Proceeding of

INTERNATIONAL ACADEMIC MULTIDISCIPLINARY RESEARCH CONFERENCE IN ZURICH 2023

Zurich, Switzerland
20 – 22 March 2023

ICBTS 2023

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Conference Proceedings

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INTRODUCTION

We would like to welcome our colleagues to the International Academic Multi disciplines Research Conference. It is the four series in 2023 Conference on Business Education Social Sciences Tourism and Technology was held in Switzerland. As always many members of the ICBTS 2023 community look forward to meeting, sharing, and exchanging their research ideas and results in both a formal and informal setting which the conference provides. Likewise, the concept of alternating the international conference every one month from March to December between Europe and the rest of the world is now well established. This year's event in Zurich (Switzerland) Munich (Germany) Amsterdam (Netherlands) Venice (Italy), Seoul (South Korea), Fukuoka (Japan), Vienna (Austria) and others continues with the cultural following the very successful and productive event held in Venice, Amsterdam, and Seoul 2023 in the field of various types of international academic research conference on Business Education Social Sciences Humanities and Technology. As usual, The ICBTS 2023 brings together leading academics, researchers, and practitioners to exchange ideas, views, and the latest research in the field of Business Tourism and Apply Sciences.

The theme of this event The 2023 ICBTS International Academic Multidiscipline Research Conference is "Opportunities and Development of Global Business Economics Social Sciences Humanities and Education" It also represents an emerging and highly challenging area of research and practice for both academics and practitioners alike, The current industrial context is characterized by increasing global competition, decreasing product life cycles, Global Business, Tourism Development, Social Sciences Humanities Education Apply Sciences and Technology collaborative networked organizations, higher levels of uncertainties and, above all, and customers. In our view holding this event in Lucerne represents a timely opportunity for academics and researchers to explore pertinent issues surrounding Business Economics Tourism Social Sciences Humanities Education Sciences and Technology.

Potential authors were invited to submit an abstract to the International Conference Session Chairs. All abstracts were reviewed by two experts from the International review committee and final papers were further reviewed by this volume with 63 contributing authors coming from 12 countries. This book of proceedings has been organized according to the following categories:

- Technology
- Information Technology
- Advanced Technology
- Industrial
- Business & Economic
- Social Sciences
- Education & Teaching
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The 2023 ICBTS International Multidiscipline Research Conference	
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THE DEVELOPMENT OF LEARNING ACHIEVEMENT IN COMPUTATIONAL SCIENCE USING CODING ON THE SUBJECT AI FOR GOOD IN TEACHING AND LEARNING FOR PRATHOMSUKSA 6 STUDENTS

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ABSTRACT

The purposes of this research were 1) to develop computational science learning by coding on AI For Good, 2) to compare learning achievements in computational science by coding Minecraft: Education Edition : AI For Good, 3) to study the Student Satisfaction Using Coding AI For Good; The sample used in the research was Primary 6 Students, academic year 2022, 2 classrooms, 70 students, Demonstration School of Suan Sunandha Rajabhat University, by purposive sampling; The sample group was 1 classroom with 36 students. The research tools were (1) Coding Minecraft: Education Edition: AI For Good, (2) pre- and post-test, (3) student satisfaction assessment; Quantitative data analysis using Mean ($\bar{x}$), Standard Deviation (S.D.), E1/E2 engine performance determination with dependent samples t-test according to the specified criteria was 80/80; performance analysis using Coding Minecraft: Education Edition: AI For Good, and dependent Samples t-test.

The results of the study showed that

(1) The efficiency of using code in teaching and learning on AI For Good of Primary 6 Students was very good, equal to 85.56/94.72, which was in accordance with the established criterion of 80/80.

(2) Comparison of learning achievements in computational science by coding Minecraft: Education Edition: AI For Good coding of Primary 6 Students before learning is equal to 8.47, and after 9.75; It shows that students have knowledge and understanding about code and principles of working AI (Artificial Intelligence) with a statistical significance at the .05 level.

(3) The student's satisfaction towards the lesson in teaching and learning about AI For Good of Primary 6 students, Using coding, students had the highest level of learning satisfaction using Minecraft: Education Edition: AI For Good ($\bar{x}$ = 4.95, S.D. = 0.16).

Keywords: Coding, Minecraft Education Edition, AI For Good, Grade 6 Students

INTRODUCTION

Under the 20-year national strategy (2018-2037) on national development, security, socio-economic, and environment issues; Thailand has planned various strategies such as the National Strategy for Human Resource Development and Empowerment, which has important

development goals to develop people of all ages to be good, competent and qualified people, equipped with both physical and mental readiness, intelligence; and readiness to jointly drive the development of the country toward stability, prosperity, and sustainability, prepare Thai people for changes in the era of information technology in the 21st century, prepare to cope with social changes with skills, keeping up with the digital world according to the management plan, development and capacity building for quality and efficiency, promoting and supporting communication in various languages of Thai youth using Thai, foreign languages, as well as computer languages (Coding), which is learning language skills to communicate with computers and technology.

At present, everyone has learned to use technology in daily life, until they want to know the technology, caused by writing code; what is writing code? Grace Bruceter Murray, computer science pioneer in coding, Admiral Grace Murray Hopper, and designer of the Hour of Code lesson platform to demonstrate that anyone can easily learn the basics of programming by connecting a block of commands arranged in a Jigsaw puzzle, it can also be extended to other computer languages. In the lesson, there was learning to develop problem-solving skills and critical thinking, which help in all aspects of life, it also allows people to develop and create new technologies or improve existing technologies. (https://www.dek-d.com/studyabroad/49325/); Currently, Thai education, we focus on students learning coding (Coding for all) by filling in the science and technology subject group, standard 4, computational science subjects. The goal is to make children understand the rational thinking process, working in steps, being able to find faults, figuring out the root cause of the problem, having a plan, implementing, Know how to solve problems with processes be processed to draw conclusions correctly; So every process is related. In addition to pushing education management by applying computer technology to the education system, to encourage learners to seek knowledge by themselves (Watcharapol Wiboolyasarin, 2013), which is the use of technology Education is used in teaching and learning. The researcher, in charge of teaching computational science, used the platform from Hour of Code to write computer programming code titled Minecraft: Education Edition : AI For Good, which is learning. "A village burned down and required students to write code by connecting blocks like Jigsaw puzzles to artificial intelligence (AI), learn how to solve problems, prevent the spread of fire, save the village, and bring life back to the forest; while learning the basics of coding and exploring real-world examples of Fire protection with the help of artificial intelligence". In this research, a sample of 36 Primary 6/1 students had a research hypothesis, students who learned to code had higher learning achievement after learning than before learning.

- Student achievement based on coding experience the Minecraft: Education Edition: AI For Good, students learn problems, find solutions by understanding, and put them to pre- and post-test.

- To write commands in computer language like students are communicating with a computer or device (Artificial Intelligence: AI). Artificial Intelligence has the use of deep functions, students can input data, by writing to follow the instruction that the student preliminary writing; characteristics of using AI For Good, coupled with program blocks, brought together to generate code for interactive actions, according to the preliminary programming, a sequence of steps to solve problems in a systematic way; decision making,

reasoning and As a result, students acquire digital skills and learn how artificial intelligence works. (AI) achieves its objectives, suitable for use as a teaching tool.

Research question

Achievement in learning management in computational science, Demonstration School of Suan Sunandha Rajabhat University, a model for teaching coding in a computer language program, Minecraft: Education Edition: AI For Good helps promote digital skills, learn the work of artificial intelligence and solving problems of primary school students? How?

Research objectives

1. To measure the achievement of computational science by writing code on Minecraft: Education Edition: AI For Good before and after the learning management of Grade 6 students, effective according to 80/80 criteria.

2. To compare the average academic performance between before and after learning Minecraft: Education Edition: AI For Good, computational science subject.

3. To study the student's satisfaction towards learning computational science, using coding on Minecraft: Education Edition: AI For Good in teaching and learning.

RELATED DOCUMENTS AND RESEARCH

Kan Iam Inthra (2019.) Education Consultant. In the near future, Coding will not only be an option for those who are interested in technology, but will be included in various components, in living, and building business in the future because it is the basis of understanding the thinking process, and systematic communication, which can be developed to other developments, understanding both robotics, IoT, Machine Learning, or artificial intelligence; The combination of knowledge, whether English, mathematics, science, can be applied in combination with other sciences. Programming instruction trains students in systematic thinking, analyzing, and problem solving.

Dr. Pichet Durongkaveroj: Platform Creation, Coding, by the Ministry of Digital Economy and Society (DE) in conjunction with the Digital Economy Promotion Agency (DEPA) created the project 'Coding Thailand', Coding Thailand is a national online platform project, to promote computer science learning in collaboration with Code.org; A non-profit organization based in the United States, the world's leading online computer science learning resource.

ICML 2018 Test of Time Award: Ronan Collobert and Jason Weston. "A unified architecture for natural language processing: Deep neural networks with multitask learning." International conference on machine learning. 2008.

ICML 2018 Test of Time Award: Ronan Collobert and Jason Weston. "A unified architecture for natural language processing: Deep neural networks with multitask learning." International conference on machine learning. 2008. AI understands what it sees, teaching it. AI can understand and use language like humans, which is the main objective of Natural Language Processing (NLP) research.

RESEARCH METHODOLOGY

The teaching and learning of coding on Minecraft: Education Edition: AI For Good of Primary 6 students, collected data and analyzed the data as follows:

1. Population and sample

The population consisted of Primary 6 students, Demonstration School of Suan Sunandha Rajabhat University, Academic Year 2022, 70 students; the sample group of Primary 6 students, Room 1, 36 students used to develop learning achievement in computational science.

Minecraft is a boxy graphics game, where the player controls the creation of a virtual world and there are items in various levels as well.

2. Research tools

2.1 The researcher created and collected data with an achievement test, by writing code on Minecraft: Education Edition: AI For Good, 20 items.

2.2 Students take a Pre-test; the quiz here is an AI for good level assessment; Troubleshooting after students learn to use the command block, solve different stages; After completing 4 sessions in the plan, take the test again (Post-test).

2.3 The researcher has created the results of comparison of academic performance averages, basic statistics to find averages, statistics used to determine the quality of the tools, to determine the validity of exercises, the validity of pre- and post-test by using the IOC Concordant Index; Determine the validity of a content-based test, known as the Concordant Index between the test and the learning objectives; Standard Deviation, 0ne sample t-test.

2.4 The researcher created a student satisfaction assessment form, using code.org Minecraft: Education Edition: AI For Good program to see the development of students' knowledge, understanding of problem solving to achieve goals, with statistics and Certificate of completion.

3. Data Collection

3.1 Evaluated the teaching and learning of coding computer language programs, Minecraft: Education Edition: AI For Good Block Characteristics.

3.2 Collected data from the test and the learning achievement test before the theoretical part, totaling 10 items.

3.3 The sample group of students acted, accessed Minecraft: Education Edition: AI For Good, which in each area was a Games based Learning journey, knew how to solve problems to survive in areas with questions, obstacles in each level, in practice thinking, calculated, be aware of global warming, prevented electrification.

3.4 Primary 6 students took a test after class to measure the results of learning achievement in mathematics.

3.5 Primary 6 students were asked to answer the satisfaction questionnaire, toward the teaching materials for coding computer programs, the use of blocks Minecraft: Education Edition: AI For Good.

The researcher conducted an experiment and collected data to develop computational science learning by teaching coding on Minecraft: Education Edition: AI For Good for Primary 6 students by following the steps below.

RESULTS

Part 1: Efficiency analysis of learning management by using Minecraft: Education Edition: AI For Good in learning and teaching management of Primary 6 students, Demonstration School of Suan Sunandha Rajabhat University according to the specified criteria: 80/80 results are as follows.

Table 1: Learning management efficiency analysis using lesson plans using code.org, a computer language program. In teaching and learning management Minecraft: Education Edition: AI For Good, in teaching and learning management of Primary 6 students, Demonstration School of Suan Sunandha Rajabhat University.

(n=36)

Number of students	Process efficiency	Outcome Efficiency
	(E_1)	(E_2)
Total	85.56	94.72

From Table 1, it was found that the efficiency from learning management with the learning management plan by using computer language program coding, in teaching and learning Minecraft: Education Edition: AI For Good, Primary 6 students, Demonstration School of Suan Sunandha Rajabhat University. Criterion efficiency was 85.56/94.72.

(n=36)

Configure	$\bar{x}$	S.D.	$\bar{D}$ (X1-X2)	S.D.$_D$	t	Sig.(1-tailed)
Before	8.47	1.06	1.28	0.97	7.87*	0.0000
After	9.75	0.50				

From Table 2, it was found that the comparison of the Mean scores of pre- and post-test in the teaching and learning management of Primary 6 students, pre-learning was 8.47, after-learning was 9.75, and when comparing between pre- and post-test scores, it was found that the students' post-test scores were significantly higher than before .05.

Part 3: Analyzing student satisfaction towards Minecraft: Education Edition: AI For Good. Science and technology learning subject group using code for teaching and learning of Primary 6 students; Results of the analysis of learning satisfaction assessment using code Minecraft: Education Edition: AI For Good. Content and coding. Students understand the working of AI For Good. You can interact with researchers and scientists while learning while playing games.

Can be applied in daily life. The overall is at the highest level; Overall, the Mean was at the highest level = 4.95; and the Standard Deviation of the ability to use coding = 0.16

CONCLUSION

In this research study, Minecraft: Education Edition: AI For Good code was written to develop the academic achievement of Primary 6 students, Demonstration School of Suan Sunandha Rajabhat University. The study found that Achievements from learning management are effective according to criteria equal to 85.56/94.72 according to the planned criteria, and proceeded to create steps and improve according to the advice of experts, and also creating a skill exercise that the researcher took into account the creation of a good skill exercise according to Su Phawan Lekwilai (1996:128), Wassana Triwattanathongchai (2000: 3) has researched computer lessons that use code Minecraft: Education Edition content and the use of Minecraft in teaching coding in learning of Artificial intelligence. Make students understand how AI works, can interact with researchers and scientists. It is learning while using foreign languages and playing games. The pictures and sounds are interesting, the learning is not boring, and the content can be applied in daily life, promoting individual learning. Students can learn on their own, have fun, exciting; because they want to learn from computer lessons at each level immediately, allowing students to interact; Students know how to solve problems, think accordingly, solve, understand, and be able to solve problems on their own, which corresponds to the 20-year national strategy (2018-2037), management, development and capacity building plans with quality and efficiency that aims to encourage all students to learn and develop themselves naturally and to their full potential; learning activities with the results of teaching computational science quizzes, using coding in teaching students; There is above average just studying the content and exams. During class, students share their opinions, are motivated to study further, and also develop thinking processes in education and apply knowledge in daily life.

Suggestion

1. Using Minecraft: Education Edition, in addition to computational science, can also choose to learn coding using command blocks in the subjects of science, mathematics, history and culture, design, improving learning achievement using coding. Minecraft: Education Edition, can be extended to other elementary school students.

2. Students learn to understand artificial intelligence (AI), data protection, AI systems, to follow instructions that can be further learned in learning programming languages, and in learning computer engineering.

3. Learning coding Minecraft: Education Edition: AI For Good is convenient that students can practice at any time, on any device, just having internet.

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REFERENCE

Burin Rujjanaphand. What is Computing Science? Retrieved August 6, 2018. from http://www.thaiall.com/computingscien

Chavala Vejyan. 2001. The development of teaching and learning using social service learning techniques. To promote awareness of serving society, Problem Solving Skills and Achievement of Junior High School Students. Thesis. Curriculum and Teaching: Faculty of Education. Chulalongkorn University

Chusri Wongrattana. (2010). Techniques for using statistics for research. 12th edition. Nonthaburi: Thai Neramitkij Yuttakom Pamorn

Institute for the Promotion of Teaching Science and Technology. (2018). Basic science and technology (computational science) course guide according to learning standards and indicators. Science learning group (Revised 2017) according to the Basic Education Core Curriculum, 2008. Bangkok: Institute for the Promotion of Teaching Science and Technology. Ministry of Education

Kan Iam Inthra (2019.) Education Consultant www.globalconnextgroup.com

Kanlaya Wanichbuncha. (2007). Statistical Analysis: Statistics for Administration and Research. 10th edition. Bangkok: Chulalongkorn University Printing House.

Kidanun Malithong. (2000). Educational Technology and Innovation. Bangkok: Department of Audio Visual Education, Faculty of Education, Chulalongkorn University.

Larsson, Kristin; Baker, Simon; Silins, Ilona; Guo, Yufan; Stenius, Ulla; Korhonen, Anna; et al. (2017): The NLP pipeline for automatic classification of document abstracts. PLOS ONE. Figure.

Ministry of Education. (2008). Basic Education Core Curriculum 2008 (revised version 2017) : Handbook for learning management in science learning subjects, Fundamentals of Science Technology (Computational Science), Technology (computation science)

Sawitree Phewngam. (2021), Information technology for Digital Learning Management Supporting Happiness of Secondary Students, Suan Sunandha Rajabhat University Journal Suan Sunandha Rajabhat University ISSN: 2351-0811 Vol. 13 No.2 (July-December) 2021

Supornwichit and Prachya Premma. (2018) Guidelines for teaching and learning management according to learning standards and indicators, Science Learning Subject Group (2017 revised edition) according to the core curriculum. Basic Education 2008. Bangkok: Aksorn Charoen Tat

https://en.wikipedia.org/wiki/Turing_Award

https://ai.googleblog.com/2018/12/the-neurips-2018-test-of-time-award.html
https://research.fb.com/facebook-researchers-win-test-of-time-award-at-icml-2018/
https://www.kdd.org/awards/view/2018-sigkdd-test-of-time-award-winners
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