

The Machine Game for Development in Reading Skill of Learning Disabilities Students

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Abstract

The machine game for development in reading skills of learning disabilities students, a self-learning activity has developed to help differently-abled students to improve their reading skills. This study aims to find the effectiveness of this machine and the overall satisfaction of students. Nine students were randomly selected and voluntarily participated in this study. A pre-test was conducted to assess their reading skills prior to the introduction of the self-learning activity package followed by a post-test and a satisfaction questionnaire. Descriptive statistics and t-test were used to analyse the data. The post-test ($M=16.11$, $SD.=1.05$) showed that the reading skills of the students improved from the pre-test ($M=14.44$, $SD.=0.88$) significantly, ($t(4.08) =17.60$, $p<0.05$ students were also satisfied and found the self-learning activity via machine useful.

Keywords: machine game, reading skill, learning disabilities

1. Introduction

1.1. The Machine Game

The machine game guide's conduct is grounded in empathic and instructive methodologies, expanding on past work. The machine game helps the student utilizing educational activities, for example, prompts, siphons and joins dependent on task execution, recorded expertise levels, and time in task. The machine game coach screens student's emotional states, levels of valence and excitement that are then used to adjust the utilization of educational activities. For instance, if the student is in a condition of low valence and excitement, which shows a condition of tiredness or fatigue the conduct of the machine game will be to engage and draw in the student. In the event that the student has positive valence recognizing states where the student is glad or loose, at that point the measure of educational activities are decreased. At the point when the student is disappointed, increasingly educational assistance is given. Social abilities preparing of kids with mental imbalance range issue (ASD) isn't a simple issue enough to regularly invest a ton of energy and redundant endeavors. As methods for help, we propose and look at the plausibility of a mechanical conduct intercession framework to encourage social advancement of the youngsters with ASD and mitigate operational weight during preparing process. To this end, in view of notable social treatment conventions, the machine game framework fuses automated incitement structure, acknowledgment modules for human exercises, and fortification method in the connection conspire plan. Utilizing these setup, it more than once play out a job of preparing eye to eye connection and perusing feelings focused at preschoolers with an advanced level in the arranged preparing process. Through demonstrating a preferred position in a relative investigation with control bunch educated by people, we checked that the proposed framework can add to bring out constructive reaction of kids with ASD and give work sparing impact on the clinical condition. With the progression in apply autonomy, more consideration has been paid to the advancement of instructive help robots that help with learning. Albeit most existing examinations report the impacts of community oriented learning between instructive help robots and solid kids, since the quantity of youngsters with formative issue in elementary schools has expanded yearly, it is important to create instructive help robots for kids with advancement issue. In this manner, an ongoing report built up a robot that shows kids with formative issue. Notwithstanding, existing examinations do not announce instructive help robots for kids who have potential manifestations of an advancement incapacity, additionally alluded to as "hazy area

youngsters." This investigation researches impacts of community oriented learning among robots and hazy area kids. In shared learning, the youngster and the machine game then again read out loud one page of educating material. These youngsters have side effects like ADHD and trouble learning over extensive stretches of time. The machine game is intended to work by the Wizard of Oz technique and cooperates with youngsters continuously.

1.2. Learning Disabilities

They are can neither see nor contact the components of their subject. At the point when educators bring conceptual ideas into professionally based learning, there can be wrong thoughts about the ideas instructed in class when just conventional materials are accessible. Terms, one must think about the suitable blend of conventional scholastic aptitudes, explicit understanding abilities, and nonexclusive, non-scholarly abilities, for example, correspondence, inspiration, and obligation. The arrangement is comparable, recognizing intellectual, specialized, and conduct aptitudes. A portion of every one of the three sorts of aptitudes required for almost all employments, the degrees of the various kinds of ability shift across readings [1]. Learning disabilities were commonly identified learning and performance characteristics, although all students with intellectual or multiple disabilities are distinct, several informal learning and performance characteristics have been identified. These characteristics should be addressed when planning individual programmers and instructions. The quantity of aptitudes gains from understudies with scholarly or different handicaps will be not exactly most understudies as they will learn them gradually [2]. This trademark brings about less aptitudes obtaining. Because of the less aptitudes learned, educators ought to guarantee that the abilities they instruct are useful to the understudy's present and future situations. There are many complex skills that a student with intellectual or multiple disabilities may not be able to acquire because of the complexity of skills.

1.3. Skill Learner

The complex skills can be learned but will take longer time and effort. The importance of teaching functional skills for the student is again emphasized. The number of instructional opportunities and the amount of time needed for students to acquire skills by most students with intellectual or multiple disabilities require several learning opportunities before a skill is acquired [3]. Forgetting and recoupment of many students who have acquired skills will show a decrease in the performance of that skill if they do not use it for some time. It will take most students with an intellectual or multiple disabilities more time and instruction to return to their former performance level than it would be for a non-disabled student. Transfer and generalization, cannot be assumed that a skill acquired in one environment will automatically be performed elsewhere. Most students with intellectual or multiple disabilities have difficulty transferring or generalizing a skill from one context to another. They may require instructions in each of the environments where the skill is being used. There will be difficulty to put together or synthesizing skills learned in several contexts to use in a new context [4].

Therefore, the researcher needs to research in The Machine game for Development in Reading Skill of Learning Disabilities Students for Learning in the development of reading skills for Learning disabilities for developing reading skills. Such as to be adequate in the reading skills, learning skills, critical thinking skills, and the creation of works for promoted of a successful teaching experience The machine game by Arduino board in reading skill for Learning in the development of reading skills for Learning disabilities students. It will commonly identify the learning and performance characteristics, although all students with intellectual or multiple disabilities are distinct, several everyday learning and performance characteristics have been identified. These characteristics should be addressed when planning individual programmers and instructions.

2. Methodology

2.1. Objectives

- To find the efficacy of the machine game for development in reading skill of Learning disabilities students.
- To compare students' achievement between pre and post on the machine game for development in reading skill of Learning disabilities students.
- To assess the student's satisfaction with the machine game for development in reading skill of Learning disabilities students.

2.2. Hypothesis

- H1-The efficacy of the machine game for development in reading skill of Learning disabilities students $E_1/E_2 = 80/80$
- H2-Students studying with the machine game for development in reading skill of learning disabilities students have higher or lower achievement than pre-learned from the machine game for development in reading skill of learning disabilities students with statistical significance 0.05
- H3-Students' satisfaction level with the machine game for development in reading skill of Learning disabilities students at a higher level

2.3. Sample of the Study

Research process used the population are the sample of this research was learning disabilities students, nine students from a secondary school in Nonthaburi School that registered for the development of the reading skill courses during the first semester of 2019.

2.4. Conceptual Framework

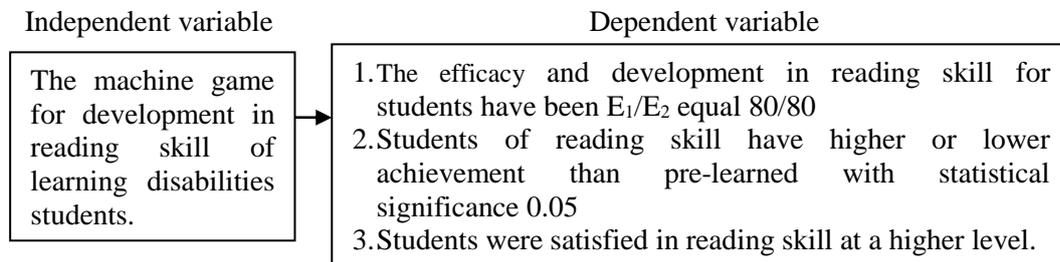


Figure 1. Conceptual Framework the Machine game for development in Reading Skill of Learning Disabilities Students

2.5. Measures of the Study

The following scales were used in the present study in variables: independent variables are the machine game for development in reading skill of learning disabilities students. Also, dependent variables:

- The efficacy of the machine game for development in reading skill of learning disabilities students.
- The student's achievement.
- Students are satisfied with the machine game for development in reading skill of learning disabilities students.

2.6. Content's Scope

In this research is used in semester two at Nonthaburi school for learning disabilities students, Nonthaburi includes to Reading skills in Thai language.

2.7. Data Assessment

The researcher experimented. A specific selection selected the sample. An experiment was one group pretest-posttest design. The measure and statistics and amassment are the self-learning activity-packed, pre-test, and post-test, questionnaire of satisfying data was Mean, Standard Definition, t-tests the dependent sample. Statistics and amassment data after the experiment and calculate (O1) and (O2) for Mean (x) and also compared, arrangement for the experimental model by offline in process, for students to learn by themselves, the researcher puts some data amassment as follow.

- a. Request for cooperation with Nonthaburi School.
- b. Plan the reading skill for learning disabilities subject by analyzed the course in, course objective; determine behavioral objectives, students' analysis.
- c. Process learning by used the machine game for development in reading skill of learning disabilities students there are three steps as follows goal of learning, creative thinking, construction knowledge; pre-test; points; post-test; assess student's satisfaction; check pre-test and post-test.

2.8. Statistical Analysis

Data analysis used the statistics to analyze data. The efficacy is of the machine game for development in reading skill of learning disabilities students' subject by E1 / E2. Compare achievement of learning disabilities to students improve between pre and post on the machine game Arduino board in reading skill for learning in the development of the reading skill by pre-test and post-test as a research instrument. To assess learning disabilities students' satisfaction on the machine game for development in reading skill in the development of the reading skill by Mean, Standard Definition.

3. Results and Discussion

3.1. Results

Descriptive of the efficacy of the machine game by Arduino board in reading skill for learning in the development of the reading skill for learning disabilities students. (N=9).

Table 1: The Efficacy of the Machine Game for Development in Reading Skill of Learning Disabilities Students

The Machine Game by Arduino Board in Reading Skill for Learning in the Development of the Reading Skill for Learning Disabilities Students	The Average Percentage of Study Scores (E ₁)	The Average Percentage of Post-Test (E ₂)	E ₁ / E ₂
The invention of wallets from rags	81.55	82.65	81.25/80.56
The invention of resin mobile phone frame	81.55	81.55	
The invention of gel candles	81.65	81.85	
The invention of flannel dolls keychains	81.00	81.98	
The invention of flower garlands	81.25	81.25	
The invention of the pencil case	81.15	81.85	
The invention of wallets from plastic	81.50	81.65	
The invention of dolls case from plastic	81.00	81.59	
Average total	81.25	81.56	

From Table 1 shows that the efficacy of the machine game by Arduino board in reading skill for Learning in the development of the reading skill for Learning disabilities subject as follows

80/80 or $E_1/E_2 = 81.25/80.56$ as the hypothesis, the average percentage of study scores (E_1) = 81.25 and the average percentage of post-test (E_2) = 80.56.

The machine game by Arduino board in reading skill for Learning in the development of the reading skill for Learning disabilities students, analysis results can see in the following Table 2.

Table 2: Compare students improve achievement between Pre-Test and Post-Test

Experiment	Score	Mean	SD.	Percent	Average	E_1/ E_2	t	Sig. (2-tailed)
Pre-test	20	14.44	0.88	81.25	65.00	81.25	4.08	0.0035
Post-test	20	16.11	1.05	80.56	17.11	80.56		

**significant at 0.05 level, (N=9)

From Table 2 shows the analysis results of the machine game by Arduino board in reading skill for Learning in the development of the reading skill for Learning disabilities with pre-test and after that students to learn and post-test as following with objectives. The efficiency of the machine game by Arduino board in reading skill for learning in the development of the reading skill for Learning disabilities students. The research found that the efficiency of the machine game by Arduino board in reading skill for Learning in the development of the reading skill based on the average criteria equal to 81.25/80.56, the efficient of the student after the study is higher than before the study, with the average equal to 14.44 and stand vision equal to 0.88. The average after the study equals to 16.11 with stand vision equal to 1.05, t-test value before and after the study equal to 4.08, which is different significantly on statistics at the level 0.05 and Sig.(2-tailed=0.0035).

Show by the mean and standard deviation for students' satisfaction on the machine game by Arduino board in reading skill for learning in the development of the reading skill for Learning disabilities students.

Table 3: Students Satisfaction on the Machine Game by Arduino Board in Reading Skill for Learning in the Development of the Reading Skill for Learning Disabilities

Item		\bar{x}	SD.	Results (Satisfaction levels)
1	Teachers have to teach preparation on the machine game by Arduino board in reading skill for learning	5.00	0.00	The most
2	The content of the study is appropriate for the learners in reading skill for learning.	5.00	0.00	The most
3	The content studied helps to increase knowledge and understanding of the invention even more in reading skill.	5.00	0.00	The most
4	The study duration is appropriate.	4.89	0.33	The most
5	Teachers use the machine game for the equipment was suitable with LD students.	5.00	0.00	The most
6	Teachers intend to teach and give advice to LD students in activities.	4.89	0.33	The most
7	The teacher encourages LD students to have the initiative and to reading skill in Thai's word.	4.89	0.33	The most
8	Learning disabilities are involved in learning activities.	4.67	0.50	The most

Item		\bar{x}	SD.	Results (Satisfaction levels)
9	The materials and equipment for the invention are sufficient for LD students, thus as Illustration and content colorful, engaging, able to communicate clearly.	4.78	0.44	The most
10	The test and exercises are appropriate for LD students.	4.89	0.33	The most
11	Learning disabilities were satisfied with the learning set reading skills training.	4.89	0.33	The most
12	Learning disabilities receive knowledge and new experience in reading skill.	4.89	0.33	The most
13	Learning disabilities can apply knowledge gained to practice as a supplementary career.	4.89	0.33	The most
Total Average		4.90	0.51	The most

From Table 3, the satisfaction of learning disabilities is classified at the most -level all every item-total average equal to 4.90 with a standard deviation equal to 0.51. Learning disabilities at the development of the reading skill certificate level had on the average criteria equal to 81.25/80.56, the efficient of the student after the study is higher than before the study, with the average equal to 14.44 with a standard deviation equal to 0.88. The average after the study equals to 16.11 with a standard deviation equal to 1.05. The t-test analysis between before and after learning was t-test value before and after the study equal to 17.60, which is different significantly on statistics at the level 0.05 and the satisfaction of the students towards the machine game by Arduino board in reading skill for Learning in the development of the reading skill in the average of 4.90, considerable level. The students had a high level of satisfaction, with an average of 4.26. They had knowledge and enjoyment, including taking action and being willing and enthusiastic about their studies and being able to perform their work correctly. They were more organized in the workplace because everyone had practised it, which helped them to learn as well as being able to learn independently. There was also a mutual exchange of knowledge that allowed students to develop according to their potential by having teachers to plan, encourage, challenge, encourage, and guide the way to find the right knowledge. The machine game by Arduino board in reading skill for learning in the development of the reading skill for learning disabilities includes: Learning disabilities activities to develop the reading skill for Learning disabilities skills step by step, which results in learning and increase students' interest and enthusiasm in their studies. Arduino code for the machine game for development in reading skill of learning disabilities students [5].

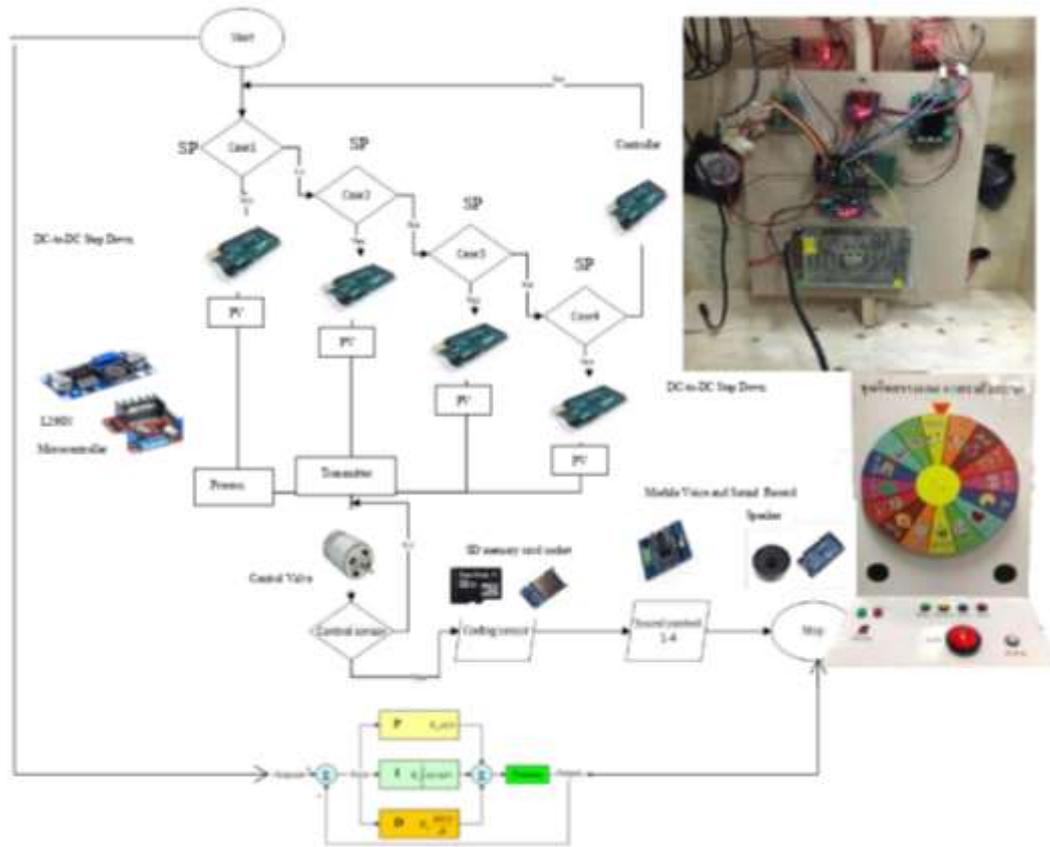


Figure 2. The Mechatronic Works with the Machine Game

The mechatronic help to create this machine game via the Arduino code control, all mechanical of the machine game for development in reading skill of learning disabilities of students. There is a benefit to make its control bottom and sound, feedback, and stop that make the motivation for students. The board is in the border how to machine operation in reading skills for learning in the development of the reading skill for learning disabilities for students. The control theory for mechatronics engineering was related on the synergistic mix of mechanical, hardware, control and PC building. The key factor being the coordination of these regions during the plan procedure. The mechatronic control building specialization covers the central logical standards and innovations that are utilized in the plan of current PC controlled machines and procedures and put exceptional spotlight on the cooperative energies in the structure procedure.

The behaviors of a PID algorithm can be described as the input that it does guarantee, all control sensor and control the sign of the word and sound, and both of input and output regions are related by a set of rules [5]. The process was set point of the machine know that which word to stop when see sensor, and take timing when student push stop bottom, and student can control by them self. Students were Secondary education. They were fall in Thailangue, that they do not know their words, and they are can't read simple words. All this processes are confirm as in the result of the PID control is given as the PID term is achieved with gain and [6].

$$(u(t) = kpe(t) + kpe(t) + ki \int_0^t e(t)dt + kd \frac{de(t)}{dt} \dots u)$$

PID parameter will control DC motor position via an Encoder. The machine game is used to and block diagram show in Figure below.

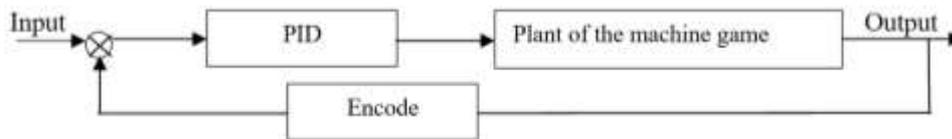


Figure 3. Block Diagram of the Machine Game

The use of the PID algorithm does guarantee, all control sensor and control the sign of the word and sound. The process was set point of the machine know that which word to stop when see sensor, and take timing when student push stop bottom, and student can control by them self. Students were Secondary education. They were fall in Thai langue, that they do not know their words, and they are cannot read simple words. When students learn with the machine game, they will get the metacognition, gain learning strategies, and become active students; it empowers them tremendously because they begin to understand that thinking and learning are processes that they can control. The machine game is a learning strategy, which helps the learner engage with, process, remember, or apply information. The machine game helps the learner engage cognitive, they can remember the word and have the reading skill.



Figure 4. The Machine Game Helps the Learner Engage Cognitive

The mechatronic help to create this machine game by Arduino board in reading skill for learning in the development of the reading skill for learning disabilities for students, the efficiency followed the aspect = 80.33/81.67 and 80/80 the learning disabilities students. They had higher achievement from the development of the reading skill with statistical significance 0.05 and student's satisfaction in high-level average. The researcher had noticed that students had more knowledge and enjoyment. The students had shown to take action with determination and enthusiasm. They enjoyed working with confidence. In accordance with the development of a multimedia courseware that can be used to educate children with Learning disabilities (LD).

3.2. Discussion

The game-based courseware helps with LD to investigate their abilities without forcing them to find different companions however to let them learn at their own pace of time. Mechatronic Control Engineering offers a developer that shows the understudy to make and control mechatronic frameworks and items and create correspondence with colleagues from different orders that the understudy ought to comprehend the significance of the incorporation of demonstrating and control building into the plan of mechatronic frameworks. The understudy comprehends and applies different controller structure systems.

e.g., traditional input control, state-space control, and Non-straight control strategies, that the understudy ought to gain a general comprehension of further developed control plan methods, e.g., course control, sliding mode control, versatile control, and criticism linearization that the understudy ought to comprehend the computerized usage of control systems and fundamental advanced structure procedures. That the understudy ought to have the option to utilize a microcontroller or DSP as a mechatronic framework part; and that the understudy ought to comprehend the programming and interfacing issues. The understudy had the option to apply skills to design a mechatronic system of the courseware. In [7] can be utilized as a medium to teach youngsters with LD, to animate their psycho-engine for utilizing the PC and furthermore to build up their reasoning aptitudes while having a ton of fun playing the games [8] as according to programming games show youngsters a few types of getting the hang of as per their own paced and some may be fulfilling. Other than that, games can likewise create dynamic commitment and enjoyment in learning and offer an influential arrangement for instructive conditions. In addition, contemplates have indicated that the utilization of deliberately chose PC games may improve thinking. Subsequently, numerous analysts have created games for instructive purposes [9], what's more, Education is one of the most essential stages since it effectively affects the individual's rest of life. Accomplished individuals add to citizenship life, expert, and public activity. Tragically, a few understudies have learning inabilities and must be dealt with and situated to the relating authorities to proceed with their Education effectively and to be powerful in the public eye later on [10]. The study has shown that learning disabilities can practically contribute to learning according to the student's satisfaction on the development of the reading skills because of the contents of the self-learning activity package is fun, colorful, enticing, and practical and the instructions are easy to follow [11]. Organization of teaching and learning activities, to achieve the objectives set by students, should be prepared by practicing the reading skill and the use of steps in the study through the self-learning activity-packed, in the development of the reading skill for Learning disabilities students, in detail at every step of organizing learning activities [12].

4. Conclusion

The learning under the machine game by Arduino board in reading skill for Learning in the development of the reading skill for Learning disabilities students applied to teach management at all levels of Education and all subject groups by adjusting the learning activities to be in line with the learning activities. Many participants may cause the learning management process not to meet the objectives of learning management. Creating manuals to prepare students to be as prepared as far as possible before practicing learning activities following the machine game by Arduino board in reading skill for Learning in the development of the reading skill for Learning disabilities students, according to the interest distributes the positive and significant influence on learning results. These suggestions agree in the learning process encourage the student to achieve a functional learning result Recommendations for the next research; the machine game by Arduino board in reading skill for Learning in the development of the reading skill for Learning Disabilities combines a model of a learning management process through the development of the reading skills in which teachers have activities that can interact with students at all times [13]. Establishing learning activities that consistently promote communication in the development of the reading skills between students and teachers or between students. Study of the effects of applying the learning model based on the machine game by Arduino board in reading skill for Learning in the development of the reading skills for Learning Disabilities through the

development of the reading skills to students' thinking process skills following other curriculum standards, such as creative thinking process skills, systematic thinking skills, and critical thinking skills. Study of the effects of applying the machine game by Arduino board in reading skill for Learning in the development of the reading skills for Learning Disabilities based learning styles through the development of the reading skills with students with different learning abilities to find ways to enhance students' ability [14].

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