Original Article

Learning Approaches Adopted by Preservice Teachers

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ABSTRACT

Knowledge about the learning approaches is very critical for teachers in planning teaching-learning activities. Learners relate their previous experiences in learning new concepts. Then, the type of learning approach adopted by the learner will enable him/her to interact with course material and attain learning outcomes. According to the Approaches and Study Skills Inventory for Students (ASSIST), the learners follow deep, surface, or strategic learning approaches or a combination of two or all three of them. The present study is a survey type wherein the 18-item questionnaire, a short version of ASSIST is administered to the undergraduate (BEd) and postgraduate (MEd) students (preservice teachers) of the University College of Education, Osmania University, Hyderabad. Forty students responded to the inventory. Data is analysed with Cronbach's Alpha, coefficient of correlation, t-test, and ANOVA. T-test for learning approaches and gender (2.024); coefficient of correlation for academic achievement and deep approach and strategic approach (.503); strong relationship with SGPA 8.00 for Surface approach, 9.00 for Deep approach and 6.00 for Strategic approach. Age and learning approach ANOVA is .833 and BEd second-semester preservice teachers adhered to a deep approach. The study concludes that the deep approach is the most popular learning approach; the learning approach affects academic achievement, gender, and level of semesters of study of the preservice teachers and does not affect approaches to learning.

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INTRODUCTION

The methods that students employ to study and learn may enhance or degrade academic results. Teachers must therefore be aware of these strategies. Improved academic results may result from a focused or strategic style of studying combined with initiatives that pique learners' engagement in the subject. The examination of recalled factual knowledge may also encourage learners to take surface learning and studying, as opposed to an appraisal of comprehension, which may strengthen a more in-depth style (Marton & Säljö, 1976).

According to the Approaches and Study Skills Inventory for Students (ASSIST), a learner's typical style can be classified as "deep," "surface," or "strategic," "lack of direction," or "academic self-confidence," which furnish significantly different academic achievement. Using concepts first put out by Marton & Säljö (1976), the ASSIST was created by fusing information on learning styles with explanations about strategic style. The passion for comprehending, mastering, and deciphering underlying concepts as well as connections between related principles are characteristics of deep learning. Deep learning is associated with the belief that learning should be "transformative" and a preference for instruction that fosters and tests comprehension; both processes are intimately associated with the desire to seek meaning and concern in concepts. Students who draw their studies strategically pay great attention to specifics like predicted test style, instructor study suggestions, and the way the material is organised in the text (Marton & Salto, 1976). The elements of a learning environment that will assist a student's method of study can be identified and used by students who exhibit a strategic approach. Within the strategic style, performance is significantly correlated with organised studying and time management, and links between strategy and motive are obvious. Students who use a superficial approach to learning frequently memorise facts and focus just on what is required to pass an upcoming test. Students that take a superficial approach to learning prefer instruction that focuses on assessment criteria, even though this results in a lack of knowledge and direction. Thus, deep learning is associated with the use of higher-order cognitive skills that promotes application in real life, while surface learning is mere retention of knowledge and information. Strategic learning uses both deep and surface learning methods for gaining overall meaning and process information holistically.

Objectives

This survey identifies three learning approaches (surface, strategic, and deep) in the preservice teachers (BEd and MEd students)

Research Questions

The research questions framed are:

- Does the gender of preservice teachers have an impact on the learning approach?

- Does the type of learning approach a preservice teacher in training uses depend on their level of graduation?

- Is there a relationship between academic accomplishment (measured as semester grade point average) and learning approaches?

- Do the types of learning approaches significantly differ with the age group of preservice teachers?

- Do the types of learning approaches significantly differ from the preservice teachers' study semesters?

REVIEW OF RELATED LITERATURE

Reviews of the study are discussed below.

Fifty-two questions of the ASSIST questionnaire have been found to be valid and reliable in a study conducted by Karagiannopoulou, Evangelia, Christodoulides & Pavlos (2010) among undergraduate Greek students. The three independent scales' Cronbach's alpha coefficient was adequate (the deep, the surface, and the strategic learning).

To use the findings in the organisation of study skills teaching courses, Shahidi F, Dowlatkhah, Avand, Musavi, and Mohammadi (2014) conducted a study on newly admitted students of Fasa Medical University. The findings revealed students' extent of study skills was 2.35, which was somewhat less than the norm; the maximum mean for "concentration" (2.56), while the minimum mean was for "time management" (2.05). The ANOVA test (*0.646*) revealed that there was no significant difference in the study skills ratings of students majoring in medicine, nursing, and laboratory sciences. Moreover, a t-test with a p-value of 0.584 demonstrated that no significant difference exists in the respondents' "gender" and "study skills." However, regarding "taking examinations" and "studying" (0.003), "taking class notes" and "taking exams" (*0.004*), "concentration" and "taking exams" (0.002), and "time management" and "taking exams" (0.001) differed significantly according to the findings of multiple regressions. Thus, it implies that practice-related "study habits" and "study skills" need to be offered in undergraduate or postgraduate programmes or as workshops.

Academic accomplishment and study habits were found to be positively correlated by Bulenta, Hakana, and Aydina (2015). Significant gender and departmental disparities were also discovered in undergraduates' study habits. Researchers Cebeci, Dane, Kaya, and Yigitoglu (2013) discovered that students studying medicine and law favoured a deep and strategic approach over a surface one. Third-grade medical students favoured the surface method more than first- and second-graders did. The curriculum designers must evaluate the medical students' declining interest in the deep approach.

Negash, Eshete, and Hanago (2022) found no statistically significant differences between the groups for many learning strategies and academic achievement metrics. The best predictors of students' academic success were found to be results from university entrance exams, students' comprehension of what learning is, and a serious approach to learning. Most of the learners employ deep study techniques. On many study style measures, the difference in academic performance between the groups is not significant. Entrance exam scores, a favourable opinion of the study, and a serious learning style were discovered to be accurate presages of academic progress. If we want to see better academic success and achievement, we must prioritise improving students' learning strategies.

According to Raju et al. (2022), the leading learning style adopted by agricultural learners was found to be 'strategic' (41.1%), followed by 'deep' (40.3 %) and 'surface' (15.5 %) approaches. The student learning approaches across the disciplines (Chi-square statistic = 24.106, 0.156) were not significant, while the t-statistic value of 2.248 ($p = 0.028$) is significant between postgraduate and freshman learners in the case of the 'deep approach'. Gender had a significant association (Chi-square statistic =14.817, p<0.001) with the student's learning approaches, especially in 'strategic' and 'surface' approaches. The report suggests improved teaching-learning and assessment methods to raise the standard of agricultural higher education.

The surface learning style was the most widely used learning style (mean score and SD 2.94 and 0.54, respectively), according to Brown, Stephen; White; Wakeling; and Naiker (2015). All BSc paths shared a predilection for the surface technique. Gender-

based differences did not exist in deep or surface learning styles. But in strategic learning style, males ($n = 59$) had rich mean scores than females (n=44).

According to Tait, H., and Entwistle, N. J. (2013), the typical character of the evaluation process in the first year is likely to explain why academic achievement is more strongly associated with strategic and surface learning styles than deep ones. Hence, research was done on students studying medicine, law, nursing, agriculture, and science. Studies to find out the association of gender, academic achievement, graduation level, and years of study (semester/year) between learning approaches are conducted. The present investigation is to determine how preservice teachers learn in teacher education institutions.

METHODS

The techniques and study skills of preservice teachers (students) at the University College of Education, Osmania University, Hyderabad, India, are being studied in this context using a survey and non-experimental methodology. Students in undergraduate [Bachelor of Education (BEd)] and postgraduate [Master of Education (MEd)] programmes (also known as preservice teachers) were given the 18-item approaches and study skills assessment, a short version by Entwistle (2006) ASSIST scale.

Participants

There were 40 completed inventories, including 29 MEd students and 11 BEd students (nine female and two male) (21 female and 8 male). The age distribution was as follows: 40% were between the ages of 26 and 30, 20% were between the ages of 21 and 25, and 40% were between the ages of 31 and 45. Fifty percent of the students belonged to MEd 2nd semester while 20% were BEd 4th semester remaining 22.5% and 7.5% were MEd 4 semester and BEd 2nd semester, respectively. This is depicted below.

Table 1: Sample

	Variables	Frequency	Percentage	Total
Gender	Male	10	25.0	40 (100%)
	Female	30	75.0	
Age	21-25	8	20.0	40 (100%)
	26-30	16	40.0	
	31-35	7	17.5	
	36-40	6	15.0	
	41-45	3	7.5	
Course	B.Ed.	11	27.5	40 (100%)
	M.Ed.	29	72.5	
Semester	BEd Second	3	7.5	40 (100%)
	MEd Second	20	50.0	
	BEd Fourth	8	20.0	
	MEd Fourth	9	22.5	

Instrument

Learners following poor learning styles can be identified with the ASSIST questionnaire (Tait & Entwistle, 1996). With the help of this self-reporting questionnaire, a concise profile of each student's learning styles was obtained. This helps learners to know their individual learning styles to reflect on and discuss their profiles and responses to certain questions. Although students frequently have a

rough idea of how their own "style" compares to that of others, being made aware of specific distinctions may enable them to improve their study methods and maximise their learning. The accomplishment of learning outcomes is rationally impacted by the measurement of students' distinctive study methods by the ASSIST instrument. As a result, the ASSIST was chosen in this study to determine students preferred learning styles and, consequently, to determine which students would benefit from assistance in improving their study habits.

Eighteen items in the ASSIST (Short Version) are related to three methods of studying and learning: deep, strategic, and surface. A score of 5, 4, 3, 2 or 1 is assigned depending on the responses agree, somewhat agree, unsure, slightly disagree or disagree, respectively. Scores related to the same category are added to make up students' learning styles for a learner, and a mean score for all three categories was determined. These six inquiries that made up the "deep" learning method were initially divided into three categories: looking for meaning, linking ideas, and using evidence. The six questions that made up the learning type "surface" were originally divided into three categories: lack of purpose, unconnected memorisation, and fear of failure. Organising your learning, managing your time, and achieving were the three sub-divisions that made up the six components of the "strategic" learning approach.

Collection of Data

The pupils are given the tests via a Google Form. To better design their classes, we need to understand their learning styles; thus, this was placed on their WhatsApp group with a request to fill out the form. The preservice teachers took the 18-item approaches and study skills questionnaire, a short version of Entwistle's (2006) ASSIST scale.

Statistical Analysis

Using the right statistics, the primary data from the survey were examined. To assess the uniformity of the student learning strategies, Cronbach's alpha was determined. To examine the relationship between sub-measures and academic achievement coefficient of correlation was calculated. To examine the difference among various students' learning styles and gender, graduation level, academic achievement, and semesters of study, mean scores were contrasted using the student's t-test. ANOVA is computed to find the difference between learning approaches groups of preservice teachers. Computation of statistics was carried out through SPSS Statistics 22 programme.

RESULTS

Consistency of the Tool

The three study approaches revealed by the ASSIST learning approach questionnaire are presented below.

Table 2: Cronbach's alpha

	Strategic Approach	Deep Approach	Surface Approach
No. of Items	6	6	6
Mean	24.15	25.17	18.93
SD	3.69	2.88	3.13
Cronbach's Alpha	.79	.76	.46

Strategic and deep approaches have values of 0.79 and 0.76, respectively, which suggest a high relationship, whereas a surface approach has a value of 0.46, which shows a noticeable relationship (Garrett, 1985, p. 176). As a result, the ASSIST instrument's subscales all showed strong internal consistency.

Learning Approaches

Regarding the study styles of preservice teachers (*Table 3*), the deep approach was used by the majority of students (37.5%), closely followed by the strategic method (30%). The surface method was found to be followed by about 12.5% of the students. Also, it was shown that a small percentage of students (20%) combined two learning strategies.

Table 3: Learning approaches

Variable	Category	Students' Learning Approaches			Combination
		Deep	**Strategic**	**Surface**	
Gender	Female	13 (43.4)	10 (33.3)	3 (10)	4 (13.3)
	Male	2 (20)	2 (20)	2 (20)	4 (40)
Level of Graduation	BEd	4 (36.4)	3 (27.3)	1 (9)	3 (27.3)
	MEd	11 (37.9)	9 (31)	4 (13.9)	5 (17.2)
Age	21 – 25	2 (25)	1 (12.5)	0 (0)	5 (62.5)
	26 – 30	7 (43.75)	5 (31.25)	3 (18.75)	1 (6.25)
	31 – 35	2 (28.6)	3 (42.8)	2 (28.6)	0 (0)
	36 – 40	2 (33.3)	2 (33.3)	0 (0)	2 (33.4)
	41 - 45	1 (33.3)	1 (33.3)	0 (0)	1 (33.4)
Semester	Second	9 (39.2)	6 (26)	4 (17.4)	4 (17.4)
	Fourth	6 (35.3)	6 (35.3)	1 (5.9)	4 (23.5)
Overall Total		15 (37.5)	12 (30)	5 (12.5)	8 (20)

(Values in parenthesis indicate percentage)

Thus, it is interpreted that the most popular learning style is deep learning. Students of professional courses (along with teacher education) in medicine and law practice deep learning approach as reported by Cebeci et al. (2013).

Variations in Student Learning Approaches

It was also investigated how preservice teachers' learning approaches related to their gender, academic achievement, age, semester and level of graduation.

The hypotheses for the study are:

- Male and female preservice teachers' learning approaches are not significantly different from one another.

- Preservice teachers from different graduating levels do not significantly differ in their learning styles.

- There is no relation between the preservice teachers' academic performance and their learning approaches.

- The learning styles of the various age groups of preservice teachers do not significantly differ from one another.

- The learning approaches of preservice teachers' study semesters do not significantly differ from one another.

Gender-Based

The deep approach was followed by a higher percentage of female students (43.4%) than the strategic method (33.3%), whereas the deep, strategic, and surface approaches were each followed by 20% of the male preservice teachers. Male preservice teachers were more likely to use the surface approach (*Table 3*). This finding diverges from a study by Raju et al. (2022). Gender-wise, the

mean scores for various study styles were obtained
to calculate the t-test. This is displayed below.

Table 4: Gender-wise independent sample t-test of total assist scores

Variable - Gender	N	Mean	SD	Std. Error Mean
Total Female	30	69.1000	6.61425	1.20759
ASSIST Male Scores	10	65.7000	7.19645	2.27572

Table 5. Equality of variances – t-test

Total ASSIST Scores	Equality of Variances		t-test		
	F	Sig.	t-value	df	Sig. (2-tailed)
Equal variances not assumed	.104	.749	1.320	38	.207

There were disparities in learning approaches based on gender; females had a mean score (SD) of 69.1 (6.61) compared to males 65.7. (7.19). The estimated t-value, with 38 degrees of freedom and a 5% significance level, is less than the table value (2.024). The null hypothesis is therefore accepted. This infers that gender has no bearing on the different learning approaches. This finding supports a study by Shahidi et al. (2014) and Brown et al. (2015). *Figures 1, 2, 3*, and *4* below show graphically male and female preservice teachers' learning approaches.

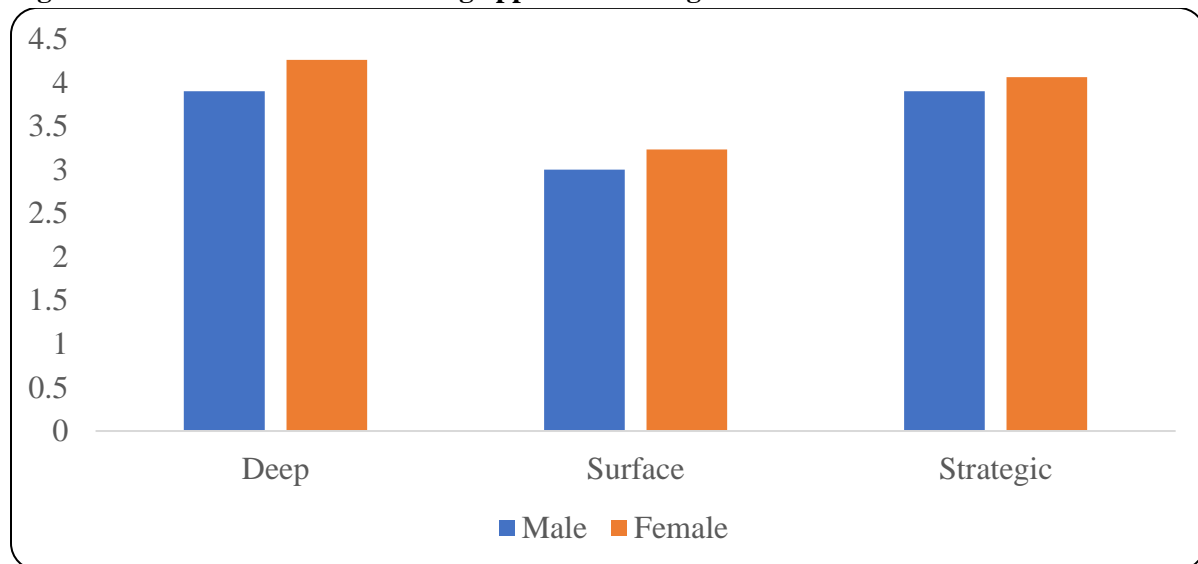**Figure 1: The mean score of learning approaches and gender**

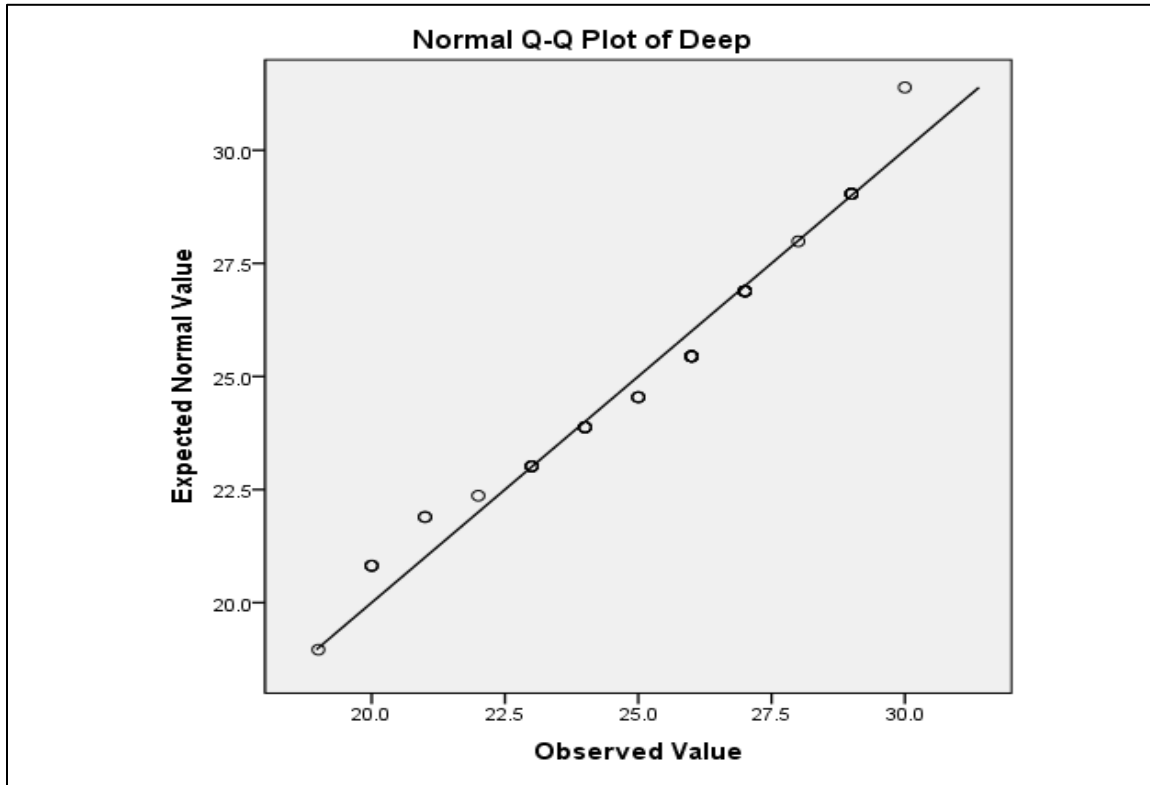**Figure 2: Normal Q – Q plot showing deep learning approach and gender**

Figure 3. Normal Q – Q plot showing strategic learning approach and gender
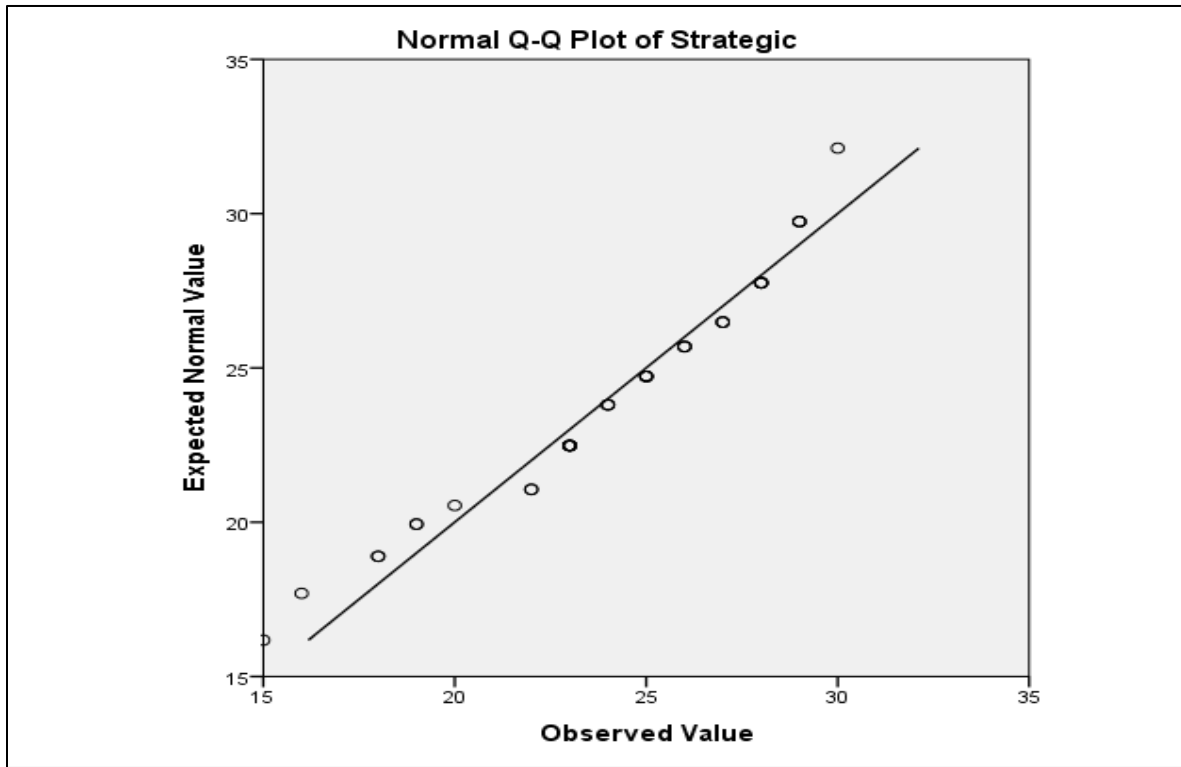
Figure 4: Normal Q – Q plot showing surface learning approach and gender
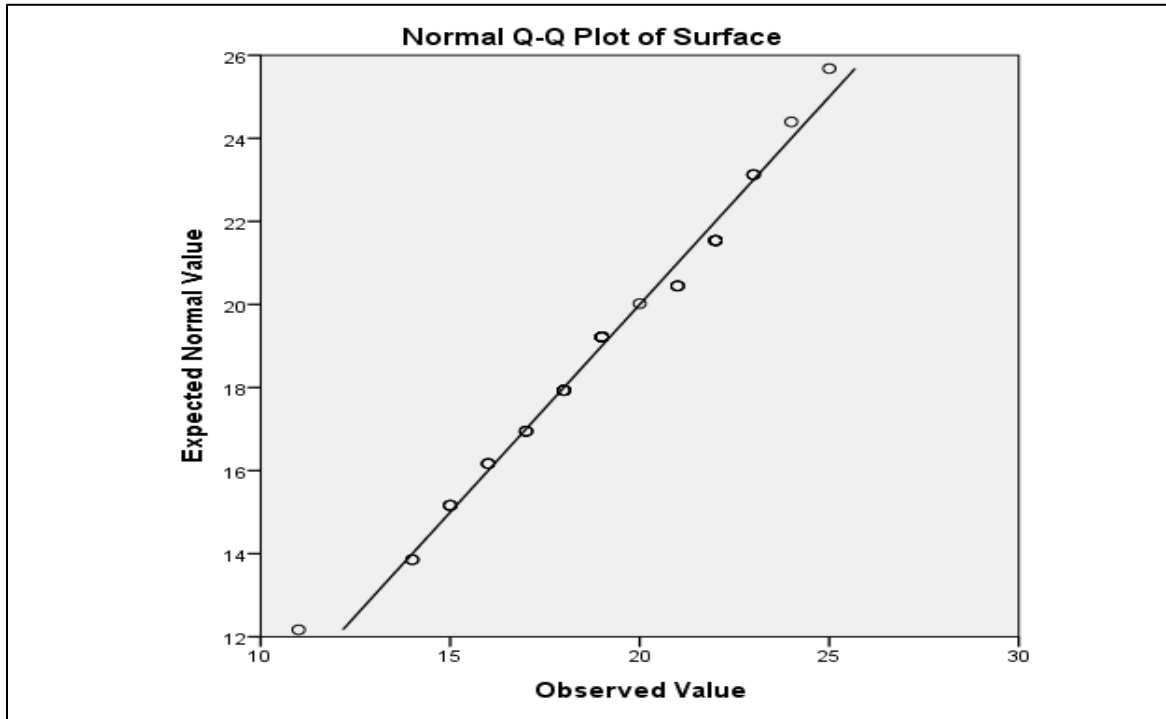

Figure 1 shows that male and female preservice teachers' learning approaches are not significantly different from one another. This is also shown in the Normal Q-Q plots (*Figures 2, 3,* and *4*).

Level of Graduation

Information pertaining to graduation levels and learning approaches is provided below. Mean scores for undergraduates and postgraduates, 68.3 (6.07) and 68.2 (7.2), respectively, are comparable. This is shown below.

Table 5: Independent sample t-test of total ASSIST and level of graduation

Variable	Course	N	Mean	SD	Std. Error Mean
Total ASSIST Scores	BEd	11	68.36	6.070	1.83041
	MEd	29	68.20	7.203	1.33758

Table 7: Equality of variances t-test

Total ASSIST Scores	Equality of Variances		t-test		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances not assumed	.444	.509	.069	38	.946

The t-value (0.069) is less than the table value (2.024) with regard to 5% significance at 38 degrees of freedom. Therefore, the null hypothesis is accepted. Preservice teachers of different degrees do not differ greatly in their learning approaches. Completion averages for learning approaches are shown below.

Figure 5: The mean score of Learning Approaches and Level of Graduation
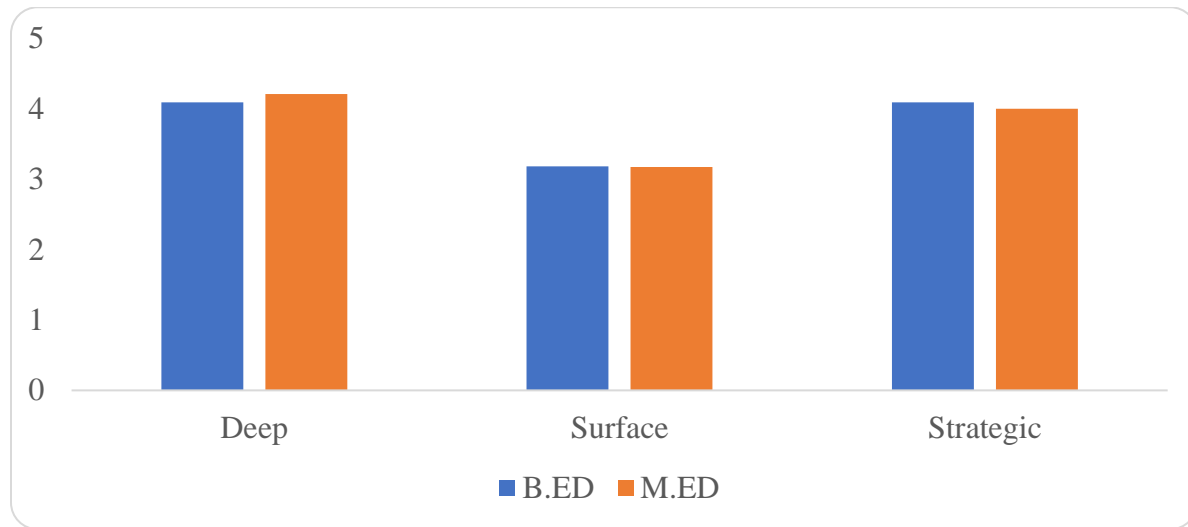
The BEd and MEd bar graphs of preservice teachers' graduation levels and learning approaches show that they are quite similar. So, it can be said that learning approach types are unaffected by graduation.

Academic Achievement

The information below relates to academic achievement and learning approaches. To find out the connection between learning styles and academic achievement (SGPA), Pearson Correlation was used.

Table 8: The correlation between academic achievement & learning approaches

		1	2	3	4
1. Academic Achievement (SGPA)	Pearson Correlation	1	-.300	-.042	.086
	Sig. (2-tailed)		.060	.795	.598
	N	40	40	40	40
2. Surface Approach	Pearson Correlation	-.300	1	-.101	.043
	Sig. (2-tailed)	.060		.535	.791
	N	40	40	40	40
3. Deep Approach	Pearson Correlation	-.042	-.101	1	.503[**]
	Sig. (2-tailed)	.795	.535		<.001
	N	40	40	40	40
4. Surface Approach	Pearson Correlation	.086	.043	.503[**]	1
	Sig. (2-tailed)	.598	.791	<.001	
	N	40	40	40	40
*** Significance - 0.01 level (2-tailed)*					

Table 8 depicts a strong relationship between academic achievement and the mean score of deep and strategic learning approaches. *Table 9* shows the relation between academic achievement and learning approaches using mean rankings.

Table 9: Ranks between academic achievement and learning approaches

Academic Achievement (SGPA)		N	Mean Rank
Surface approach 6.00		4	32.25
	7.00	22	20.45
	8.00	12	15.75
	9.00	2	26.00
	Total	40	
Deep Approach	6.00	4	17.63
	7.00	22	20.27
	8.00	12	24.79
	9.00	2	3.00
	Total	40	
Strategic Approach	6.00	4	15.38
	7.00	22	18.77
	8.00	12	26.08
	9.00	2	16.25
	Total	40	

Table 9 shows that a shallow approach to academic performance is more prominent among student-teachers with an SGPA of 8.00, whereas a deep approach is more common among teachers with an SGPA of 9.00. However, teachers with an SGPA of 6.00 tend to take a strategic approach. The relationship between future teachers' academic performance and their approach to learning is calculated through t-test. See below for more information.

Table 10: T-test between academic achievement and learning styles

Pairs	Paired Differences					t value	df	Sig. (2-tailed)
	M	SD	SE Mean	95% Confidence Interval				
				Lower	Upper			
Deep – SGPA	17.48	2.970	.46967	16.53425	18.43425	37.227	39	.000
Surface – SGPA	11.23	3.358	.53104	10.16012	12.30838	21.155	39	.000
Strategic – SGPA	16.45	3.700	.58511	15.27576	17.64274	28.130	39	.000
Total – SGPA	60.55	6.914	1.09333	58.34778	62.77072	55.390	39	.000

Table 10 shows that mean scores (SD) for the Deep, Strategic, and Surface learning styles were, respectively, 17.48 (2.97), 16.45 (3.7), and 11.23 (3.35) based on their academic achievement in the preceding semesters. For the deep approach, the t-value (37.227) exceeds the critical value (2.021) at 39 degrees of freedom and a 5% significant level. The alternative hypothesis, according to which the deep learning approach has an impact on academic achievement, is thus accepted, and the null hypothesis is rejected. For both the surface and strategic learning techniques, the t-values are higher than the critical values. As a result, it is concluded that both surface-level and strategic approaches have an impact on academic achievement. This finding supports the study by Tait & Entwistle (2013).

These findings of a positive association between academic achievement and learning approaches support the study by Bulenta et al. (2015).

Also, *Table 10* demonstrates that the deep approach is predominant in preservice teachers with a mean score (SD) of 17.48 (2.97).

Age-Based

The data related to age-based learning approaches are discussed below.

Table 11: One-way ANOVA of Total ASSIST Scores according to their age

Total ASSIST Scores	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	72.592	4	18.148	.363	.833
Within Groups	1748.908	35	49.969		
Total	1821.500	39			

Table 11 illustrates that the F-test values for the various age groups are 0.363 and the p-value is 0.833. The null hypothesis was accepted because the p-value was above 0.05. Thus, the learning styles of the various age groups of preservice teachers do not significantly differ from one another.

Semester-Based

The data relating to semester-based learning approaches are analysed and given in *Tables 12* and *13*.

Table 12: Independent sample T-test of Total ASSIST scores and semesters

Variable	Semester	N	Mean	SD	Std. Error Mean
Total ASSIST	Sem 2	23	67.6522	7.04923	1.46987
Scores	Sem 4	17	69.0588	6.65649	1.61444

Table 13: Equality of Variances – t-test

Total ASSIST Scores	Equality of Variances		t-test		Sig. (2-tailed)
	F	Sig.	t	df	
Equal variances not assumed	.002	.966	.644	38	.524

The t-value (.644) is less than the table value (2.024) at 5% significance and 38 degrees of freedom. Therefore, the null hypothesis was accepted, indicating that there is no significant difference in the learning approaches of the preservice teachers' study semesters. *Figure 6* shows the mean score for semester-based learning approaches
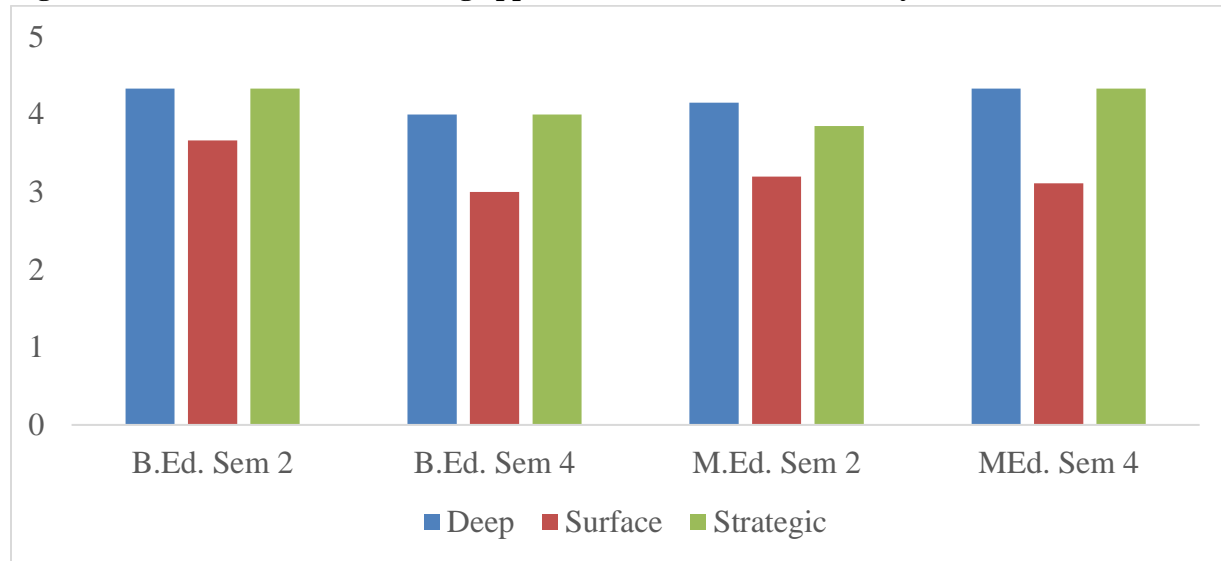
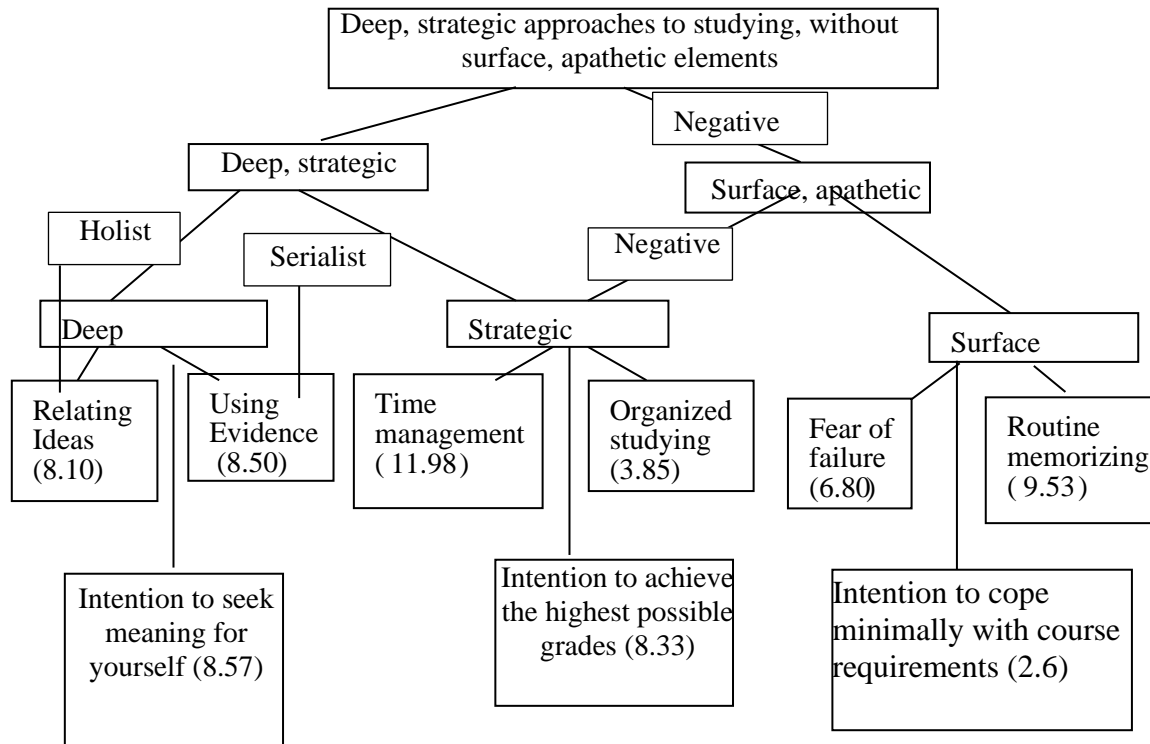**Figure 6: The mean score of learning approaches and semesters of study**

Figure 6 demonstrates that preservice teachers who are in their second semester have a mean score of 4.33 for deep and strategic approaches, while those in their fourth semester have a mean score of 4.0. The deep approach for preservice teachers pursuing MEd in the second semester is 4.15, while the same score for those seeking MEd in the fourth semester is 4.33. This tendency can be explained by the fact that preservice teachers of BEd level of graduation in the second semester adhered more closely to the deep approach than their counterparts in the fourth semester. This result is comparable to that of the Tait & Entwistle (2013) study.

DISCUSSION

Deep learning among preservice teachers is a sign of their interest in teacher education courses, which is backed by their performance. Furthermore, as seen by their mean scores, females were diligent in meeting the course's requirements. Mean scores for preservice teachers did not significantly differ by graduation level, semester, or age. Preservice teachers who use a deep approach achieve a better SGPA (9.00) than those who use a surface (8.00) or strategic approach (6.00). In two-year programmes where students with various professional goals study the same course material, teacher education is closely tied to the student's interests and may be applied both in daily life and in the classroom. The same is true when examining the curricula for teacher education, which gives equal weight to theory and praxis. In addition to 120 days of school internship, the theoretical component of the undergraduate (BEd) level includes concepts and student engagement for subjects like environmental education, reflective reading, self-development, ICT mediation in teaching and learning, school administration and management, inclusive practices, health and physical education, philosophical perspectives on education, sociological perspectives on education, and educational psychology. Preservice teachers in the postgraduate (MEd) programme are prepared to meet the needs of teacher educators since having both a postgraduate (MEd) and a traditional subject qualifies them to work in a teacher education institution. The concepts, which include English communication skills, academic writing, expository writing, self-development, and professionalism, are therefore at an advanced level compared to that of undergraduate (BEd) with the internship of teaching to undergraduate (BEd) preservice teachers and orientation of conducting a small study for practice. Preservice teachers' mean scores in various ASSIST instrument components are shown below.

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Figure 7: Elements of Effective Study

Source. (Entwistle, McCune, & Tait, 2013)

Figure 8 shows that the strategic approach's time management skill has the highest mean score (11.8), while the surface approach's intentional learning skill has the lowest mean score (2.6). Hence, the mean score for time management (11.98) is more in comparison to the study conducted by Shahidi et al. (2014), which is 2.05.

The preservice teachers are quite aware of teaching-learning activities since the activities for them at the undergraduate (BEd) and postgraduate (MEd) levels are carried out in accordance with the academic calendar that was disclosed to them prior to the start of the semesters. Low mean scores meeting course requirements are due to the highly organised undergraduate (BEd) and postgraduate (MEd) programs.

A conceptual mapping of links is shown in *Figure 8*. This evolves a ranking order through ASSIST subscales to the substantial idealised perspective of successful students. It also highlights some of the other associations found in factor analysis, showing that how a student approaches learning is influenced by both his vision for learning and the nature of the instruction he receives. Apathetic style is revealed by low scores on strategic style as depicted by negative relationships in the idea map, whereas low levels of the surface approach are necessary for academic performance (Tait, H. & Entwistle, N.J., 2013).

Summary of Findings

The findings are given below.

- The most common learning strategy is the deep approach.

- Gender has no bearing on the different approaches to learning.

- Types of learning approaches are unaffected by the graduation level.

- How students learn has an impact on their academic success.

- The age of preservice teachers has little bearing on the different approaches to learning.

- Preservice teachers' semesters of study have little bearing on the different approaches to learning.

CONCLUSIONS

Regarding the preservice teachers at teacher education institutions, the study concludes the following:

Preservice teachers can master the teaching profession with the deep learning approach. Although female preservice teachers appear to have higher mean scores, gender does not exert discernible differences. The learning styles of preservice teachers enrolled in undergraduate and postgraduate programmes are the same. Deep learning approach preservice teachers have higher SGPAs than strategic and surface learning approach preservice teachers. The age of preservice teachers has little bearing on their approach to learning. Undergraduate second-semester and postgraduate fourth-semester preservice teachers use deep and strategic learning approaches. Because academic calendars for teaching-learning activities are disclosed to preservice teachers in advance, they are adept at time management. viii. Because undergraduate and postgraduate programmes are so heavily structured, preservice teachers adjust to the course requirements very effectively. Consequently, it can be said that academic preparation is essential for the program's success which was created in reference to the preservice teachers' learning styles. The preservice teachers' approach to their studies and level of commitment to the programme is determined by the courses of study, their nature, the curriculum transaction, internship requirements, and assessment processes.

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REFERENCES

Brown, S., White, S., Wakeling, L., & Naiker, M. (2015). Approaches and Study Skills Inventory for Students (ASSIST) in an introductory course in Chemistry. *Journal of University Teaching & Learning Practice, 12*(3), 1-12. http://ro.uow.edu.au/jutlp/vol12/iss3/6

Bulenta, A., Hakana, K., & Aydina, B. (2015). An analysis of Undergraduates' Study Skills. *7th World Conference on Educational Sciences, (WCES-2015),* 0507 February 2015, Novotel Athens Convention Center, Athens, Greece, doi: 10.1016/j.sbspro.2015.07.389

Cebeci, S., Dane, S., Kaya, M., & Yigitoglu, R. (2013). Medical students' approaches to learning and study skills. *Procedia-Social and Behavioural Sciences, 93*, 1355-1362. doi: 10.1016/j.sbspro.2013.10.086

Entwistle, N. J. (2006). *Approaches and Study Skills Inventory for Students (ASSIST) Short Version.* University of Edinburgh.

Entwistle, N. J., McCune, V., & Tait, H. (2013). *Report on the development and use of the inventories*. University of Edinburgh.

Garrett, H. E. (1985). *Statistics in Psychology and Education*. Vakils, Feffer and Simons Ltd. Bombay.

Karagiannopoulou, E., & Christodoulides, P. (2010). The approaches and study skills inventory for students: Reliability and Validity in a Greek University student sample. *Scientific Annals of the Psychological Society of Northern Greece, 7*, 69-86.

Marton, F., & Säljö, R. (1976). On qualitative differences in learning. I. Outcome and process. *British Journal of Educational Psychology, 46*(1), 4-11. doi: 10.1111/j.2044-8279.1976.tb02980.x

Negash, T., Eshete, M. T., & Hanago, G. A. (2022). Students' learning approaches as a factor of academic achievement at selected public universities: A cross-sectional study. *Frontiers in Education, 7,* 965573. doi: 10.3389/feduc.2022.965573

Raju, D. T., Ramesh, P., Raghuvanshi, R., Yashavantha, B. S., Bharat, S. S., Krishnan, P., Raghupathia, B., Sudhir Kumar, S., & Srinivasa Rao, C. (2022). Students' Approaches to Learning in Agricultural Higher Education. *Asian Journal of Agricultural Extension, Economics & Sociology, 40*(5), 19-29. doi: 10.9734/AJAEES/2022/v40i530882

Shahidi, F., Dowlatkhah, H. R., Avand, A., Musavi, S. R., & Mohammadi, E. (2014). A study on the quality of study skills of newly admitted students of Fasa University of Medical Sciences. *Journal of Advances in Medical Education & Professionalism, 2*(1), 45-50.

Tait, H., & Entwistle, N. J. (1996). Identifying students at risk through ineffective study strategies. *Higher Education, 31*(1), 99-118.

Tait, H., & Entwistle, N. J. (2013). *Approaches and Study Skills Inventory for Students (ASSIST) incorporating the Revised Approaches to Studying Inventory (RASI).* University of Edinburgh.