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Effect of Students' Autonomous Learning on Critical Thinking Skills at Higher Education Level

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Abstract

The current study examined the effect of autonomous learning on critical thinking abilities among university students in Lahore, along with the correlation between autonomous learning and critical thinking skills. An ex-post facto research design was used to conduct the current study. A multi-stage random sampling technique was employed to select a sample of 1829 university students from four different universities in Lahore. The research instruments used in the collection of data were two adapted questionnaires that measured autonomous learning and critical thinking skills. The scales were tested by professionals and the reliability was established with the help of Cronbach alpha (α = .84). The correlation between the two variables was investigated with the help of inferential statistic methods. There was a strong and positive significant of autonomous learning on critical thinking abilities. The results indicated there was a strong positive correlation between autonomous learning and critical thinking and it means that the students who have higher autonomous learning also have better cognitive, metacognitive and problem-solving skills. The findings have important implications that highlight the profoundness of learner-centered approaches in facilitating critical thinking, self-regulation and reflective practice. The results of this research have relevance to the current literature in terms of filling gaps regarding the effect of autonomous learning on cognitive development and providing practical implication to educators and policymakers in promoting independence, adaptability, and lifelong learning in higher education.

Keywords: Autonomous Learning, Critical thinking skills, University students.

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Introduction

Autonomous learning, also commonly called self-directed learning or self-regulated learning, has become an important academic skill and lifelong learning skill in higher education today. It is theory founded on the self-directed learning by Knowles (1975), self-regulated learning by Zimmerman (2002), and the self-determination theory by Deci and Ryan (1985). Self-regulated learners take charge of their own learning, and through goal setting, resource choice, progress-monitoring and outcome evaluation developments, enhance motivation, interest, and relevance of content (Garrison, 1997; Zimmerman, 2002). With the rise of online studies, students are forced to study on their own, so autonomy is crucial to succeed in studies, life, and future careers (Bozkurt et al., 2023; Kasneci et al., 2023).

Critical thinking can be defined as the aptitude to discern, analyze and logically conclude (Facione, 2015); it enables students to question assumptions, evaluate evidence, and make logical conclusions (Paul & Elder, 2014). In particular, these skills are crucial today in an information-saturated environment when learners have to understand how to identify authoritative sources among the sea of misinformation and use their assessments both in their studies and in the real world (Marzano, 2007). It is also showcased that critical thinking aids in academic growth in all fields, including STEM and humanities, by strengthening problem-solving skills and ability to argue and make decisions in the face of uncertainty (Adıgüzel, 2023).

The mutual dependence between the autonomous learning and the critical thinking skills have become a center of study in the educational research. There is evidence that students participating in self-directed learning activities will develop high order thinking skills, such as the ability to analyze, evaluate and infer (Garrison & Kanuka, 2004; Zimmerman, 2002). Such students can also be observed to regularly make personal learning objectives, assess their own development, and manage their approaches; cognitive actions strongly connected with critical thinking. The critical thinking skills are automatically supported in self-regulated learning processes because they compel learners to analyze the source credibility and critically interpret the information and make their own judgments (Schunk & Zimmerman, 2012; Yang, 2010).

Autonomous learning as well as critical thinking should also be encouraged as part of equipping students with the complex and demanding needs of the knowledge economy in the 21st century. Colleges and universities are no longer charged with simply covering content, they are also expected to produce graduates that are flexible, self-critical, and able to solve their own problems (Biggs & Tang, 2011). In this respect, learner autonomy helps students to be life-long learners, whereas critical thinking provides students with instruments needed to act in situations of uncertainty and make the right decision. As research in developed and developing nations demonstrates, including these competencies in the curricula results in improved academic results, employability, and personal development (Paul et al., 2014; Bozkurt et al., 2023).

Research Objectives

The objectives of this study were to:

1. Investigate the relationship between autonomous learning and critical thinking skills.
2. Examine the effect of autonomous learning on critical thinking skills.
3. Determine the differences in autonomous learning and critical thinking skills among undergraduate students with regard to gender.

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Research Questions

Following were research questions of this study:

1. What is the relationship between autonomous learning and critical thinking skills?
2. What is the effect of autonomous learning skills on critical thinking skills among university students?
3. What are the differences in autonomous learning and critical thinking skills among undergraduate students based on gender?

Literature Review

Self-directed learning and critical thinking form the core of the competency needed to pursue higher education in the 21st century. Autonomous learning is a self-regulated learning whereby the learners (through intrinsic motivation and goal setting) plan, monitor and evaluate their learning. It places more stress on the independency of the learners, and their control of the learning process (Knowles, 1975; Zimmerman, 2002).

Theories and Models of Autonomous Learning

Autonomous learning involves the learning individual being in charge of his or her learning through goal setting, time management, choice of strategies and assessment of results. It fosters self-regulation, motivation and reflection, key aspects to academic success. The idea of autonomous learning is supported by numerous theories and the ways of how learners could be more independent and successful.

Ponton, Carr, and Derrick's Model of Autonomous Learning (2004)

Ponton, Carr and Derrick (2004) suggested a model of autonomous learning which was founded on Social Cognitive Theory and they placed a lot of stress on the fact that autonomous learning was an outcome which was brought about by the ability of an individual to demonstrate resourcefulness, initiative and also persistence. These conative characteristics are considered to be critical to learners in order to cause their own learning purposefully. Self-efficacy is recognized in the model as a key construct affecting the motivation and behavior of a learner and how beliefs, attitudes and perceived outcomes of a situation determine the setting of goals and self-control. Within this paradigm the role of the teacher is to nurture these attributes through the design of environments that scaffold learner agency, reflection, and personal accountability.

Zimmerman's Self-Regulated Learning Model (2002)

Zimmerman (2002) has identified three stages of self-regulated learning which include forethought, performance, and self-reflection. This model focuses on metacognition and strategy action towards the management and enhancement of learning performances on an individual level.

Deci and Ryan's Self-Determination Theory (1985)

As Deci and Ryan (1985) expounded, autonomy in learning is enhanced by satisfying the need of the learners in the three domains of competence, autonomy and relatedness. Learners who are intrinsically motivated have greater chances of taking part in profound learning.

Holec's Model of Learner Autonomy (1981)

Autonomy according to Holec (1981) meant being able to assume control over your learning. His model consists of decisions making, planning, monitoring and evaluation-main activities of independent and responsible learning.

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Littlewood's Model of Learner Autonomy (1996)

Littlewood (1996) made a difference between the external and internal control of learning and singled out two forms of autonomy pre-communicative and communicative. He stressed the emergence of autonomy with the help of teachers gradually.

Critical Thinking Skills

Critical thinking is the ability to analyze, assess and combine information in order to generate reasoned judgments and solutions to problems. In higher education, it is vital in learning, decision-making, as well as problem-solving. The elements and process of acquiring critical thinking skills are outlined in a number of theories and models that indicate the essence of critical thinking in both academic and real life scenarios.

Theories and Models of Critical thinking skills

Bloom's Taxonomy (1956)

One of the first and most popular schemes of comprehending cognitive abilities is Bloom's Taxonomy (1956). It divides learning into six levels that are hierarchical in nature as knowledge, comprehension, application, analysis, synthesis and evaluation. The higher-order categories of analysis, synthesis, and evaluation are linked directly with critical thinking because they entail dissemination of information, creating new knowledge, and reasonable judgments.

Paul and Elder's Model of Critical Thinking (2004)

Paul and Elder (2004) have created a rather complete model that identifies eight components of thinking and nine standards of intellectuality, such as clarity, accuracy, relevance, and logic. Their model promotes disciplined thinking, reflective reasoning and use of universal intellectual standards to control the thought processes (Paul & Elder, 2004).

Forawi's Integrated Critical Thinking Framework (2014)

It presents a complete and modern perspectives on critical thinking. It combines metacognitive control with reflective reasoning and more classic cognitive operations such as memory, understanding, analysis, criticism, and inference. This model revises previous models by making an explicit connection between lower-levels of thinking (e.g., memory and comprehension) and higher-level skills coupled with self-regulation, making it consistent with 21 st century education goals, which focus on adaptability, problem-solving, and informed decision-making.

Ennis' Framework of Critical Thinking (2011)

According to Ennis (2011), critical thinking referred to as reasonable and reflective thinking that was aimed at determining what to believe or what to do. He singled out the most important skills as recognizing arguments, evaluating the reliability of sources and drawing logical conclusions.

Autonomous learning and Critical thinking Skills

In higher education, autonomous learning and critical thinking go hand-in-hand. Goal setting, self-regulation, reflection, and decision making that are involved in autonomous learning present the opportunities of developing skills of critical thinking including analysis, evaluation, inference, and judgment (Holec, 1981; Knowles, 1975; Zimmerman, 2002). In student-controlled learning, students are required to make autonomous decisions regarding what to learn, how to learn and evaluate the accuracy of information. Such actions also innately demand and reinforced critical thinking (Garrison, 1997; Paul & Elder, 2014).

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In controlling their own learning, the learners are able to monitor their progress, reflect their meaning, and revise their strategies; which are the fundamental features of critical thinking (Zimmerman, 2002). Other strategies like problem-based learning are also likely to facilitate the development of critical thinking as they ensure students learn to explore, examine and find solutions to intricate problems (Hmelo-Silver, 2004). This relationship is empirically supported. The results of the study conducted by Liu et al. (2014) showed that self-regulated learners possessed more powerful critical thinking and problem-solving abilities. According to Yang's (2010), students in self-directed learning environment performed better when it came to analyzing arguments and making rational conclusions. Boud and Walker (1998) underlined that self-assessment plays a significant role in the achievement of reflective and evaluative skills. Similar results were noticed by Schunk and Zimmerman (2012), who stated that students with developed skills of self-regulation had better academic achievements and provided stronger performance in terms of critical thinking. This is a two-way relation. Autonomous learning encourages critical thinking and effective critical thinking abilities aid a learner to better control his or her learning through goal setting, strategy choice and resource evaluation (Paul & Elder, 2014; Benson, 2007). Thus, by encouraging autonomous learning, we facilitate the creation of critical thinkers and by encouraging critical thinking, we empower the learner.

Methods And Procedures

Research Design

The causal-comparative descriptive research design was used in conducting this research. This was the method of analysis of variance in critical thinking skills (dependent variable) among groups of students with different levels of autonomous learning (independent variable). According to Fraenkel et al. (2009), a causal-comparative research design involves the selection of distinct groups on the basis of one variable and then compares them on another.

Population and Sampling Procedure

A population is a term defining the total respondents where the desirable sample of a study is selected (Hutchings, 2021; Wallen & Fraenkel, 2013). The study population was the students undertaking the education departments in the public universities within Lahore. Out of seven government universities in Lahore only four provide B.Ed. honors education programs. Thus, the research targeted the samples of students of the following four universities, which comprise both male and female learners of various academic levels. Multi stage sampling technique was employed. In the first stage, three public universities that provide programs in education (four universities in total) were randomly chosen. In the second phase, each university was asked to proceed with two departments out of the total number of departments in the university. Students were selected in every department through the final list. The sample was taken as 1829 students, 457 male students and 1372 female students, pursuing B.Ed. honors courses.

Research Instruments

Data were collected by using two structured questionnaires. The first study to be included in this analysis is the Autonomous Learning Scale developed by Shirzad and Ebadi (2020). The tool evaluated self-regulation, goal setting and planning. The second instrument was the Critical Thinking Skills Questionnaire of Ardi et al. (2023) that measured understanding, evaluation, analysis and reasoning. The responses in both the methods were provided on a range of 1 to 5 on a Likert scale. The instruments had a total of 40

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various questions. The questionnaire was also checked by the three experts in the field to ascertain its validity. Cronbach alpha was used to analyze the data due to reliability concerns. The Autonomous Learning Scale had reliability of α = 0.82 and the Critical Thinking Skills Questionnaire had a reliability of α = 0.84. The measure of all sub-factors was reliable as shown by α values that ranged between 0.70 and 0.76.

Data Collection and Data Analysis

The researchers personally visited to the selected universities and presented themselves to the heads of the concerned departments to seek permission. Upon providing consent, the students were informed about the intent of the study and asked to participate in it willingly. The questionnaires were administered in classroom situations where students were informed on ways of completing the printed questionnaires. The collected data were analyzed using inferential statistical techniques, including the Pearson correlation coefficient, independent samples t-test, and linear regression.

Data Analysis And Interpretation

Table 1: ***Correlation between Autonomous Learning and Critical Thinking Skills***

Variables	*N*	*r*-value	*Sig.*
Autonomous Learning and Critical Thinking Skills	1829	.902**	.000

** $p < .001$ (2-tailed)

Table 1 shows that autonomous learning and critical thinking skills are significantly correlated (r =.902**, n = 1829, p <.001). The results indicate that autonomous learning and critical thinking skills are positively and statistically significantly correlated. These results suggest that autonomous learning and critical thinking skills are significantly and significantly positively correlated.

Table 2: ***Effect of Autonomous Learning on Critical Thinking Skills***

Variables	*B*	*t*-value	*Sig.*	Model *R* Square
Autonomous Learning and Critical Thinking Skills	.902	89.55	.001	.814

As seen in Table 2, the linear regression analysis produced a value of .814, which represents the percentage of the dependent variable's variance that can be ascribed to the independent variable. In this case, .81.4% of the variance in critical thinking skills may be explained by the students' autonomous learning. With a p-value of .001 and a beta coefficient of .902, statistical significance is confirmed. The data reveal that students' autonomous learning has a considerable impact on their critical thinking skills, as reflected by a β value of .902 at p = 0.001. Consequently, it can be said that there is a significant and strong correlation between autonomous learning on critical thinking skills.

Table 3: ***Gender Wise Comparison in Autonomous Learning and Critical Thinking Skills***

Variables	Gender	*N*	*M*	*SD*	*t*	*df*	*P*
Autonomous Learning	Male	457	74.30	8.79	6.25	921.53	.000
	Female	1372	71.18	10.48			
Critical Thinking Skills	Male	457	135.94	15.72	4.96	923.36	.000
	Female	1372	131.50	18.79			

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The information shown in Table 3 displays a comparison of average scores for autonomous learning and critical thinking skills by gender, employing an independent sample t-test. The analysis showed a statistically significant difference in autonomous learning and critical thinking skills with regard to their gender.

Discussion

This research confirms that autonomous learning activities including goal setting, self-regulation and reflection are important in fostering the acquisition of critical thinking skills. Ownership of learning enabled students to perform better when analyzing, evaluating, and synthesizing information as a result of which they were able to overcome academic difficulties. These findings can be compared with earlier studies which indicate that self-regulated learning has a positive impact on the cognitive processing and metacognitive awareness, key elements of critical thinking (Zimmerman, 2002; & Zimmerman, 2012). Students having participated in the goal directed learning activities were in a position to concentrate their efforts and readily organize their study procedures. Self-monitoring allowed them to become aware of their personal progress and made the relevant adjustments which resulted into increased academic flexibility and self-awareness. Reflective practices motivated learners to explore their way of thinking and as a result learners had more deliberate ways of solving problems. These strategies together helped to build a desirable level of critical thinking skills and to develop the qualities which are connected with the idea of lifelong learning (Boud & Walker, 1998).

Amid these positive results are the ones indicating difficulties encountered by learners especially in the distance learning scenarios. Some of the problems that participants complained about were poor time management, lack of concentration, and inability to stay committed to challenging academic tasks. These problems are commonly related to the lack of intrinsic motivation and strong self-control habits. The finding of this kind indicates the necessity to introduce specific interventions that may help learners to acquire the motive and discipline needed to engage in autonomous learning successfully (Deci & Ryan, 1985). The findings also give credence to theoretical models which autonomy as being related to successful learning. Self-Determination Theory states that autonomy increases the psychological interest and emotional learning (Deci & Ryan, 1985). In a similar manner, Zimmerman (2002), and Wang et al. (2014) also note the importance of metacognitive skills when adopting a deep learning approach. The present research provides empirical evidence to those theories and proves that self-directed learners who are able to perform organized self-regulation and reflective practice are better positioned to think critically and show better academic performance.

Conclusion

The current research provided statistically significant positive correlation between the autonomous learning and developing critical thinking skills. The ability of higher-order thinking was more evident in students who undertook goal-directed learning, self-monitored and reflected on their learning strategies. Such results allow noting the importance of developing learner autonomy as a pillar of critical thinking and academic performance. In order to maintain and capitalize on the positive effects of autonomous learning, the educators will also need to tackle the motivational and self-regulatory issues, encountered by some learners. Incorporating goal-setting, reflection and time management into the curriculum may help students to become independent thinkers and long-life learners. Finally, autonomy is not merely advantageous in as far as academic

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performance is concerned, but it also arms learners with traits of critical abilities that are required to sort out complicated real-life issues.

Recommendations

Based on the findings, it is recommended that:

1. Educational institutions are incorporating autonomous learning models into their curricula in an attempt to promote student autonomy.
2. Educators help students to manage their learning by proposing efficient self-regulation tactics.
3. Curriculum developers are aimed at adopting instructional methods that encourage problem-solving, critical analysis, and learning together, therefore, developing independent and critical thinkers.

Recommendations for Future Research

1. Explore reasons behind gender differences in autonomous learning and critical thinking through qualitative research.
2. Replicate this study in different levels of education, learning institutions and different cultural backgrounds to establish whether the positive correlation between autonomous learning and critical thinking could be replicated in different environments.
3. Carry out an extended study to explore how critical thinking and autonomous learning influence students' long-term performance.

References

Adıgüzel, T., Kaya, A., & Balay, R. (2023). Blended learning and its role in developing critical thinking skills: A case study in higher education. *Education Sciences, 13*(3), 76-92.

Ardi, A., Hervi, F., & Mudjiran. (2023). The validity and reliability questionnaire of students' critical thinking skills in a general biology course. *Jornal Penelitian Pendidikan IPA, 9*(3), 1436-1444. https://doi.org/10.29303/jppipa.v9i3.2761

Benson, P. (2007). Autonomy in language teaching and learning. *Language Teaching, 40*(1), 21-40. https://doi.org/10.1017/S0261444806003958

Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university.* Open University Press.

Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals.* Longmans.

Boud, D., Keogh, R., & Walker, D. (1998). *Reflection: Turning experience into learning.* Kogan Page.

Bozkurt, A., Hill, P., & Siemens, G. (2023). The future of online and distance education: A global perspective. *Educational Technology Research and Development, 71*(1), 1-15.

Deci, E. L., & Ryan, R. M. (1985). *Self-determination theory.* University of Rochester Press.

Ennis, R. H. (2011). *Critical thinking. Inquiry: Critical Thinking Across the Disciplines, 26*(1), 4–18. https://doi.org/10.5840/inquiryctnews20112613

Facione, P. A. (2015). *Critical thinking: What it is and why it counts.* Measured Reasons LLC.

Forawi, S. (2014). *An integrated critical thinking framework for the 21st century. Thinking Skills and Creativity, 12*, 43–52. https://doi.org/10.1016/j.tsc.2013.12.004

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2009). *How to design and evaluate research in education* (7th ed.). McGraw-Hill Higher Education.

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly, 48*(1), 18–33. https://doi.org/10.1177/0741713697048001O3

Garrison, D. R., & Kanuka, H. (2004). *Blended learning: Uncovering its transformative potential in higher education*. The Internet and Higher Education, 7(2), 95-105. https://doi.org/10.1016/j.iheduc.2004.02.001

Garrison, D. R., Anderson, T., & Archer, W. (2004). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*(2-3), 87–105. https://doi.org/10.1016/S1096-7516(00)00016-6

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review, 16*(3), 235-266. https://doi.org/10.1023/B:EDPR.0000034022.16470.f3

Holec, H. (1981). *Autonomy and foreign language learning.* Pergamon Press.

Hutchings, M. (2021). Accountability, social justice and educational research. In A. Ross (Ed.), *Educational research for social justice: Evidence and practice from the UK* (pp. 45-78). Springer International Publishing.

Kasneci, E., Sessler, K., Küchenhoff, H., Goldhardt, O., & Längst, G. (2023). On opportunities and challenges of large language models for education. *Learning and Individual Differences, 103*, 102274.

Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers.* Cambridge Adult Education.

Littlewood, W. (1996). Autonomy: An anatomy and a framework. *System, 24*(4), 427-435. https://doi.org/10.1016/S0346-251X(96)00039-5

Marzano, R. J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction.* ASCD.

Paul, R., & Elder, L. (2014). *The miniature guide to critical thinking concepts and tools.* Foundation for Critical Thinking.

Ponton, M.K., Carr, P.B., & Derrick, M.G. (2004). A path analysis of the conative factors associated with autonomous learning. *International Journal of Self-Directed Learning, 1*(1), 59-69. Retrieved from http://www.sdlglobal.com/IJSDL1-1/IJSDL-V1-Spring2004.pdf

Ponton, M. K., Derrick, M. G., Carr, P. B., & Hall, J. M. (2004, February*). The relationship between self-efficacy and autonomous learning.* Paper presented at the 18th International Self-Directed Learning Symposium, Cocoa Beach, FL.

Schunk, D. H., & Zimmerman, B. J. (Eds.). (2012). *Self-regulated learning: Theories, measures, and outcomes*. Springer.

Shirzad, F., & Ebadi, S. (2020). *Developing a learner autonomy questionnaire in English as a foreign language reading comprehension.* TeachingEnglish Language, 14(1), 273-307.

Wang, J.R., Chen, S.F., Fang, I., & Chou, C.T. (2014). Comparison of Taiwanese and Canadian students' metacognitive awareness of science reading, text, and strategies. *International Journal of Science Education, 36*(4), 693–713. https://doi.org/10.1080/09500693.2013.826841

Yang, Y.-T. C. (2010). *Developing critical thinking through web-based cognitive modeling.* Computers & Education, 55(1), 209–221. https://doi.org/10.1016/j.compedu.2009.12.012

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Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102-2

Zimmerman, B. J., & Schunk, D. H. (2012). *Self-regulated learning and academic achievement: Theoretical perspectives.* Routledge.