

**CHRONICLE OF ELEMENTS: AN RPG ABOUT CHEMICAL ELEMENTS**

**THESIS**

**JUDE B. DERIADA**

**REYNANTE M. MENDEZ**

**LOIS JASMIN C. YUVIENCO**

**College of Engineering and Information Technology**

**CAVITE STATE UNIVERSITY**

**Indang, Cavite**

**June 2019**



# **CHRONICLE OF ELEMENTS: AN RPG ABOUT CHEMICAL ELEMENTS**

**Undergraduate Thesis  
Submitted to the Faculty of  
College of Engineering and Information Technology  
Cavite State University  
Indang, Cavite**

**In partial fulfilment  
of the requirements for the degree  
Bachelor of Science in Information Technology**



*Chronicle of elements:*  
001.6 D44 2019  
T-8728

**JUDE B. DERIADA  
REYNANTE M. MENDEZ  
LOIS JASMIN C. YUVIENCO  
July 2019**

The overall result of assessment of the system for Non – technical indicates that the application is “excellent” with the mean of 4.52 and a standard deviation of 0.51. The overall result of assessment of the system for Technical indicates that the application is “excellent” with the mean of 4.54 and a standard deviation of 0.50. In conclusion, based on the result of the conducted evaluation and testing, the system was evaluated as excellent in all identified criteria.

## TABLE OF CONTENTS

Section	Page
BIOGRAPHICAL DATA .....	iii
ACKNOWLEDGMENT .....	vi
ABSTRACT .....	viii
LIST OF FIGURES .....	xii
LIST OF TABLES .....	xiv
LIST OF APPENDIX FIGURES .....	xv
LIST OF APPENDIX TABLES .....	xvii
LIST OF APPENDICES .....	xviii
INTRODUCTION .....	1
Statement of the Problem .....	2
Conceptual Framework .....	3
Objective of the Study .....	6
Significance of the Study .....	7
Time and Place of the Study .....	8
Scope and Limitations of the Study .....	8
Definition of Terms .....	11
REVIEW OF RELATED LITERATURE .....	12
METHODOLOGY .....	31
Material .....	31
Methods .....	31

Population, Sample Size, and Sampling Technique .....	35
Instrumentation .....	35
Statistical Treatment of Data .....	36
Theoretical Framework .....	37
<b>RESULTS AND DISCUSSION .....</b>	<b>40</b>
<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>69</b>
Summary .....	69
Conclusion .....	70
Recommendations .....	72
<b>REFERENCES .....</b>	<b>73</b>
<b>APPENDICES .....</b>	<b>75</b>

21	On game help menu .....	51
22	Interaction with NPC .....	52
23	Obtaining Items .....	52
24	Decomposition function .....	53
25	Achievement window .....	54
26	Save/Load Window .....	54
27	Mini-game .....	54
28	Battle Progress .....	55
29	World Map .....	56
30	Complete Elemental Stones .....	56
31	End Scene .....	57

## LIST OF TABLES

Tables	Page
1      Table of comparison and contrast of game application and other related studies.....	29
2      Numerical scale of computed mean with interpretation and remarks...	59
3      Evaluation for functionality of the application of the non-technical user.....	60
4      Evaluation for reliability of the application of the non-technical user.....	60
5      Evaluation for usability of the application of the non-technical user.....	61
6      Evaluation for user-friendliness of the application of the non-technical user.....	61
7      Overall Result of Assessment of the System for non-technical Evaluation.....	62
8      Evaluation for functionality of the application of the technical user.....	63
9      Evaluation for reliability of the application of the technical user.....	63
10     Evaluation for usability of the application of the technical user.....	64
11     Evaluation for efficiency of the application of the technical user.....	65
12     Evaluation for maintainability of the application of the technical user.....	65
13     Evaluation for portability of the application of the technical user.....	66
14     Evaluation for user-friendliness of the application of the technical user.....	66
15     Overall Result of Assessment of the System for technical Evaluation.....	67

## LIST OF APPENDIX FIGURES

Appendix Figure		Page
1	Fishbone diagram for Unfamiliar with the Chemical Elements.....	77
2	Fishbone diagram for Focused on entertaining applications rather than educational.....	77
3	Fishbone diagram for Unknowledgeable about the common uses of the elements.....	78
4	Survey result on where do you prefer to spend your free time .....	85
5	Survey result on What is your purpose in using mobile phone .....	85
6	Survey result on Do you use educational software for learning in your studies.....	86
7	Survey result on Do you have an idea about the periodic table of elements before your chemistry subject.....	86
8	Survey result on Have you encountered the chemical elements yet.....	87
9	Survey result on What type of game do you usually play? Why .....	87
10	Survey result on did they issue materials or books that will introduce the chemical elements.....	88
11	Survey result on Do you get bored while studying if it's not interesting or fun.....	88
12	Survey result on Do you think studying the periodic table will be fun or interesting? Why.....	89
13	Survey result on Do you think it will be easier for you to learn and get familiarized with the periodic table if you are playing it .....	89
14	Survey result on did you try to research about chemical elements or read books about it? Why.....	90



15	Survey result on Do you know some applications about chemical elements and it's uses.....	90
16	Survey result on Do you study the subject that you're going to take next year.....	91
17	Survey result on Did the school requires you to study subjects that you're going to take next year .....	91
18	Gantt Chart of Chronicle of Elements: An RPG about Chemical Elements.....	93
19	Use Case Diagram of Chronicle of Elements: an RPG about Chemical Elements.....	95
20	Activity Diagram of Chronicle of Elements: an RPG about Chemical Elements.....	97
21	Storyboard of Chronicle of Elements: an RPG about Chemical Elements.....	99
22	Storyboard of Chronicle of Elements: an RPG about Chemical Elements.....	100

## LIST OF APPENDIX TABLES

Appendix Table		Page
1	Line Item Budget of Chronicle of Elements: an RPG about Chemical Elements.....	102
2	Distribution of the non-technical respondent's evaluation based on the systems functionality .....	109
3	Distribution of the non-technical respondent's evaluation based on the systems reliability... ..	109
4	Distribution of the non-technical respondent's evaluation based on the systems usability.....	109
5	Distribution of the non-technical respondent's evaluation based on the systems user-friendliness.....	110
6	Distribution of the technical respondent's evaluation based on the systems functionality .....	112
7	Distribution of the technical respondent's evaluation based on the systems reliability.....	112
8	Distribution of the technical respondent's evaluation based on the systems usability.....	113
9	Distribution of the technical respondent's evaluation based on the systems efficiency.....	113
10	Distribution of the technical respondent's evaluation based on the systems maintainability.....	114
11	Distribution of the technical respondent's evaluation based on the systems portability.....	114
12	Distribution of the technical respondent's evaluation based on the systems user-friendliness.....	115

## LIST OF APPENDICES

Appendix		Page
1	Fishbone diagram.....	76
2	Survey letter.....	79
3	Survey Questionnaire.....	81
4	Survey Result.....	84
5	Gantt chart.....	92
6	Use-Case Diagram.....	94
7	Activity Diagram.....	96
8	Storyboard.....	98
9	Line Item Budget.....	101
10	Evaluation form for technical respondents.....	103
11	Evaluation form for non-technical respondents.....	106
12	Frequency Distribution of Non-Technical Respondents.....	108
13	Frequency Distribution of Technical Respondents.....	111
14	Unit Testing.....	115
15	Integration Testing.....	123
16	Sample Source Code.....	128
17	Certificates and Forms.....	134

# **CHRONICLE OF ELEMENTS: AN RPG ABOUT CHEMICAL ELEMENTS**

**Jude B. Deriada  
Reynante M. Mendez  
Lois Jasmin C. Yuvienco**

---

An undergraduate thesis manuscript submitted to the faculty of Department of Information Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfilment of the requirements for the degree of Bachelor of Science in Information Technology with Contribution No. 2018-19-S-005. Prepared under the supervision of Ms. Aiza E. Bihis.

---

## **INTRODUCTION**

A game is structured form of play, usually undertaken for enjoyment and sometimes used as an educational tool. Key components of games are goal, rules, challenge, and interaction. Games generally involve mental or physical stimulation. Many games help develop practical skills, serve as a form of exercise, or otherwise perform an educational role (Mackay, 2013). In (RPG) Role-Playing Game is a game where a player controls one or multiple characters and follows a series of events and obstacles leading to complex and continuous narration of a story, where the character has some role of various importance. Players take responsibility for acting out these roles within narrative, either through literal acting or through a process of structured decision-making or character development. The player moves through the story solving problems and interacting with other non-player characters (NPCs) and objects in the game world. The typical RPG game very often consists of highly variable activities, because the character (or more often called a hero) or