

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

SELF-DIRECTED LEARNING READINESS, DIFFICULTIES ENCOUNTERED AND
PERFORMANCE OF STUDENTS IN MATHEMATICS
IN THE MODERN WORLD

A Thesis Presented to the
Faculty of the Graduate School
College of Education
West Visayas State University
La Paz, Iloilo City

In Partial Fulfilment
of the Requirements for the Degree
Master of Arts in Education
(Mathematics)

by

Chemarie S. Lamprea

December 2022

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

APPROVAL SHEET

A Thesis for the Degree
Master of Arts in Education
(Mathematics)

by

Chemarie S. Lamprea

Approved by the Research Committee:

ROBERTO G. SAGGE JR., Ph. D., Chairperson

SYBEL JOY F. LABIS, Ph. D., Member

JAHFET N. NABAYRA, M.A. Ed., Outside Expert

DOLLY ROSE F. TEMELO, Ph. D., Adviser

RICKY M. MAGNO, Ph. D.
Dean

December 2022

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

Lamprea, Chemarie S. "*Self-Directed Learning Readiness, Difficulties Encountered and Performance of Students in Mathematics in the Modern World.*" Unpublished Graduate Thesis. Master of Arts in Education (Mathematics). West Visayas State University, College of Education, La Paz, Iloilo City, December 2022.

Abstract

Self-directed learning and understanding mathematics are significant concerns in any educational system. Various researchers make many efforts to determine the causes of student performance in the subject. Despite every one of these endeavors, issues still persevere. The researcher used descriptive correlational design to determine the self-directed learning readiness, difficulties encountered, and students' performance in Mathematics in the Modern World. Sixty students enrolled in the Mathematics in the Modern World course for the first semester of AY 2021-2022 served as the study's respondents. An adopted instrument for self-directed learning readiness was used to gather the data. Mean, standard deviation, Pearson's correlation, and multiple regression analysis, all set at a .05 level of significance, were the inferential statistics. The results revealed that students' self-directed learning was high. Specifically, in terms of self-management, desire for learning, and self-control, students manifested high self-direction in learning. Students' overall difficulty level in Mathematics in the Modern World revealed that students had encountered slight difficulty on the different topics. Furthermore, their overall performance in Mathematics in the Modern World course was high. No significant relationship existed between self-directed learning readiness and the performance of students; difficulty encountered and performance of students. Self-

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

directed learning and difficulty are not significant predictors of the students' performance in Mathematics in the Modern World. It was concluded that students have a high level of Self-directed learning readiness. The researcher recommends further studying the effectiveness of the developed lesson exemplars in Mathematics in the Modern World.

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

TABLE OF CONTENTS

	Page
Title Page	i
Approval Sheet	ii
Acknowledgment	iii
Abstract	v
Table of Contents	vii
List of Tables	xi
List of Figures	xii
List of Appendices	xiii
 Chapter	
1 INTRODUCTION TO THE STUDY	1
Background of the Study	2
Theoretical Framework of the Study	4
Statement of the Problem	6
Hypotheses	7
Significance of the Study	7
Definition of Terms	9
Delimitation of the Study	10
2 REVIEW OF RELATED LITERATURE	12
Mathematics in the Modern World	12

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

	Self-Directed Learning	14
	Students' Readiness to Self-Directed Learning	22
	Difficulties of Students in Mathematics	24
	Students' Mathematics Performance	25
	Summary	28
3	RESEARCH DESIGN AND METHODOLOGY	35
	Self- directed Learning Readiness of Students	35
	Methodology	36
	Respondents	36
	Statistical Data Analysis and Procedure	39
4	RESULTS AND DISCUSSIONS	41
	Self- directed Learning Readiness of Students	41
	Level of Difficulty Encountered by the Students in learning the course Mathematics in the Modern World	43
	Level of Performance of Students in Mathematics in the Modern World	47
	Significant Relationship between the Self-Directed Learning Readiness and Students' Performance	50
	Predictor of Students' Performance in Mathematics in the Modern World	51
	Development of Lesson Exemplars	53
5	SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS	70
	Summary of the Problem, Method, and Findings	70
	Methods	71

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

Findings	72
Conclusions	73
Implications	74
For Theory	74
For Practice	77
Recommendations	78
REFERENCES	80
APPENDICES	89

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

LIST OF TABLES

Table		Page
1	Students' Self- directed Learning Readiness	43
2	Students' Level of Difficulty Encountered in Learning the course Mathematics in the Modern World	46
3	Students' Level of Performance in Mathematics in the Modern World	48
4	Relationship between the Self-Directed Learning Readiness and Students' Performance	50
5	Relationship between the Difficulty Encountered and Students' Performance	51
6	Predictor of Students' Performance in Mathematics in the Modern World	52

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

LIST OF FIGURES

Figure		Page
1	The paradigm of the study	6

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

LIST OF APPENDICES

Appendix		Page
A	Letter to the Author of the Instrument	90
B	Letter to the Jurors	93
C	The Jurors	95
D	Letter to the Respondents	97
E	Research Instruments	99
F	Reliability Coefficients of the Research Instruments	106
G	SPSS Outputs	109

References

- Acharya, B.R. (2017). Factors Affecting Difficulties in Learning Mathematics by Mathematics Learners. *International Journal of Elementary Education*, 6(2), pp. 8-15. doi: 10.11648/j.ijeeedu.20170602.11
- Almaiah, M. A., Al-Khasawneh, A. & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, 25-5261-5280. <https://doi.org/10.1007/s10639-020-10219-y>
- Almerino, P., Capuyan, M., Guinocor, M., Lumayag, C., & Villaganas, M.A. (2018). Mathematics Performance of Students in a Philippine State University. *International Electronic Journal of Mathematics Education*, 15(3): em0586. <https://doi.org/10.29333/iejme/7859>
- Arsic, A. (2014). Self-directed learning in an international Baccalaureate high school class. Concordia University, Montreal, Quebec, Canada. <https://spectrum.library.concordia.ca/id/eprint/978971/>
- Blömeke, S., & Delaney, S. (2014). Assessment of teacher knowledge across countries: A review of the state of research. *International perspectives on teacher knowledge, beliefs, and opportunities to learn* (pp. 541- 585). Springer, Dordrecht. https://doi.org/10.1007/978-94-007-6437-8_25
- Burger, L.M. (2016). Lived experiences of freshman students in their first semester of college. Theses and Dissertations. <https://commons.und.edu/theses/1999>

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

82

Candy, P. C. (1991). *Self-direction for lifelong learning: A comprehensive guide to theory and practice*. San Francisco: Jossey-Bass. :
<https://doi.org/10.1177/074171369204200307>

Cassidy, C. (2018). *Freshmen reflect on college experience* freshmen reflect on college experience. <https://search.proquest.com/docview/1990250787>

Chuang, M., Band, S., Sookhak, M., & Pinandhito, K., (2021). *The value co-creation behaviour in learning communities: Comparing conventional learning and e-learning*. *Mathematical Biosciences and Engineering*, 18(6):7239-7268.
[doi:10.3934/mbe.2021358](https://doi.org/10.3934/mbe.2021358)

Chun, L., (2013). *A Framework for Developing Self-directed Technology Use for Language Learning*. *Language Learning & Technology*. <http://ilt.msu.edu/issues/june2013/lai.pdf>

Commission on Higher Education Memorandum Order Number 20 series of 2013.
General Education Curriculum: Holistic Understandings, Intellectual and Civic Competencies.

Dai, D. & Xia, X. (2020). *Whether the school self-developed e-Learning platform is more conducive to learning during the COVID-19 pandemic? Best Evidence of Chinese Education*, 5(1):569-580. [doi: 10.15354/bece.20.ar030](https://doi.org/10.15354/bece.20.ar030).

Devadas, S.D., & Yoon, F.L. (2017). *Factors affecting students' attitudes towards mathematics: A structural equation modelling approach*. *Eurasia Journal of Mathematics, Science and Technology Education*. ISSN : 1305- 8223 (online).
[doi:10.12973/ejemster/80356](https://doi.org/10.12973/ejemster/80356)

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

83

- Deyo, Z., Huynh, D., Rochester, C., Sturpe, D., & Kiser, K.(2011). Readiness for Self-directed Learning and Academic Performance in an Abilities Laboratory Course. *American Journal of Pharmaceutical Education*, 75(2).
<https://www.ajpe.org/content/75/2/25.full>
- Dooren, W.V., Boukaert, G., & Halligan, J.(2015). *Performance Management in the Public Sector*. Wisconsin, USA. Routledge
- Fisher, J., & King, J. (2010). The self-directed learning readiness scale for nursing education revisited: A confirmatory factor analysis. *Nurse Education Today*, 30(1):44-8.doi: 10.1016/j.nedt.2009.05.020.
- Guinocor, M., Almerino, P., & Mamites, I. (2020). Mathematics Performance of Students in a Philippine State University. *International Electronic Journal of Mathematics Education*, 15(3). e-ISSN: 1306-3030. 2020. em058. doi: 10.29333/iejme/7859
- Gurat, M., & Medula, C., (2016). Metacognitive Strategy Knowledge use through mathematical problem Solving Amongst Pre-service Teachers. *American Journal of Educational Research*, 4(2), 170-189. DOI:10.12691/education-4-2-5
- Hiemstra, R., Brockett, G., (1994) *Self-direction in Adult Learning: Perspectives on - theory, Research, and Practice*, Routledge, New York, NY, USA.
- Jossberger, H., S. Brand-Gruwel, F.L.J.M., Van de Wiel, M., & Boshuizen, H., (2018). Learning in workplace simulations in vocational education: A student perspective. *Vocations and Learning*. [https://doi.org/10.1007/s12186-017-9186-](https://doi.org/10.1007/s12186-017-9186-7)

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

84

- Kaur, M., Kumar, R., & Lakra, P. (2020). Self-directed Learning Readiness and Learning Styles among Nursing Undergraduates. *Nursing and Midwifery Research Journal*, 16(1):40-50. doi:10.33698/NRF0265
- Khalid, M., Bashir, S., & Amin, H. (2019). Relationship between Self-Directed Learning (SDL) and Academic Achievement of University Students: A case of Online Distance Learning and Traditional Universities. *Bulletin of Education Research*, 42(2) pp.131-148. EJ1281053.pdf
- Khiat, H. (2017). Academic performance and the practice of self-directed learning: The adult student perspective. *Journal of Further and Higher Education*, 41(1). <https://doi.org/10.1080/0309877X.2015.1062849>.
- Klotz, J. (2010). An Examination of the Relationship between Self-directed learning And Academic Achievement in First Semester College Students. Capella University ProQuest Dissertations Publishing, 2011.
- Klunklin, A., Viseskul, N., & Sripusanapan, A. (2010). Readiness for self-directed learning among nursing students in Thailand. *Nursing & Health Sciences*, 12(2);p.177-181. <https://doi.org/10.1111/j.1442-2018.2010.00515.x>
- Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers*. Cambridge Adult Education. <https://doi.org.10.1177/105960117700200220>.
- Kumar, D. S., & Nagaraju, K. (2015). Cognitive styles and job satisfaction among high school mathematics teachers. *International Journal of Multidisciplinary Approach & Studies*, 2(2), 179-185. <http://bit.ly/2uZWdZz>

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

85

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013).

Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805.

<https://doi.org/10.1037/a0032583>

Long, H. B. (1998). Theoretical and practical implications of selected paradigms of self-directed learning. In H. B. Long & Associates (Eds.), *Developing paradigms for self-directed learning* (pp. 1-14). Norman, OK: Public Managers Center at University of Oklahoma.

Mahlaba, S.C. (2020). Reasons why self-directed learning is important in South Africa during the covid-19 pandemic. *South African Journal of Higher Education*, 34 (6), 120-36. <https://doi.org/10.20853/34-6-4192>.

Mahmood HG. (2012). Critical thinking disposition and learning styles of baccalaureate nursing students and its relation to their achievement. *International journal of learning and development*, 2(1):398-415.

<https://doi.org/10.5296/ijld.v2i1.1379>

Marinoni, G., Land, L., Jensen, T., (2020). The Impact of Covid-19 on Higher Education Around the world. International Association of Universities. International Association of Universities (IAU) UNESCO House.

McCoid, C., Beil, M., Hesslein, S., Mulvaney, T., Niesz, L., (2020). *Strategic leadership in PK-12 Settings*. USA: IGI Global Publisher of Timely Knowledge.

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

86

- McBurney, D. & White, T. (2009). *Research Methods*. New York, NY: Cengage Learning.
- Mendezabal, M.J.(2013). *Study Habits and Attitudes: The Road to Academic Success*.
Open Science Repository Education. doi: 10.7392/Education.70081928
- Merriam, S. B.. (2012). *Learning in adulthood: A comprehensive guide*. San Francisco:
Jossey-Bass.
- Morosanova, V. I., Fomina, T. G., Kovas, Y., & Bogdanova, O. Y. (2016). Cognitive and
regulatory characteristics and mathematical performance in high school
students. *Personality and individual differences*, 90, 177-186.
<https://doi.org/10.1016/j.paid.2015.10.034>
- Prabjane, D., & Inthachot, M. (2013). Self-directed Learning Readiness of College
Students in Thailand. *Journal of Educational Research and Innovation*, 2(1),
Article 2. <https://digscholarship.unco.edu/jeri/vol2/iss1/2>
- Remo, L. (2019). Prediction and Assessment of Student's Performance in Mathematics in
the Modern World. *International Journal of Scientific & Technology Research*,
8(04). www.ijstr.org.
- Rohman, A.G., & Villanueva, R. (2020). Competency Acquisition, Difficulty and
Performance of First Year College Students in Mathematics in the Modern
World. *International Journal of Scientific & Technology Research*,8(12).
www.ijstr.org.
- Sbahi, S. (2018). *The Theory of Difficulty Is it really difficult or do we just not
understand it?* MA. English and American Studies. Universität Kassel.
<https://researchgate.net/publication/348602498>

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

87

- Shirazi, F., Sharif, F., Molazem, Z., Alborzi, M.(2017). Dynamics of self-directed learning in M.Sc. nursing students: A qualitative research. *Journal of Advances in Medical Education and Professionalism*, 5(1): 33–41.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5238494>
- Singh, P. (2015). Interaction effect of brain hemispheric dominance and study habits on academic achievement in mathematics. *International Journal of Applied Research*, 1(11), 746-750. www.allresearchjournal.com.
- Szalay, P. (2019). Self-Directed learning: A core concept in Adult Education. *Education Research International*, 2020, article ID 38161132.
<https://doi.org/10.1155/2020/38161132>
- Sze-yeng, F., & Hussain, R.M.R. (2010). Self-directed learning in a socioconstructivist learning environment. *Procedia Social and Behavioral Sciences*, 9(2010) 1913–1917.doi:10.1016/j.sbspro.2010.12.43
- Tambychik, T., & Meerah, T.S.M. (2010). Students’ difficulties in Mathematics Problem-Solving: What do they say?. *Procedia-Social and Behavioral Sciences*, 8, p.142-151. <https://doi.org/10.1016/j.sbspro.2010.12.020>.
- Tan, D.A., & Balasico, C.L. (2018). Students’ academic Performance, Aptitude and Occupational Interest in the National Career Assessment Examination. *PUPIL: International Journal of Teaching, Education and Learning*, 2(3), pp.01-21.
<https://dx.doi.org/10.20319/pijtel.2018.23.0121>.

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

88

Vaivada, S. (2014). Personality Self-Education through participation in Healthy Lifestyle education in Non-governmental organizations. Summary of the Doctoral Dissertation Social Sciences, Education.

<https://gs.elaba.lt/object/elaba:11921653/11921653.pdf>

Wang, V., & Cranton, P., (2012). Promoting and Implementing Self-Directed Learning (SDL): An Effective Adult Education Model. Psychology, Computer Science.

doi:10.4018/javet.2012070102

Ware, M.(2011). Insuring Self-Direction and Flexibility in Distance learning for Adults: Using Contracts. Cortland, USA:IGI Global, Publisher of Timely Knowledge.

Doi:10.4018/978-1-61692-906-0.

Yuan, H. B., Williams, B. A., Fang, J. B., & Pang, D. (2012). Chinese baccalaureate nursing students' readiness for self-directed learning. Nurse Education Today, 32(4), 427- 431. doi: 10.1016/j.nedt.2011.03. 005