem under investigation in the present study is stated as *“A Study of Higher Order Thinking Skills in Relation to Empowerment Level of Adolescent Girl Students having Internal Locus of Control.”*

Research Significance

The study of HOTS and empowerment, along with their interrelationship and difference among adolescent girl students possessing an internal LOC, holds substantial educational and psychological significance. Higher order thinking skills encompassing analysis, evaluation and creativity enable adolescent girls to think self-reliantly, solve difficult tasks and make informed decisions. The cultivation of these skills enables learners to engage actively in the learning process instead of merely receiving knowledge passively.

Empowerment among adolescent girls is equally critical, as it promotes autonomy in decision-making, capacity building, self-confidence and self-reliance, while also enabling them to assert their rights and make meaningful life choices. In diverse socio-cultural contexts, where girls often encounter structural and cultural constraints, empowerment serves as a vital mechanism for overcoming such barriers and fostering both personal and academic growth.

Furthermore, examining the relationship between these two variables provides valuable insights for educators and policymakers in designing effective interventions, pedagogical strategies and curricula that foster critical thinking and self-agency among adolescent girls. It also contributes to an in-depth understanding of the role of psychological factors in shaping academic achievement and overall development.

Finally, the study of HOTS in relation to empowerment of adolescent girl students possessing an internal LOC contributes to the broader goal of gender equality and social development by equipping

adolescent girls with the cognitive and psychological tools needed for leadership, decision-making and active participation in society.

Review of Literature

A few numbers of research articles related to Internal LOC, HOTS and Empowerment in relation with other variables were reviewed by the investigator. Nowicki and Strickland (1973) found that adolescents with an internal locus of control demonstrate greater responsibility and independence in behaviour. Findley and Cooper (1983) reported a positive relationship between internal LOC and academic achievement, which indirectly enhances personal empowerment. Zimmerman (1995) perceived that empowerment is closely aligned with internal locus of control and advanced cognitive abilities. Girls with a stronger internal LOC tend to perceive themselves as active agents in shaping their lives, thereby demonstrating higher levels of empowerment. The study of Lather and Shukla (2014) showed that students with high creativity were significantly higher on individual control as compared to students with low creativity. The study conducted by Jain and Singh (2015) revealed that adolescent female students with an internal locus of control demonstrate higher levels of mental health and more positive patterns of overall adjustment compared to their peers with an external locus of control. The empirical study of Facione (2015) revealed that students with HOTS demonstrate greater autonomy, confidence and decision-making ability, all of which are key indicators of empowerment. The study of Batool and Ali (2016) displayed a noteworthy positive relationship between LOC and life satisfaction. In their study, Gajendran and Nagle (2016) noticed that high self-efficacy having an internal LOC influences the job aspirants to perform well in their field to attain success. The findings reported by Cazan and Dumitrescu (2016) indicated that adolescents with greater resilience tended to exhibit higher levels of self-esteem and were more inclined toward an internal rather than an external locus of control. The study of Tanujaya, Mumu & Margono (2017) showed a noteworthy relationship between HOTS and students' academic achievement. The

study of Anmol & Rath (2021) showed that adolescents having an internal LOC had higher self-esteem, were more optimistic, had a greater achievement motivation and had a greater degree of happiness than the adolescents having an external LOC.

Research Methodology

This study made use of the descriptive survey method. Data were collected by the use of three standardized tools, namely- LOC Scale for Adolescents (Hooda and Dahiya, 2022), HOTS Scale for Adolescents (Bawa and Sharma, 2023) and Adolescent Girls' Empowerment Scale (Sisodia and Singh, 2009). The study population was delimited to adolescent girl students studying in class IX, X, XI and XII under the Assam State School Education Board (ASSEB) in Bijni town of Chirang district. Random sampling technique was used in the gathering of data.

Data were gathered from 220 adolescent girl students. Of these, 128 numbers of girl students were found to exhibit towards the dimension of internal LOC, whereas 62 numbers of girl students were found to exhibit moderate LOC and 30 numbers of girl students were found to exhibit towards the dimension of external LOC. In this study, only those students identified with an internal LOC were considered as the sample of study. The gathered data were analysed by means of appropriate statistical methods, including Mean, Standard Deviation, Correlation and t-test, along with simple bar diagram showing in percentage.

Research Objectives

1. To study the level of HOTS among the adolescent girl students having internal LOC
2. To study the empowerment level among the adolescent girl students having internal LOC
3. To examine whether there exists a significant relationship between HOTS and empowerment among the adolescent girl students having internal LOC

4. To test the significance of difference between HOTS and empowerment among the adolescent girl students having internal LOC.

Analysis of Result and Interpretation

The analysis of result of the study on objective no. 1 is represented by the Table No. 1 and Fig. No. 1 as mentioned below:

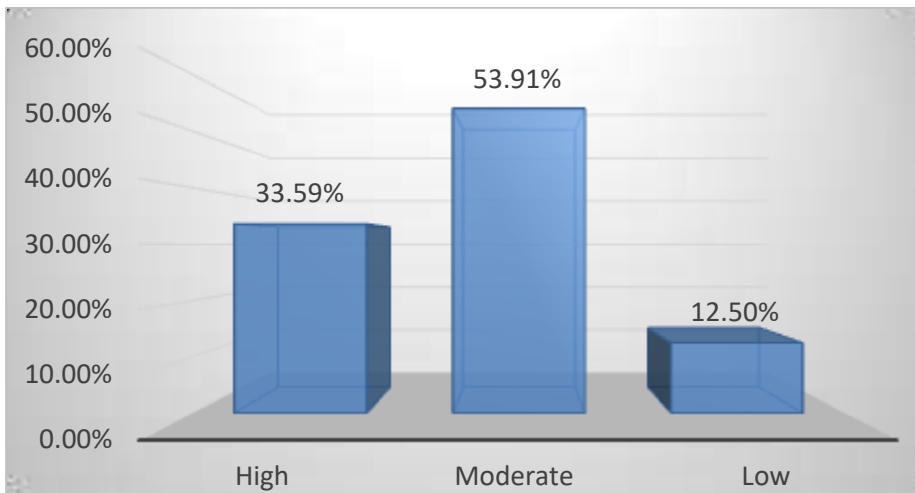
Table No. 1

Data Representing the Levels of HOTS of Adolescent Girl Students with Internal LOC

Level of HOTS	Percentage of Students
High	33.59%
Moderate	53.91%
Low	12.50%

Fig. No. 1

Graphical Representation of the Levels of HOTS of Adolescent Girl Students with Internal LOC



Interpretation

The above-mentioned table and figure reveal that the level of HOTS among adolescent girl students shows a varied distribution across three categories, i.e., high, moderate and low levels. A majority

of the students (53.91%) fall under the moderate level of HOTS, denoting that more than half of the respondents possess an average ability to analyze, evaluate, and create. This indicates that although these students can perform higher-level cognitive processes, their skills are not yet fully developed to an advanced level. They may require further academic support, practice, and exposure to learner-centered and activity-based teaching methods to enhance their thinking abilities.

A considerable number of students (33.59%) are found to possess a **high** level of HOTS. This is an encouraging finding, as it reflects that nearly one-third of the students demonstrate strong analysis, evaluation and creativity. These students are likely to be more independent learners, capable of applying knowledge in new situations and contributing meaningfully in academic and real-life contexts.

On the contrary, a smaller segment (12.50%) of adolescent girl students falls under the **low** level of HOTS. This indicates that a minority of students face difficulties in engaging with difficult intellectual tasks such as analysing, evaluating and evaluating. These learners may depend more on rote memorization and require targeted interventions, such as remedial teaching, guided practice and supportive classroom environments, to improve their HOTS.

The analysis of result of the study on objective no. 2 is represented by the Table No. 2 and Fig. No. 2 as mentioned below:

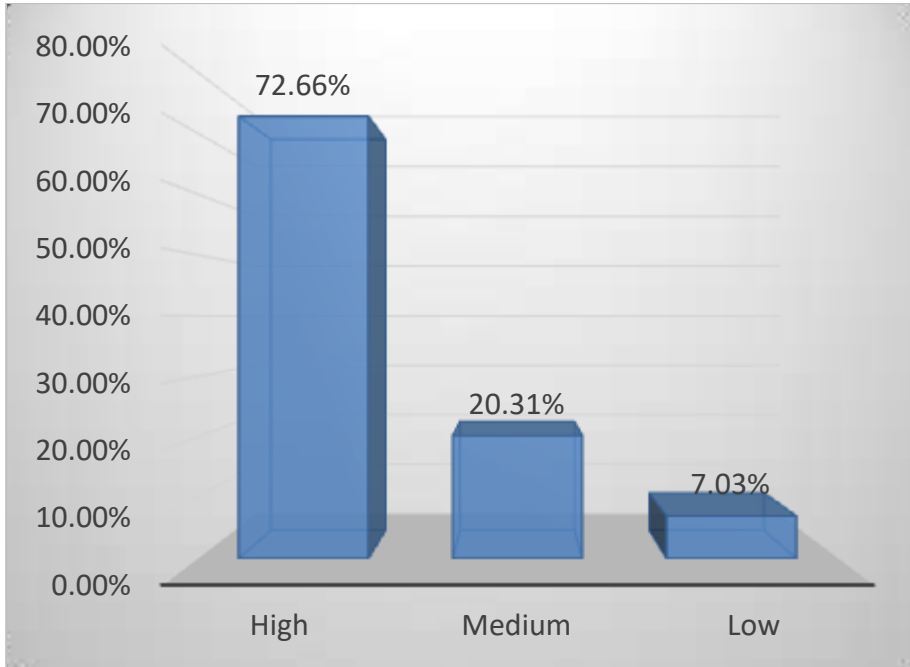
Table No. 2

Data Representing the Level of Empowerment of Adolescent Girl Students with Internal LOC

Level of Empowerment	Percentage
High	72.66%
Moderate	20.31%
Low	7.03%

Fig. No. 2

Graphical Representation of the Level of Empowerment of Adolescent Girl Students with Internal LOC



Interpretation

The data on the empowerment level of adolescent girls indicates a predominantly positive trend, with variations across high, moderate and low levels. A majority of the respondents (**72.66%**) fall under the **high** level of empowerment. This suggests that most adolescent girls exhibit strong self-confidence, independence, decision-making ability and a sense of mastery over one’s own life. It also implies that many of these students are likely to participate actively in academic and social contexts and are better prepared to face challenges.

A smaller proportion (**20.31%**) of the girl students are at the **moderate** level of empowerment. These students demonstrate some degree of confidence and autonomy, but may not consistently exercise independence in all situations. They might require further encouragement, exposure and supportive interventions to strengthen

their self-esteem and decision-making abilities, thereby moving toward a higher level of empowerment.

Only a limited percentage (**7.03%**) of the respondents falls under the **low** level of empowerment. This indicates that a minority of adolescent girls may experience lack of confidence, limited autonomy or dependence on external influences. Such students may face social, cultural or psychological obstacles (barriers) that hinder their empowerment and therefore need special attention through counselling, mentoring and inclusive educational practices.

Thus, the findings clearly reflect that the majority of adolescent girls are highly empowered, which is a positive indicator of their personal and social development. However, the presence of moderate and low levels highlights the necessity for continuous efforts by educators, families and legislators to create helpful environments that promote confidence, autonomy and equal opportunities for all girls.

The analysis of result of the study on objective no 3 is represented by the Table No. 3 as mentioned below:

Table No. 3

Data Showing the Correlation Between HOTS and Empowerment of Adolescent Girls with Internal LOC

Variable	Correlation (r)
HOTS	-0.07
Empowerment	

Interpretation

The given data presents the correlation coefficient between HOTS and empowerment as $r = -0.07$. This shows a **very weak** negative association between HOTS and empowerment among adolescent girl students. This means that there is a slight tendency for empowerment to decrease as higher order thinking skills increases,

and vice versa; however, the relationship is so minimal that it is almost **negligible**.

In real terms, this suggests that HOTS may not significantly influence the empowerment level of students. They are largely independent of each other among the adolescent girl students. The negative sign does not carry much substantive meaning due to the extremely low magnitude of the coefficient.

The analysis of result of the study on objective no. 4 is represented by the Table no. 4 as mentioned below:

Table No. 4

Data Representing the Significance of Difference Between HOTS and Empowerment Among the Adolescent Girl Students with Internal LOC

Variables	Mean	SD	T-value	Interpretation	
HOTS	16.63	3.36	51.77	At 0.05 level	At 0.01 level
Empowerment	179.69	35.52		Significant	Significant

Interpretation

The data presented in the table show that the mean score of higher order thinking skills is 16.63 with a standard deviation of 3.36, while the mean score of empowerment level is 179.69 with a standard deviation of 35.52. The *t*-value is calculated as 51.77, which is extremely high and statistically significant at both the 0.05 and 0.01 levels of significance. This suggests a substantial variation in the levels of the two variables among the respondents. The higher mean and larger standard deviation of empowerment indicate greater variability and relatively higher overall scores in empowerment compared to HOTS. Thus, one may conclude that there exists a statistically significant difference between HOTS and empowerment levels of the participants.

Conclusion

It may be inferred that the adolescent girl students possessing internal LOC exhibit high level of empowerment, whereas their HOTS remain at a moderate level. The absence of a meaningful relationship between HOTS and empowerment among adolescent girls indicates that these variables function independently. Therefore, there is a need to strengthen HOTS through educational strategies, alongside continued support for maintaining and improving empowerment among adolescent girls.

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