



Original Article

General Self-Efficacy: Predicting Students' Achievements in Open Distance Learning Environment

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ARTICLE INFO

Key Words:

General Self-Efficacy, Achievements, Open Distance Learning (ODL) Environment, Distance Learners

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ABSTRACT

General self-efficacy, recognized as pivotal psychological factor which significantly impacts on personal success, broader life outcomes and academic performance. However, the bilateral relationship and prediction of open distance learners remain little explored. This study elucidates whether achievements of students in ODL environment are predicted through general self-efficacy. The current research recruited a sample of 1513 distance learners from all universities of Pakistan offering education and training through open distance learning mode. Participants underwent a standardized tool "General Self-Efficacy (GSE)" whose developers are Schwarzer and Jerusalem (1995). Psychometric properties were verified by pilot testing and test-retest reliability. For the best comprehension of the participants, a translated version of tool was applied on them. In analyzing the results, high and low levels of general self-efficacy were correlated with high and low achievements. The results indicated positive relationships between general self-efficacy levels and achievements levels which were confirmed by prediction model.

Introduction

Open and distance learning (ODL), often denoted open distance education (ODE), has become an important learning medium for almost all students around the globe. Students with different cultures, backgrounds and psychological characteristics interact with each other in ODL. Particularly, the recent pandemic situation intensified its popularity. Distance students have diversity in ethnicity, difference of languages, cultures, and varied socio-economic status, so they have different psychological and learning needs which may intervene in their academic performance (Adeyemo, 2005; Yoloye, 2004; Aremu, 2000; & Zimmerman, 2000). Recently, the role of distance learning gained much attention on how to maximize learning outcomes. The

nature and environment of distance education being self-directed learning is also becoming a topic that attracts national, international, and cross-cultural interests (Ahmed, N., et al., 2022 & Sibt-e-Ali, 2023). Distance learners are perceived to be prepared for lifelong learning encompassing several psychological variables. Among many psychological variables, students' belief on his/her abilities to perform good academically (Hayat et al, 2020) i.e., self-efficacy. Outcomes of distance education are reported to be influenced by self-efficacy (Hayat, et al. 2020; Simonson, Smaldino and Zvacek, 2015; & Botta, and Anzaldi, 2013).

It is also evident that major research of SE and students' performance is done in developed regions of world, and little is conducted in third world countries. Moreover, the majority among these studies are conducted in formal education scenario and little on distance learning perspective (Shinde & Joshi, 2011; Drennan et al., 2005; Blackner, 2000; Zimmerman, 2000; & Yusuf, 2011). So, it was needed that SE and students' achievements to be done in the perspective of open distance learning in developing countries like Pakistan, as in the context of open distance education SE and achievements is perhaps little studied. Now, achievements cover broad aspects which are not confined to students' academic achievement only. It contains students' successes in different aspects i.e., scholarly achievements and skills, co-curricular activities, test scores, competitions etc. (Williams, 2018; Shah et al., 2021a; Shah et al., 2021b). So, the purpose of this study was to extend the concept of achievements from grade-based perspective to all rounded achievement of distance learners (Li et al., 2024 & Ma, 2022).

The nature and environment of distance education helps students towards self-directed learning. Distance learners are more likely to be prepared for lifelong learning which encompasses self-efficacy. This is the capacity to enable students to manage and achieve their tasks as desired by them (Zimmerman, 2000). Self-efficacy (SE) is an individual's capacity to produce desired effects. Self-efficacy is the capacity to enable students to manage and achieve their tasks as desired by them (Zimmerman, 2000). Self-efficacy (SE) is an individual's capacity to produce desired effects. According to Flammer (2015) SE is all about knowing one's own capacities to carry out specific tasks. So, it does not reflect how much a person is capable or talented, but it reflects to what extent a person believes that a task can be done by his/herself. Generally, SE is a personal belief regarding personal potential to produce at level of ability which one possess. It also prophesies a person's patterns of specific behaviors (Schunk & Pajares, 2002). The concept of SE was presented by Bandura (1977) in his publication "Self-efficacy: Toward a Unifying Theory of Behavior Change". Afterwards, in 1986 he placed SE in his 'social cognitive theory of human behavior'. This construct was strengthened by Bandura (1997) with his publication "Self-efficacy: The Exercise of Control" in which he highlighted importance of self-efficacy in the "theory of personal and interpersonal/collective agencies".

Bandura (1994, p.2) defined SE as "beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes". Later, different researchers explored SE in their own cultures and perspectives, and in the first decade of 21st century, a group of researchers Schunk and Pajares (2002) indicated that SE is not indicating capabilities of an individual rather its depicting to what extent he/she believes on personal capabilities to execute that task. There are two levels of self-efficacy, high and low. Cascio (2014) elaborated indicators of high self-efficacious person stating that high SE person can solve tough tasks, overcome on threatening situations, and can create profound concentration in

different tasks. Nelson and Conner (2008) said that high self-efficacy results in strong beliefs on personal efforts to accomplish these. Low self-efficacy results in weak sense on personal capabilities to accomplish the desired tasks. The studies conducted by Pajares and Kranzler (1995), Pintrich (2000) and Zimmerman (2000) also indicated that self-efficacy has a positive strong relationship on academic performance of students. In the social learning theory, Bandura introduced the concept of self- efficacy. Bandura (1997, p.3) stated that: “People’s courses of action are influenced by their efficacy beliefs. It influences the courses of action people choose to pursue, how much effort they put forth in given endeavors, how long they will persevere in the face of obstacles and failures, their resilience to adversity, whether their thought patterns are self-hindering or self-aiding, how much stress and depression they experience in coping with environmental demands, and the level of accomplishments they realize”.

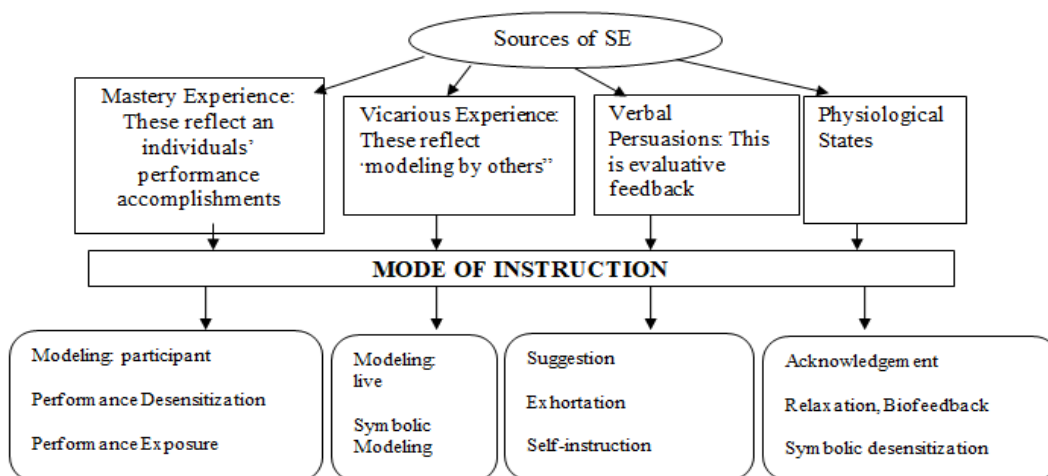
Conceptual Framework

In the social learning theory, Bandura introduced the concept of self- efficacy. Bandura and his fellow researchers dug out the notion of self-efficacy. Bandura further explained that “beliefs in one’s capabilities to organize and execute the courses of action required producing given attainments” is SE of a person.

Bandura (1997) further depicted

“People with a low sense of self-efficacy avoid difficult tasks. They have low aspirations and weak commitments to goals. They turn inward to their self-doubts instead of thinking about how to perform successfully. When faced with difficult tasks, they dwell on obstacles, the consequences of failure, and their personal deficiencies. Failure makes them lose faith in themselves because they blame their own inadequacies. They slacken or give up in the face of difficulty, recover slowly from setbacks and easily fall victim to stress and depression”. (p.5)

Bandura (1997) stated following sources of self-efficacy:



Bandura gave four important sources indicating self-efficacy. It includes mastery experience, vicarious experience, verbal persuasions and physiological states. Indicating towards mastery experience, Bandura (1986) reflected that a person’s mastery experiences are leading

source regarding SE beliefs and effect on his/her academic success also. It is the inferred outcome of an individual's purposive performance. Towards vicarious experience he said that self-efficacy beliefs are also formed from the other people whom an individual regards as models. For verbal persuasions, self-efficacy beliefs are also formed from the verbal persuasions which are received from other people. However, physiological state being a very important self-efficacy source talks about execution of a task in varied moods i.e., when a person is very happy, or he/she is in anger, stress etc.

- **Mastery Experience:** According to Bandura (1986) a person's mastery experiences are leading source regarding SE beliefs and effect on his/her academic success also. It is the inferred outcome of an individual's purposive performance.
- **Vicarious Experience:** Self-efficacy beliefs are also formed from the other people regard as models by individual.
- **Verbal Persuasions:** such beliefs of self-efficacy are also formed from the 'verbal persuasions' which an individual revies from other people.
- **Physiological States:** an important self-efficacy source is the physiological state of a person when he/she is having a variety of moods i.e. feelings of anger, feelings of stress, feelings of happiness etc.

Bandura and his fellow researchers dug out the notion of self-efficacy in an interesting manner. But since its conception, the construct of SE has been explored in different disciplines and many contexts, social variables etc. (Schunk & Pajares, 2002). This study tried to find out relative effects of general self-efficacy on distance learners' achievements in which multiple regression analysis indicated the joint relationship of general self-efficacy and achievements.

Problem Situation

Open distance education being the fastest medium of instruction involves mass audience having multiple personality, social, and cultural variations. Particularly, the recent pandemic situation intensified its popularity where distance students around the world were intact with their learning experiences irrespective of their varied backgrounds. This may have a positive or negative impact on their learning (Adeyemo, 2005) one of these factors is students' belief on his/her abilities to perform academically (Hayat et al, 2020). This draws our attention to the importance of psychological variables, i.e. self-efficacy in learning. This plays an important role in their academic progress. The major body of research is either conducted in developed regions of the world or in face-to-face scenarios. Moreover, majority among these studies are conducted in formal education scenario and little on distance learning perspective leaving open distance learning to be explored with achievements and SE (Shinde & Joshi, 2011; Drennan et al., 2005; Blackner, 2000; Zimmerman, 2000; & Yusuf, 2011). SE being an important aspect of a person's personality is correlated with achievement was the main aspect to be explored through this research in ODL institutes across Pakistan (Naseer, Majid, 2018). These were some key issues which compelled the researcher to conduct this study in Pakistan in the perspective of distance education on general self-efficacy: predicting students' achievements in open distance learning environment.

Purpose, Objectives and Hypotheses

The purpose of this study was to focus on prediction of achievements of distance learners from self-efficacy at post graduate level in Pakistan. It is evident that “distance education in Pakistan includes 228617 higher education graduates from distance education institutions, and it jumped from 0.75 million enrollments in 1998 to 4.2 million in 2014-15, but the dropouts are reported as result awaited etc.” (Higher Education Commission, 2022), that’s why students’ achievements are under reported. Now, achievements cover broad aspects which are not confined to students’ academic achievement only. It contains students’ successes in different aspects i.e., scholarly achievements and skills, co-curricular activities, test scores, competitions etc. (Williams, 2018). So, this research extended the concept of achievements from grading (A, B, C, D, F etc) perspective to all rounded achievements including their distinctions, co-curricular activities medals etc. So, the study was based on following objectives:

1. Find out the level of self-efficacy of distance learners.
2. Explore the relationship between distance learners’ achievements and self-efficacy.
3. Predict the distance learners’ achievements from self-efficacy.

Hypotheses

There were two null hypotheses which were tested by Pearson-r and regression analysis:

- H0¹ There exists no significant relationship between distance learners’ achievements and general self-efficacy.
 - H0² Achievements of distance learners are not predicted from general self-efficacy.
- Following hypothetical framework was developed:

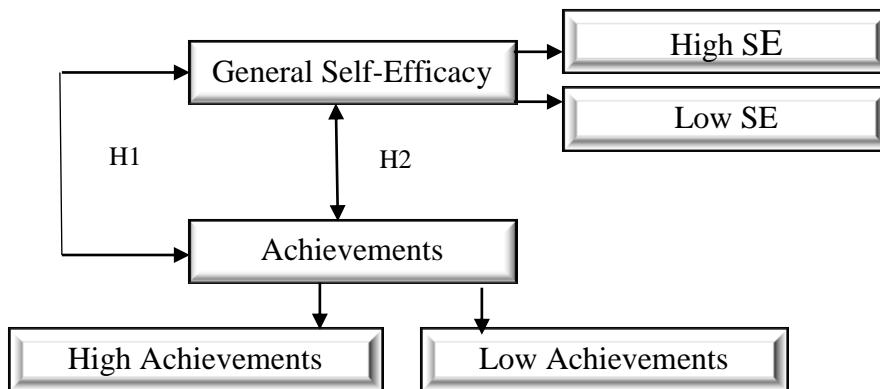


Figure 1: Hypothetical Framework

Methodology

Participants

Population consisted of 156262 distance learners from distance learning mode universities which were offering B. Ed, M. Ed and M.A. Education programs. List of the universities from which sample was determined is shown in the following table:

Table 1: Universities offering ODL

Universities	M.A.	M.Ed	B.Ed
AIOU	7506	40724	99779
BZU	05	07	04
Gomal University	N/O	114	136
GCU, Faisalabad	N/O	129	341
University of Sindh	N/O	885	1881
University of Agriculture Faisalabad	119	07	NO
International Islamic University	21	13	NO
University of Peshawar	N/O	776	497
Total	7651+	42655+	102638=152944

(Not Offered = N/O)

Sample size was first determined, and “Sample Size Table” given by The Research Advisors (2006) was used for this purpose. As per this table, the required sample size reflected 1513 participants which were selected by using disproportionate stratified sampling technique. The procedure of the sample selection was that in the first phase, sample was divided on male and female groups. Then, sample size was drawn separately (as per their actual numbers in the total population) from each group by applying sampling fraction. After that, sample size of each group was determined which indicated following:

Table 2: Sampling Fraction

	Male	Female
Total Population	42558	110386
Sampling Fraction (%)	0.9%	1%
Sample in each Stratum	391	1182

Research Instrument

In (1995) Schwarzer and Jerusalem developed “General Self-Efficacy scale (GSE)” which was adapted and used in this research. Being a standardized tool having comprehensive 10 items is an indicator of GSE of individuals which is applied in many contexts and situations. Response patterns range from “not at all true” to “exactly true”. To get the best responses the scale was translated into National language (Urdu). This tool was adapted by seeking expert opinion and incorporated their suggestions above 50% modifications. A pilot study on 100 participants was also conducted in this research which showed .84* alpha reliability coefficient. Test-retest reliability was also determined as after one week, this scale was again administered on the same participants of pilot study and test-retest reliability was checked, which indicated .83* Test-Retest Reliability (r).

Variables

Self-efficacy. Self-efficacy is “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1977). In this study, general self-efficacy of students was taken in terms of GSE scale developed by experts.

Achievements. This variable comprised on students’ end of semester grades co-curricular activities; life success/distinctions etc. two categories of achievements were constituted. High achievements covered students with high academic grades and other achievements. Whereas low achievements rendered towards low grades and other achievement categories.

Results

Scores of individual students were compiled by following the computational procedure given by the developers of the scale. Under this criterion, total scores obtained by each participant were added and median split was used. This scale constituted maximum 40 and minimum 10 score per individual participant.

Table 3: Descriptive statistics of levels of general SE

General SE	f	%	M	SD	V
Low general self-efficacy	603	47	16.26	3.23	10.46
High general self-efficacy	670	53	31.51	6.46	41.79

This table contains information on high and low levels of general self-efficacy of distance learners. From the above statistics, it is shown that most of participants had high levels of general self-efficacy. Mean scores 16.26 and 31.51 in both levels indicates that they had high mean score in high level of GSE. This may be due to their scattered backgrounds including socio-economic variations, psychological variables etc. this might be due to their encounter with different situations i.e. Handling online problems of connectivity, dealing with online assignments, managing stress during exams, quizzes etc.

Table 4: Descriptive statistics on of Achievements

		Achievements									
Achievements Category A		Achievements Category B									
Distinctions		Educational Activities		Medals and rewards		End of semester achievements					
						A	B	C	D	F	R/W
Total	460	485	328	276	550	104	141	184	18		
(%)	(36)	(38)	(26)	(22)	(43)	(8)	(11)	(15)	(1)		

In this table, achievements of students are mentioned in descriptive terms. There are two categories of achievements, Achievements category A reflects students' achievements in other things except academics (distinctions, educational certificates, medals and rewards etc.) Overall, it sheds light that participants possessed high achievements in category A as the majority participated in educational activities (38%), then on they were also having distinctions indicating 36% of total percentage. Those who had grades A and B were 22 and 43 percent respectively indicating that they had high achievements. However, in low achievements, there were grade C 08%, grade D 11%, grade F 15 % and re-workshop 01%. So, overall participants had high levels of achievements. Their achievements in category A may reflect their diverse encounters and experience with multiple instructors and learning peer groups across open distance learning platforms which may enable them to learn and succeed.

Table 5: General Self-Efficacy (GSE) and Achievements

		M	SD	Pearson r	P-value
General SE Versus Achievements	High Achievements	4.96	.84		
	High GSE	31.12	6.89	.69**	0.00
	Low Achievements	1.83	.75		
	Low GSE	15.12	2.89	.68**	0.00
	High Achievements	4.90	.91		
	Low GSE	17.19	3.21	-.09	0.09
	Low Achievements	1.83	.84		
	High GSE	32.70	4.77	-.35**	0.00

**Correlation is significant at 0.01 level (2-tailed)

In this table statistically positive correlation values are found among each category of general self-efficacy and high and low achievements levels. In the first relationship test between high achievements and high GSE, value of Pearson r .69** indicates high relationship value. P-value 0.00 indicates that statistically this is a significant relationship. In the second relationship test between participants who had low achievements and low GSE, the value of Pearson r .68** indicates relationship between this group. P-value 0.00 indicates that statistically this is a significant relationship. It means those learners whose achievements are low also had low general self-efficacy or they had low self-efficacious of solving general problems encountered in their academics.

In the third relationship test between high achievements and low GSE, inverse weak relationship is found which is Pearson r -.9. P-value 0.09 indicates that this is also non-significant statistically. that statistically this is a significant relationship. In the fourth relationship test between low achievements and high GSE, inverse weak relationship is found which is Pearson r -.35**. P-value 0.00 indicates that this is significant statistically. It means those learners whose achievements are low also had low general self-efficacy or they had low self-efficacious of solving general problems encountered in their academics.

Table 6: Regression Analysis on Prediction of Achievements from General Self-efficacy (GSE)

Variables	R	Adjusted R Square	Unstandardized Coefficients		t	P-value
			B	Std. Error		
High GSE Versus High Achievements	.691 ^b	.476	2.279	.128	17.77	0.00
Low GSE Versus Low Achievements	.682 ^b	.464	.887	.181	4.902	0.00

In this table a model of regression is applied to determine whether achievements are predicted from general SE or not. This statistical analysis indicates that GSE is a true predictor of high and low achievements of students. There are two categories, high and low GSE and high and low achievements under which separate analyses are done. In the category of high GSE and high achievements positive relationship is found where $R=.691^b$, Adjusted R Square= .476 $t=17.77$, and $p\text{-value}= 0.00$ ($p\text{-value } 0.00 < 0.05$). This indicates a statistically positive relationship between high GSE and high achievements. In the category of low GSE and low achievements positive relationship is found where $R=.682^b$, Adjusted R Square= .464 $t=4.902$, and $p\text{-value}= 0.00$ ($p\text{-value } 0.00 < 0.05$). This indicates a statistically positive relationship between low GSE and low achievements. From this table's values it is interpreted that students who possessed high academic achievements are also having high GSE which played role in their achievements. GSE is also predictor of achievements in ODL.

Discussion

Strong positive correlation between self-efficacy and academic achievements indicated that distance learners' personal beliefs to solve general daily life problems are related with their level of performance. So, this correlation was further confirmed by applying prediction model which indicated self-efficacy being strong predictor of students' achievements. Achievements were taken in terms of distance learners' distinctions, academic achievements, co-curricular activities etc. It was found that the majority had high achievements. Contrary findings are reported by Edvardsson and Oskarsson (2008) by indicating that distance learners' finish their studies almost one year late and their achievement is also low in courses of business administration. In the later years, recent study by Olvido et al. (2024) conducted this study in pandemic situation and students were selected from different countries of Asian region. They also indicated that students' profile of being distance learners is not associated with their academic achievement. Findings of the present study might indicate high achievements of distance learners as they are not coming from pure distance learning background as done in many other regions of the world. Their encounter is semi-partial with distance learning when they are pursuing their higher studies or teacher training through distance education medium. Their background educational interaction is usually mixed which was not controlled in this research due to the nature of students being at a distance and in many remote areas. However, much literature cited above and, in this section, indicated and supported the findings of two main variables of this study a) self-efficacy; and b) achievements.

Self-efficacy being the predictor of achievements of distance learners is main finding of the study, which is supported by research work conducted by Wang and Newlin (2002). They did an analysis of students' personal choices of enrolling in web-based courses and quality of content being predictor of their performance. They took 122 students to explore their reasons for taking online classes whether they enrolled with personal interest or solely since web-courses were available to them. Results indicated prediction of students' performance through web-based courses because they enjoyed it than those who took it as an available option. Many other researchers explored the same variables and reported similar results varying in culture, region, courses and dialects (Saunders et al. 2004; Loo and Choy 2013; Reynolds and Weigand 2001; and Jeffreys 1998).

Finding of this study indicated positive relationship of high self-efficacious distance learners with high achievements which is also supported by the research work of Cascio, Botta and Anzaldi (2013) when explored distance learners' self-efficacy and locus of control as mediating factor in their achievements. They found self-efficacy an important variable in achievement. Results indicated that peoples' beliefs regarding their potential capabilities helped them to view challenging problems and developed in activities with more interest. Klassen, Krawchuk, Rajani (2008) also reported similar findings regarding self-efficacy and achievements. The classical work of Zimmerman, Bandura, and Martinez-Pons (1992) reported prediction of self-motivation and achievement through self-efficacy. They developed a causal model in which they indicated that in the start of semester, parents' grade goals and personal self-efficacy beliefs lead towards improved academic achievement. After a decade, among many other studies (Reynolds and Weigand 2001; Saunders et al. 2004; Jeffreys 1998; & Downs 2005) study strong positive correlation was reported by Meece, Glienke, and Burg, (2006). Schallert (2006) reported significant relationship between SE and secondary level students of 6th grade. So, the findings of the present study are supported by a significant body of literature indicating it a significant area and contribution in the theory.

The results of this study also shed light that low self-efficacious students possess low achievements. This finding is also supported by many researchers in their investigations (Tuckman and Sexton 1989; Bandura, & Martinez-Pons 1992; Lim 2000; Reynolds & Weigand 2010; Severino et al., 2011; & Loo and Choy 2013). Main findings of this research are significantly important for the distance learners to know the importance of their psychological variables more importantly self-efficacy which play significant positive role on their academic achievement. Most of the time, not only heredity, environment and external factors are associated with high academic achievement, but inner personal beliefs to attain the difficult and solve the problems help in high achievements.

Conclusions and Recommendations

Certain psychological variables are very crucial for students' overall achievements. Achievement is not a narrow concept confined only to grades. It encompasses a wide ese of other academic activities which develop and boost students' morale to perform academically well. Among many psychological variables, general self-efficacy helps students to develop their sense of accomplishments. Achievements being vast concept are predicted by students' levels of their general self-efficacy. General self-efficacy is positively correlated with students' achievements is the main conclusion of this research. However, certain aspects of general self-efficacy when

explored with high and low levels of achievements led to some other conclusions that students who had high GSE do possess high achievements and vice versa. Low self-efficacious students possess low achievements. Self-efficacy is the main predictor of students' success and achievements on open distance learning. Practitioners of ODL need attention to focus on this important aspect of students' psychology which improves/hinders them in their learning environments. So, training courses for low self-efficacious students may be arranged so that they can achieve high academically. Online quizzes and inclusion of GSE activities on websites may also provide solutions to low SE students. There may be self-attempt quizzes on different other psychological variables to enlighten students on their psychological aspects. The phenomena investigated in this research may be expanded to other socio-cultural and psychological variables in different experimental and controlled settings to get more insights into it. Future researchers may use diversified models and methods to expand this area of investigation into more diversified ways.

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