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ST. XAVIER'S INSTITUTE OF EDUCATION
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A Peer Reviewed Interdisciplinary Journal

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Content

Interaction Effect of the Positive Education Program and Marks at Graduation on the Academic Resilience, Psychological Well-Being and Self-Efficacy of Pre-Service Teachers.

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Abstract: The academic rigor faced by students coupled with higher expectations from parents and teachers can put students to high level of stress. School is a social institution which anchors well- being of its students. The current challenges faced by students compel schools to shift its focus from cognitive development alone and move the lens to psychological health of students too. If students are provided with opportunities to cultivate positive emotions, build relationships, activate their strengths; this will help them build an ecosystem where well- being flourishes. This study thus aims to find the interaction effect of positive education programme and marks at graduation on academic resilience, psychological well- being and self- efficacy of pre- service teachers. The positive education intervention programme of 30 hours was developed for this purpose. The participants included in the study were 46 and 48 preservice teachers in the control and experimental group respectively.

Key words: *Positive education programme, Marks at Graduation (MAG), Academic Resilience, Psychological well- being, Teacher self- efficacy.*

Introduction:

Poor well- being of students is an increasing concern in our society. The academic rigor faced by students coupled with higher expectations from parents and teachers can put students under high stress. The statistics indicate that every seventh young individual between the ages of 15 and 24 in India faces mental health issues, including symptoms such as depression and apathy[i].

Basically, the stress that the students go through not only affects their academic performance but also their well- being. School plays a significant role in developing well- being of its students. The current challenges faced by students compel schools to shift its focus from cognitive development alone and move the lens to the psychological health of students too. If students are provided with opportunities to cultivate positive emotions, build relationships, activate their strengths; this will help them create an ecosystem where well- being flourishes. Developing skills of well- being in

people falls in the purview of positive psychology. Application of principles of positive psychology to the field of education brings to the area of positive education. Positive education focusses on academic skills alongside character building. It prioritizes happiness of students along with cognitive development.

Rationale of the study:

If a child of today is a leader of tomorrow, then a teacher is that critical point that shapes this leader. Teachers are important members of the society because they inspire dreams and change lives. A teacher's job is no more to only teach but also nurture talents and raise children so that they become productive citizens of the society. This places tall demand on teachers, coupled with multifaceted jobs that she has to handle can lead to high levels of stress in teachers. Stress is a common way to respond to such adverse events which can become extreme when lasting.[ii] Prolonged teacher stress negatively correlates with job satisfaction and positively correlates with intending to leave the teaching profession.[iii] Thus this demands that teachers are equipped with knowledge and skills that will empower them to handle their stress and help them take charge of their well- being. Thus, this study intended to develop well- being skills of pre- service teachers. Particularly it aimed at studying the interaction effect of positive education programme and marks at graduation on academic resilience, psychological well- being and self- efficacy of pre- service teachers.

Statement of the problem

Interaction Effect of the Positive Education Programme and Marks at Graduation on the Academic Resilience, Psychological Well- Being and Self- Efficacy of Pre-Service Teachers.

Operational Definition of the Terms

Positive Education: Positive education is defined as enabling the learner to acquire knowledge and skills to develop their well-being.

Psychological Well-being: Psychological well- being is defined as ability manifested by a person to pursue happiness, cultivate character strengths, develop positive relationships, hold positive attitude towards one's self, realize one's true potential and experience purpose or meaning in life.

Academic Resilience: Academic resilience is defined as ability manifested by an individual in two aspects: self- efficacy and Social support and social competence.

- Self- efficacy is the ability to do something or think in a certain way, confidence in academic qualities, disposition to expect positive outcomes and belief in one's ability to influence outcomes in life.

- Social support and social competence consists of care, support and encouragement received from family, friends, teachers and other members of the institution. It is the ability of the person to get along well with others and function constructively in groups.

Teacher Sense of Efficacy: It is the confidence a teacher holds in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).[iv]

Scope and Delimitations of the Study

The present study included pre-service teachers from colleges of education affiliated to University of Mumbai. The colleges affiliated to other than Mumbai University were excluded from the study. It included colleges of education with English as medium of instruction, colleges with other medium of instructions were excluded from the study. Only students pursuing Bachelor of Education degree were part of the study. Students from any other course of education such as M. Ed. or D. Ed were not considered for the study. S. Y. B. Ed. Students of the academic year 2017-18 and not the F. Y. B. Ed were part of this study. In the present study, interaction effect of positive education programme and marks at graduation on Academic Resilience, Psychological Well-being and Teacher self- efficacy from English medium colleges of education was studied. Other variables such as engagement, academic achievement, motivation, anxiety, stress, etc. were excluded from the study. The approach adopted for the present study was purely quantitative and not the qualitative approach.

Aim of the Study

To study the interaction effect of positive education programme and marks at graduation on academic resilience, psychological well- being and self- efficacy of pre- service teachers.

Objectives of the Study

To ascertain the effect of (i) Positive Education Programme, (ii) Marks at Graduation and (iii) their interaction on the following variables:

a) Academic Resilience

b) Psychological Well-being

c) Teacher Self- efficacy

Null Hypotheses of the Study

There is no significant effect of (i) Positive Education Programme, (ii) Marks at Graduation and (iii) their interaction on the following variables:

a) Academic Resilience

b) Psychological Well-being

c) Teacher Self- efficacy

Methodology of the Present Study

In the present research, quasi experimental design of the pre-test post-test, non-equivalent groups type is used. It can be described as follows:

The pre-test-post-test non-equivalent groups design

O_1 X O_2

O_3 C O_4

Where,

O_1 and O_3= Pre-test Scores

O_2 and O_4= Post- test Scores

X: Experimental Group

C: Control Group.

Sample of the Study

In the present study, the sample has been selected consisting of one intact class each of S. Y. B. Ed. students from two different colleges of education situated in the Greater Mumbai. The study adopted a two-stage sampling technique. At the first stage, colleges were selected using simple random sampling technique (lottery method). At the second stage, students were selected from these two colleges using cluster sampling technique. The experimental group comprised of 48 student- teachers and the control group consisted of 46 student- teachers.

Tool of the Study

In the present study following tools were used by the researcher to collect the data:

1. Academic Resilience Scale (D'souza and Pandya, 2017)
2. Psychological Well-being Scale (Ryff, 1989)
3. Teachers' Sense of Efficacy Scale (Tschannen- Moran & Hoy, 2001)

Intervention Programme: The positive education intervention programme was implemented in the experimental group. The duration of the programme was of 30 hours which comprised of five modules. Each module was structured in a way that it was divided into sessions, each session was further divided into activities.

Data Analysis and Interpretation:

There is no significant interaction effect of Positive Education Programme and Marks at Graduation (MAG) on the following variables:

a. Academic Resilience
b. Psychological Well- being
c. Teacher Self- Efficacy.

The marks at graduation of the pre-service teachers of the Experimental group and Control group are considered in terms of percentage.

This hypothesis is tested using the technique of 2×3 Factorial ANCOVA.

a) Academic Resilience

Table 1 shows adjusted mean AR scores by PEP and MAG

TABLE 1

MEAN AR SCORES BY PEP AND MAG

Group/ MAG	EG	CG	Total
Low	184.77	166.95	174.81
Average	187.20	165.70	177.83
High	193.47	164.07	179.47
Total	187.88	165.87	177.11

Table 2 shows ANCOVA for mean AR scores by PEP and MAG.

TABLE 2

ANCOVA FOR MEAN AR SCORES BY PEP AND MAG

Sources of variation	SS	df	MS	F	P
Treatment	10646.07	1	10646.07	41.49	<0.001
MAG	299.07	2	149.53	0.58	0.562
Interactive effect	236.35	2	118.18	0.46	0.6328
Error	22322.87	87	256.58		

For df = (1, 91), Tabulated F = 3.92 at 0.05 level,

=6.85 at 0.01 level

(i) Treatment effect: The preceding table shows that the F- ratio is significant at 0.01 level. Hence the null hypothesis is rejected with reference to the effect of PEP on AR.

(ii) MAG: The F- ratio for MAG effect is not significant. Hence the null hypothesis is accepted with respect to the effect of MAG on AR.

(iii) Interactive effect: The above table shows that the F- ratio for interaction effect is not significant. Hence the null hypothesis is accepted with reference to the interaction effect for AR.

Conclusion:

(a) The mean AR scores of pre- service teachers from the experimental group is significantly greater than that of the pre-service teachers in the control group in all the three categories viz. low, average and high achievers.

(b) There is no significant difference in the mean AR scores of pre- service teachers on the basis of Marks at graduation. It indicates that the Positive Education Programme is effective in enhancing the Academic Resilience of pre-service teachers regardless of their academic achievement at graduation.

b) Psychological Well- being

Table 3 shows adjusted mean PWB scores by PEP and MAG

TABLE 3

MEAN PWB SCORES BY PEP AND MAG

Group/ MAG	EG	CG	Total
Low	203.41	179.53	190.06
Average	199.99	174.27	188.78
High	215.65	183.84	200.50
Total	204.65	178.52	191.86

Table 4 shows ANCOVA for mean PWB scores by PEP and MAG.

TABLE 4

ANCOVA FOR MEAN PWB SCORES BY PEP AND MAG

Sources of variation	SS	Df	MS	F	P
Treatment	15598.27	1	15598.27	40.7	<0.0001
MAG	2001.95	2	1000.98	2.61	0.0793
Interactive effect	389.9	2	194.95	0.51	0.6023
Error	33339.79	87	383.22		

For df = (1, 91), Tabulated F = 3.92 at 0.05 level,

=6.85 at 0.01 level

(i) Treatment effect: Table 23 shows that the F- ratio is significant at 0.01 level. Hence the null hypothesis is rejected with reference to the effect of PEP on PWB.

(ii) MAG: The F- ratio for MAG effect is not significant. Hence the null hypothesis is accepted with respect to the effect of MAG on PWB.

(iii)Interactive effect: The above table shows that the F- ratio for interaction effect is not significant. Hence the null hypothesis is accepted with reference to the interaction effect for PWB.

Conclusion:

a) The mean PWB scores of pre- service teachers from the experimental group is significantly greater than that of the pre-service teachers in the control group in all the three categories viz. low, average and high achievers.

b) There is no significant difference in the mean PWB scores of pre- service teachers on the basis of Marks at graduation. This means that the Positive Education Programme is effective in developing the Psychological Well- being of pre-service teachers regardless of their academic achievement at graduation.

c) Teacher Self- efficacy

Table 5 shows adjusted mean TSE scores by PEP and MAG

TABLE 5

MEAN TSE SCORES BY PEP AND MAG

Group/ MAG	EG	CG	Total
Low	188.58	173.08	179.92
Average	185.33	176.96	181.68
High	196.68	162.38	180.35
Total	188.95	172.19	180.74

Table 6 shows ANCOVA for mean TSE scores by PEP and MAG.

TABLE 6

ANCOVA FOR MEAN TSE SCORES BY PEP AND MAG

Sources of variation	SS	df	MS	F	P
Treatment	6124.22	1	6124.22	13.78	0.0004
MAG	60.41	2	30.21	0.07	0.9324
Interactive effect	2247.54	2	1123.77	2.53	0.0855
Error	38679.12	87	444.59		

For df = (1, 91), Tabulated F = 3.92 at 0.05 level,

=6.85 at 0.01 level

(i) Treatment effect: The above table shows that the F- ratio is significant at 0.01 level. Hence the null hypothesis is rejected with reference to the effect of PEP on TSE.

(ii) FOG: The F- ratio for MAG effect is not significant. Hence the null hypothesis is accepted with respect to the effect of MAG on TSE.

(iii) Interactive effect: The above table shows that the F- ratio for interaction effect is not significant. Hence the null hypothesis is accepted with reference to the interaction effect for TSE.

Conclusion:

(a) The mean TSE scores of pre- service teachers from the experimental group is significantly greater than that of the pre-service teachers in the control group in all the three categories viz. low, average and high achievers.

(b) There is no significant difference in the mean TSE scores of pre- service teachers on the basis of Marks at graduation. This shows that the Positive Education Programme is effective in developing the Teacher Self-efficacy of pre-service teachers regardless of their academic achievement at graduation.

CONCLUSION:

(a) There is no significant effect of Marks at graduation on Academic Resilience, Psychological Well- being and Teacher Self- Efficacy. This implies that the Positive Education Intervention Programme is effective in enhancing the Academic Resilience, Psychological Well- being and Teacher Self- Efficacy of the students coming from the different level of academic achievement.

DISCUSSION:

The focus of education should be two fold- academic achievement plus character building. This thought has been echoed by many great people as well as positive psychologist. This is exactly the focus of Positive Education i.e. to teach well- being skills along with academic skills. This is the claim of positive psychologists that well- being skills can be taught to students without compromising on the academic achievement skills. This in a way is proven by testing of the above mentioned hypothesis. The results imply that the Positive Education Programme is effective for students coming from different levels of academic achievement at graduation viz. low, average and high achievers. There is no significant difference found in the level of Academic Resilience, Psychological Well- being and Teacher Self- Efficacy of students with low, average and high achievement at graduation.

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Post Pandemic Campus Life: College Students' Emotional Well-Being and Academic-Related Stress

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Abstract: This study looks at the relationship between academic stress and mental health in undergraduate college students in Kerala State's Alappuzha district. Using Pearson's correlation analysis, a sample of 565 students from particular colleges in the Alappuzha district is evaluated. The most important stressor among undergraduate students was discovered to be stress, suggesting that students' views of their own self-efficacy and self-demands are crucial components in the development of high levels of academic stress. Additionally, these college students were surveyed for the study, and the results showed a significant relationship between increased academic stress and poor mental health in all of them. In addition, the results showed a significant relationship between increased academic stress and poor mental health in all of the participants. The participants also reported feeling more stressed as a result of the pandemic. Girl students reported higher levels of academic stress than boys, and extrinsically-motivated students reported the lowest mental health and highest levels of academic stress. According to the study, there is a significant correlation between college students' psychological well-being and their academic stress, and as a result, these students should receive more resources and support.

Keywords: Post Pandemic Period, Campus Life, College Students, Emotional Well-being, Academic-Related Stress, Mental Health, Stress Management, Academic Performance

Introduction and Review of Related Works

College students are especially vulnerable to issues with mental health because of the major physiological and psychological changes that take place throughout late adolescence and the transition to adulthood, which frequently entail elevated stress levels (Hogan & Astone, 1986; Spear, 2000; Scales et al., 2015; Chiang et al., 2019; Matud et al., 2020). A college anxiety may be a predictor of mental health diagnoses, according to studies (Pedrelli et al., 2015; Barbayannis et al., 2022). There are many different contributing factors to the multifaceted stress that college student's experience (Reddy et al., 2018). Anxiety, depression, and substance abuse disorders are among the many mental health conditions that commonly arise in adolescence and early adulthood (Blanco et al., 2008; Pedrelli et al., 2015; Saleh et al., 2017; Reddy et al., 2018; Liu, C. H., et al., 2019). Academic stress appears to be a major factor in college, according to recent researches (Misra & McKean, 2000; Dusselier et al., 2005; Elias et al., 2011; Bedewy & Gabriel, 2015; Hj Ramli et al., 2018; Reddy et al., 2018; Pascoe et al., 2020). College students are currently facing a variety of academic pressures, such as a demanding course load, long study sessions, exams taken back-to-back, short semester lengths, effective time management, non-competitive classroom environments, concerns about money, family issues, and the influence of social media (Misra and Castillo, 2004; Byrd and McKinney, 2012; Ekpenyong et al., 2013; Bedewy and Gabriel, 2015; Ketchen Lipson et al., 2015; Pedrelli et al., 2015; Reddy et al., 2018; Liu, C. H., et al., 2019; Freire et al., 2020; Karyotaki et al., 2020).

Studies states that academic stress can reduce motivation, hinder academic achievement, and lead to increased college dropout rates (Pascoe et al., 2020). Similarly, academic stress has also been shown to negatively impact mental health in students (Li and Lin, 2003; Eisenberg et al., 2009; Green et al., 2021). Similarly, happiness, life satisfaction, stress management, and psychological functioning are all examples of mental, or psychological, well-being, which is a component of positive mental health. Furthermore, over time, it has been demonstrated that positive mental health is predictive of both negative and positive mental health indicators (Margraf et al., 2020). It is imperative to conduct additional research on the correlation between academic stress and mental health, as research has demonstrated that low mental health negatively impacts college academic performance (Tennant et al., 2007; Eisenberg et al., 2009; Freire et al., 2016).

Different college student groups perceive academic stress in different ways (Lee et al., 2021). For example, compared to their male peers, female college students report higher levels of stress (Misra et al., 2000; Eisenberg et al., 2007; Evans et al., 2018; Lee et al., 2021). Additionally, the ways that male and female students react to stressors differ (Misra et al., 2000; Verma et al., 2011). One significant stressor that has contributed to the mental health crisis is the coronavirus disease 19 (COVID-19) pandemic (American Psychological Association, 2020; Dong and Bouey, 2020). Increased stress levels, major life disruptions, and deteriorating mental and physical health have all been brought on by the COVID-19 pandemic for college students (American Psychological Association, 2020; Husky et al., 2020; Patsali et al., 2020; Son et al., 2020; Clabaugh et al., 2021; Lee et al., 2021; Lopes and Nihei, 2021; Yang et al., 2021). While these stressors can affect any college student, minority students are more likely to experience them (Salerno et al., 2020; Clabaugh et al., 2021; McQuaid et al., 2021; Prowse et al., 2021; Kodish et al., 2022). Finding the students who are most at risk gives us the chance to reach out to particular groups and provide resources, support, and mental health services.

With an emphasis on the connection between perceived academic stress and mental health, the study sought to evaluate academic stress and mental health in college students. It hypothesized that students who were under more academic stress would be less psychologically stable, and that stress related to COVID-19 and academics would affect some groups more than others. This may result in ongoing substance abuse and mental health issues that are not always appropriately addressed. The study highlights how important it is for college campuses to have psycho-social counseling services staffed by qualified professionals who can assist college students and take their treatment needs into consideration. In this study, the rates of reported problem types for anxiety, depression, relationships, family, and victimisation were found to differ statistically significantly between the groups of students who received counseling and those who did not. This suggests that students who had significant concerns in these areas were more likely to use the counseling centre. The study's conclusions have ramifications for research, practice, and policy.

Objectives of the Study

The study's major objectives are

- To assess the relationship between perceived academic stress and mental well-being in college students.
- To identify groups experiencing differential levels of academic stress and mental health.
- Exploration of how the perception of the COVID-19 pandemic affects stress levels.

Hypotheses

- Students experiencing more academic stress will have worse psychological well-being.
- COVID 19 pandemic situation resulted in an increase in mental health problems among college students
- Mental health problems lead to learning disabilities, academic stress among college students

Methodology

In order to gather information on the students' mental health and degree of academic stress, the study used an ex post facto design. In the second semester of 2022, undergraduate students from all programmes and faculties of aided, unaided, and government colleges in the Alappuzha district of Kerala State participated in a cross-sectional, descriptive, relational, and analytical study. To assess academic stress and mental well-being among college students, the survey method is used with 'Short Warwick-Edinburgh Mental Well-Being Scale' and the 'Perception of Academic Stress Scale'. This is a mental health measure that only considers the positive aspects of mental health. It shows promise as a tool for population-level mental health monitoring because it is a brief, psychometrically sound scale without ceiling effects in a population sample. The survey included questions from both scales, with higher scores indicating better mental health and lower levels of stress. Using Pearson's correlation analysis, a sample of 565 students from particular colleges in the Alappuzha district is evaluated. This methodology is employed to determine the relationship between perceived academic stress and mental well-being in college students, identify groups experiencing differential levels of academic stress and mental health, and explore how the perception of the COVID-19 pandemic

affected stress levels. This study used two statistical and econometric techniques to analyze the relationship between academic stressors and mental health in university students. Pearson correlation was used to determine the strength and direction of the relationship, while HMLR analysis was used to examine the relationship between a dependent variable and multiple independent variables.

Results and Discussion

Stress is a natural physiological and psychological response to challenging situations, but excessive exposure can have long-term physical and mental effects. Chronic stress can lead to anxiety disorders, depression, and other mental health issues, negatively impacting cognitive functioning and emotional regulation. Academic stress, especially in higher education, can manifest in anxiety, depression, and emotional exhaustion, negatively affecting students' psychological well-being. The COVID-19 pandemic has exacerbated this stress, with over 1.2 billion students without face-to-face education access. Universities have had to adapt their academic models, such as hybrid, multimodal, flexible, and blended, to ensure student health and well-being, provide timely administrative services, and improve academic quality. Also, financial stress, anxiety, and depression can negatively impact university students' mental health. The participants mean age is 19.6 years. The study analyzed academic stress and mental health, with a mean of 2.67 points and no outliers.

Table 1: Academic Stress and Mental Health

Variable	Mean	Median	Standard Deviation
Academic Stress	2.67	2.7	0.5
Mental Health	2.13	2.1	0.4

The study reveals that college students generally experience moderate levels of academic stress, with an average of 2.67 on a scale. The mean academic stress level is higher than the mean mental health level, suggesting that academic stress may be a significant factor influencing students' mental health. The standard deviations for both academic stress and mental health are relatively close, suggesting that factors affecting academic stress and mental health may be interrelated and influenced by similar external and internal factors.

Table 2: Distribution of Emotional well-being (Mental Health) Levels

Mental Health Level	Percentage of Students
Faded Mental Health	19.9%
Moderate Mental Health	58.1%
High Mental Health	22%

Regarding the distribution of emotional well-being, the majority of students (58.1%) have moderate mental health, with 19.9% experiencing faded mental health, which could lead to severe mental health issues if not addressed. The remaining 22% have high mental health, which is likely to be functioning well but still requires support. The distribution of mental health levels follows a pattern, with the majority falling into the moderate category.

The mean of academic stress was categorized into seven stressors: Teachers' Stress (TES), Results Stress (RS), Test Stress (TS), COVID factor, Stress (CFS), Peer Stress (PS), Time Management Stress (TMS), and Self-inflicted Stress (SIS). The mean of mental health was 2.13 points, with no significant outliers.

Table 3: Mean of Academic Stressors

Stressor	Mean
Teachers' Stress (TES)	24.7
Results Stress (RS)	19.2
Test Stress (TS)	16.7
COVID Factor Stress (CFS)	19.2
Peer Stress (PS)	18.4
Time Management Stress (TMS)	16.7
Self-inflicted Stress (SIS)	18.4

Teachers' Stress (TES) is the most significant stressor for students, followed by Results Stress (RS) and COVID Factor Stress (CFS). These stressors are likely to have the most significant impact on students' overall stress levels and mental health. Interventions such as faculty training, clear guidelines, and creating a supportive learning environment can help reduce teachers' stress. Results Stress (RS) is moderate to high, affecting students' academic performance and outcomes. Strategies such as study skills workshops, academic advising, and stress management programs can help alleviate this stressor. Test Stress (TS) is moderate, related to exam pressure and anxiety. COVID Factor Stress (CFS) is moderate to high, affecting students' mental health and well-being.

Table 4: Pearson Correlation Coefficient Between Academic Stressors and Mental Health

Stressor	**Mental Health Correlation**
Teachers' Stress (TES)	-0.20
Results Stress (RS)	0.30
Test Stress (TS)	-0.25
COVID Factor Stress (CFS)	-0.22
Peer Stress (PS)	-0.15
Time Management Stress (TMS)	-0.30
Self-inflicted Stress (SIS)	-0.40

The study shows a weak negative correlation between teachers' stress, results stress, test stress, COVID factor stress, peer stress, time management stress, and self-inflicted stress in college students. Teachers' stress is less significant, suggesting colleges should improve student-teacher interactions, provide clear expectations, and offer support. Results stress may be motivating, but excessive stress can be detrimental. Test stress is significant, requiring workshops, stress reduction techniques, and flexible assessment methods. Self-inflicted stress is the most significant, requiring resources on self-compassion and growth mindset.

Table 5: Multiple Regression Analysis Predicting Mental Health

Predictor Variable	**Beta Coefficient**	**p-value**
Teachers' Stress (TES)	-0.10	0.01
Results Stress (RS)	0.15	0.005
Test Stress (TS)	-0.12	0.02
COVID Factor Stress (CFS)	-0.10	0.01
Peer Stress (PS)	-0.08	0.03
Time Management Stress (TMS)	-0.20	0.001
Self-inflicted Stress (SIS)	-0.25	0.0001

The study reveals that self-inflicted stress, time management stress, teachers' stress, COVID factor stress, peer stress, and results stress are all significant predictors of poor mental health in college students. Self-inflicted stress is the most significant, requiring interventions

like workshops on self-compassion and realistic goal-setting. Time management stress is moderately significant, requiring improved student-teacher interactions and clear expectations. COVID factor stress is moderate, while peer stress is less significant. Results stress is moderately positive, suggesting some level of stress may be motivating. The results showed that students with medium levels of SIS had a higher probability of experiencing faded Mental Health. These findings suggest that academic stressors can significantly impact mental health levels and predict the likelihood of experiencing mental health issues. The correlation between stress factors and mental health shows that academic stress is linked to self-generated stress, with a moderate correlation. This can lead to a constant feeling of dissatisfaction or failure, as it is linked to self-perception of sufficiency, beliefs about one-self's ability to respond to environmental demands, and mental schemes about one's abilities.

Table 6: Factors and Impacts of COVID-19 on Stress Levels Among College Students

Factor	**Description**	**Impact on Girls' Stress Levels**
Gender Differences	Higher percentage of girls reporting increased stress	Girls more likely to report increased stress than boys
Emotional and Psychological	Increased emotional and psychological stress due to health and safety	Higher stress levels among girls
Academic Expectations	Higher academic expectations and pressures	Girls face more academic stress
Social Comparisons and Peer	Susceptibility to social comparisons and peer pressure	Increased stress due to social factors
Pre-existing Mental Health	Higher rates of pre-existing mental health conditions	Exacerbation of stress due to pre-existing conditions
Coping Mechanisms	Differences in coping mechanisms and support systems	Variable impact on stress levels
Year of Study	First-year students less likely to report increased stress	Lower stress levels among first-year students

The COVID-19 pandemic has led to higher academic stress in girls, with 72.5% of students reporting increased stress. Factors contributing to this include increased caregiving responsibilities, health and safety concerns, and social isolation. Girls face higher academic expectations, social comparisons, and peer pressure, which can exacerbate stress levels.

Pre-existing mental health conditions, such as anxiety and depression, may have been exacerbated by the pandemic. Additionally, girls may have different coping mechanisms and support systems compared to boys. First-year students were less likely to report increased stress due to the novelty of college and lower academic expectations in the first year.

The study found that 72.5% of participants were girls, and they were more likely to report increased stress from the COVID-19 pandemic than boys. Girls may have experienced higher levels of emotional and psychological stress due to health and safety concerns, social isolation, and increased caregiving responsibilities. They may have faced higher academic expectations, social comparisons, and peer pressure, which can exacerbate stress levels during challenging times like the pandemic. Girls may also have higher rates of pre-existing mental health conditions, such as anxiety and depression, which could have been exacerbated by the pandemic. Additionally, first-year students were less likely to report increased stress due to the novelty of college and lower academic expectations.

The results showed that higher academic stress was associated with worse mental well-being in general, regardless of age, gender or year of study. The scores were significantly correlated, indicating that a higher level of perceived academic stress is associated with worse mental well-being in college students. The study also demonstrated that college students are not uniformly impacted by academic stress or pandemic-related stress, with significant group-level differences in mental well-being.

Table 7: Summary of Key Differences

Aspect	**Pre-Pandemic**	**During Pandemic**
General Stress Levels	Stable and manageable	Significantly increased due to new stressors
Mental Health	Better overall mental well-being, fewer severe issues	Deteriorated mental health, increased anxiety and depression
Academic Stress	Present but manageable	Significantly higher due to online learning and uncertainties
Gender Differences	Existing but less pronounced	More pronounced, with females experiencing higher stress levels
Year of Study	Consistent across all years	First-year students less likely to report increased stress

The COVID-19 pandemic has significantly increased stress levels among college students, with academic pressures, social expectations, and personal responsibilities being the most common. Mental health issues such as anxiety and depression were less prevalent during the pandemic, with the overall mental well-being generally better. However, certain groups, such as minority students, were already at higher risk for experiencing elevated stress levels and mental health problems. During the pandemic, academic stress levels rose significantly, with students facing challenges such as adapting to online learning, managing increased workloads, and dealing with uncertainties about academic performance and future prospects. The perception of academic stress was higher among vulnerable groups, such as minority students. Mental health issues such as anxiety, depression, and sleep disturbances deteriorated significantly, with students reporting increased feelings of loneliness, isolation, and lack of motivation. First-year students were less likely to report increased stress from the pandemic compared to other year groups, possibly due to the novelty of the college experience and lower academic expectations in the first year.

This suggests that colleges should consider offering tailored mental health resources, such as time management and study skill workshops, based on the year of study to improve students' stress levels and psychological well-being. The study revealed that a majority of respondents, all of whom had never used on-campus counseling services, were aware of the existence and availability of such services. 96% of respondents were previously aware of their school's counseling center, and 93% were aware of the free services. The first-year class had the lowest awareness, with a 90% rate of awareness of the counseling service and an 86.7% rate of awareness of the free services. Other classes had mid-to-upper 90% awareness.

The study also finds 12 reasons why college students do not seek mental health services. The most common reasons were having friends or family, dealing with problems themselves, not being serious enough, and believing their problems will get better without counseling. These reasons are not indicative of a strong barrier preventing a student from seeking counseling, but rather indicative of resiliency. Other reasons included perceived lack of time, discomfort, and stigma. A large proportion of students with significant anxiety or depression concerns cited discomfort and stigma reasons for not seeking counseling. Access to the counseling center was another potential barrier, with a larger proportion of anxiety and depression students citing waiting too long for counseling. Understanding these factors and

offering support can help college students improve their academic performance as well as their mental health journey. This can be done by the authorities and college teachers.

Conclusion

The study reveals mental health issues faced by college students during their transition from adolescence to adulthood. These issues include adjustment issues, academic problems, personal development concerns, and interpersonal conflicts. A study found that a significant portion of students (58.1%) reported moderate mental health, while 19.9% reported faded mental health. Primary academic stressors were Teachers' Stress (24.7%), Time Management Stress (16.7%), and Self-inflicted Stress (18.4%). The COVID-19 pandemic has exacerbated stress levels among college students, with 72.5% of the sample being girl students. Regression analysis showed that academic stressors, particularly Self-inflicted Stress (SIS) and Time Management Stress (TMS), are significant predictors of mental health levels, increasing the likelihood of experiencing faded mental health. Barriers to seeking mental health services include reliance on friends or family, self-reliance, belief that problems will resolve on their own, discomfort and stigma, especially for students with anxiety or depression. Recommendations include tailored mental health resources, increased awareness of counseling services, and addressing barriers to seeking mental health services. The current educational setting fails to meet these needs, leading to problem behaviors and mental health concerns. A comprehensive counseling program could help adolescents navigate confusion and excitement, enhancing their productivity.

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A Review of Enhancing Second Language Learning with Technology

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ABSTRACT:

The second language learning in higher education enables students to enhance their communication, cognitive, intercultural, and self-esteem skills, as well as their brain functioning, memory, comprehension, career prospects, attention, multitasking, and listening abilities. Applied linguistics and second language teaching and learning are fields of ongoing research and development, embracing a variety of teaching methodologies from linguistics, education, psychology, and sociology, although no single method is the most effective. This study is an attempt to explores the integration of digital tools and technological innovations in second language instruction at the postsecondary level. This review evaluates the effectiveness of technology-aided instruction in enhancing language acquisition and proficiency among students, analysing various tools and methods used in second language education through scholarly articles, empirical studies, and case reports. It investigates the impact of these tools on key aspects of language learning, including vocabulary acquisition, grammar comprehension, listening and speaking skills, and overall language proficiency. Additionally, the study explores the benefits and challenges associated with the use of technology in language instruction, such as increased student engagement, personalized learning experiences, and potential technical barriers. The findings suggest that technology can significantly enhance second language learning by providing interactive, immersive, and adaptive learning environments. This review underscores the importance of integrating technology in language education to meet the diverse needs of learners and to prepare them for real-world language use.

Key Terms: Language Education, Language Skills, Technology in Education, Technology Guided Language Education, Postsecondary Education, Interactive Learning, Personalized Learning.

INTRODUCTION

Higher education institutions place a high value on language education because it gives students the critical communication skills and language mastery they need to succeed in their careers. But the absence of a focus on real-world application is one of the main obstacles to language learning in Indian higher education. Conventional teaching approaches frequently overlook the development of useful communication skills in favour of concentrating on the theoretical components of language, such as vocabulary and grammatical rules (Dziuban et al., 2017). As a result, students graduate with theoretical knowledge but are ill-equipped to interact with others in real life. More interactive and experiential learning strategies that provide students the chance to hone their language abilities in real-world contexts are desperately needed to solve this problem.

Traditional methods and non-competent learners in postsecondary education often poses limitations, hindering the effectiveness of learning of Malayalam language, the sole language of South Indian state of Kerala. Technology-aided instruction has emerged as a promising solution to address these challenges and enhance language learning experiences in postsecondary education, particularly in Malayalam like Indian languages. Malayalam, is a complex language with distinct alphabet and pronunciation guidelines, and is a challenging language for non-native speakers to learn. The modern techno-based approach can improve language acquisition results for learners with varying degrees of proficiency.

This study aims to review the impact of technology on various aspects of second language learning, including interaction, interpersonal relations, vocabulary, grammar, repetition and automaticity, extra linguistic competencies, and extralinguistic factors. By examining recent research, this study seeks to provide a comprehensive understanding of how technology can enhance second language learning and address the challenges faced by traditional methods. The need for integrating technology into second language learning arises

from the growing recognition that traditional educational methods may not fully prepare students for the complexities of real-world language use. Technology can address several challenges faced by second language learners today, such as limited access personalized instruction, and insufficient practice opportunities. The significance of this study lies in its potential to inform educational policy and practice by highlighting the benefits of technology in language instruction. It provides a roadmap for using digital tools and innovative methods to create engaging learning environments, fostering comprehensive language acquisition.

REVIEW OF LITERATURE

The teaching-learning process must undergo substantial changes in the 21st century to meet the changing needs of both educators and learners. The quick development of technology necessitates reconsidering the roles that educators and learners play as well as finding creative methods to use cutting-edge learning tools to further their academic and career goals (Veletsianos, 2010, 2016). The emerging learning technologies as tools, concepts, innovations, and improvements that have not yet gained widespread adoption in the education sector but have the potential to greatly improve teaching and learning. Artificial intelligence, robots, learning analytics, virtual, augmented, and mixed reality, among many others, are examples of these (Shadiev & Wang, 2022). According to Altinay et al. (2020), accessibility and inclusivity are important, and active engagement in education at all levels is crucial. The notion of global citizenship (UNESCO Global Citizenship Education, 2023) and the United Nations Sustainable Development Goals (UN Sustainable Development Goals, 2023) need an all-encompassing approach to education that goes beyond conventional academic topics.

The following was observed in the literature review on technology-aided instruction and its potential to improve Malayalam language education. Increased language proficiency was highlighted in researches and that TAI can result in notable gains in speaking, writing, listening, and reading comprehension (Kumar, 2018; Suresh, 2020; Pratheesh, 2023). Others quoted the increased motivation and engagement aspect. TAI can boost students' interest and engagement in language acquisition, especially for those who learn best visually or kinaesthetically (Rajesh, 2019). Personalized learning is made possible by technology, which lets students concentrate on their areas of weakness and study at their own speed (Lekshmi,

2017). The TAI approach also provides resources available to students. According to Vijayakumar (2019), TAI can give students access to a multitude of online textbooks, videos, and language-learning apps. As a support for instructors, Sreedevi (2018) argues that technology can help teachers with lesson planning, monitoring student progress, and giving feedback.

Nevertheless, certain obstacles and restrictions were also noted. Technical difficulties, like hardware malfunctions or network problems, can reduce TAI's efficacy (Rajesh, 2019). To successfully incorporate technology into their lesson plans, teachers might require training (Lekshmi, 2017). Equity and access: A digital divide may result from some students not having equal access to technology (Vijayakumar, 2019). Language support: According to Suresh (2020), TAI might not be able to meet the demands of students who need extra language support or who have special needs. Based these works, this study seeks to bridge the gap in research on sustainable development education by focusing on unique theoretical contributions and practical uses of emerging learning technologies, particularly in Indian languages such as Malayalam. It will then investigate existing learning models and theories, actual implementations of technology-assisted instruction, and their efficacy, as backed by empirical evidence. It also intends to encourage and facilitate future research into the creation of novel technologies and their educational applications, bridging innovation, pedagogy, and practice in technology-supported sustainable development education.

METHODOLOGY

This research endeavours to assess the present condition of Malayalam language instruction (one among the second languages of Kerala higher education) in postsecondary education, pinpoint the advantages and difficulties of technology-assisted instruction, appraise its influence on students' language ability, drive, and involvement, juxtapose its efficacy with conventional techniques, and offer suggestions for incorporating technology-assisted instruction into Malayalam language teaching.

The following potential research questions form the basis for the study's design.

- What are the prevailing patterns and obstacles in the teaching of second language in higher education?
- How does the use of technology in the classroom affect students' competency in second language?
- What are the advantages and disadvantages of teaching second language using technology-assisted instruction?

This study aims to evaluate the impact of technology on second language learning and identify its benefits and challenges. The hypothesis is that technology can significantly enhance students' language acquisition and proficiency in various aspects, such as interaction, interpersonal relations, vocabulary, grammar, repetition and automaticity, extra linguistic competencies, and extralinguistic factors. A mixed-methods strategy is used for the study, integrating quantitative and qualitative data gathering and analysis techniques. Focus groups and interviews are two qualitative methods that is used to gather information about students' experiences and pinpoint obstacles to good teaching. Furthermore, the survey offers a methodical evaluation of the influence of technology on the results of language acquisition. A total of 1000 undergrad students from arts and science colleges throughout Kerala participated in the online survey conducted through a Google Form that was distributed via email and WhatsApp. The interview and focus group participants included 300 college students and 100 language educators from various arts and science colleges located in the south and central districts of Kerala state.

The collected data was tabulated and analysed using the proper and strategic statistical tools, SPSS software, which provides a quick-visual modelling environment that can accommodate models ranging from the smallest to the most complicated and contains frequencies, cross-tabulation, and bivariate statistics. This study explores novel ways to language instruction by combining descriptive and analytical research methods. As a result, the study produces insightful data that improves students' learning outcomes and guides the creation of successful language training programs.

DISCUSSION

Being able to learn and speak various languages is becoming more and more important in the linked world of today. Learning the language with essential competency is essential for forming people's cognitive capacities and their ability to interact with people from different cultural backgrounds. Teachers are using technology to improve the learning process in order to address the increasing need for efficient language training. The youngest Dravidian language, Malayalam, is rich in literature and history and is mostly spoken in the Indian state of Kerala. In 2013, it was awarded the title of "Classical Language," designating a language having a history spanning over two millennia. Malayalam has a distinct script and grammar structure, making it a difficult but worthwhile language to master. Textbooks, lectures, and in-class interactions have historically been the mainstays of language education. Nonetheless, new avenues for captivating and immersive learning experiences have been made possible by the incorporation of technology into language instruction.

CONVENTIONAL TEACHING

The foundation of teaching has always been the conventional techniques of transmitting knowledge and skills to students. But as new technologies develop and the educational landscape changes, it is becoming more and more clear that traditional teaching methods may not always be the best for motivating and empowering students. This opinion is especially valid when it comes to Malayalam language instruction at the undergraduate level, as the shortcomings of conventional approaches are becoming increasingly apparent.

The interview and survey conducted with students and educators in the field of Malayalam language teaching shed light on the various problems and limitations associated with conventional teaching practices at the undergraduate level. One of the primary issues highlighted was the teacher-centered nature of traditional methodology. In conventional teaching, the focus is primarily on the instructor, with students expected to passively absorb information through lectures and textbook readings. This approach often leads to disengagement and lack of interest among students, who may struggle to connect with the material being taught.

Table 1

Attitude towards Traditional Teaching (n-1000)

Component	**Strongly Agree**	**Strongly Disagree**	**Agree**	**Disagree**	**% of Disagreement**
Lecture	21%	47%	12%	20%	70%
Reading	17%	49%	13%	31%	70%
Recitation	18%	39%	16%	27%	66%
Story	29%	15%	27%	29%	44%
Question	11%	41%	13%	35%	76%
Explanation	23%	29%	27%	21%	50%
Grammer	13%	49%	11%	27%	76%

Grammar proficiency was seen as the cornerstone of traditional language education approaches, which placed an emphasis on explicit instruction and repeated practice. However, 76% of the participants disagreed with this widely held belief. Furthermore, 76% of the participants disapprove of the conventional method of asking questions in the classroom as a crucial part of teaching language. Almost all of the components included by this study, including reading, recitation, story, and explanation, had a 64.57% disagreement rate among the participants. Even yet, they prefer story and explanation parts and have a lower percentage of disagreement with these elements. Students are dissatisfied with the boring learning environment and a lack of motivation and reinforcement.

Table 2

Tabulation of Usefulness & Student's Satisfaction (n-1000)

Satisfied	**Satisfactory Level**	**No. of Respondents**	**Percentage**
Yes	51% - 64%	178	17.8%
No	29% - 41%	822	82.2%

In terms of general usefulness and satisfaction with traditional language learning methods, 17.8% of survey respondents said they were satisfied, with agreement ranging from 51% to 64% usefulness-satisfactory. While the majority of respondents rated the conventional method as poor, agreement ranged from 29% to 41%. This study found that the majority of students who want to study in their native language at the postsecondary level are dissatisfied with traditional language instruction methods.

Table 3

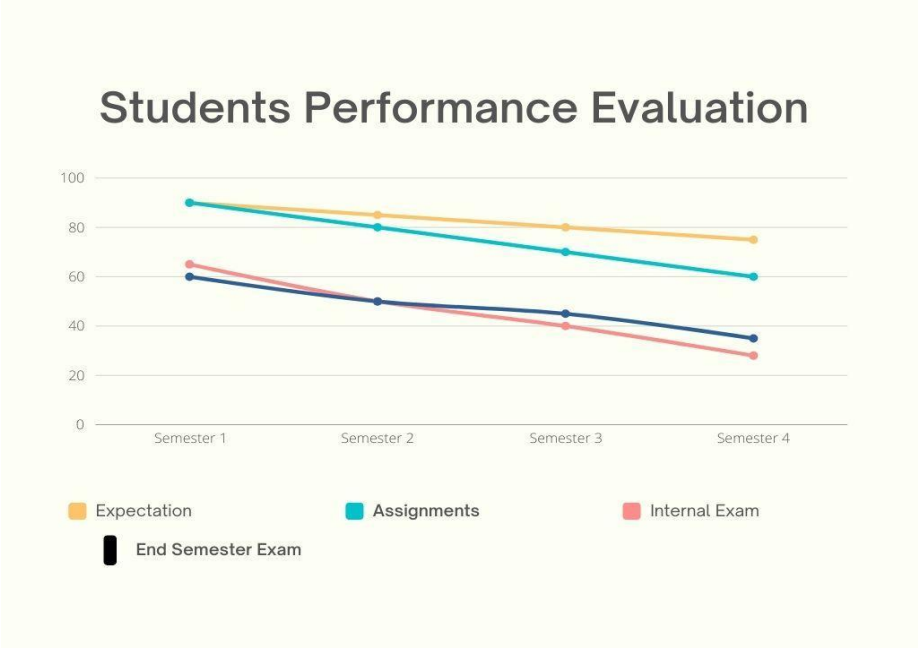
Student Satisfaction Index (n-1000)

Scale	Mean	SD
Content	3.01	0.63
Transaction Method	3.20	0.65
Evaluation Pattern	2.71	0.57
Satisfaction	2.94	0.59
Self-Usefulness	2.81	0.51
Learner to Learner	2.50	0.47
Teacher to Learner	2.56	0.49

The average score for each scale falls short of the expected range. A standard deviation less than 0.72 indicates that participants were dissatisfied with the traditional pattern of language learning, and their replies indicated a need for methodological modification. The average score for content engagement is 3.01, and for content transactions it is 3.20. The mean difference between learner-learner and learner-instructor was minimal (2.50 vs. 2.56). The average Internet happiness score (2.94) was somewhat higher than the midway of 1.50, while usefulness (2.81) fell just short of the satisfaction midpoint.

Figure 1

Students' Performance in Semesters (n-1000)

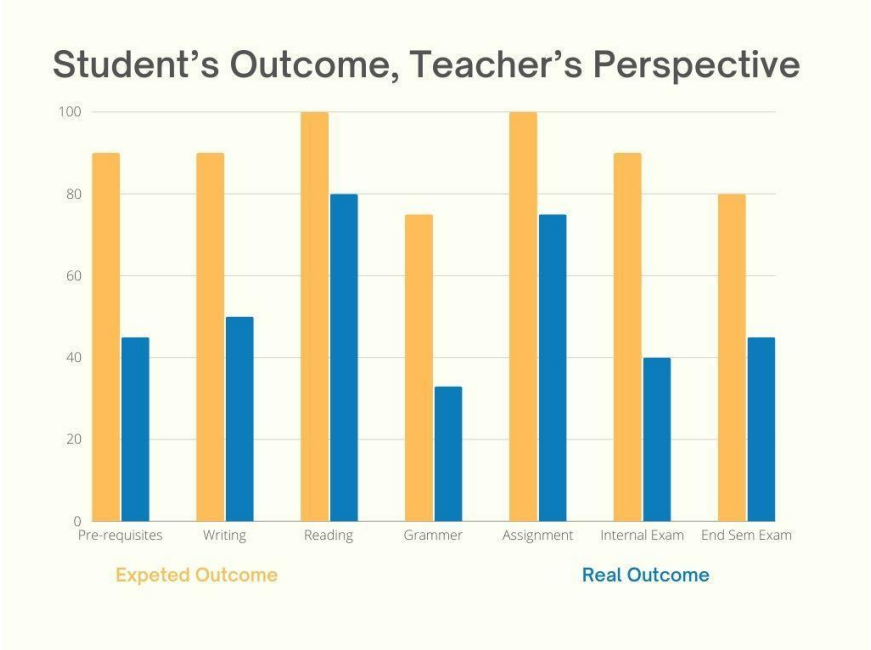


It is evident that there is a sizable discrepancy between the expected and actual performance outcomes after analysing the students' reported semester-by-semester performance. Since Malayalam is their mother tongue and they believed they had mastered its reading, writing, speaking, and grammar, the students anticipated performing exceptionally well overall across the semesters and anticipated this to be reflected in their exam results. However, in practice, students' expectations of the traditional teaching-learning process are completely at odds with this, and they tend to have lower expectations for each semester because their performance on all evaluation components fell well short of expectations. The data also showed that, although teachers first scaffold their students by giving them lenient ratings for assignments and internal examinations, they eventually assigned true grades for these components after determining the average performance on the end-of-semester exam.

The following observations are made about how teachers perceive teaching languages in conventional mode and how well students succeed.

Figure 2

Student Outcomes from the Teacher's Perspective (n-100)



It is clear from the teacher's perspective (100 Malayalam language instructors from different districts of Kerala) that the actual and expected outcomes of students' performance varies significantly. The reasons differ depending on the particular environment in each of Kerala's districts, but the reality that students are not meeting expectations in the conventional manner of Malayalam language instruction stays the same. All participants—teachers and students alike—agreed that the traditional form of instruction is the true obstacle to the teaching-learning process and that better results will follow if the mode of transaction is changed. It emphasizes the significance of revising traditional technique and bridging the gap between academic goals and practical necessities, as well as the importance of using technology into teaching and learning processes.

ALTERNATE METHODOLOGY

Traditional Malayalam language education has significant disadvantages, including heavy reliance on literature and a lack of focus on communication skills. This may hinder students' ability to communicate effectively in real-world settings. The exam-oriented approach promotes rote memorization, inhibiting creativity and critical thinking. It is anticipated that these challenges would be overcome by the technological integration of teaching methods in the digital era and the essential educational changes that link teaching methods with contemporary learning styles (Delen & Liew, 2016).

The teaching of languages like Malayalam is being reshaped by technology in higher education settings. Traditional methods are being replaced with innovative approaches that integrate technology, interactive software, online resources, and multimedia tools. This dynamic environment enhances engagement and fosters deeper understanding among learners. As educators use these modern strategies, they unlock countless possibilities for language acquisition that transcend conventional boundaries. These include blended learning methods, project-based learning, and storytelling techniques. Storytelling piques attention and improves understanding, but project-based learning gives students practical activities to boost confidence. Blended learning techniques offer for scheduling flexibility by combining in-person instruction with online resources. These teaching strategies improve student enjoyment while preparing them for a globalized society in which communication is cross-border.

An immersive experience is created by utilizing a technology-aided strategy that combines digital tools such as language applications and online courses with multimedia features like movies, audio clips, and animations to make complex grammatical rules and vocabulary more engaging. Technology-assisted instruction provides real-time feedback so that students can quickly assess their strengths and deficiencies (Broadbent & Poon, 2015). Through practice, collaborative platforms help students become more fluent in Malayalam by facilitating conversation among them and stimulating discussion outside of the classroom. Aspiring Malayalam speakers benefit from an enhanced educational environment that combines innovation and tradition.

The advantages of using technology in the classroom are numerous and significant. It makes individualized learning easier and enables teachers to adjust their lessons to fit the needs of each unique student (Eastin & LaRose, 2000). By the use of interactive tools, it raises student involvement and makes lessons more engaging and dynamic. Sophisticated assessment techniques facilitate efficient progress tracking and enable teachers to identify areas that need more attention. Digital platforms also make it easier for peers from other locations or backgrounds to collaborate, which enhances the learning process by exposing pupils to a range of viewpoints on language use and cultural quirks. This method prepares students for challenges in the future by keeping education current and relevant in a world that is always changing.

RESOURCES FOR TECHNOLOGY AIDED INSTRUCTION

Centre for Malayalam Language Technology: The Language Technology Centre's primary goal is to create fundamental digital materials for Malayalam language instruction. The Malayalam University created this centre after realizing that much work needs to be done in order to develop the technological resources necessary to make Malayalam more machine-intelligible. The Language Technology Centre is creating Android applications to help with language learning in addition to a variety of language software, a digital dictionary, and a digital library.

The first product of the centre is a complete digital voice archive of the Malayalam language. This resource is designed to help researchers and software developers accurately understand the phonetic structure of the language (Malayalam Phonetic Archive). 'Akshara

Bhedini' is another product developed by Bhasha Technology Centre. As a part of the project to facilitate language learning with technology aids, the language learning app developed by the centre named 'Malayalampatham' is available on Play store. https://play.goo

ICT & Technology Lab: Technology-based tools that promote learner autonomy, active participation, and successful language learning outcomes include language labs, online platforms, digitalization, multimedia devices, mobile phones, learning applications, flashcards, audio/visual multimedia content, EdTech solutions, and social media. CT tools help instructors by improving the learning environment, providing a wider range of instructional strategies and materials, bridging the gap between the classroom and the outside world, streamlining lesson preparation and organizing, and boosting chances for ongoing professional development. Through increased motivation, flexible learning, adaptive learning, and a larger exposure to the target language and cultural contexts, technology in language learning improves student engagement, motivation, and achievement. Practice is improved by tools like speech recognition and interactive multimedia activities, and flexible learning lets students select their own pace and monitor their development. Customized lessons are offered via adaptive learning systems, which improves student learning outcomes overall.

Language Learning Applications: With the aid of Speak Malayalam 360, you may effortlessly learn and speak Malayalam using a natural language learning pattern. With the software, you may write in Malayalam on a writing pad that can identify every letter you type on the screen. Additionally, it will provide you with an audio answer in Malayalam, as well as the pronunciation of each word in Malayalam and helpful examples to guide you through each stage. An additional mobile application is Ling Learn Malayalam Language. It will provide security beginning with knowing how developers gather and distribute your information. The way the data is secured and privacy may differ depending on learner's age, location, and use. This information was supplied by the developer, and it might change in the future.

The interview and survey findings underscore the urgent need for a paradigm shift in Malayalam language teaching at the undergraduate level. Moving away from the teacher-cantered, literature-heavy, and exam-driven approach towards a more communicative, student-cantered, and technology-enhanced model is crucial to fostering a deeper understanding and appreciation of the language among students. By addressing the problems and limitations of

conventional teaching practices, educators can create a more dynamic and inclusive learning environment that empowers students to succeed in their language learning journey.

ENHANCING LEARNING THROUGH TECHNOLOGY INTEGRATION

Below is the data table summarizing the findings on students' capacity enhancement in various aspects of second language learning through technology integration.

Table 4

Students' Capacity Enhancement through Technology Integration

Aspect of Learning	Group 1	Group 2	Group 3	Group 4	Group 5	Average Improvement (%)
Interaction	15%	20%	18%	17%	22%	18.4%
Interpersonal Relations	12%	14%	16%	13%	15%	14%
Vocabulary	25%	28%	26%	27%	29%	27%
Grammar	20%	22%	21%	23%	24%	22%
Repetition and Automaticity	30%	32%	31%	33%	34%	32%
Extra Linguistic Competencies	10%	11%	12%	11%	13%	11.4%
Extralinguistic Factors	8%	9%	10%	9%	11%	9.4%

The data analysis uses descriptive statistics to summarize the average improvement in second language learning through technology integration. The average improvement percentages are calculated as follows: interaction (18.4%), interpersonal relations (14%), vocabulary (27%), grammar (22%), repetition and automaticity (32%), extra linguistic competencies (11.4%), and extralinguistic factors (9.4%). These results provide a comprehensive understanding of the impact of technology integration on language learning.

The integration of technology has shown significant improvements in various aspects of language learning. Technology enhances interaction, interpersonal relations, vocabulary, grammar, repetition and automaticity, extra linguistic competencies, and extralinguistic factors. Interactive tools like language learning apps, online discussion forums, and virtual classrooms facilitate real-time communication and collaboration, leading to improved

interaction skills. Technology fosters interpersonal relations by providing platforms for group activities, peer reviews, and collaborative projects, building social skills and cultural understanding. Digital tools like flashcards, vocabulary games, and interactive quizzes expand students' vocabulary, while technology-enhanced grammar instruction aids in understanding complex grammatical structures. Extra-linguistic factors, such as motivation, attitude, and learning environment, are positively influenced by technology.

LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDIES

The current study underlines the necessity of technology-assisted instruction and provides a broad assessment of Malayalam language teaching and learning at the post-secondary level. Future studies can, however, compare it to the teaching-learning process of other languages at the postsecondary level. Additionally, this study does not cover psycho-social characteristics such as learner attitude, aptitude, content difficulty level, etc.; instead, it suggests them for future research. Important variables including learner opinions toward the institutions they study, technology usage, mother-lounge preferences, socioeconomic level, and access to technology outside of school are also uncontrollable in this study. While tracing broad patterns in a population that has not received much attention, other differences within the population should also be looked into. Re-examining research on learner attitudes toward technology and language acquisition is necessary because of the substantial shift in technology usage in postsecondary classrooms brought about by the COVID-19 epidemic.

CONCLUSION

Malayalam language education in Kerala is an important part of the students' identity and cultural heritage. However, traditional tactics may not be effective in engaging today's students, especially when Malayalam as second language. Traditional teaching approaches frequently emphasize rote memorization and textbook-heavy learning, ignoring interactive involvement and student motivation. In conclusion, language learning in higher education plays a crucial role in shaping students' communication skills and cultural awareness, preparing them for success in the increasingly competitive global landscape. The present investigation provides the basics of cutting-edge methods of language training is provided by the evaluation of technology-assisted instruction in Malayalam language acquisition. Technology integration in second language teaching improves interaction, interpersonal relations, vocabulary,

grammar, repetition, extra linguistic competencies, and extralinguistic factors. Interactive tools like apps, online discussion forums, and virtual classrooms foster real-time communication, expand vocabulary, and aid in understanding complex grammatical structures. Overall, there is a lot of potential for raising language learning outcomes and elevating students' entire educational experiences through the incorporation of technology-aided instruction in Malayalam language education in postsecondary institutions. With the help of artificial intelligence (AI) and other cutting-edge technology, teachers can create dynamic and engaging learning environments that cater to the various needs of their students and help them develop into competent adults who could be proficient in Malayalam for academic and employment purposes.

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A Study of Research Competencies of Research Students in Relation to Their Perceived Supervisory Style

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Abstract

Engaging in research yields novel discoveries, necessitating a requisite level of competency. Despite its significance, there's a scarcity of focus on studies regarding research competency. To undertake research effectively, students must possess the requisite knowledge, abilities, skills, and experience. Supervisors play a pivotal role in not only imparting essential research skills but also in facilitating the understanding and dissemination of research processes, thus preparing students for participation in a knowledge-driven society. Therefore, the present research was identifying the relationship between research competencies and supervisory style among research students. This research was quantitative with correlational research design in order to identify relationship between variables among research students.149 respondents from interdisciplinary, humanities and social science, commerce and management and science and technology including 114 female and 34 male students from post graduate departments and colleges situated in Mumbai, Navi Mumbai and Thane which are affiliated to Mumbai University were included in the study. Stratified random sampling technique was utilized to select the respondents. A significant positive and moderate relationship between research competencies and supervisory style among research students was found.

Key Word: Research Competencies, Supervisory style, Supervisor role, Higher Education.

Background of the study:

Successful research hinges on effective supervision, with the cornerstone being the student-supervisor relationship. This relationship's vitality is influenced by various factors such as the characteristics and qualities of students, institutional dynamics, as well as the roles, attitudes, and styles of supervisors. Research competencies, encompassing skills in gathering, reviewing, analyzing, and synthesizing information to derive meaningful interpretations and solutions, are also paramount. The present study focused on the relationship between research competencies and supervisory style. Problem-solving, research preparation, communication and interaction appear to be and ability to find a solution. The duties of research supervision include encouraging and providing critical feedback on drafts, monitoring the research process, and promoting an academic role..(Severinsson, 2016) i. A supervisor plays a key role in the development of research skills of researcher. Supervisors adopted different supervisor style while monitoring research students. Three supervisory styles, namely attractive, interpersonally and sensitive were found to the influence the supervision outcome ($R2=0.23$, Adjusted $R2=0.22$, $F(1, 98) = 29.05$, $p<0.05$). In a study conducted by Ghazhali (2020), insights were gained that could enhance knowledge and understanding of individual differences within the field of supervision. The prior study found that three most important attributes of supervisors as perceived by graduate students were: supervisors should be friendly, approachable and flexible; knowledgeable and resourceful; and encourage students to work and plan independently. Effective supervision implies that supervisors are able to establish good and professional relationships with students; give support and guidance; and provide continuous motivation and inspiration (Azure 2016) ii. It was further found in another study that, research should identify student needs in relation to the different stages or moments of PhD research and should take into account the particular profile of the student, the characteristics of effective supervision for each of these stages, and support strategies for this supervision by making the most of the communicative advantages of technology (Orellana 2016) iii. Research students often rely on their supervisors for guidance and support throughout their studies. It's understandable that they would expect their supervisors to serve as mentors and advisors, especially when it comes to selecting a research topic and completing their research. Brown and Atkins (1988) iv. in a now-classic study, indicated that good supervisors should be skilled researchers, be able to demonstrate this skill in their research practises, and

be able to evaluate the skills, methods, and knowledge that contribute to their supervision's effectiveness.

Review of Literature

Studies on Research Competencies

Ugwu, Ifeanyieze and Agbo (2015) conducted a study on identified research competency needs of postgraduate students of Science, Technology, Engineering and Mathematics (STEM) education in research writing in Nigerian universities. The population for the study was 372 comprising 222 master and 150 PhD students of STEM Education in nine Universities in south-eastern Nigeria. The hypotheses tested revealed that there was no significant difference in the responses of the two groups of students on the difficult competencies. It was recommended that lecturers should utilize the 32 competencies while emphasizing the 25 difficult ones to make students competent in producing a quality research work.

Yassawi and Bakytzhan (2016) conducted a study on examining the students‟ experimental research competences in the study of physics. The actuality of the investigated problem is caused by the need for students‟ training at pedagogical high schools to meet the challenges of research activities and the insufficient development of the theoretical, content technological, scientific and methodological aspects of the formation of their experimental research competencies at the undergraduate level, in particular, within the framework of laboratory course on general physics. The purpose of the article is to identify the most appropriate ways to form experimental research competencies during the laboratory course. The study revealed that the organization of mini investigations within the laboratory works on physics contributes to the formation of experimental research competencies of undergraduate students at pedagogical universities.

Kwong (2017) conducted a study on investigates advancing social work practice research Education –an Innovative, experiential pedagogical approach. Achieving practice research competency is an essential pillar of social work practice. Findings suggest several critical elements of this pedagogical approach. Students learn about real-world research issues through a case-based learning approach. Both students and the instructor involve in a collaborative learning process. Finally the instructor selects context-specific cases for class discussion and activities so that students see the connection of social work research to day-today practice contexts.

Ekkuaboon (2024)This study aimed to develop and evaluate the effectiveness of an instructional model—termed the PCW Model—based on the professional learning community (PLC) process and work-based learning (WBL) to enhance classroom research competencies. The participants were 32 third-year Bachelor of Education students specializing in Chinese and English language teaching, selected via purposive sampling. The research tools included a pre-test and post-test with 25 multiple-choice items and nine structured worksheets. Data were analyzed using mean, standard deviation, and dependent t-tests. The PCW Model comprises four core components: (1) principles, (2) objectives, (3) procedural steps, and (4) assessment and evaluation. Results showed a statistically significant improvement ($p < .01$) in students' classroom research competencies following the implementation of the model.

Siby et al. (2024) developed the Outcomes-directed Research Internship Model (ODRIM), integrating the CURE framework and outcomes-based education to improve research competencies among STEM undergraduates. Using a two-group pretest-posttest design with 66 participants, the study found that ODRIM significantly outperformed traditional research internship models in enhancing skills such as conducting research, technical proficiency, teamwork, and research dissemination. The model offers a structured, inquiry-based approach aligned with specific learning objectives, fostering a more effective and immersive research experience.

Abdelhalim (2024) examined how English as a Foreign Language (EFL) undergraduates perceive and use ChatGPT to enhance their research competencies, focusing on differences across metacognitive awareness (MA) levels. Using a mixed-methods design with 27 participants, the study found significant differences in perceptions and practices between students with high and low MA. High-MA students were more likely to use ChatGPT strategically—for idea generation, guidance, and information retrieval—while low-MA students tended toward more passive use. Effective use of ChatGPT was linked to skills such as prompt formulation, self-regulation, and systematic thinking, highlighting the importance of metacognitive factors in AI-assisted learning.

Tu, Sun, and Levin (2024) explored the impact of a student-initiated course (STIC) titled A Primer on Research Techniques in Molecular Biology (PORT), aimed at enhancing research competencies outside traditional lab settings. Conducted at a large public university, this course

addressed barriers to undergraduate research experiences (UREs) by offering practical, inquiry-based learning without reliance on lab resources. Mixed-methods evaluation showed that PORT effectively improved students' understanding of molecular techniques and fostered critical-thinking skills such as troubleshooting. Students also reported higher engagement due to the relatability of peer instructors, though they noted differences in pedagogical expertise compared to traditional faculty. The findings suggest the value of alternative, student-driven formats in research skill development.

Studies on Supervisory style

Orellana (2016) conducted a study on identifies the supervisory relationships that affect doctoral research conducted at a distance from the students' academic institution. It also describes how students and their supervisors perceived the characteristics of supervision and the skills and attitudes students perceived in and expected from their supervisors. For data collection, semi structured interviews were used. The results indicate important differences between supervisors‟ perceptions concerning their own role and students‟ needs regarding supervision, and they demonstrate the importance of attending to student needs and, on the part of supervisors, exercising responsibility in the development of research competencies in students, as is the case of independence of criteria and autonomy.

Gedamu (2018) conducted a study on graduate supervisees‟ views of their supervisors‟ supervisory styles and satisfaction with thesis supervision. Thesis supervisor supervisory styles play central roles in enhancing timely and quality completion of thesis works. The result indicated that supervisees perceived their thesis supervisors discharged their roles of supervision through provision of various supports which range from emotional support to helpful timely feedback. Similarly, supervisees felt that they were provided guidance for quality and timely completion of thesis works. In addition, supervisors were perceived displaying contractual and laissez-faire styles. Moreover, supervisees reported that they were satisfied with the supervision they were offered. Significant and positive correlations were obtained between supervisees‟ overall satisfaction with thesis supervision and the two supervisory styles (contractual and laissez faire)

Pyhältö, K., Tikkanen, L., & Anttila, H. (2022).This large-scale survey study explored doctoral supervisors' self-perceived supervisory competence, professional development, and support

from the scholarly community at the University of Helsinki, Finland. A total of 561 supervisors across four doctoral schools participated. The findings revealed that supervisors generally rated their competence highly, with greater experience and stronger community support correlating positively with confidence in their supervisory roles. Participation in supervisory development activities was also associated with higher self-assessed competence. The study highlighted some gender and disciplinary differences in development engagement. The results underscore the importance of structured professional development and institutional support in cultivating effective doctoral supervision.

Johansson and Yerrabati (2017) conducted a narrative review examining supervisory styles in professional doctoral programs, synthesizing insights from 83 studies as part of a broader systematic review. The study underscores the central role of the supervisor–student relationship in doctoral success, with supervisory style emerging as a key pedagogical factor. The authors identify several supervisory styles—laissez-faire, pastoral, contractual, and directorial (as conceptualized by Gatfield, 2005)—each shaping the nature and effectiveness of supervision. Their findings highlight that supervisory style significantly affects doctoral outcomes, including completion rates and research quality. The paper calls for greater awareness of how style adaptation can support diverse doctoral trajectories, particularly within professional doctorate contexts.

Gruzdev, Terentev, and Dzhafarova conducted a cross-institutional survey across Russian universities to explore PhD supervision styles and their impact on student satisfaction and time-to-degree expectations. The study identified six distinct supervision styles: superhero, hands-off supervisor, research practice mediator, dialogue partner, mentor, and research advisor. Among these, the hands-off style—marked by minimal involvement—was associated with the lowest student satisfaction and the longest expected time to completion. Conversely, superhero and mentor styles, which integrated managerial and expert support roles, yielded the highest satisfaction and shortest expected completion times. The findings emphasize the pivotal role of active, engaged supervision in improving doctoral experiences and outcomes in the Russian higher education context.

Ghazali (2021) conducted a quantitative correlational study to examine how different supervisory styles affect supervision outcomes among 100 undergraduate trainee counsellors

from two Malaysian public universities. Utilizing the Supervisory Styles Inventory (SSI) and Supervisory Satisfaction Questionnaire (SSQ), the study was grounded in the System Approach to Supervision (SAS) Model. Findings indicated a significant relationship between supervisory styles and supervision outcomes ($r = 0.49$, $p < 0.05$). Specifically, the attractive, interpersonally sensitive, and task-oriented styles all showed positive correlations, with the first two exerting the strongest influence on outcomes (Adjusted $R^2 = 0.22$). The study suggests that supervisors who reflect on and adapt their supervisory style may enhance the quality and effectiveness of supervision, offering valuable insights for improving training in counselling education.

Yong, Roche, and Sutton (2023) applied self-determination theory to investigate the influence of supervisory style on employee well-being in low-skilled occupations, a domain often overlooked in supervision literature. Using a mixed-method, multi-level design in New Zealand, the study involved 44 supervisors and 240 employees in the quantitative phase, and 15 supervisors in the qualitative phase. Results showed that autonomy-supportive training (AST) improved supervisory behavior and positively impacted employee well-being. However, sustaining autonomy-supportive styles (SAS) was challenged by organizational constraints, such as managerial pressure and institutional norms. This study expands the understanding of supervisory influence in workplace contexts and underscores the importance of organizational support in maintaining autonomy-enhancing supervisory behaviors.

Need of the Study: A review of related literature indicates that studies of research competencies have been conducted in the past in the context of comparison of their knowledge and skills, challenges of research activities, experiential pedagogical approach, development of a model pedagogical conditions for mathematics teacher, identified research competency needs of postgraduate students, analyse the components and indicators for enhancing classroom research competencies, examined research competencies, role of research competencies in the virtual environment.

Supervisor role is supportive one where the supervisors may be a coach, mentor, guide, model and manager to prepare research students for careers. Few research studies indicated that, when students work closely and communicate effectively with their supervisors, the quality of their research and their educational experiences improves supervisees' views of their supervisors' supervisory styles and satisfaction with thesis supervision, relationship between perceived

supervisor style and teacher attitudes, effects of supervisor style upon the learning of empathy in a supervision analogue.

Objective of the Study: To ascertain the relationship between research competencies and perceived supervisory style of research students.

Operational Definition of the Terms:.

Research Competencies: The term of research competencies refers to the practical and theoretical knowledge, abilities, skills, personal qualities and behaviours that contribute to select an appropriate topic and the methodology to conduct a research study effectively to with the aim of solving a problem independently.

Supervisory Style: Supervisory style is an act of structured observation and there by directing, monitoring or overseeing a task or research project to ensure that it is done properly and completed effectively..

Hypothesis of the Study

Research Hypothesis: There is a significant relationship between research competencies and supervisory style of research students.

Null Hypothesis: There is no significant relationship between research competencies and supervisory style of research students.

Methodology of the Study: The study adopted quantitative descriptive method because it is aimed at describing research competencies of research students in relation to their Supervisory style. It was a correlational study since it dealt with the functional relationship between the variables and used coefficient of correlation to discover and clarify the relationship.

Data Collection

Data collection was carried out systematically to ensure the relevance, reliability, and comprehensiveness of the information gathered. A comprehensive list of universities, colleges, and research institutes in Navi Mumbai, Mumbai, and Thane offering research programs in humanities and social sciences, commerce and management, science and technology, and interdisciplinary fields was first compiled. Formal letters and emails requesting permission to

conduct the study were sent to heads of departments, deans, and relevant administrative offices of these institutions. These communications included detailed information about the study's objectives, methodology, assurance of data confidentiality, and the anticipated benefits for both the institutions and participants. Follow-up phone calls and emails were made to ensure that the requests were acknowledged and processed. Upon receiving approvals, questionnaires were distributed to research students either electronically or in person, based on their preference and convenience. Participants were provided with a clear deadline for submission, and periodic reminders were sent to ensure timely completion. The final sample consisted of 149 research students, comprising 114 females and 35 males.

Sample: The present study included 149 research students. It included 114 female and 35 male students.

Sampling Technique: In order to select the sample of the study, the researcher adopted a three-stage stratified random sampling technique.

At the first stage stratified random sampling was selected, where the strata included geographical locations namely, Mumbai, Navi Mumbai and Thane district.

At the second stage, strata will be based on disciplines, namely Humanities and Social Science, Commerce and Management, Science and Technology and Interdisciplinary faculty. Were included as the strata in the stratified random sampling technique.

At the third stage, were all the research students belonging to institution were selected as cluster sampling technique.

Tools of the study: Following tools were used for the study

Research Competencies

Research competencies measurement tool developed by the researcher. The scale underwent rigorous development stages, including item collection, expert validation, piloting, item analysis, and refinement. The final RCS comprised 62 items from 32 students with a three-point scale for responses. Reliability analysis using Cronbach's alpha and split-half reliability demonstrated high internal consistency ($\alpha = 0.96$, split- half reliability = 0.95). Face and content validity were established through expert evaluations, confirming the scale's appropriateness for measuring Research competencies questionnaire on Research students

Supervisory Style

In examining the effectiveness and reliability of tools used for assessing supervisory styles, it is crucial to consider the psychometric properties of these instruments. One such tool, the Supervisory Styles Inventory (SSI) developed by Friedlander and Ward (1984), has been widely utilized in research to evaluate different supervisory styles. This tool's reliability and validity have been thoroughly analyzed, making it a robust measure for supervisory style assessment.

Friedlander and Ward (1984) reported the reliability of the SSI using Cronbach's alpha, which ranged from .76 to .93, indicating high internal consistency across different scales. Specifically, the inter-item correlation for the attractive scale ranged from .70 to .88, for the interpersonally sensitive scale from .51 to .82, and for the task-oriented scale from .38 to .76. These correlations demonstrate that the items within each scale are well- related and measure the same underlying construct.

Moreover, the test-retest reliability of the SSI over a two-week period was assessed with master-level supervisees, yielding impressive results: a general reliability coefficient of .92 for the overall scale, with individual scales showing reliabilities of .94 for the attractive scale, .91 for the interpersonally sensitive scale, and .78 for the task- oriented scale. These figures underscore the stability of the SSI over time.

Inferential data analysis:

(A) Inferential Data Analysis: This includes testing of the null hypothesis.

H1: There is a significant relationship between research competencies and supervisory style of research students.

H0: The null hypothesis states that there is a no significant relationship between research competencies and supervisory style of research students.

The technique used to test this hypothesis was the coefficient of correlation.

The following table 1 shows the relevant statistics between the RC scores and SS scores of research students.

TABLE 1
RELEVANT STATISTICS FOR RELATIONSHIP BETWEEN RC AND TOSS SCORES OF RS

Variables	N	Mean	Sd	'r'	Df	Coefficient of Determination	P
RC	147	140.24	24.07	0.52	145	27.04%	<.0001
SS	147	4.76	1.31				

Interpretation:. From the preceding table it is seen that the obtained 'r' is significant (P<0.0001). Hence the null hypothesis is rejected. The relationship between research competencies and supervisory style was positive in direction and moderate in magnitude.

Conclusion: The 'r' between research competencies and supervisory style is 0.52 which is significant. The relationship between RC and SS amongst RS is moderate and positive at level of (P<0.0001) 27.04% variance in research competencies is associated with supervisory style.

Discussion: The finding of the study indicates that a significant relationship between research competencies and task oriented supervisory style among research students exists. The strength between these two variables is moderate and positive. The finding of the present study are corroborated by prior studied. Self-determination theory study (SDT), suggests that humans have three basic psychological needs, namely autonomy (i.e., engaging in a behavior with a full sense of volition), competence (i.e., the experience of mastery and efficacy), and relatedness (i.e., the need to feel connected to other people in a meaningful way) (Deci & Ryan, 1985, 2000). vi Research success depends on the interpersonal relationship between the supervisor and the research student. The SSI has been used in assessing the supervisory relationship with regards to supervisee satisfaction (Fernando & Hulse-Killacky, 2005; Nelson & Friedlander, 2001)vii The Attractive subscale of the SSI describes a supervisor who is warm, friendly, supportive, and trustworthy. Interpersonally Sensitive : refers to attributes such as committed to the relationship, resourceful, and perceptive. Task-Oriented refers to the attributes such as practical, concrete, evaluative, and focused. Effective supervision can significantly influence the quality of the PhD and its eventual success or failure.(Gill, 2013)viii Supervisors practical and concrete approach prepare more competent in research to research students. Three supervisory styles, attractive, interpersonally sensitive and task oriented contributed most influenced on supervision outcome (Ghazhali 2021)ix . The supervisory relationships impact

doctoral research conducted at a distance from the student's academic institution. It also delves into the perceptions of both students and supervisors regarding the qualities of supervision, along with the skills and attitudes students expect and experience in their supervisors. Orellana, M. L., Darder, A., Pérez, A., & Salinas, J. (2016) xThe findings of the association between research competencies and supervisory style are obviously affected by the researchers' developmental stage, as demonstrated by this study. Postgraduate supervision involves more than just being an expert in the field; it also requires establishing a strong professional relationship with the student.While it is important to meet students' requirements, supervisors also have a responsibility to ensure that students develop their research skills suggested by (Grant, 2014)xi. Relationship-focused leadership is frequently contrasted with a task-oriented supervisory style. One focuses on the activities required to accomplish objectives, and the other on the connections needed to keep research students engaged in their study.

Significance of the Study

The significance of this study lies in its contribution to understanding the crucial relationship between supervisory styles and the development of research competencies among postgraduate students. By identifying a moderate, positive correlation between the task-oriented supervisory style and students' research capabilities, the study offers empirical evidence supporting the practical, focused engagement of supervisors as a key driver of research skill acquisition. Grounded in self-determination theory, the findings reinforce the idea that supervisory approaches fulfilling students' psychological needs—autonomy, competence, and relatedness—are integral to research success. Furthermore, the study highlights the multidimensional nature of effective supervision, as reflected in the Supervisory Styles

Inventory (SSI), showing that attributes such as warmth, interpersonal sensitivity, and task focus all significantly influence supervision outcomes and student satisfaction. These insights are especially relevant for academic institutions aiming to improve the quality and effectiveness of research training, particularly in contexts where distance learning or limited face-to-face interaction is prevalent. The study also has practical implications for supervisor development programs, suggesting that enhancing supervisors' competencies and adaptability to different supervisory roles can foster stronger professional relationships and improved research outputs. Ultimately, the study underscores the pivotal role of supervisory style in shaping students'

research experiences and outcomes, thereby contributing to higher completion rates, better research quality, and more competent future researchers.

Conclusion: This study investigates how research competencies relate to supervisory styles among research students. Here, "roles" refer to the tasks and obligations associated with supervision, while "supervision styles" denote the approaches supervisors use to guide, which may evolve over time and involve different techniques matched with specific roles. The study emphasizes the importance of supervisors possessing adequate intensity levels, skills, and competencies to effectively fulfil their responsibilities. Ultimately, this research aims to improve the research journey by addressing student needs and supporting the enhancement of their research competencies.

Recommendations: This study provides valuable insights for supervisors, teachers, guides, and mentors to adopt an effective supervisory style conducive to the development of research skills and competencies among researchers. Supervisors play a crucial role in ensuring the achievement of research students' goals and objectives, as well as their satisfaction with their projects. Additionally, further research is warranted to investigate the expectations of both students and supervisors regarding the qualities desirable in a research supervisor. Such exploration would be beneficial in understanding how students' expectations align with supervisors' attributes conducive to the development of research competencies.

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