Multiple Intelligence and Academic Performance among BSc. Nursing Undergraduates in Kotelawala Defence University, Sri Lanka; A Correlational Study

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Abstract: Multiple Intelligence (MI) is a major determinant of academic performance among undergraduates. A descriptive correlational study was conducted to assess the types of MIs and to determine the correlation between MI and Academic performance among BSc. Nursing Undergraduates of four academic years in Kotelawala Defence University. The McKenzie's MI Inventory was used to assess the types of MI while the Semester Grade Point Average (SGPA) was used as the measure of academic performance. The Pearson Correlation was used to evaluate the correlation between MI and Academic Performance, and one-way ANOVA was used to assess the mean differences of MI among batches. The response rate of the participants was 69.6% (n=126), and the mean (±SD) age of the participants was 23.65 (±3.82) years. When considering the mean (±SD) values of MI, Interpersonal Intelligence scored the highest (7.94±2.24), and Verbal Intelligence scored the lowest (6.51±2.23). Naturalistic (p= 0.000), Musical (p=0.041), Existential (p=0.026) and Visual (p=0.022) intelligences had significant mean differences among the four batches. There was no significant correlation between SGPA and types of MIs among first- and second-year undergraduates. However, SGPA of third-year undergraduates had a significant positive correlation with Interpersonal intelligence (p= 0.045, r=0.422) and significant negative correlation with Intrapersonal Intelligence (p=0.018, r=-0.488). Further, SGPA of fourth-year undergraduates had a significant positive correlation with Naturalistic (p=0.041, r=0.404) and Existential (p=0.008, r=0.512) intelligences. It was recommended to make nursing undergraduates aware regarding their MIs and do necessary changes in the nursing curricula and to evaluate its effectiveness in future research.

Keywords: Multiple Intelligence, Academic Performance, Nursing Undergraduates

Introduction

In the twentieth century, the traditional education system was revolutionized with the increasing significance given to the learner-centred mechanism of teaching (Bakić-Mirić, 2010). Nurse educators try their best to create learning opportunities that are interactive and applicable to the requirements of various students (Amerson, 2006). However, it is identified that the academic performance of the students is dependent upon several determinants, including MI (Hernandez Suarez et al., 2019).

Intelligence can be defined as a general mental ability for reasoning, problem-solving, and learning and it mixes various cognitive functions, such as perception, attention, memory, and language (Colom et al.). According to Gardner (Gardner, 1983), intelligence cannot be termed as general intelligence, and it is multifactorial. As per the Multiple intelligence theory, every person possesses the capacity for all the nine dimensions of intelligence such as linguistic, mathematical, Spatial Intelligence, Bodily-Kinesthetic Intelligence, Naturalist Intelligence, Interpersonal Intelligence, Musical Intelligence and Intrapersonal Intelligence (Sternberg, 2012).

No individual is universally intelligent; hence an intelligence is the capacity of a person in multi-dimensional areas. The main aim of this study was to assess the types of MIs and to determine the correlation between MI and Academic performance among BSc. Nursing Undergraduates in Kotelawala Defence University, Sri Lanka.

Methodology

This study was conducted as a descriptive correlational study among all the BSc. Nursing Undergraduates (N=181) in General Sir John Kotelawala Defence University. The ethical approval for the study was obtained from the Ethical Review Committee, Faculty of Medicine, General Sir John Kotelawala Defence University, Sri Lanka. The institutional permission was obtained from the Vice-Chancellor-KDU, the Dean-Faculty of Allied Health Sciences (FAHS), KDU and the Head-Department of Nursing and Midwifery, FAHS, KDU. The questionnaires were hand-delivered among the participants once the purpose and the objectives are explained, and the informed written consent was taken from the participants after explaining the outcomes of the study.

A pretested, self-administered questionnaire was used to collect Socio-demographic data. McKenzie's Multiple Intelligences Inventory (McKenzie, 2005) which is a reliable, freely available tool (Hajhashemi, 2010) was used to evaluate the types of MI. McKenzie's Multiple Intelligences Inventory was cross-culturally adapted to Sri Lanka and pretested before use. The Semester Grade Point Average (SGPA) was used to assess academic performance. The Pearson Correlation was used to evaluate the correlation between MI and Academic Performance. t- test and One-way ANOVA was used to assess the mean differences among variables.

Results

The response rate of the participants was 69.6% (n=126), and the mean (±SD) age of the participants was 23.65(±3.82) years. Majority of the participants were females (79.4%, n=100). When considering the mean(±SD) values of MIs within the four batches, Interpersonal Intelligence (8.28±1.761), Naturalistic Intelligence (8.65±1.496), Existential Intelligence (7.80±1.746) and Visual Intelligence (8.78±2.433) were the dominant MIs found on first, second, third- and fourth-year Nursing undergraduates respectively. Verbal Intelligence had the lowest mean(±SD) value among first (6.28±2.523), third (6.37±2.289) and fourth (6.34±1.658) year Undergraduates while Interpersonal Intelligence (7.40±1.903) had the lowest mean(±SD) value among 3rd-year undergraduates (Table 01).

Table 1: F-test results of Multiple Intelligences in all batches of the programme

Multiple Intelligences	1st year Mean±SD	2nd year Mean±SD	3rd year Mean±SD	4th year Mean±SD	F Value	Si
Naturalistic	7.18±1.254	8.65±1.496	7.37±1.374	7.34±1.066	6.414	.0
Musical	7.31±2.079	8.25±1.372	6.74±2.241	7.13±1.314	2.840	.0
Logical	7.28±1.413	7.70±2.003	7.20±1.605	7.25±1.606	.458	.7
Existential	7.77±1.709	7.85±2.033	7.80±1.746	6.69±1.635	3.193	.0
Interpersonal	7.00±2.306	7.40±1.903	7.00±1.495	6.41±1.775	1.237	.2
Kinesthetic	7.90±1.314	8.30±1.559	7.26±2.105	7.69±2.132	1.560	.2
Verbal	6.28±2.523	7.45±2.235	6.37±2.289	6.34±1.658	1.440	.2
Intrapersonal	8.28±1.761	7.95±1.317	7.23±2.602	8.31±2.669	1.805	.1
Visual	7.69±2.273	8.60±1.729	7.03±3.139	8.78±2.433	3.311	.0
Total	66.69±12.3	72.15±11.4	64.00±13.37	65.94±10.7	1.969	.1

There was no significant correlation between SGPA and types of MIs among first- and second-year undergraduates. However, SGPA of third-year undergraduates had a significant positive correlation with Interpersonal intelligence (p= 0.045, r=0.422) and significant negative correlation with Intrapersonal Intelligence (p=0.018, r=-0.488). Further, SGPA of fourth-year undergraduates had a significant positive correlation with Naturalistic (p=0.041, r=0.404) and Existential (p=0.008, r=0.512) intelligences. Further, Naturalistic (p= 0.000), Musical (p=0.041), Existential (p=0.026) and Visual (p=0.022) intelligences had significant mean differences among the four batches. When considering the SGPA, there were no significant differences in means among the four batches (p=0.095).

Discussion

Modern context reveals that the process of assessing the students' MI and applying them in the teaching methodology as an essential technique in improving the learning (Sternberg et al., 2008). Grounded upon the above discrepancy and as a means to building upon the critical discourse, this study was conducted to test the hypotheses that there is no relationship between Nursing undergraduates' academic performance with their MI types. Further, the results of the research bring into line with the previous research (Yaghoob and Hossein, 2016) specified that every individual possesses diverse types of intelligence with different levels of each. Further, Interpersonal Intelligence had the highest mean score, and verbal intelligence had the lowest mean score when considering the MIs among all the BSc. Nursing Undergraduates. Having a dominant Interpersonal intelligence is essential since it will support the students to gain educational experience by working with the patients, staff nurses and other professionals. A similar study conducted in Iran among medical, nursing and midwifery students stated that the nursing students had a highest in the existential intelligence and scored lowest in the musical Intelligence (Poursaberi and Mohammadi, 2017).

Most of the MIs had no significant correlations with SGPA except the negative correlation found with Interpersonal Intelligence. A similar study conducted in Zambia also found that MI types showed no significant relationship with academic performance (Katowa-Mukwato et al., 2017). However, a study conducted among medical, nursing and midwifery students in Iran suggested that verbal Intelligence and existential Intelligence are associated with the students' academic performance with a statistical significance (Poursaberi and Mohammadi, 2017).

Conclusion

In this study, the relationship of academic performance with the types of MIs was evaluated and found significant results.

Continuous assessment of MIs of the Nursing undergraduates should be planned, and relevant changes in the nursing curricula should be made accordingly. Further, experimental studies regarding MI should be implemented to evaluate the effectiveness of new teaching interventions.

References

Amerson, R., 2006. Energizing the nursing lecture: Application of the Theory of Multiple Intelligence Learning. Nurs Educ Perspect 27, 194–196.

Bakić-Mirić, N., 2010. Implementation of Multiple Intelligences Theory in the English Language Course Syllabus at the University of Niš Medical School. Srp Arh Celok Lek. 6.

Colom, R., Karama, S., Jung, R.E., Haier, R.J., 2010. Human intelligence and brain networks. Dialogues Clin Neurosci 12, 489–501.

Gardner, H., 1983. Frames of mind: the theory of multiple intelligences. Basic Books, New York.

Hajhashemi, K., 2010. Intelligences Inventory to Measure Profiles of Pre-University 18, 13.

Hernandez Suarez, C.A., Núñez, R., Rincón, G., 2019. Multiple intelligences and academic performance in basic education students: An analysis of main components. Journal of Physics: Conference Series 1388, 012047. https://doi.org/10.1088/1742-6596/1388/1/012047

Katowa-Mukwato, P., Chapima, F., Nambala-Sianchapa, B., Mwiinga-Kalusopa, V., 2017. Learning styles and intelligence types versus academic performance of nursing students of the University of Zambia. Journal of Nursing Education and Practice 7, 83. https://doi.org/10.5430/jnep.v7n10p83

McKenzie, W., 2005. Multiple Intelligences and Instructional Technology. ISTE (Interntl Soc Tech Educ.

Poursaberi, R., Mohammadi, M.M., 2017. Gardner's Multiple-Intelligences Profile and Its Relationship with Academic Performance (Students of Tabriz University of Medical Sciences/Academic Year 2014-2015). Future of Medical Education Journal 7, 29–33. https://doi.org/10.22038/fmej.2017.25077.1157

Sternberg, R.J., 2012. Intelligence. Dialogues Clin Neurosci 14, 19–27.

Sternberg, R.J., Grigorenko, E.L., Zhang, L.-F., 2008. Styles of Learning and Thinking Matter in Instruction and Assessment. Perspect Psychol Sci 3, 486–506. https://doi.org/10.1111/j.1745-6924.2008.00095.x

Yaghoob, R.A., Hossein, Z.P., 2016. The correlation of multiple intelligences for the achievements of secondary students. Educ. Res. Rev. 11, 141–145. https://doi.org/10.5897/ERR2015.2532