

# Empowering Teachers' Learning to Enhance Students' Change Leadership Skills

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## Abstract

The experimental study, which was conducted under the research project entitled "Empowering Teachers' Learning to Enhance Students' Change Leadership Skills," is part of a series of research projects that focuses on 21<sup>st</sup> century skills that have been supported by the Doctoral Program in Educational Administration at the Isan campus of Mahamakut Buddhist University. This study emphasizes the utilization of opportunities that are being presented by knowledge-based and digital societies in the contemporary era. The development of Change Leadership Skills was approached by utilizing a Research & Development (R&D) methodology that employed various perspectives available on the internet. This approach aimed at creating innovative educational practices to enhance the teachers' learning and, subsequently, at empowering them to transfer their knowledge to develop their students. It is believed that if teachers acquire knowledge and are stimulated to put it into practice, it will create *the power* that can enhance the effectiveness of student development, which is in accordance with the concept of "Knowledge and Action are power." Based on this idea, a research and development (R&D) methodology was employed to incorporate various perspectives on developing Change Leadership Skills, which had been found on the internet, and incorporating them into an innovative educational program designed to strengthen teacher learning. The program called the "Online Self-Training Program to Empower Teachers' Learning to Enhance Students' Change Leadership Skills," was evaluated by teachers, who had been involved with the program and had found the program to be effective in accordance with the established criteria. Therefore, the program could be disseminated to benefit teacher development and the development of undergraduate students, who are majoring in teaching the Thai language, the English language, and Social Studies at the Faculty of Education at both the central and branch campuses Mahamakut Buddhist University. This target group can rapidly, efficiently, and effectively disseminate the research findings.

**Keywords:** 21<sup>st</sup> century skills, change leadership skills, online self-training program, Research & Development (R&D) methodology

## 1. Introduction

In the post-modern era, all countries strive to create a vision for development within the realm of change for every dimension of society. The prominent issue is determining how to make their countries excel in all aspects, including politics, economics, society, and education. Educational management has undergone significant changes in this era. The complexity of society has increased in sequence, and knowledge and information are newly "produced" or sometimes reproduced on the basis of change. However, it can be said that there is a "continuation" of the determination to develop knowledge and make it better (Somboon, 2017). In a constantly changing world, in which society is in a state of perpetual flux, educational theories are also evolving into new forms. Therefore, it is essential for students, teachers, schools, and networks to become involved and adopt a Growth Mindset in their thinking so that better changes in education can be fostered (Panich, 2020). Education is a fundamental cornerstone for improving the quality of life of individuals and for ultimately contributing to the overall betterment of society. Thus, it is crucial to embrace a Growth Mindset, which can drive educational progress toward excellence. It is not surprising that every organization at the global, national, and local levels recognizes the importance of education and

provides support for it. At the global level, the United Nations (UN) has identified education as one of the sustainable development goals (SDGs) of the 2030 agenda. SDG 4 focuses on promoting equal and lifelong learning opportunities for all individuals (Purivikrai, 2021).

The previous discussion highlighted the importance of change and the need for 'change leaders' to effectively bring about desired changes. Leaders with change leadership skills are essential to making successful changes in various aspects. These skills include emotional intelligence, empathy, adaptability, teachability, courage, relational, strategic, creative, homophily, linkage, proximity, openness, rewards, energy, synergy, clear vision, patience with persistence, being knowledgeable and leading by example, fostering innovation, acting quickly, inspiring and motivating, communicating, active listening, conducting research, strategic thinking, leadership, measurement & analysis, facilitation, failing fast and learning, interpersonal skills, diversified knowledge, priorities, and focusing on results. (Bond, 2016; Couros, 2013; Edmondson, 2017; Folkman, 2020; Gorman, 2019); Michigan State University (2019).

Simultaneously, Change Leadership Skills are skills that can be developed by individuals of all ages and statuses. The developmental approaches to Change Leadership Skills for students have been presented by Barton (2019), Bruce (2006), Center for Creative Leadership (n.d.), Dimock & McGree (2019), Eastwood (2019), Fulton (2019), Gunn (2020), Llopis (2014), Paterson (n.d.), Saint Mary's University of Minnesota (2020), School of Education American University (2018), and Skool Bag (2018). The approaches consist of encouraging a classroom code of conduct, reinforcing and rewarding positive behaviors, building positive rapport together, establishing a clear and shared vision, engaging decision-makers at every level, empowering a student-first approach, constantly evolving their approaches, putting them in charge, showing off leadership skills, providing good examples, delivering leadership lessons, becoming invested in improving school culture, becoming involved in extracurricular activities, encouraging active participation and experimentation with ideas among students, teaching students how to think instead of what to think, communicating, collaborating, committing, and accepting that change is inevitable.

Even perspectives on the processes of developing Change Leadership Skills have been offered by experts. For instance, Bacharach (2015) proposed four steps: 1) preparing for change, 2) initiating change, 3) putting change in place, and 4) stabilizing change. Meanwhile, Tenzyk (2017) suggested seven steps: 1) starting with one's self, 2) ensuring that change is necessary, 3) implementing change logically, 4) understanding resistance to change, 5) properly addressing concerns, 6) obtaining buy-in, and 7) remembering everyone and valuing them. In addition, McDonald (n.d.) outlined another set of seven steps: 1) identifying the perceived need, 2) assessing the current state, 3) analyzing the gap, 4) designing a plan, 5) developing the plan, 6) implementing the plan, and 7) measuring the outcomes.

The above text highlights the importance of Change Leadership Skills and presents recommendations for developing Students' Change Leadership Skills from various experts. This is due to the social phenomena that are taking place in the 21<sup>st</sup> Century. Rapid changes are occurring in digital technology and because the information from around the world is readily available on the internet, changes are also happening within the knowledge-based society. This knowledge includes numerous recommendations for selecting quality sources that can be utilized to develop Change Leadership Skills, based on the concept that "Knowledge and Action are power." This idea is particularly relevant to educators, who are a key mechanism for developing students and enabling them to keep up with society's rapid changes.

Therefore, this research study emphasized the importance of research and development (R&D) in order to create an educational innovation called the "Online Self-Training Program to Empower Teachers' Learning to Enhance Students' Change Leadership Skills." The researchers believe that if the R&D methodology is properly executed, it can lead to effective educational innovations that can be disseminated and used to enhance the learning experiences of undergraduate students majoring in Thai language teaching, English language teaching, and Social Studies teaching at the Faculty of Education of Mahamakut Buddhist University, including the central region and all the university branches.

According to the principles of R&D methodology for developing innovations, any innovation must be tested in a representative sample population before it can be deemed as 'effective.' If the results of the testing show that the innovation has met the established criteria, it can then be disseminated and used to benefit the population being studied. This is particularly true for Online Self-Training Programs that are being developed in the digital age, as opposed to the Document-Based Programs originating from the era of print media. Such a program would be even more beneficial in terms of its potential for dissemination, cost-effectiveness, efficiency, and overall effectiveness.

### 1.1 Objective of the Study

This research placed emphasis on the importance of various perspectives as recommendations for developing students' Change Leadership Skills through the use of R&D methodology. The goal was to create an innovative educational approach called the "Online Self-Training Program to Empower Teachers' Learning to Enhance Students' Change Leadership Skills." This approach can be disseminated to strengthen the teachers' learning and subsequently foster student development. The underlying concept is that knowledge and action are powerful tools for enhancing learning.

The Online Self-Training Program consisted of two parts: 1) a program designed to strengthen the teachers' learning on topics related to the definitions, importance, characteristics, developmental processes, and the evaluation of Change Leadership Skills, and 2) a program designed for teachers to apply their learning to develop students' Change Leadership Skills in various areas, such as vision, creativity, motivation, emotional intelligence, communication, and interpersonal skills. The first program was comprised of six sets of online self-training modules for teachers, while the second program provided a handbook as a practical guide for teachers.

### 1.2 Research Hypothesis

In this study, the research team assumed that they could develop an effective educational innovation by examining the related literature. Moreover, they felt that the information would be useful and could assist them in developing the Students' Change Leadership Skills based on various perspectives and viewpoints that had been compiled from the internet so that they could create an Online Self-Training Program for teachers, who were the target group for development. They evaluated the quality of the program through the development of experimental research tools and experimented with the program in randomly selected schools, which were used as experimental sites. Therefore, it was anticipated that the "Online Self-Training Program to Empower Teachers' Learning to Enhance Students' Change Leadership Skills" would be effective according to the following criteria: 1) The post-test scores from the teachers' learning assessments would meet the standard criteria of 90/90, and the post-test scores would be significantly higher than the pre-test scores according to the statistical analysis, and 2) the post-test scores from the evaluation of Students' Change Leadership Skills would be significantly higher than the pre-test scores according to statistical analysis.

### 1.3 Literature Review

In this study, the researchers conducted a comprehensive review of the related literature in order to gain a diverse range of academic perspectives. This review formed the basis for developing the six online self-training modules for teachers. The six modules were comprised of the following: 1) a definition of Change Leadership Skills, drawing on the perspectives of Akpoveta (2019), Galloway (n.d.), Grimsley (2021), Jargons (n.d.), Lares (n.d.), and Tanuja (n.d.); 2) the importance of Change Leadership Skills, drawing on the perspectives of Baringa (2016), Burch and Evans (2014), Enclaria (n.d.), Gartenstein (2019), Hogg (n.d.), Miller (n.d.), and Pratap (2018); 3) the characteristics that demonstrate Change Leadership Skills, drawing on the perspectives of Bond (n.d.), Couros (n.d.), Daskal (n.d.), Folkman (2020), Gorman (2020), Hicks (2020), Juneja (n.d.), Michigan State University (2022), Nash (2014), Ready (2016), Root (n.d.), and the 5 Forces of Change (2019); 4) the developmental principles, concepts, techniques, methods, and activities of Change Leadership Skills, drawing on the perspectives of Barton (2019), Bruce (n.d.), Center for Creative Leadership (n.d.), Dimock and McGree (n.d.), Eastwood (2019), Fulton (2019), Gunn (n.d.), Llopis (2014), Paterson (n.d.), Saint Mary's University of Minnesota (n.d.), School of Education, American University (2018), and Skool Bag (2018); 5) the steps for developing Change Leadership Skills, drawing on the perspectives of Bacharach (n.d.), Denison (n.d.), Gavin (2019), McDonald (n.d.), O'Connell (2019), Tenzyk (2013), Tenzyk (2017), and Thottam (2019); and 6) the evaluation of Change Leadership Skills, drawing on the perspectives of Gilley (2005), Saskatoon Health Region (n.d.), and Tasmanian Government (n.d.).

Regarding the aspects of the developmental approaches of Change Leadership Skills (i.e., the principles, concepts, techniques, methods, and activities), they are considered important information since they provide guidance to teachers on how to use them as options in developing learners. The research team synthesized the following 41 developmental approaches:

- 1) Establishing a clear and shared vision
- 2) Engaging decision-makers at every level
- 3) Empowering staff members with the right tools and support
- 4) Empowering a 'student first approach
- 5) Being a role model

- 6) Being explicit about the changes you expect
- 7) Preparing the staff members for the changes by providing professional development
- 8) Making the necessary resources available that will support the changes and enable them to occur
- 9) Encouraging active participation and experimentation with ideas among students
- 10) Teaching students how to think instead of teaching them what to think
- 11) Being honest
- 12) Being a good listener
- 13) Being a good communicator
- 14) Being a good decision-maker
- 15) Being responsible
- 16) Accepting that change is inevitable
- 17) Being kind and working for good
- 18) Putting them in charge
- 19) Showing off yours
- 20) Providing some good examples
- 21) Delivering leadership lessons
- 22) Showing what you can do
- 23) Getting to know their leadership styles
- 24) Practicing mindfulness
- 25) Encouraging a classroom code of conduct
- 26) Preparing students to expect the need for change and to believe in their own abilities to be positive
- 27) Taking steps to benefit society
- 28) Working to develop respect and empathy for others
- 29) Mastering core skills
- 30) Completing key action items
- 31) Delegating specific tasks
- 32) Collecting data and documenting how the changes are progressing
- 33) Building mature relationships between the learners and the community members
- 34) Communicating directly
- 35) Giving them space
- 36) Involving them in extracurricular activities
- 37) Building a positive rapport together
- 38) Working hard and persevering
- 39) Getting them invested in improving school culture
- 40) Making classroom processes democratic to promote the idea that when we actively participate in our communities, we can then help to make decisions about how they function
- 41) Encouraging one another.

## **2. Research Procedures**

### *2.1 Concept and Processes*

To create an educational innovation entitled the "Online Self-Training Program to Empower Teachers' Learning to Enhance Students' Change Leadership Skills," research and development (R&D) methodology was employed, in accordance with Sanrattana's (2018) viewpoint that educational innovations, which are developed using this methodology, aim at developing "people" towards improving "work." This involves empowering individuals with knowledge, stimulating them to take action, and thereby, generating power for more efficient work in accordance with the idea that "Knowledge and Action are power." This concept was translated into the idea behind this research, which focuses on "beginning with strengthening the learning of teachers and then having the teachers transfer the knowledge to their students for development." Therefore, this research has placed importance on studying the

literature on Change Leadership Skills in various contexts so that diverse perspectives and knowledge can be gathered to create effective online self-training modules for teachers. The R&D methodology process in this research began with studying the literature on Change Leadership Skills, in the form of R1&D1...Ri&Di.

R1&D1: Conduct a literature review on Change Leadership Skills, focusing on 1) definition, 2) importance, 3) characteristics, 4) developmental approaches (i.e., principles, ideas, techniques, methods, and activities), 5) developmental process, and 6) evaluation. This review was used to develop an online self-training program consisting of 6 sets of online self-training modules for teachers and a guidebook for practical implementation. Please refer to the original Thai version of the online self-training program at <https://bit.ly/3L9sRQL>.

R2&D2: The study examined the quality of an online self-training program, which was developed over two phases using focused group discussions: 1) the Preliminary Field Testing and Revision with 5 teachers from a non-experimental research area, and 2) the Main Field Testing and Revision with 10 teachers from another non-experimental research area.

R3&D3: Two research tools were developed for experimental research as follows: 1) a teacher learning outcomes test, and 2) a Students' Change Leadership Skills assessment.

R4&D4: The Online Self-Training Program was implemented with 15 teachers and 324 undergraduate students in the Thai Language Teaching, English Language Teaching, and Social Studies Teaching programs at the Isan Campus of Mahamakut Buddhist University. All participants were randomly selected as the experimental group for a one-group pre-test-post-test design. The study, which was conducted in the second semester of the Academic Year of 2022, was divided into two phases: 1) a one-month implementation of the teacher strengthening project using six self-training modules with pre-test and post-test evaluations of the teachers, and 2) a two-month implementation of the teacher-led learning outcomes project with pre-test and post-test evaluations of the students.

## 2.2 Research Tools

The research tools used in this study consisted of the following:

### 2.2.1 The Teacher Learning Assessment Questionnaire is an Online Survey Created Using Google Forms

The questionnaire was created in a multiple-choice format with four options and was intended to measure the learning outcomes of teachers before and after the experiment. The research team developed the questionnaire based on the definitions, importance, characteristics, developmental processes, and an evaluation of the cognitive domain according to The Revised Taxonomy 2001 by Benjamin S. Bloom. The skills, which were included, ranged from lower-order thinking skills to higher-order thinking skills, such as remembering, understanding, applying, analyzing, evaluating, and creating (Armstrong, 2010). The quality of the questionnaire was assessed by checking its content validity using the method of the Indices of Item-Objective Congruence (IOC), which was developed by Rovinelli and Hambleton (1977). The IOC method was conducted with the assistance of five experts in the fields of Curriculum and Instruction and Educational Measurement & Evaluation.

The findings from the data analysis revealed the following: 1) the IOC values for all questions had exceeded the criterion of 0.50 (Chaichanawirote & Vantum, 2017) and 2) a test of the teachers' learning outcomes was conducted with 30 participants from an educational district that was not included in the experimental research. The data analysis revealed the following: 1) all the test questions had shown an index of difficulty within the range of 0.20-0.80 and a power of discrimination within the range of 0.20-1.00, 2) the KR-20 coefficient, which indicates the reliability of the test, had been 0.91, exceeding the criterion of 0.70, and 3) the test difficulty had been 60.37.

### 2.2.2 The Students' Change Leadership Skills Assessment is an Online Rating Scale Using Google Forms with Five Levels: The Highest, High, Moderate, Low, and the Lowest

The researchers developed the assessment based on the characteristics of Change Leadership Skills from Bond (n.d.), Couros (n.d.), Daskal (n.d.), Folkman (2020), Gorman (2020), Hicks (2020), Juneja (n.d.), Michigan State University (2022), Nash (2014), Ready (2016), Root (n.d.), and the 5 Forces of Change (2019). Additionally, the assessment was informed by the concepts of evaluating Change Leadership Skills from Gilley (2005), Saskatoon Health Region (2020), and the Tasmanian Government (n.d.). The assessment was comprised of 38 questions, and its quality was evaluated. The processes are explained as follows. Firstly, the content validity was assessed using Rovinelli and Hambleton's method by using five qualified experts in Educational Administration and Educational Measurement & Evaluation. The data analysis revealed that all 38 questions had achieved an item-objective congruence (IOC) value that exceeded the 0.50 criterion, which indicated that the Students' Change Leadership Skills assessment, which was utilized in this research, can be used for its intended purpose (Chaichanawirote & Vantum, 2017). Secondly, a

reliability analysis was conducted using Cronbach's method to examine the internal consistency of the Students' Change Leadership Skills assessment with a sample of 30 students from a non-research experimental site. For the entire instrument, the overall alpha coefficient of reliability was found to be 0.83. After being analyzed by dimensions, the visioning subscale had a reliability coefficient of 0.84, the creativity subscale had a coefficient of 0.82, the inspiration subscale had a coefficient of 0.84, the emotional intelligence subscale had a coefficient of 0.84, the communication subscale had a coefficient of 0.80, and the interpersonal relations subscale had a coefficient of 0.83. When comparing these reliability coefficients with the criterion of 0.70 or higher (UCLA: Statistical Consulting Group, 2016), it was found that all subscales had had a relatively high internal consistency.

### 2.3 Data Analysis

1) The data analysis was conducted to compare the post-test scores of teachers with the 90/90 standard, in which the first 90% represents the percentage of average scores obtained by the teachers in the knowledge test, and the second 90% represents the percentage of teachers, who passed the test according to the standard for all learning objectives. (Yamkasikorn, 2008)

2) Data analysis was conducted using a dependent t-test to compare the pre-test and post-test scores of both the teachers and students.

## 3. Research Findings

The study aimed at investigating whether the online self-training modules developed in the first project, "Teacher Development for Learning Enhancement", had a significant impact on the learning outcomes of the experimental group consisting of 15 teachers, based on the 90/90 standard criteria. The study also aimed at determining whether the teachers' post-test scores would show significant improvement compared to their pre-test scores. Additionally, the study investigated whether there would be a statistically significant difference in the learning outcomes of the 324 students in the experimental group of the second project, "Teacher Implementation of Student Learning Outcomes." The results are presented below:

### 3.1 Research Findings from the Teacher Learning Project

The results of the test of the teachers' learning outcomes after the experiment compared to the standard of the first 90 cases showed that teachers had had an average score of 33.6 out of a full score of 36, which is equivalent to 93.33% when calculated as a percentage. This percentage was higher than the set standard of 90%.

The results of the test of the teacher learning outcomes after the experiment compared to the standard of the subsequent 90 cases showed that 97.78% of teachers had been able to pass all of the set learning objectives. This percentage was higher than the set standard of 90%.

The analysis comparing the statistically significant differences between the average scores before and after the experiment found that from a full score of 36, teachers had had a pre-test result of 424, which was an average score of 28.27, and a post-test result of 504, which was an average score of 33.60. When analyzed and compared using the dependent t-test, it was found that teachers in the experimental group had achieved significantly higher average scores on the post-test than on the pre-test with a significance level of 0.05, as shown in Table 1.

**Table 1.** A Comparison of the Mean Scores from Pre-test and Post-test of Teachers Using the Dependent t-test

Testing	Sample size	Mean	Standard Deviation	t
Pre-test	15	28.27	2.94	14.783*
Post-test	15	33.60	1.67	

\*  $p < 0.05$

### 3.2 The Research Findings from the Project on the "Teachers' Implementation of Learning Outcomes in Teaching for Students' Learning"

An assessment of 324 students' change leadership skills before and after the experiment. The results of the assessment are presented in Table 2 below.

**Table 2.** The Results of the Assessment of Students' Change Leadership Skills before and after the Experiment

The Characteristics of Students' Change Leadership Skills	Assessment Results			
	Pre-test		Post-test	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<b>Vision</b>	<b>3.69</b>	<b>0.97</b>	<b>4.59</b>	<b>0.57</b>
1) Having confidence in one's ability to lead others	3.89	0.97	4.69	0.50
2) Believing that initiating change supports the vision and goals of the mission	3.81	0.99	4.16	0.82
3) Seeing a vision beyond the accepted traditions and practices	4.03	0.98	4.69	0.50
4) Having a clear vision and communicating it effectively with others	3.33	0.93	4.66	0.53
5) Being open-minded and receptive to new ideas	3.72	0.99	4.68	0.50
6) Taking calculated risks intelligently	3.29	0.96	4.64	0.55
7) Working proactively and progressively, not just on a day-to-day basis	3.77	0.99	4.65	0.54
<b>Creativity</b>	<b>3.68</b>	<b>0.95</b>	<b>4.51</b>	<b>0.63</b>
8) Having innovative ideas	3.97	0.99	4.40	0.75
9) Having agile thinking	3.33	0.93	4.61	0.57
10) Having flexible thinking	3.81	0.99	4.21	0.81
11) Having meticulous or detailed thinking	4.00	0.99	4.56	0.59
12) Having a desire to know and see	3.91	0.97	4.56	0.59
13) Having imaginative thinking	3.50	0.83	4.59	0.57
14) Being able to generate new ideas by synthesizing old and new ideas	3.59	0.99	4.58	0.59
15) Being able to thoroughly filter, analyze, and evaluate their own thinking to improve and maximize their potential	3.35	0.94	4.57	0.60
<b>Motivation</b>	<b>3.75</b>	<b>0.97</b>	<b>4.52</b>	<b>0.63</b>
16) Having confidence when performing tasks	3.95	0.99	4.22	0.85
17) Setting goals for work performance to encourage colleagues during the change process	3.35	0.92	4.39	0.75
18) Serving as an example of continuous learning	3.50	0.99	4.59	0.57
19) Persuading others of the importance of change	4.00	0.99	4.60	0.56
20) Motivating colleagues to participate in developing the vision	3.91	0.97	4.62	0.54
21) Being brave in adopting new daily practices	3.70	0.99	4.60	0.58
22) Demonstrating dedication to improving skills by actively participating in self-development activities.	3.85	0.96	4.65	0.54
<b>Emotional Intelligence</b>	<b>3.66</b>	<b>0.94</b>	<b>4.60</b>	<b>0.58</b>
23) Being able to understand various emotional reactions and that we need to change	3.36	0.92	4.43	0.73
24) Fully appreciating the experiences of others in change	3.58	0.91	4.63	0.54
25) Being able to adjust one's own emotions according to the situation	3.61	0.89	4.61	0.56
26) Being able to learn from every situation	3.87	0.98	4.64	0.53
27) Being able to try new things and balance risks	3.63	0.95	4.62	0.57
28) Understanding the stimuli that drive human behaviors	3.90	0.98	4.65	0.53
<b>Communication Skills</b>	<b>3.60</b>	<b>0.97</b>	<b>4.51</b>	<b>0.63</b>
29) Being able to communicate effectively	3.64	0.98	4.29	0.81
30) Developing communication skills consistently using verbal and written language	3.35	0.93	4.58	0.58
31) Being able to communicate and disseminate the overall vision for others to understand and to align with	3.63	0.98	4.59	0.56
32) Being able to communicate effectively in various situations	3.77	0.99	4.59	0.55
<b>Inter-relationships</b>	<b>3.53</b>	<b>0.95</b>	<b>4.52</b>	<b>0.61</b>
33) Being open-minded and responsive to diverse perspectives	3.64	0.96	4.18	0.84
34) Being accessible to others	3.33	0.92	4.58	0.57
35) Behaving in a respectful and admirable manner	3.50	0.96	4.58	0.56
36) Knowing when to listen and when to speak	3.46	0.92	4.60	0.54
37) Being flexible and willing to adjust plans when necessary	3.35	0.98	4.60	0.55
38) Collaborating with others to successfully achieve goals	3.88	0.97	4.59	0.57
Total	3.66	0.96	4.54	0.61

Based on the evaluation results of the Students' Change Leadership Skills from the 2 phases, when analyzed using a dependent t-test, it was found that the students had achieved a statistically significant higher mean score after the experiment than before the experiment, with a significance level of 0.05. The details are shown in Table 3.

**Table 3.** An Analysis of Data Comparing the Mean Values from Pre-test and Post-test of Students Using a Dependent t-test

Evaluating	Sample sizes	Means	Standard Deviations	t
Pre-test	324	3.66	0.96	41.136*
Post-test	324	4.54	0.61	

\*  $p < 0.05$

The results of the aforementioned research supported the initial beliefs of the researchers, which were that conducting research and development using the R&D methodology would lead to an effective educational innovation, called the "Online Self-Training Program to Empower Teachers' Learning to Enhance Students' Change Leadership Skills." The researchers believe that this innovation can be disseminated for the benefit of the populations, who served as the reference groups in the research, namely, those individuals in the Thai language teaching, English language teaching, and Social Studies teaching programs of Mahamakut Buddhist University at both the central and regional branch campuses. Following the principles of this research methodology, any innovation that is developed should be tested with a representative population. Once the results of the experiment showed that the innovation had met the predetermined criteria, it could then be disseminated for the benefit of the reference groups in the research. The fact that the Online Self-Training Program was developed in the digital age and was not a document-based program of the print era, enhanced its potential for being disseminated in a broad, efficient, and cost-effective manner and for having a greater impact.

#### 4. Discussion

Based on the findings of this research study, it was discovered that a self-directed online training program, which was designed to enhance teachers' learning power, has been effective in improving students' change leadership skills. This was observed in both the teacher development learning project and the teacher-led student development project. The research team believes that this success was not only due to the use of Research and Development (R&D) methodology, which involved detailed planning and execution, but was also due to the implementation of the approach of "Knowledge and Action are power." This approach allowed the teachers, who had participated in the experimental research, to gain real knowledge and to become capable of applying it in practice with enthusiasm, which confirmed the importance of the transfer of knowledge into action. This idea aligns with the perspectives of many scholars, such as Hughes (2022), who stated that "Knowledge is power, but it is only when we apply this knowledge into action that we can fully utilize its potential." Therefore, it is recommended that future research studies should focus on applying the knowledge and skills gained through online training programs to acquire real-life practice, rather than simply acquiring theoretical knowledge. This can be achieved by encouraging teachers to participate in real-world projects and by providing them with opportunities to apply their newly acquired knowledge and skills in a supportive environment." Robbins (n.d.) stated that "Knowledge is NOT power. Knowledge is only POTENTIAL power. Action is power." Stankovich (2020) stated that "Knowledge is Power — But Only if You Use it". Napoleon Hill noted that "Knowledge is not power ... it is only potential power. It becomes power only when and if, it is organized into definite plans of action and directed to a definite end." (Margot, 2019). Ofpad, the School of Genius (n.d.) mentioned that "Knowledge is power, but without action is useless. There is no point in being a genius if you don't use your intelligence and knowledge for something. Knowledge is like bullets and action is like a gun. If you don't have a gun (action), you can't do much with the bullets (knowledge). But if you don't have bullets (knowledge), you can still hit your target by throwing the gun (action)."

Therefore, in any development that affects the development of learners, teachers, or even the school administrators, it is important to be aware of the shift in mindset from the traditional belief that "Knowledge is power." to the idea that "Knowledge and Action are power." in order to achieve true success in development. As recommended by Oppong (2019), "Knowledge is abundant, accessible, and even portable. But it is no longer power. The new power is wisdom, the application of knowledge. The ability to take action on information to generate the best results and outcomes. Don't just acquire and keep knowledge, use it to your benefit or to provide value for others. You will be surprised at



the results."

In the current digital age, various internet resources have been utilized to develop Change Leadership Skills through an innovative educational program called "Online Self-Training Program for Empowering Teachers' Learning to Enhance Students' Change Leadership Skills." The program was developed using R&D methodology, which was detailed earlier in this study. In this research, the utilization of both the concept of "Knowledge and Action are power" and R&D methodology aligns with the following five principles of teacher professional development.: 1) allowing time for teachers to learn a new strategy and grapple with the implementation problems; 2) supporting teachers during the implementation stage that addresses the specific challenges of changing classroom practices; 3) exposing teachers initially to a concept should not be passive, but rather should engage teachers through varied approaches so they can participate actively in making sense of a new practice; 4) using 'modeling,' which has been found to be highly effective in helping teachers to better understand a new practice; and 5) when presenting content to teachers, the content should not be generic, but instead should be specific to the discipline or grade level. (Edmentum, 2018). Moreover, the principles of effective professional development put forth by Kaplane (n.d.) consist of: 1) having an ongoing experience, 2) being embedded in the job, 3) providing support for teachers during the implementation stage of using a new instructional method in the classroom, 4) offering engaging content that is specific instead of generic, and 5) using varied approaches to support learning for both groups and individuals in order to: a) include 'modeling' as a major part of teacher training, and 2) promote collaboration among teachers.

## 5. Conclusion

In research to obtain educational innovations in the form of an "Online Self-Training Program" to be used to develop teachers leading to continuous development with students. In addition to emphasizing on the principles, concepts and practices at various stages of R&D methodology that are used and discussed in detail in Section 4, "Research Procedures" in this research, consideration should also be given to the Shift the paradigm from the old view that "Knowledge is power" is a concept "knowledge and action is power" can really bring about the success of development. In addition, it should be aware of utilizing the opportunities of today's knowledge-based and digital society. By bringing various perspectives to develop any topic that is widely distributed through the Internet to act in order to obtain educational innovations that look like Online Self - Training Program in this research.

A summary of the importance of using R&D methodology is detailed in this study. Considering the importance of the concept of "knowledge and action is power" and the importance of leveraging the opportunities of today's knowledge-based and digital society. It has confirmed the successful research implementation based on the research hypothesis from the research of other researchers in the EdD Program in Educational Administration of Isan Campus's Mahamakut Buddhsit University, for example, research on An Online Program to Empower Teachers' Learning to Develop Students' Critical Thinking Skills of Jakkaphatto and Dhammapissamai (2022), on An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills of Namjaidee and Dhammapissamai (2022), on An Online Program to Develop Teachers to Enhance the Innovation Skills of Students of Niruttimatee and Sanrattana (2022), on Online Program to Empower Teacher Learning to Develop Students' Digital Literacy Skills of Promrub and Sanrattana (2022), and on Developing Teachers to Enhance Project Management Skills for Students of Nukoonkan and Dhammapissamai (2023).

## 6. Recommendations

Any development that takes into account the concept of "Knowledge and Action are power" and utilizes R&D methodology can be considered to be an effective development of the teaching profession, which is in accordance with the principles of professional development for modern teachers. Emphasis should be placed on developing teachers' knowledge and stimulating them to apply that knowledge in ways that have an impact on student development. This is because the ultimate goal of education or any teaching and learning activity is to assist students. Furthermore, it is not enough to simply provide teachers with knowledge and then to let them stagnate at that point, which has been done in the past.

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