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Perseverance of Students Social and Emotional Learning, Academic Growth, and Standardizing Mindset: An Influence of Instructional Strategies

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Abstract

Rapid changes of modern world have caused the Higher Education System to face a great variety of challenges. Therefore, refined teaching strategies and training more eager, thoughtful individuals in interdisciplinary fields are required. Thus, research and exploration to figure out useful and effective teaching and learning methods are one of the most important necessities of educational systems. Hence the study is planned to check the impact of refined teaching strategies, students' social and emotional learning, academic growth, standardizing mind set. A cross sectional, correlative and descriptive survey research design was used to undertake the study. The study was carried out in the South Punjab with a sample size of 300 through a soundly valid and reliable structured questionnaire as an instrumenten compassing Likert-type scale.Results depicted that teaching strategies straightforwardly play imperative role for the development of all learning factors such as social and emotional learningF (1, 298) = 7.236; p <0.05, academic growthF(1, 298) = 5.785; p <0.05, standardizing mindset of students included in study and association between the teaching strategies and learning of the students'x^2 (4) = 9.4983, p = 0.04978. T-test findings also showed the Significant difference between the teaching strategies and the students' social and emotional learning ($t_{285.065}$ = -.79559, p < .008) and students' academic growth ($t_{283.187}$ = -.71381, p < .017) however model shows the non-significant difference regarding the students' standardizing mindset ($t_{290.516}$ = .17501, p < .069).There was a significant association among the teaching strategies and the students' learning (*x-square* $_{9.4983}$ = 4, p < .049).

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Keywords

Academic Learning and Growth, Standardized Mindset, Students, Social and Emotional Learning, Teaching Strategies

Introduction

In the process of teaching and learning, a teacher is an important figure, because he/she drive along the curriculum so that all over the year entire important knowledge is supplied to the students. At any level, the major objective of teaching is to brought out a meaningful change in the learner (Tebabal &Kahssay, 2011). Majority of the traditional methods were least practical, more theoretical memorizing and teacher- centered with no activity for the learners making them inactive and therefore getting knowledge from the teacher without increasing their level of engagement with the subject matter (Tebabal & Kahssay, 2011). Student-centered approaches are more effective and encouraged because they accept the concept of discovery learning (Brindley, 2015). Student centered approach is mostly applied by teachers to promote analytical research, interest, enjoyment and critical thinking among students (Hesson & Shad, 2007). Teachers use the appropriate method and pedagogy to transfer the knowledge that best suits the learner and suit the desired outcomes and objectives. In various subject areas the poor academic performance by a number of the students is mainly linked to the Implementation of ineffective teaching strategies by teachers to transmit knowledge to learners and therefore teachers are required to be well acquainted with plenty of teaching strategies (Adunola, 2011). Teaching is a profession of those who Pass on skills or knowledge, particularly in an elementary or a secondary or in a university. Ayeni (2011), states that teaching can be defined as a structured way of transferring attitudes, skills and knowledge in accordance with professional essentials. In the traditional era, many teaching professionals greatly implement teacher – centered method to transmit knowledge to students as compared to student – centered methods. Until today, queries about productiveness of teaching methods on students learning have systemically elevated substantial interest in the thematic field of education research (Hightower et al., 2011).

Today's students find it hard to regulate their learning process with the increase in technological advancement. There, teachers have established innovative instructional strategies and programs, to help students to attain their academic goals. Teachers' instructional strategies

guide, monitor and facilitate students' learning by affecting their academic performance in positive manner. Furthermore, instructional strategies prepare students with the assisting their academic progression and essential learning competencies. It is indicating that instructional strategies are highly required to influence the students' learning performance and evolve specialized skills (de Boer et al., 2018). Indeed, by stimulating positive learning outcomes instructional strategies improve students' understanding (Obergriesser & Stoeger, 2020).

Materials and Methods

Research Design

A cross sectional, correlative and descriptive survey research design was used to undertake the study. Dependent (response) variable were factors responsible for students' learning. Independent variables were information sources regarding emotional intelligence, transformational leaderships and effectiveness for higher education institutions in Punjab Pakistan.

Study area

Fig. 1. Source;

https://www.researchgate.net/publication/347065133_Prevalence_and_antibiotic_resistance_of_Salmonella_spp_in_South_Punjab-Pakistan/figures?lo=1

Population and Sample

Target population was students of in higher education institutions of South Punjab. Purposive sampling technique was used in which three districts; Multan, Dera Ghazi Khan and Rahim Yar khan were selected. Of 3 districts, 100 respondents from higher educational institutions were selected through random sampling technique to make total of 300 sample size.

Instrumentation

A structured questionnaire was used as an instrument for data collection. Instrument was divided into main sections and sub-sections. Respondents opinion were recorded using Likert-type scale. Instrument' validity was checked through sending the instrument to the educational engineers and experts from the Department of Education, The Women University Multan for validation. in accordance experts' suggestions, instrument was improved (Mugenda and Mugenda, 2003).As for as reliability concerned, instrument was pre-tested on 60 respondents from study area from different locations and days to ensure response homogeneity and adjustments were made accordingly. Cronbach's Alpha was used to calculate instruments' reliability coefficient. Total variance was calculated first, then individual variances, and finally the sum of individual variances. Finally, Cronbach's alpha coefficient was calculated using the given below Cronbach's formula.

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k} \sigma_i^2}{\sigma_X^2}\right)$$

Where;

K=number of items

sigma-i= variance of item i

sigma-X= is total score variance

Data collection and analysis

Instrument was approved and proper permission was sought and commence data collection. Potential respondents were interviewed by the researcher at their institutions. Before data collection, the participants were informed about the objectives of this study, and confidentiality. Fortunately, response rate was successfully 100% with extraordinary efforts and follow-ups.Data was coded and analyzed using Statistical Package for Social Sciences (SPSS) version; 2.0 and 'R' software and described through descriptive and inferential findings.

Results and Discussion

Table-1

Respondents' demographic characteristics

Age	Frequency	Percentage (%)
19-23	107	35.5
24-28	117	38.8
29-33	60	20.0
34-38	14	4.70

39-43	2	0.7
Residential area		
Upper/ North Punjab	26	8.6
Middle Punjab	45	14.2
South Punjab	229	77.2
Education level		
Undergraduate/Master	162	53.8
M. Phil	100	33.3
PhD	38	12.9
Degree programs		
Biological sciences	07	1.3
CS/IT	16	5.07
Basic sciences	92	30.4
Religious, Social, Arts & humanities	145	48.2
Agri. and Envir. Sciences	03	1.0
Language sciences	16	5.4
Business sciences	24	8.0
Medical sciences	3	1.0
Achievements		
High	264	87.7
Low	36	12.3
GPA (Grade Point Average)		
2.0-2.5	10	3.3
2.5-3.0	04	1.3
3.0-3.5	121	40.3
3.5-4.0	163	54.9

Results revealed that maximum almost 74% respondents were fairly youth and mature enough and rest (26%) were between the ages of 29-43 and capable to respond to the desired questions. Results showed the geographically diversified respondents' distribution; (77.2%) South Punjab, (14.2%) middle Punjab and (8.6%) belonging to Upper/ North Punjab. Respondents' education level profile was good since 53.8% were continuing their undergraduate while (33.3%) M.Phil. and (12.9%) doing doctor of Philosophy (Ph.D.). Maximum (78.4%) were studying under the faculties of Religious, Social, Arts & humanities sciences and Basic sciences(48%), (30.4%) respectively following the CS/ IT, Languages and business sciences (5.07%), (8.0%) and (5.4%) respectively. Maximum respondents (87.7%) were holding highest achievements in their academics while only (12.3%)respondents declared low achievements.54.9% respondents were having a GPA between 3.5-4.0, 40.3% between 3.0-3.5. Only (4.4%) were holding less than 3.0 GPA. Overall profile of respondents' GPA was excellent because almost 95% were securing GPA from 3.0-4.0.

Association among the teaching strategies and students learning

Table-2

Chi-square tests

	X-squared	df	Asymp. Sig. (2-sided)/ p-value
Pearson Chi-Square	9.4983	4	0.04978

In Pakistan, for a long time the traditional teaching strategies has been practiced, so are generally preferred. However, the advanced and refined teaching strategies broadly impact the students learning in many ways. During the study the hypothesis was generated such as: there is association between the teaching strategies and learning of students'. Findings of chi-square test of independence revealed that there was a statistical significance association between the teaching strategies and students' learning choices used by the respondents x^2 (4) = 9.4983, p = 0.04978 (see above table) and it is concluded that both the teaching strategies and students' learning choices are inter-dependent, which means their learning depends on the teaching strategies/ methodologies.

Effect of teaching strategies on students' social and emotional learning

Table-3

Mean, standard deviation and ranking distribution regarding the effect of teaching on the students' social and emotional learning (N=300)

Items	N	Mean	SD	Ranking
Recognizing emotions in self and others	300	3.35	1.070	11
Regulating and managing strong emotions (positive and negative)	300	3.61	1.052	9
Respecting others and self-appreciating differences	300	3.72	1.065	4
Problem solving, decision making, and planning	300	3.72	1.146	4
Resisting negative peer pressure	300	3.48	1.263	10
Cooperating, negotiating, and managing conflict nonviolently	300	3.61	1.175	9
Working effectively in groups	300	3.76	1.120	2
Showing ethical and social responsibility	300	3.68	1.190	8
Promoting Empathy	300	3.71	1.099	5
Pose Self-Motivation	300	3.70	1.170	6
Increase Self-Development	300	3.75	1.130	3
Maintain Altruistic behavior	300	3.68	1.120	8
Developing a caring attitude towards others	300	3.77	1.129	1
Developing a work ethic in order to achieve their academic goals	300	3.76	1.086	2
Enabling them to interact meaningfully with peers and teacher	300	3.69	1.166	7
Making them feel competent, cared and secure in the class	300	3.76	1.185	2

The students' social and emotional learning was significantly impacted by the teaching strategies, survey revealed. The strongly contributing indicator were the development of caring attitude (3.77±1.129), development of work ethics and academic goals (3.76±1.086), group working (3.76±1.12),maintenance of altruistic behavior (3.68±1.120),promoting the empathy (3.71±1.099), feeling cared and secure in the class (3.76±1.185), and self-motivating (3.70±1.170) (Weinert and Kluwe 1987).Conclusion; teaching strategies straightforwardly play imperative role for student'social and emotional learning. Our results are in-line with the (Connell and Wellborn, 1991) who described that students' engagement through teaching strategies help them towards learning.

Analysis of Variance Model

Table-4
Impact of Teaching Strategies on Student's Social and Emotional Learning

		SS	d.f	MS	F	Sig.
Impact of Teaching Strategies on Student's Social and Emotional Learning	Between Groups	658.75	1	658.746	7.236	.008
	Within Groups	27130.49	298	91.042		
	Total	27789.23	299			

ANOVA model's results also revealed significant impact of teaching strategies in helping students build their overall social and emotional learning. Model was deemed significant at 5% level of significance, as of the values: $F(1, 298) = 7.236$; $p < 0.05$.

Self-awareness.

Table-5
Mean, standard deviation and ranking distribution regarding self-awareness

Items	N	Mean	SD	Ranking
Keep an open mind	300	3.55	1.139	6
Being mindful of strength and weaknesses	300	3.68	1.091	2
Setting the boundaries	300	3.60	1.091	5
Practicing the self-discipline	300	3.64	1.120	3
Developing the confidence	300	3.78	1.203	1
Consideration of how your actions affect others	300	3.63	1.199	4

Results of survey revealed that self-awareness is imperative for individuals' personal characteristics and can appropriately be created through inculcating confidence in students (3.78±1.203). Findings constructively support teaching strategies for contributing in being mindful of strength and weaknesses in students (3.68±1.091), practicing self-discipline

(3.64±1.120), consideration of how their actions are affecting others (3.63±1.199), and setting the boundaries (3.60±1.091).

Self-management..

Table-6
Mean, standard deviation and ranking distribution regarding the self-management

Items	N	Mean	SD	Ranking
Goal setting	300	3.53	1.101	4
Behavior monitoring	300	3.67	1.101	3
Self-reinforcement	300	3.70	1.075	2
Self-evaluation	300	3.72	1.162	1

Findings depicted that refined teaching strategies strongly impact the self-management through holding the self-reinforcement and control (3.70±1.075), self-evaluation and regulation(3.72±1.162) on emotions, thoughts, and behavior in effective fashion. Survey showed that these encompasses the self-motivation and well-functioning personally and professionally through behavior monitoring (3.67±1.101), and goal setting (3.53±1.101). Conclusion: In order to help students, develop and integrate self-management for a better personal and academic life, instructional tactics are a crucial component

Analysis of Variance Model

Table-7
Impact of Teaching Strategies on the students' self-management

		SS	df	MS	F	Sig.
Self-Management	Between Groups	148.82	1	148.82	15.899	.000
	Within Groups	2789.60	298	9.36		
	Total	2938.43	299			

The ANOVA model also depicted that teaching strategies significantly provide assistance to the students in developing self-management skills with the values, $F(1, 298) = 15.899$; $p < 0.05$, were judged to be significant at 5% level of significance (table below).

Social awareness.

Table-8
Mean, standard deviation and ranking distribution regarding the social awareness

Items	N	Mean	SD	Ranking
Becoming active listener	300	3.53	1.192	5
Demonstrating the empathy and compassion	300	3.60	1.066	4
Understanding the facial expressions	300	3.78	1.105	2
Understanding the body language	300	3.76	1.119	3

Understand tone of voice	300	3.91	1.116	1

Survey findings found leaning the students' perceptions and standpoints with inquisitiveness to further get by the learning through teaching strategies. Result showed constructive tendencies regarding tone of voice (3.91±1.116), understanding body language (3.76±1.119), empathy and compassion' demonstration (3.60±1.066), and understanding facial expressions (3.78±1.105). Conclusion; all social awareness indicators were influenced and can be inculcated in students by teaching methods.

Analysis of Variance Model

Table-9

Impact of Teaching Strategies on Students' social awareness

		SS	df	MS	F	Sig.
Social Awareness	Between Groups	167.97	1	167.97	12.268	.001
	Within Groups	4080.40	298	13.69		
	Total	4248.38	299			

The results of ANOVA model found that teaching strategies significantly impact the students'social awareness. Model's found significant at the 5% level of significance with the values $F(1, 298) = 12.268$; $p < 0.05$. (table below).

Relationship skills .

Table-10

Mean, standard deviation and ranking distribution regarding the social awareness

Items	N	Mean	SD	Ranks
Initiating contact and cultivate constructive friendship	300	3.37	1.216	7
Communicating fluently and effectively	300	3.76	1.049	2
Confidently sharing the thoughts and feelings	300	3.75	1.136	3
Practicing the teamwork	300	3.71	1.173	5
Mutually cooperating with one another	300	3.68	1.099	6
Reducing bullying and hurting self-respect	300	3.74	1.123	4
Seeking and offering help/ support when needed	300	3.79	1.144	1

Results showed that teaching strategies assists the students to communicate fluently and effectively and seeking and offering help/ support when required (3.76±1.049),(3.79±1.144)respectively. Teaching strategies also impacting them through

confidently sharing thoughts and feelings (3.75±1.136), reducing bullying and hurting self-respect (3.74±1.123), teamwork (3.71±1.173), mutual cooperation (3.68±1.099), and contact initiation and cultivation of constructive friendship (3.37±1.216).

Decision making skills .

Table-11
Mean, standard deviation and ranking distribution regarding decision making skills

Items	N	Mean	SD	Ranking
Approaching the situation logically	300	3.33	1.145	8
Gathering the information regarding problem precisely	300	3.64	1.126	5
Setting the priorities	300	3.36	1.211	7
Analyzing the situation and opinions accurately	300	3.61	1.056	6
Brainstorming the possible solution as stepping stone	300	3.69	1.050	3
Setting timelines regarding various tasks	300	3.73	1.090	2
Making appropriate choices	300	3.65	1.119	4
Taking the actions	300	3.78	1.124	1

Findings revealed that teaching strategies trigger students' decision-making skills in constructive way through 'taking actions' and 'setting timelines regarding various tasks' (3.78±1.124) and (3.73±1.090)respectively. Survey revealed, these also enhances brainstorming method (3.69±1.050), making appropriate choices (3.65±1.119), gathering information regarding problem precisely (3.64±1.126), analyzing situation and opinions accurately (3.61±1.056), and setting priorities (3.36±1.211).

Impact of Teaching Strategies on standardizing growth mindset of Students

Table-12
Mean, standard deviation and ranking distribution regarding the impact of teaching strategies on standardizing mindset of the students (N=300)

Items	N	Mean	SD	Ranking
Foster the Stress management in academic pressure	300	3.41	1.169	15
Enhancing self- awareness regarding academic growth and development	300	3.68	1.108	8
Fostering the cross-race relations	300	3.56	1.070	14
Encouraging engagement with academic challenges- a way forward for real life issues	300	3.69	1.079	7
Celebrating corrections of mistakes for boosting up their academic stability	300	3.70	1.201	6
Valuing process over result	300	3.75	1.142	2
Providing attainable challenges and real based solutions	300	3.65	1.151	10
How to face and logically accept the constructive criticism	300	3.59	1.128	13
Viewing failure as experience and learning	300	3.68	1.229	8

Developing willingness to try new things	300	3.60	1.115	12
Sticking students with hard tasks and pulling them up and not give up	300	3.64	1.209	11
Pushing to do their best work, not just what's good enough	300	3.74	1.098	3
Developing believes to themselves and their ability to learn	300	3.66	1.139	9
Using literature that show how to overcome educational and personal problems	300	3.73	1.128	4
Designing activities that involve cooperative rather than competitive individualistic work	300	3.77	1.105	1
Providing opportunities for self- evaluation	300	3.72	1.221	5
Developing self-efficacy	300	3.77	1.100	1

Survey result showed significant impact of teaching strategies on all indicators such as designing activities that involve cooperative rather than competitive individualistic work (3.77±1.105),developing self-efficacy(3.77±1.100) and valuing process over results (3.75±1.142) are the most important factors in the development of standardizing mindset of students. Of many indicators, sing literature to overcome educational and personal problems (3.73±1.28), provides self-evaluation (3.72±1.221), celebrating corrections of mistakes for increasing the academic stability (3.70±1.201), engage with academic challenges- a way forward for real life issues (3.69±1.079), motivate to view failure as experience and learning (3.68±1.229) and developing believes to themselves and their learning ability (3.66±1.139) also found encouraging. So much so all the indicators of standardize mindset of students are constructively influenced by teaching strategies.

Impact of teaching strategies on the academic growth of the students

Table-13

Mean, standard deviation and ranking distribution regarding the impact of teaching strategies on academic growth of the students (N=300)

Items	N	Mean	SD	Ranking
Providing skills to manage and enhance the available resources	300	3.34	1.184	17
Enabling them to become decently organized in studies	300	3.71	1.091	6
Encouraging to use instructor office hours	300	3.58	1.096	14
Experience the technology-based teaching	300	3.74	1.118	4
Developing good study habits	300	3.80	1.109	1
Enabling to connect comfortably with classmates for studies	300	3.70	1.150	7
Enabling to Know academic legalities/ limits	300	3.65	1.152	11
Reducing absenteeism by conducting interesting teaching sessions	300	3.67	1.136	10
Maximizing the engagement in content	300	3.65	1.151	11

Introduce new concept, skills and understanding	300	3.69	1.119	8
Tracking performance	300	3.68	1.176	9
Making assignments, test or project meaningful	300	3.68	1.126	9
Providing opportunities of feedback	300	3.62	1.222	13
Promoting the study' interest and routine accordingly	300	3.64	1.149	12
Encouraging the critical thinking and learning	300	3.62	1.146	13
Allowing sufficient time for hand-on practice in the class	300	3.57	1.129	15
Finding enjoyable academic activities	300	3.68	1.155	9
Fostering Self-assessment	300	3.64	1.092	12
Helping to do tasks priority-wise and time management	300	3.77	1.119	3
Practice exam	300	3.78	1.120	2
Helping to feel as important segment of school and society	300	3.72	1.196	5
Teaching according to their individual difference	300	3.52	1.214	16
Encourage for asking question	300	3.74	1.127	4

As per respondents' perception, teaching strategies notably impact students' academic growth. Survey results showed that all indicators such as developing good study habits (3.80±1.109), practice exams (3.78±1.120), helping to draw to do tasks priority-wise and time management (3.77±1.119), technology-based teaching' (3.74±1.118), to feel important segment of school (3.72±1.196), enable to become decently organized in studies (3.71±1.091), and enable to connect comfortably with classmates(3.70±1.150). Teaching strategies found equally important about introduction to new concept, skills (3.69±1.12), tracking assignments (3.68±1.176), and making assignments, test, project meaningful (3.68±1.126). Conclusion; all indicators were significantly influenced and enhanced through the teaching strategies to think critically and analytically (Capraro, 2013).

Analysis of Variance Model

Table-14

Impact of Teaching Strategies on academic growth of Students

		SS	df	MS	F	Sig.
To Determine the Impact of Teaching Strategies on academic growth of Students	Between Groups	1155.92	1	1155.92	5.785	.017
	Within Groups	59545.26	298	199.81		
	Total	60701.18	299			

ANOVA model also found significant F(1, 298) = 5.785; p <0.05. at 5 % level of significance hence teaching strategies significantly help students to perform well in their academic activities.

Potential Constraints for Implementation of Refined Teaching Strategies

Table-15

Mean, standard deviation and ranking distribution regarding the potential constraints for implementation of advanced and refined teaching strategies (N=300)

Items	N	Mean	SD	Ranking
Competitive ethos	300	2.09	.637	5
Inadequate technical training	300	2.14	.741	4
Rigid curriculum compliance	300	2.14	.681	4
Lack of technical resources	299	2.18	.760	3
Bell-curved thinking	300	2.23	.683	1
Not aligned with schools' objects-of-activity	300	2.21	.723	2

The 'Bell-curved thinking' (2.23±0.683) is biggest constraint opposite to its general counterpart concept 'competitive ethos' (2.09±0.637) however respondents also marked the 'Not aligned with schools' objects-of-activity' as a second highest constraint (2.21±0.723). Other constraints such as 'inadequate technical training' (2.14±0.741), 'rigid curriculum compliance' (2.14±0.681) and lack of technical resources (2.18±0.760). It is concluded that the given constraints pose negative affect in implementation of refined teaching strategies. On the basis of findings, it is recommended that there must be transparent policies of overcoming these issues in the academics for the better educational growth and development in the country.

T-Test

H_0: $\mu_{\text{teaching strategies do not affect student learning}} = \mu_{\text{teaching strategies affect student learning}}$

H_1: $\mu_{\text{teaching strategies do not affect student learning}} \neq \mu_{\text{teaching strategies affect student learning}}$

The hypothesis was constructed as per need and purpose of the study in such a way that the refine teaching strategies increase students' learning, help them with standardizing their mindset and academic learning compared to traditional teaching methodologies. It was undertaken to determine the evidence of a significant difference between population means and a hypothesized value. Results revealed a significant difference because the t-test p=0.000 which > than alpha i.e. 0.05. Since $p < .001$ is less than our selected significance level $\alpha = 0.05$, in some parameters and hence consequently the null hypothesis is rejected and stated accordingly. t-Test computations are given below one by one.

Impact of Teaching Strategies on Student's Social and Emotional Learning

Table-16

Impact of Teaching Strategies on Student's Social and Emotional Learning

Statements		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of Diff. Lower	Upper
Impact of Teaching Strategies on Student's Social and Emotional Learning	Equal variances assumed	11.684	.001	-2.690	298	.008	-2.96425	1.10199	-5.13292	-.79559
	Equal variances not assumed			-2.704	285.065	.007	-2.96425	1.09643	-5.12238	-.80612

Given that the t-test, p=0.008, is less than alpha, or 0.05, it may be concluded that there is a significant difference. It follows that refined teaching strategies have a significant impact on students' social and emotional learning.

Impact of Teaching Strategies on standardizing growth mindset of Students

Table-17

Impact of Teaching Strategies on standardizing growth mindset of Students

Statements		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of Diff. Lower	Upper
To Check the Impact of Teaching Strategies on standardizing growth mindset of Students	Equal variances assumed	6.737	.010	-1.827	298	.069	-2.27411	1.24450	-4.72323	.17501
	Equal variances not assumed			-1.835	290.516	.068	-2.27411	1.23952	-4.71368	.16546

The t-test result regarding this section showed p=0.068, which is greater than alpha, or 0.05, indicating that there is no significant difference and null hypothesis was rejected.

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Impact of Teaching Strategies on academic growth of Students

Table-18

Impact of Teaching Strategies on academic growth of Students

Statements		Levene's Test for Equality of Variances		t-test for Equality of Means						
								Std.	95% Confidence Interval of Diff.	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Error Diff.	Lower	Upper
To Determine the Impact of Teaching Strategies on academic growth of Students	Equal variances assumed	12.602	.000	-2.405	298	.017	-3.92664	1.63257	-7.13946	-.71381
	Equal variances not assumed			-2.418	283.187	.016	-3.92664	1.62383	-7.12295	-.73033

T-test model was significant, p=0.017, that refer the advance teaching strategies have a significant effect on students' academic development.

So, based on the above-mentioned results computed from the t-test model, it is stated that

- There was a significant difference between the teaching strategies and the students' social and emotional learning ($t_{285.065}$ = -.79559, p < .008) and students' academic growth ($t_{283.187}$ = -.71381, p < .017) however model shows the non-significant difference regarding the students' standardizing mindset ($t_{290.516}$ = .17501, p < .069).
- There was a significant association among the teaching strategies and the students' learning (*x-square* $_{9.4983}$ = 4, p < .049).

Correlation analysis between teaching strategies and students' social and emotional learning, standardizing mindset and academic growth

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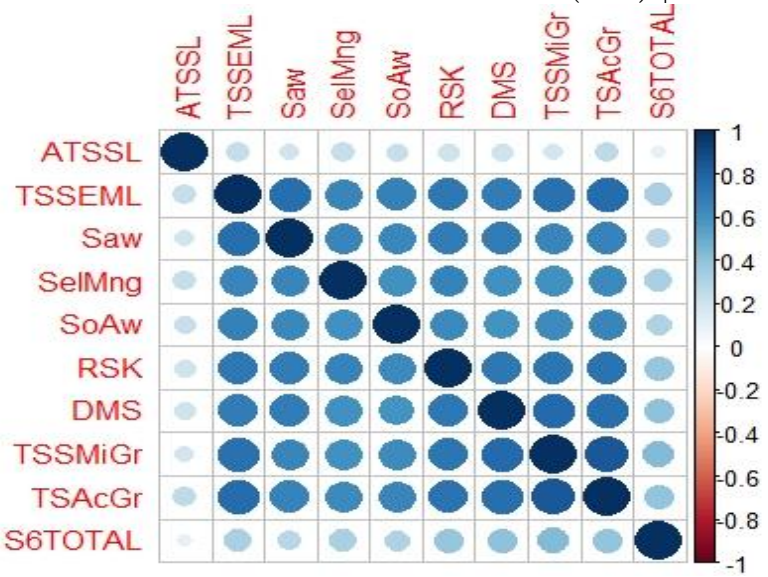

Fig. 2. Correlation between different teaching strategies and students learning parameters. ATSSL= association among teaching strategies and students learning, TSSEML=teaching strategies and students social and emotional learning, Saw= Self-awareness, SelMng= Self-management, SoAw= Social awareness, RSK= Relationship skills, DMS= Decision making skills, TSSMiGr= Teaching strategies and standardizing mind growth, TSAcGr= Teaching strategies and academic growth.

Mostly parameters were found strongly and positively correlated in their correlation while some are non-significantly correlated. Same is observed for the negative correlations. Strongest positive correlation is observed between TSSEML and Saw, TSSMiGr and TSAcGr, DMS and TSSMiGr, TSAcGr and DMS. A moderately significant and positive correlation was computed between the SelMng and SoAw, RSK and SoAw. This means that an increase in the value of any of these parameters leads to an increase in the correlated parameters. A negative and moderately significant correlation was observed between SoAw and DMS, TSSMiGr and SelMng. This depict that if the value of one of these parameters increase, the other decrease. The results also showed that ATSSL is the independent of this study. This affect all the correlations with the values close to zero.

PCA Biplot analysis between teaching strategies and students' social and emotional learning, standardizing mindset and academic growth

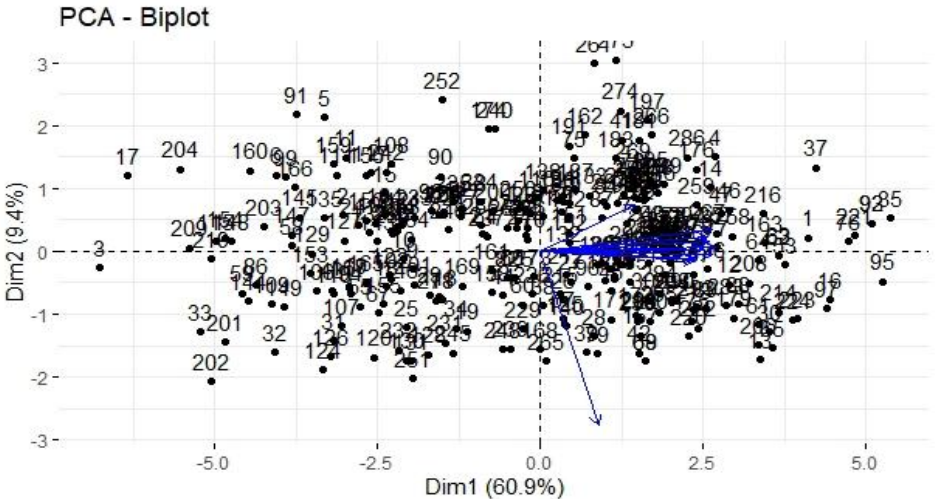

Fig. 3.PCA Biplot showing the effect of teaching strategies and students learning parameters. ATSSL= association among teaching strategies and students learning, TSSEML=teaching strategies and students social and emotional learning, Saw= Self-awareness, SelMng= Self-management, SoAw= Social awareness, RSK= Relationship skills, DMS= Decision making skills, TSSMiGr= Teaching strategies and standardizing mind growth, TSAcGr= Teaching strategies and academic growth

The relationship between students' learning parameters and teaching strategies is depicted in Figure 4, along with the impact of teaching strategies on these relationships. 60.9% of the data on axis 1 and 9.4% of the data on dimension 2 are provided by this principal component analysis (PCA), making up 70.3% of the data for the full projection. The most explanatory variables in the dimensions are the students' learning parameters. There is a strong positive correlation between TSSEML and Saw, TSSMiGr and TSAcGr, DMS and TSSMiGr, TSAcGr and DMS and are with dim2. While a moderately significant and positive correlation is computed between the SelMng and SoAw, RSK and SoAw. However, SoAw influenced by DMS and TSSMiGr influenced by SelMng and are negatively correlated and, are present at both dims.

Conflict of interest: The author declares no conflict of interest

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