



## “INTERGROUP EFFECTS OF MENTORING STRATEGIES ON ACADEMIC PERFORMANCE AND SOCIAL COMPETENCE OF NURSING STUDENTS”

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**Abstract:** The study titled “Intergroup Effects of Mentoring Strategies on Academic Performance and Social Competence of Nursing Students” aimed to assess the comparative impact of three mentoring strategies—Cognitive, Problem-Solving, and Humanistic—on the academic and social development of nursing students. A quasi-experimental pre-test and post-test design was adopted using standardized tools such as the *Study Habits Assessment Tool*, *Personality Inventory (EPI)*, and *Academic Performance Scale*. Data were analyzed using descriptive statistics (Mean and Standard Deviation) and inferential statistics (*One-Way ANOVA*).

The results revealed a significant improvement in both academic performance and social competence following the mentoring interventions. However, the ANOVA results indicated a statistically significant difference in academic performance among the three mentoring strategies ( $F = 6.99$ ,  $p = 0.0277$ ), whereas no significant difference was found in social competence ( $F = 0.74$ ,  $p > 0.05$ ). The Cognitive Strategy proved most effective in enhancing academic outcomes, while Problem-Solving and Humanistic Approaches contributed more toward improving emotional intelligence, empathy, and interpersonal relationships.

**Keywords:** Mentoring Strategies, Academic Performance, Social Competence, Cognitive Strategy, Problem-Solving, Humanistic Approach, Nursing Students, ANOVA

### INTRODUCTION

In the evolving landscape of nursing education, academic performance and social competence are foundational components of professional readiness. Academic performance encapsulates not only mastery of theoretical content but also the effective integration of clinical practice, while social competence encompasses communication, teamwork, empathy, and self-regulation—skills essential for high-quality patient care (Hill et al., 2022; Mikkonen et al., 2021). Mentoring has increasingly been recognised as a strategic pedagogical intervention to enhance both cognitive and interpersonal development among nursing students (Demir et al., 2014).

Mentoring—defined as a relational process in which a more experienced individual (mentor) guides the learning and development of a less experienced individual (mentee)—has been shown to contribute positively to educational outcomes. Mentoring programs in nursing have demonstrated improvements in university adjustment, coping strategies, and academic engagement among students (Le, Sok & Heng, 2024). In addition, peer-mentoring initiatives have been associated with enhanced self-efficacy, reduced stress, and better academic performance in

nursing cohorts (Jensen, 2024). Moreover, systematic reviews indicate that mentoring in nursing education supports student retention and academic success, highlighting its relevance to program outcomes (2018).

Despite growing evidence for mentoring’s general benefits, less is known about how specific mentoring strategies—such as cognitive-strategy oriented, problem-solving oriented, and humanistic approaches—compare in their effectiveness for improving academic performance and social competence among nursing students. Cognitive strategies may emphasise metacognitive skills, study habits, and self-regulation; problem-solving strategies may focus on critical thinking, decision-making, and conflict resolution; and humanistic approaches may centre on empathy, self-awareness, and relational skills (Demir et al., 2014; Hill et al., 2022). Understanding the intergroup effects of these differentiated strategies can inform the design of targeted mentoring interventions that maximise both academic and social outcomes.

The current study thus aims to explore the intergroup effects of three mentoring strategies (cognitive, problem-solving and humanistic) on academic performance and social competence



among nursing students. Using pre- and post-test assessments across multiple tools (Study Habits Assessment, Personality Inventory, Academic Performance Scale, and Social Competence measures), and employing One-Way ANOVA to assess mean differences across groups, the study seeks to determine which strategy yields the greatest improvement. By doing so, the research contributes to evidence-based mentoring practice in nursing education, offering implications for curriculum design and student development programs (Le, Sok & Heng, 2024; Jensen, 2024).

## METHODOLOGY

### Research Design

The present study adopted a quasi-experimental design with pre-test and post-test assessments to evaluate the intergroup effects of three distinct mentoring strategies—Cognitive, Problem-Solving, and Humanistic—on the academic performance and social competence of nursing students. This design was chosen to assess the impact of structured mentoring interventions while controlling for confounding variables related to students' prior knowledge and social behavior.

### Population and Sample

A total of 600 nursing students from various nursing colleges across the Kottayam District were selected using purposive sampling, ensuring representation from diverse socio-demographic backgrounds. The participants were randomly assigned into three groups, corresponding to the three mentoring strategies under investigation:

1. Cognitive Strategy Group
2. Problem-Solving Strategy Group
3. Humanistic Approach Group

### Research Tools and Instruments

To measure the impact of each mentoring strategy, the following standardized instruments were employed:

1. **Study Habits Assessment Tool** – to evaluate students' learning behavior, concentration, time management, and study techniques.
2. **Personality Inventory (Eysenck Personality Inventory – EPI)** – to assess personality dimensions related to academic adjustment, sociability, and emotional stability.
3. **Academic Performance Scale** – to measure knowledge application, comprehension, and overall academic achievement.

4. **Social Competence Scale** – to assess communication skills, empathy, cooperation, and self-regulation in interpersonal contexts.

Each tool demonstrated acceptable internal consistency and validity based on previous studies in nursing and educational psychology (Demir et al., 2014; Mikkonen et al., 2021).

### Intervention Procedure

In mentoring intervention each group received structured mentoring sessions designed according to the respective strategy:

- **Cognitive Strategy:** Focused on reflective learning, self-efficacy enhancement, and metacognitive awareness through activities such as guided note-taking, self-assessment, and cognitive restructuring.
- **Problem-Solving Strategy:** Emphasized analytical reasoning, situational case studies, and collaborative decision-making exercises to strengthen problem-solving and critical-thinking abilities.
- **Humanistic Approach:** Centered on empathy, interpersonal communication, and motivation enhancement through supportive dialogues, self-expression sessions, and group reflections.

The pre-test was conducted before the intervention, and the post-test followed immediately after the completion of the mentoring sessions.

### Statistical Analysis

Descriptive statistics such as Mean and Standard Deviation (SD) were used to describe pre-test and post-test scores. Inferential statistics, particularly One-Way ANOVA, were employed to determine the significance of differences among the three mentoring strategies. A p-value < 0.05 was considered statistically significant.

## RESULT AND DISCUSSION

### INTER GROUP EFFECT OF MENTORING STRATEGIES ON ACADEMIC PERFORMANCE

The Mean Differences for Each Strategy of academic performance Table 1 presents the mean differences in pre-test and post-test scores of nursing students across various mentoring strategies—Cognitive Strategy, Problem-Solving, and Humanistic Approach—measured using the Study Habits Assessment Tool, Personality Inventory (EPI), and Academic Performance Scale.



| Tool                         | Strategy            | Pre-Test Mean | Post-Test Mean | Mean Difference |
|------------------------------|---------------------|---------------|----------------|-----------------|
| Study Habits Assessment Tool | Cognitive Strategy  | 0.84          | 1.41           | 0.57            |
| Personality Inventory (EPI)  | Cognitive Strategy  | 2.74          | 3.14           | 0.40            |
| Academic Performance Scale   | Cognitive Strategy  | 2.87          | 4.07           | 1.20            |
| Study Habits Assessment Tool | Problem Solving     | 1.91          | 1.46           | 0.45            |
| Personality Inventory (EPI)  | Problem Solving     | 2.78          | 3.73           | 0.95            |
| Academic Performance Scale   | Problem Solving     | 2.92          | 3.96           | 1.04            |
| Study Habits Assessment Tool | Humanistic Approach | 2.02          | 1.45           | 0.57            |
| Personality Inventory (EPI)  | Humanistic Approach | 2.71          | 3.04           | 0.33            |
| Academic Performance Scale   | Humanistic Approach | 2.89          | 3.68           | 0.79            |

**Table 1- The Mean Differences for Each Strategy of academic performance**

The Problem-Solving Strategy also demonstrated substantial improvement, particularly in *Personality Inventory (EPI)* (mean difference = 0.95) and *Academic Performance Scale* (mean difference = 1.04). These results indicate that students who engaged in problem-solving-oriented mentoring developed higher levels of analytical thinking, adaptability, and confidence, consistent with Vygotsky's (1978) theory of social constructivism, which asserts that learning occurs more effectively through guided interaction and problem-based collaboration.

The Humanistic Approach produced moderate improvements across all tools, with a notable change in *Academic Performance Scale* (mean difference = 0.79). This outcome supports the perspective of Rogers (1983), who highlighted the role of empathy, respect, and supportive mentoring relationships in fostering self-motivation and intrinsic learning among students. Mentoring grounded in humanistic principles helps learners build confidence and a sense of belonging, leading to better emotional stability and performance (Knowles, 1980).

Overall, the results of this study demonstrate that mentoring strategies contribute significantly to enhancing both academic and psychosocial development among nursing students. The cognitive and problem-solving strategies appeared more effective in improving measurable academic and personality-related outcomes, while the humanistic approach contributed to emotional growth and interpersonal competence. These findings are consistent with previous studies by Allen & Eby (2007) and Rhodes (2005), who found that structured mentoring interventions have a profound positive influence on students' performance, engagement, and social competence. Thus, integrating multiple mentoring approaches within nursing education can create a more holistic developmental environment, supporting both intellectual and emotional learning outcomes.

#### One-Way ANOVA on Mean Differences

The comparative analysis of mean differences across the three mentoring strategies—Cognitive, Problem-Solving, and Humanistic—reveals variations in their overall effectiveness on students' academic and personal development (Table 2). The Cognitive Strategy recorded the highest *average mean difference* (0.723), indicating its superior impact on enhancing students' study habits, personality traits, and academic performance. This finding aligns with Bandura's (1997) concept of self-efficacy, which emphasizes that cognitive restructuring and reflective learning foster improved academic outcomes and learner confidence.

The Problem-Solving Strategy achieved a moderate *average mean difference* (0.513), suggesting that active engagement in identifying and resolving academic challenges contributed positively to students' analytical and critical thinking skills. This is supported by Vygotsky's (1978) *social constructivist theory*, which proposes that interactive learning and guided mentoring help students internalize higher-order thinking skills.

The Humanistic Approach showed a comparatively lower *average mean difference* (0.183), implying that while it nurtured empathy and emotional stability, its influence on measurable academic outcomes was less pronounced. However, its value lies in promoting self-awareness, motivation, and interpersonal growth, consistent with Rogers (1983), who emphasized the role of unconditional positive regard and empathy in education.

Overall, the findings suggest that combining cognitive and problem-solving strategies can yield optimal academic benefits, while incorporating humanistic elements can enhance holistic student development. This integrative approach supports prior findings by Allen and Eby (2007) and Rhodes (2005), who asserted



that multidimensional mentoring models foster both intellectual and psychosocial growth in learners.

| Strategy        | Mean Differences (3 Tools) | Average Mean Difference |
|-----------------|----------------------------|-------------------------|
| Cognitive       | 0.57, 0.40, 1.20           | 0.723                   |
| Problem Solving | 0.45, 0.95, 1.04           | 0.513                   |
| Humanistic      | 0.57, 0.33, 0.79           | 0.183                   |

**Table 2 - One-Way ANOVA on Mean Differences ANOVA Summary**

| Source of Variation | SS (Sum of Squares) | df | MS (Mean Square) | F-value | p-value |
|---------------------|---------------------|----|------------------|---------|---------|
| Between Groups      | 0.587               | 2  | 0.2935           | 6.99    | 0.0277  |
| Within Groups       | 0.335               | 6  | 0.0558           |         |         |
| Total               | 0.922               | 8  |                  |         |         |

**Table 3- ANOVA Summary Table**

The ANOVA Summary Table illustrates a statistically significant difference among the three mentoring strategies—Cognitive, Problem-Solving, and Humanistic—in their impact on students' academic and personal development. The computed F-value (6.99) exceeds the critical value at a p-value of 0.0277 ( $p < 0.05$ ), indicating that the differences in mean performance across the strategies are significant. This suggests that the type of mentoring strategy employed had a measurable effect on student outcomes such as study habits, personality development, and academic achievement.

The higher mean performance associated with the Cognitive Strategy supports the notion that structured cognitive interventions—such as reflective learning, self-regulation, and guided feedback—can enhance students' academic competencies. This aligns with Bandura's (1997) theory of *self-efficacy*, which posits that learners' beliefs in their own abilities significantly influence motivation and performance.

The Problem-Solving Strategy, while not as high as the cognitive approach, also produced substantial gains, reinforcing Vygotsky's (1978) *social constructivist framework*, where interaction and guided reasoning play critical roles in knowledge acquisition. The Humanistic Approach, though statistically lower, remains valuable

for its focus on emotional well-being and motivation, consistent with Rogers (1983) who emphasized empathy and supportive relationships as key components of effective learning.

Overall, the ANOVA results indicate that mentoring strategies are not equally effective—cognitive-based mentoring demonstrates the most significant improvement in student outcomes, followed by problem-solving, while humanistic mentoring contributes primarily to affective and interpersonal domains. These findings corroborate earlier studies by Allen and Eby (2007) and Rhodes (2005), which affirmed that diverse mentoring models can significantly influence academic performance and social competence when tailored to learner needs.

## INTER GROUP EFFECT OF MENTORING STRATEGIES ON SOCIAL COMPETENCE

### Mean and Standard Deviation of Social Competence

The results presented in Table show the *Mean and Standard Deviation (SD) of Social Competence* among nursing students before and after the application of three distinct mentoring strategies—Cognitive, Problem-Solving, and Humanistic. Across all domains, there is a notable increase in post-test mean scores compared to pre-test scores, indicating a significant improvement in students' social competence following the mentoring interventions.

| Domain          | Test      | Mean | Standard Deviation (SD) |
|-----------------|-----------|------|-------------------------|
| Cognitive       | Pre-Test  | 2.65 | 1.06                    |
|                 | Post-Test | 4.39 | 0.78                    |
| Problem Solving | Pre-Test  | 2.57 | 1.07                    |
|                 | Post-Test | 4.39 | 0.77                    |
| Humanistic      | Pre-Test  | 2.68 | 1.12                    |
|                 | Post-Test | 4.43 | 0.74                    |

**Table 4- Mean and Standard Deviation of Social Competence**

The Cognitive Strategy demonstrated an increase in the mean score from 2.65 to 4.39, with a reduction in SD from 1.06 to 0.78, suggesting not only improved social competence but also greater consistency in student responses. This supports Bandura's (1997) *social cognitive theory*, which asserts that guided reflection, modeling, and self-efficacy building enhance interpersonal effectiveness and adaptability.



Similarly, the Problem-Solving Strategy exhibited an improvement from 2.57 to 4.39 (SD reduced from 1.07 to 0.77), indicating that structured mentoring emphasizing decision-making and critical thinking positively influenced students' communication, cooperation, and conflict resolution skills. This aligns with Vygotsky's (1978) *social constructivist theory*, which emphasizes learning through social interaction and collaborative problem-solving.

The Humanistic Approach also resulted in a marked rise in mean scores—from 2.68 to 4.43, with SD decreasing from 1.12 to 0.74. This demonstrates that empathy-driven mentoring effectively nurtured social awareness, emotional regulation, and supportive peer relationships. The finding is consistent with Rogers (1983), who highlighted that a nurturing and accepting learning environment fosters the holistic growth of learners' social and emotional capabilities.

Overall, the results suggest that all three mentoring strategies significantly enhanced the social competence of nursing students, with the Humanistic Approach showing a slightly higher post-test mean (4.43). This indicates that emotionally supportive mentoring environments complement cognitive and problem-solving strategies in developing well-rounded nursing professionals. The findings are consistent with Rhodes (2005) and Allen & Eby (2007), who emphasized that mentoring fosters not only academic growth but also the development of interpersonal and social skills critical in professional practice.

#### ANOVA Summary

| Source of Variation | Sum of Squares (SS) | Degrees of Freedom (df) | Mean Square (MS) | F-value | p-value |
|---------------------|---------------------|-------------------------|------------------|---------|---------|
| Between Groups      | 0.114               | 2                       | 0.057            | 0.74    | > 0.05  |
| Within Groups       | 66.89               | 87                      | 0.769            |         |         |
| Total               | 67.00               | 89                      |                  |         |         |

Table 5- ANOVA Summary Table

The ANOVA Summary Table presents the comparative analysis of the effects of three mentoring strategies—Cognitive, Problem-Solving, and Humanistic—on the *social competence* of nursing students. The results show that the F-value (0.74) is statistically insignificant at a p-value > 0.05, indicating that the differences in

post-intervention mean scores among the three groups are not statistically significant.

Although all three strategies resulted in higher post-test mean scores, the absence of a significant F-value suggests that the *extent of improvement* was relatively similar across all mentoring approaches. This implies that while each strategy enhanced social competence, no single method outperformed the others significantly. Such a finding highlights that various mentoring techniques—whether cognitive, problem-solving, or humanistic—can be equally effective in fostering essential social and interpersonal skills among nursing students when appropriately applied.

The trend aligns with Rogers' (1983) *humanistic learning theory*, which posits that the quality of the mentor-mentee relationship, empathy, and support can be as impactful as structured or problem-based strategies in promoting social growth. Moreover, Bandura's (1997) *social cognitive theory* supports this interpretation by emphasizing that observation, modeling, and social reinforcement contribute to competence regardless of the specific pedagogical approach.

These findings are consistent with studies by Rhodes (2005) and Allen & Eby (2007), who observed that mentoring relationships—irrespective of the specific method—enhance psychosocial and professional outcomes when mentors provide consistent guidance, feedback, and encouragement. Hence, while statistical significance was not established, the practical outcomes suggest that integrating multiple mentoring strategies may create a balanced approach to developing both cognitive and social skills in nursing education.

#### CONCLUSION

The study aimed to examine how different mentoring strategies—Cognitive, Problem-Solving, and Humanistic—influence the overall development of nursing students. The findings revealed that all three mentoring approaches led to improvement in academic performance and social competence from pre-test to post-test. However, the Cognitive Strategy showed the highest improvement in academic performance, indicating that structured guidance, reflective learning, and mental organization techniques were highly effective in enhancing learning outcomes. The Problem-Solving Strategy also produced positive effects by promoting analytical thinking and independent decision-making among students. The Humanistic Approach contributed to better interpersonal relationships, emotional understanding, and self-confidence, highlighting its role in fostering empathy and communication skills.



The ANOVA results showed a significant difference among the mentoring strategies for academic performance but not for social competence. This suggests that while all strategies helped improve students' social skills, their effect on academic achievement varied depending on the approach used. Overall, the study concludes that integrating multiple mentoring strategies can lead to holistic student development. Combining cognitive and problem-solving methods for academic growth with humanistic mentoring for emotional and social enhancement can create a balanced and effective mentoring framework in nursing education.

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## Conflict of Interest

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