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Influence Of Learning Style, Academic Self Efficacy, And Academic Certainty On Academic Achievement Among Nursing Students

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ABSTRACT

This study aimed to assess the influence of learning style, academic self-efficacy, and academic certainty on academic achievement among undergraduate nursing students. A descriptive cross-sectional design was adopted, and 447 students from all four years of a B.Sc. Nursing program participated. Data were collected using three standardized tools: The Index of Learning Styles, the College Academic Self-Efficacy Scale (CASES), and the Academic Major Decision Certainty Scale (AMDCS). Academic performance data were also obtained. Results revealed that a majority of students had a strong preference for active (34.7%), sensing (33.1%), visual (27.3%), and sequential (30%) learning styles. Most students (83.5%) demonstrated high academic self-efficacy. Regarding academic certainty, 49.7% reported moderate certainty, while 27.7% had high certainty. One-Way ANOVA showed no significant differences in self-efficacy across years of study ($F = 0.404$, $p > 0.05$), but significant differences were observed in academic certainty ($F = 4.547$, $p < 0.01$), with higher-year students showing greater clarity. A weak, non-significant correlation ($r = 0.064$) was found between self-efficacy and academic certainty. Demographic factors such as year of study, gender, and interest in nursing showed significant associations with academic certainty but not with self-efficacy. The findings underscore the importance of aligning teaching strategies with students' learning preferences and addressing academic uncertainty through targeted guidance and mentorship. Further research is recommended to explore interventions that enhance learning outcomes by integrating self-efficacy building and academic decision support.

KEYWORDS: Learning styles, academic self-efficacy, academic certainty, academic achievement, nursing students

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INTRODUCTION

Learning is a process that engages students in a manner that best enhances their individual learning styles [1, 2]. Billings and Halstead stated that “learning style is the unique way in which a person perceives, interacts with, and responds to a learning situation” [3].Nurse educators face great challenges to create learning environments that support critical thinking through skills and strategies utilizing all types of learning styles [4]. Nurse Educators must attempt to maximize the potential of nursing students involving all types of learning styles [5].Among many factors Self-efficacy contributes to individuals’ learning styles [6]. Defined self-efficacy as the belief that one can successfully perform a behavior. According to the literature, self-efficacy predicts students' academic performance. Increasing the nursing student’s self-efficacy would be beneficial in improving the student’s academic performance. The feeling of “I can do it” creates a sense of independence and confidence and increases dominance in their respective field.

Career indecision in the higher education setting, as it relates to the selection of an academic major has received a substantial attention in the career and personal development literature [7]. About 50-70% of college students are undecided, change their major, or experience difficulty related to vocational goals [8, 9]. Academic uncertainty may contribute for dropout thereby affecting the individual's learning potential among other factors. Students’ perceptions about nursing influence them to choose nursing and to sustain in the profession.

MATERIALS AND METHODS

Research Design

A descriptive cross-sectional design was employed to investigate the influence of learning style, academic self-efficacy, and academic certainty on academic achievement among undergraduate nursing students. This design was considered appropriate as it enables the simultaneous measurement of multiple variables at a single point in time, allowing for examination of relationships and predictors without manipulating the study environment.

Setting and Participants

The study was conducted in selected nursing colleges offering undergraduate nursing programs. The participants included undergraduate nursing students across all four years of study, ensuring diverse representation of learners at different stages of the curriculum.

The total sample comprised 447 students, recruited through institutional coordination with the Heads of Nursing Colleges. The sample size was adequate to achieve statistical power for correlational and regression analyses.

Inclusion and Exclusion Criteria

- **Inclusion criteria:** Undergraduate nursing students enrolled in any year of study and willing to participate.
- **Exclusion criteria:** Students unavailable at the time of data collection or unwilling to provide consent.

Instruments

Four instruments were used for data collection:

Socio-demographic Questionnaire - A structured questionnaire was developed to gather information on students' demographic and academic characteristics, including age, gender, year of study, examination performance (latest percentage), and subject failures, if any.

College Academic Self-Efficacy Scale (CASES) - Academic self-efficacy was measured using the **CASES**, a standardized instrument with 33 items rated on a 5-point Likert scale ranging from 1 ("very little") to 5 ("quite a lot"). The scale assesses students' confidence in their ability to successfully complete academic tasks.

Index of Learning Styles (ILS) - Learning preferences were assessed using the Index of Learning Styles (ILS) developed by Felder and Soloman. This instrument consists of 44 dichotomous items, with responses categorized into four domains: active/reflective, sensing/intuitive, visual/verbal, and sequential/global. Permission to use the tool was obtained from the authors, with an optional maintenance fee suggested.

Academic Major Decision Certainty Scale (AMDCS) – Academic certainty was assessed using the AMDCS, comprising 16 items rated on a 4-point Likert scale (from "strongly disagree" to "strongly agree"). The tool evaluates the clarity and confidence students hold in their choice of nursing as an academic major.

Formal permissions were obtained from the original authors of the standardized tools for use in this study.

Data Collection Procedure

Prior to data collection, ethical approval was obtained from the Institutional Ethics Committee. Data were collected using an online survey method. A Google Form incorporating all four instruments was created and distributed to eligible students through the Heads of Institutions. The form included an electronic informed consent statement, ensuring voluntary participation.

Students were asked to independently complete the instruments and provide their most recent academic performance data (latest examination percentage and details of failed subjects, if applicable). Responses were automatically recorded in a secure database to minimize data entry errors.

Data Analysis

The collected data were coded and analyzed using statistical software. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarize socio-demographic variables and scores on the study instruments. Inferential statistics (correlation analysis, regression models, and group comparisons) were performed to examine the influence of learning styles, academic self-efficacy, and academic certainty on academic achievement. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee before initiation of the study. Participation was voluntary, informed consent was obtained from all participants, and confidentiality was maintained by anonymizing responses and securing the data.

RESULTS AND DISCUSSION

[Table/Fig-1]: Frequency and percentage distribution of learning styles – Active & Reflective among nursing students

Leaning Styles – Active & Reflective	Frequency	Percentage
Mild preference of Active learning (1 – 3)	39	8.7
Moderate preference of Active learning (5 – 7)	89	19.9

Strong preference of Active learning (9 – 11)	155	34.7
Mild preference of Reflective learning (1 – 3)	125	28.0
Moderate preference of Reflective learning (5 – 7)	39	8.7

[Table/Fig-2]: Frequency and percentage distribution of learning styles – Sensing and Intuitive among nursing students

Leaning Styles – Sensing and Intuitive	Frequency	Percentage
Mild preference of Sensing styles (1 – 3)	47	10.5
Moderate preference of Sensing styles (5 – 7)	110	24.6
Strong preference of Sensing styles (9 – 11)	148	33.1
Mild preference of Intuitive learning (1 – 3)	107	23.9
Moderate preference of Intuitive learning (5 – 7)	32	7.2
Strong preference of Intuitive learning (9 – 11)	3	0.7

[Table/Fig-3]: Frequency and percentage distribution of learning styles – Visual and Verbal Learners among nursing students

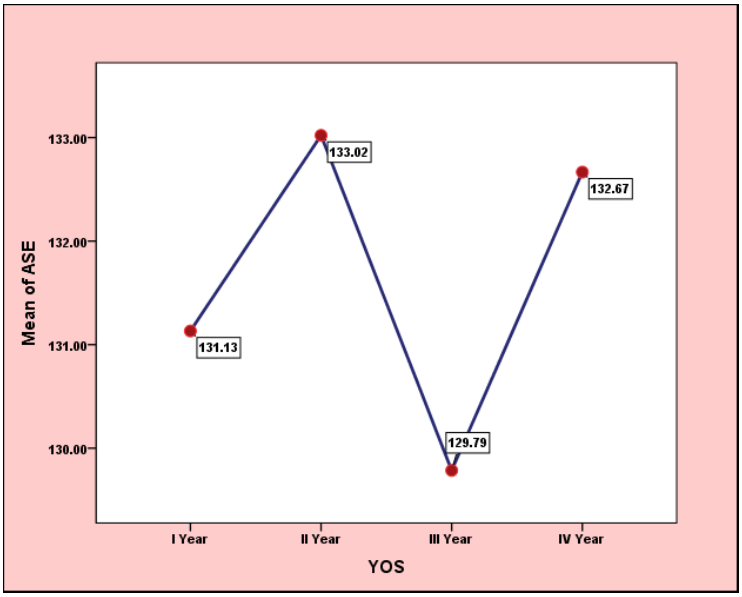
Leaning Styles – Visual and Verbal Learners	Frequency	Percentage
Mild preference of Visual learning (1 – 3)	98	21.9
Moderate preference of Visual learning (5 – 7)	134	30.0
Strong preference of Visual learning (9 – 11)	122	27.3
Mild preference of Verbal Learning (1 – 3)	68	15.2
Moderate preference of Verbal Learning (5 – 7)	24	5.4
Strong preference of Verbal Learning (9 – 11)	1	0.2

[Table/Fig-4]: Frequency and percentage distribution of learning styles – Sequential and Global Learners among nursing students

Leaning Styles – Sequential and Global Learners	Frequency	Percentage
Mild preference of Sequential learning (1 – 3)	56	12.5
Moderate preference of Sequential learning (5 – 7)	115	25.7
Strong preference of Sequential learning (9 – 11)	134	30.0
Mild preference of Global learning (1 – 3)	111	24.9
Moderate preference of Global learning (5 – 7)	23	5.1
Strong preference of Global learning (9 – 11)	8	1.8

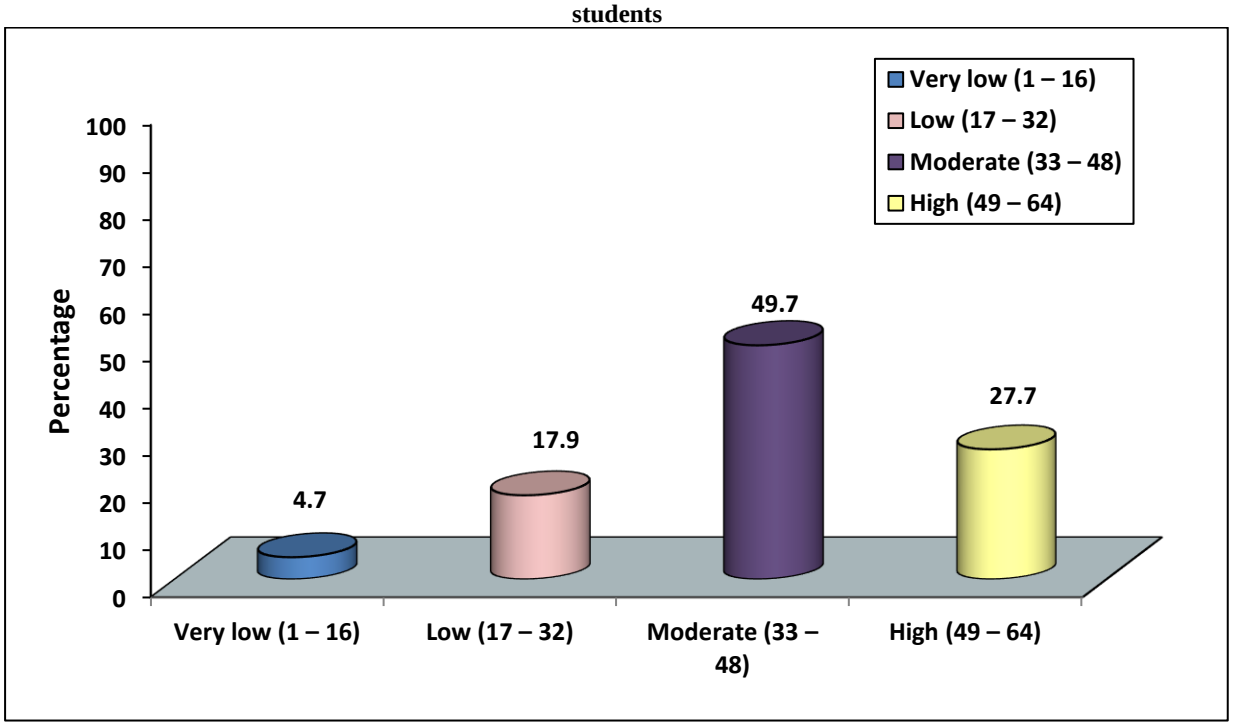
[Table/Fig-5]: Frequency and percentage distribution of academic self-efficacy among nursing students.

Level of Academic Self Efficacy	Frequency	Percentage
Low Self Efficacy / Confidence (1 – 55)	6	1.3
Moderate Self Efficacy / Confidence (56 – 110)	68	15.2
High Self Efficacy / Confidence (111 – 165)	373	83.5



[Table/Fig-6]: Trend graph showing the Year of study wise comparison of Academic Self Efficacy among nursing

students



[Table/Fig-7]: Percentage distribution of academic major decision certainty among nursing students

This study explored the learning style, self-efficacy and academic certainty among Undergraduate Nursing students. Socio demographic information of students revealed that 126(28.2%) were studying IV Year, 392(87.7%) were female, 280(62.6%) had high school education in private school, 342(76.5%) had studied English Medium in Plus Two, 250(55.9%) were residing in urban area, 285(63.7%) had previous year academic performance between >50% - 75%, 410(91.7%) had no arrear in previous year and 198(44.3%) had secured the score of 5 in the likeness of nursing. 101 (22.6%) had expressed that they joined Nursing because of compulsion from parents. With regard to active and reflective learning style, 155(34.7%) had strong preference for active learning, 125(28%) had mild preference for reflective learning, [Table/Fig-1].

The findings from [Table/Fig-2] depicted that 148(33.1%) had strong preference of sensing styles, 107(23.9%) had mild preference for intuitive learning, The findings from [Table/Fig-3] depicted that 134(30%) had moderate preference for visual learning, 122(27.3%) had strong preference for visual learning, 24(5.4%) had moderate preference for verbal learning and 1(0.2) had strong preference for verbal learning. The findings from [Table/Fig-4] depicted that 134(30%) had strong preference for sequential learning, 115(25.7%) had moderate preference for sequential learning, 111(24.9%) had mild preference for global learning,

The present findings align with the study findings of which showed that divergent (31.2%) and convergent (18.4%) styles were the study participants' most and least-used learning styles, respectively [10]. In addition, reported that this study, it was found that most of the students (52.1%) had a visual learning style and each student took part in a uniform learning style.

The [Table/Fig-5] findings showed that 373(83.5%) had high self-efficacy / confidence, 68(15.2%) had moderate self-efficacy / confidence and 6(1.3%) had low self-efficacy / confidence. Present study findings align with the study by which concluded that 53.7% of nursing students were having high self-efficacy and 49.92% of students were having low self-efficacy [11]. The present study found no significant difference in academic self-efficacy across years of study ($F = 0.404$, $p > 0.05$), indicating that self-efficacy remains stable throughout the nursing program. This aligns with Rahman et al. (2022), who noted that self-efficacy is shaped more by personal and environmental factors than academic progression. Bonferroni analysis further supported this with no significant year-wise differences. However, academic major decision certainty varied significantly across years ($F = 4.547$, $p < 0.01$), with first-year students showing lower certainty than third- and fourth-year students. This suggests that academic maturity and clinical exposure enhance decision clarity, as also reported by Albelbisi et al. (2021). A weak, non-significant correlation ($r = 0.064$) between academic self-efficacy and decision certainty was observed, consistent with Kaur & Sharma (2023), who found the relationship between these constructs to be independent yet important.

With regard to Academic major decision certainty 222(49.7%) had moderate level of academic major decision certainty, 124(27.7%) had high academic major decision certainty, 80(17.9%) had low academic major decision certainty and 21(4.7%) had very low academic major decision certainty. [Table/Fig-7]. In our study, nearly half of the students (49.7%) reported feeling **moderately sure** about their academic major, while about a quarter (27.7%) felt **very confident.** Meanwhile, 17.9% had **low certainty,** and a small group (4.7%) had **very low certainty.** This pattern mirrors findings by South Korea, who discovered that students who take active steps—such as researching majors and seeking guidance—show significantly higher confidence in their career decisions. They also found that **limited career clarity** tends to reduce self-assurance.At the same time, conducted a meta-analysis across diverse student groups and reported that traits like **emotional intelligence, career optimism, locus of control,**

and a **proactive personality** are strongly linked to career decision-making confidence [12]. Their work emphasizes that personal strengths—not just information—play a crucial role in boosting decision certainty.

Jointly, these studies suggest two practical strategies for educational settings,

1. **Encourage proactive career behaviors**: Structured programs—such as career workshops, major exploration sessions, and mentorship—increase students' clarity and commitment.
2. **Develop personal competencies**: Interventions that cultivate emotional resilience, self-belief, optimism, and initiative can enhance decision-making assurance, shifting students from moderate to strong certainty.

These insights indicate that while moderate certainty is common, combining **information-rich** and **self-development** approaches could move more students toward feeling **fully confident** about their academic paths.

The present study also found no significant association between demographic variables and academic self-efficacy among nursing students, suggesting that self-efficacy is more influenced by individual motivation and learning experiences than by background factors. This is supported by Putra and Suparno (2022) [13], who reported similar findings. In contrast, year of study, gender, and interest in nursing were significantly associated with academic major decision certainty ($p=0.0001$), indicating greater decision clarity with academic progression and personal interest—consistent with. Medium of instruction in higher secondary education also showed a significant association ($p=0.032$), highlighting the role of language in shaping academic confidence, as noted. Other demographic factors, such as parental education and socioeconomic status, showed no significant influence, partially differing from earlier findings by Omar et al. (2020) [14].

CONCLUSION(S)

The study findings throw light on the various learning styles utilized by the students, their perceived self-efficacy, and the students' academic certainty which in turn help the Nurse Educators to foresee and provide a conducive teaching learning environment. Research work can be undertaken on the aspects of effect of student induction programs including learning styles and academic certainty on their academic performance. Further studies can be undertaken on exploring the factors influencing academic performance, academic certainty and self-efficacy.

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Conflicts of interest

Authors declare no conflicts of interest

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