

A Training Program Development on the 21st Century Leadership for Undergraduate Students in Autonomous Universities

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ABSTRACT

The objectives of the research were to (1) study the components of the 21st century leadership for undergraduate students in autonomous universities, (2) develop the training program on the 21st century leadership for undergraduate students in autonomous universities, and (3) evaluate the training program on the 21st century leadership for undergraduate students in autonomous universities. A sample was selected from 660 undergraduate students in autonomous universities. A research instrument is a questionnaire on crucial components of the 21st century leadership for undergraduate students in autonomous universities. A reliability value was at 0.977. The researcher then created the training program on the 21st century leadership for undergraduate students in autonomous universities using the data analyzed with statistics, frequency, average percentage, standard deviation (SD), Exploratory Factor Analysis (EFA), and t-test.

The research results concluded as follows:

1. Results of components analysis: the researcher found seven components of the 21st century leadership for undergraduate students in autonomous universities, including (1) critical thinking process for problem-solving, (2) communication and use of communication technology, (3) adaptability and flexibility, (4) ingenuity, (5) goal achievement, (6) enthusiasm towards work, and (7) teamwork and self-development.

2. Results of training program development: the appropriateness of the draft training program on the 21st century leadership for undergraduate students in autonomous universities was at a high level with a mean value equal to 3.78 – 4.44 and corresponded to each other.

3. Evaluation results found that after a try-out of the training program on the 21st century leadership for undergraduate students in autonomous universities with the sample group, everyone's score had improved. The average score after the training was significantly higher than before the training at .01. And the overall satisfaction towards the training program on the 21st century leadership for undergraduate students in autonomous universities is at the highest level.

Article Received: 10 August 2020, Revised: 25 October 2020, Accepted: 18 November 2020

Introduction

The social change in the 21st century affected the way of life of everyone within the society thoroughly. No country could stay isolated amidst the changes in science and technology advancement of the 21st century; they had to cooperate and interdepend, as evident through the boundless communication between people from the modern era and the increase in mission cooperation and problem-solving collaboration. Consequently, an increase in information requires people to rapidly analyse and digest the information to stay updated with the more complex society. These factors inevitably lead to competitive situations in international economics, trades, and industries. People's lifestyle had turned toward commercialism or capitalism progressively. Moreover, the growth of information technology is becoming an essential aspect of people's way of life. Therefore, people within the society must learn to prepare and adapt

their attitudes and develop their way of life for suitable abilities to work with other people (Jitmitarapap, 2010; Wongkitroongreung & Jitruak, 2013). This change in communication and technology caused many countries to undergo education reform to prepare their people's capabilities for global competitions.

Leadership is a skill to improve quality of life that is included in The Eleventh National Economic and Social Development Plan (B.E. 2555 – 2559), The National Scheme of Education (B.E. 2545-2559), Policy on Development of Thai Ideal Graduates (B.E. 2554 – 2558), Visions on Education Reform in the Second Decade (B.E. 2552 – 2556), and the Framework of the Second 15-Year Long Range Plan on Higher Education of Thailand (B.E. 2551 – 2565). These national policies reflected Thailand's great emphasis on leadership skill. Accordingly, the Office of the Higher Education Commission (OHEC) emphasized that new graduates should possess

leadership characteristics that coincide with an ever-changing era. Thus, educational institutions should realize the importance of leadership and start instilling leadership skills into their students before entering a labor market. Leadership skills are crucial characteristics of influential leaders in the 21st century. Leaders must develop essential skills for work management, self-management, and human resource management to constantly improve work efficiency.

OHEC and Office for National Education Standards and Quality Assessment (Public Organization) assessment result report, which surveyed most of the graduates' employers, also reflected the issues among the graduates. The report found that some graduates still lacked leadership skills, critical thinking, English language skills, and life and information technology skills. Therefore, higher education institutions should develop measures to strengthen the students' leadership characteristics before entering the real workplaces (Ponathong, Suvarnasara, & Patrawiwat, 2019). This finding corresponded to the research of Chuchuaiy, Khawwongsri, & Srimai (2015). They had analyzed and found six components of the desirable characteristics of university graduates in South Thailand, including morals and ethics, work competency, intelligence, responsibilities and being teamwork, communicative skills and use of technology, and leadership. The hiring of graduates and desirable characteristics of university graduates, as stated above, affirmed that new graduates should develop leadership in the 21st century to increase performance while working in the organizations.

From the significance of the leadership mentioned above, the researcher recognized the importance of training program development on leadership in the 21st century for undergraduate students in autonomous universities. This research aimed to study the components found by various academics in different fields of study that led to the component analysis of leadership in the 21st century. Then the components would be created into a training program and evaluated its quality. After the training program achieved the desirable quality, it could help develop leadership for students and prepare the students who undertook the program to be ready to enter the labor market in the future.

Research Objectives

1. To study the components of the 21st century leadership for undergraduate students in autonomous universities.
2. To develop the training program on 21st century leadership for undergraduate students in autonomous universities.
3. To evaluate the training program on 21st century leadership for undergraduate students in autonomous universities.

Related Concept, Theories, and Literature Review

The researcher studied concepts and theories related to leadership in the 21st century (Runcharoen (2010); Sanrattana, (2013); Redmond (2016); Promthong (2016); Bernie & Hood (1999); Wagner (2008); Greenberg (2012); Perreault & Zellner (2012); Khampiranon (2013); NASSP (2013); Toastmaster (2013); Krames (2014); Stock (2014)). And studied the concepts and theories related to development and evaluation of training curriculum (Chantarasamee (2015); Panjathongkome (2014); Taba, (1962); McCauley, C. D., & Velsor, E. V. (2004); McGriff (2000)), and other related works of literature as follows:

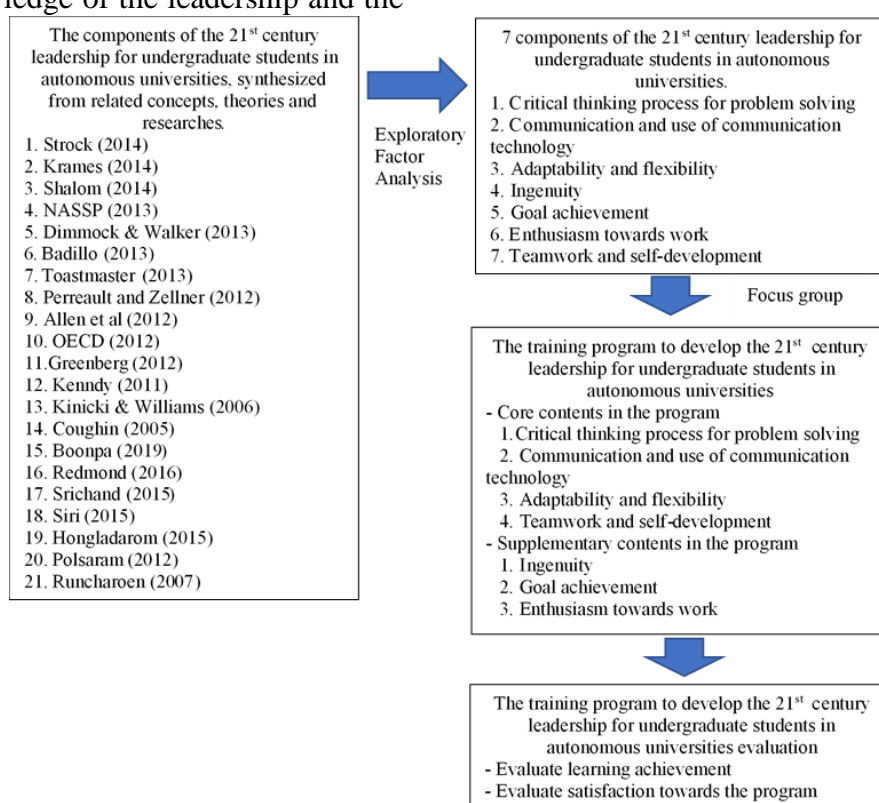
1. Ponathong, Suvarnasara, & Patrawiwat (2019) studied on Development of Change Leadership Training Course for Students in Higher Education Institutions and found that: 1. the change leadership training course consisted of 6 components including (1) the principle and rationale, (2) training objectives, (3) the course contents which composed of 3 modules, (4) training activities, (5) training media, and (6) training evaluation; 2. the comparison of pre-post test on the knowledge and behavior found that the sample group had a significant increase in the knowledge after the training at the .05 and the change leadership training course for students in higher education evaluation showed that the training course was highly appropriate.
2. Jerasujarittum (2010) studied the Development of Enrichment Curriculum to Promote Youth Leadership Skills in Catholic Vocational Schools. The analysis results found four components that significantly enriched the youth leadership in Catholic vocational schools, i.e. the analytical thinking, lead and teamwork,

task assignment, and good attitude. The draft curriculum evaluation indicated the corresponding opinion that this supplementary curriculum can be used for the try-out. The evaluation of curriculum effectiveness found that the supplementary curriculum to promote youth leadership in Catholic vocational schools increased the post-test score to .001 levels in all three aspects, including knowledge, skills, and attitudes. The evaluation on the appropriateness of the curriculum components indicated that all components were at a high level of appropriateness, which meant that the curriculum was practical and could develop the youth leadership skills.

3. Srinimitkaew (2018) studied Curriculum Training Development to Raise Leadership Character for Students' Club Committee Faculty of Home Economics Technology. The research found four contributing areas of leadership characteristics that students should possess, including the knowledge of the leadership and the

status of the leadership, the art of communication, the construction of public relations and the development of efficient teamwork. The second process was the problem and necessity evaluation for the curriculum, the rationale and the objectives of the curriculum, the content, the material, and the training course's process to create the handbook on utilizing the curriculum. The third process was the evaluation of the draft curriculum by the experts on curriculum evaluation. The result of the evaluation indicated that the curriculum was appropriate and corresponding. The fourth process was curriculum testing with the sample group. They found that each curriculum unit passed the effectiveness indicators. And the difference in knowledge and attitude on leadership scores between before and after the training had statistical significance.

The conceptual framework is indicated as follows (see Picture 1):



Picture 1 Conceptual Framework

Research Methodology

1. Studied the components by studying related documents and research, including foreign journals that studied basic information about 21st century leadership. Then the researcher studied

and analysed the components of leadership in the 21st century for undergraduate students in autonomous universities by using a questionnaire. The researcher randomly selected the undergraduate students in autonomous universities by implementing the disproportional stratified

random method and gave out questionnaires to undergraduate students in autonomous universities by deploying the accidental sampling method. The sample group consisted of 660 samples in total. The researcher used the Exploratory Factor Analysis – EFA method to analyse the components of the 21st century leadership for the undergraduate students to group together the exploratory factors of the 21st century leadership for the undergraduate students in autonomous universities.

2. Developed the training program on the 21st century leadership for the undergraduate students in autonomous universities by using the exploratory factors in 1. to draft the curriculum. The curriculum outline included (1) rational criterion, (2) rationale of the curriculum, (3) objectives of curriculum, (4) curriculum structure, (5) contents of curriculum, (6) activities and training methods, (7) the training media, and (8) curriculum measurement and evaluation. Then the draft program was evaluated by the appropriateness and Index of Item – Objective Congruence (IOC) evaluation, using a focus group discussion technique that consisted of 9 experts. The researcher then adjusted and improved the draft program according to the experts' recommendations before testing the final program in a try-out.

3. Evaluated the training program on the 21st century leadership for undergraduate students in autonomous universities by implementing one

group pre-test and post-test design to compare the pre-test and post-test scores on knowledge scores with Paired t-test. The researcher then assessed the satisfaction level towards the 21st century leadership for undergraduate students in autonomous universities using a questionnaire with a rating scale of 5 levels. The satisfaction level of the program was analyzed using statistics, mean, and standard deviation (SD).

Findings

The findings from this research regarding the training program development on the 21st century leadership for undergraduate students in autonomous universities may conclude on each objective as follows:

1. The result from studying the components of the 21st century leadership for undergraduate students in autonomous universities had yielded a Kaiser-Meyer-Olkin Test value = 0.982. This value indicated the data was suitably intercorrelated & appropriate enough to be analyzed using Exploratory Factor Analysis—EFA. With the conditions set to analyze the main components at eigenvalues greater than 1, the findings showed seven significant components that can describe over 59.64% of the 21st century leadership for undergraduate students in autonomous universities; data are shown as follows (see Table 1).

Table 1
Initial Eigen Values to assess groups of Factor

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	33.808	47.617	47.617	33.808	47.617	47.617	13.508	19.025	19.025
2	2.013	2.836	50.452	2.013	2.836	50.452	6.492	9.144	28.169
3	1.567	2.207	52.659	1.567	2.207	52.659	5.334	7.512	35.681
4	1.523	2.145	54.804	1.523	2.145	54.804	4.907	6.912	42.593
5	1.210	1.704	56.509	1.210	1.704	56.509	4.384	6.175	48.768
6	1.153	1.625	58.133	1.153	1.625	58.133	4.328	6.096	54.863
7	1.072	1.510	59.643	1.072	1.510	59.643	3.394	4.780	59.643

According to the data from Table 1, each component was analyzed through feature

extraction using Principal Component Analysis and Varimax Rotation then considered for Factor Loading values that are greater than 0.4 to organize the suitable variables for each Factor, along with naming each component as (1) critical thinking process for problem-solving, (2)

communication and use of communication technology, (3) adaptability and flexibility, (4) ingenuity, (5) goal achievement, (6) enthusiasm towards work, and (7) teamwork and self-development. Data is shown here (see Table 2).

Table 2

Factor Loading values of each component

Components of the 21 st century leadership for undergraduate students in autonomous universities	Component						
	1	2	3	4	5	6	7
1. Critical thinking process for problem-solving							
1.1 Can think of various solutions	0.666	0.209	0.121	0.366	0.135	0.102	0.126
1.2 Positive thinking and living	0.635	0.175	0.170	0.121	0.145	0.197	0.162
1.3 Ask the right question to get the correct answer	0.633	0.146	0.196	0.200	0.180	0.213	0.118
1.4 Possess the public speaking ability	0.633	0.177	0.155	0.214	0.219	0.223	0.034
1.5 Can set career objectives	0.618	0.241	0.170	0.227	0.160	0.179	0.097
1.9 Can confront problems	0.593	0.205	0.132	0.343	0.179	0.046	0.194
1.10 Bravely tell the truth about the right thing	0.591	0.266	0.232	0.113	0.101	0.121	0.288
1.11 Knowledgeable and up-to-date	0.581	0.199	0.088	0.380	0.206	0.223	0.143
1.12 Express opinions confidently	0.575	0.207	0.305	0.245	0.215	0.109	0.190
1.13 Act courageously based on righteous thoughts	0.552	0.271	0.301	0.206	0.098	0.125	0.318
1.14 Always search for a new way to work	0.549	0.164	0.330	0.295	0.185	0.153	0.183
1.15 Can identify a correlation between each subject regarding work	0.548	0.233	0.349	0.243	0.278	0.093	0.062
1.16 Mindfully solve the problem at work	0.529	0.137	0.064	0.282	0.153	0.221	0.400
1.17 Have trust towards coworkers	0.515	0.174	0.171	0.142	0.136	0.270	0.329
1.18 Work on the basis of correctness	0.492	0.328	0.268	0.122	0.149	0.177	0.228
1.19 Can predict the outcome in advance precisely	0.461	0.174	0.175	0.403	0.169	0.213	-
2. Communication and use of communication technology							

Components of the 21 st century leadership for undergraduate students in autonomous universities	Component						
	1	2	3	4	5	6	7
2.1 Choose appropriate media for communication	0.379	0.593	0.164	0.211	0.188	0.128	0.141
2.2 Use media cautiously and responsibly	0.323	0.589	0.150	0.256	0.139	0.231	0.143
2.3 Can hold E-meeting or meeting via electronic means	0.288	0.516	0.288	0.182	0.302	0.080	0.051
2.4 Adapt knowledge or experience into various benefits	0.354	0.477	0.310	0.265	0.157	0.223	0.131
3. Adaptability and flexibility							
3.1 Can accept part-time work	0.102	0.155	0.623	0.109	0.081	0.194	0.082
3.2 Do not refuse if got transferred to other branches by the company	0.441	0.041	0.515	0.177	0.107	0.287	-
3.3 Can work outside of the office	0.337	0.392	0.495	0.137	0.266	0.033	0.196
3.4 Do not hold too much attachment nor expectation towards everything	0.345	0.217	0.481	0.326	0.125	0.226	0.112
3.5 Understand that changes are a normal part of work	0.333	0.403	0.476	0.114	0.182	0.109	0.166
3.6 Do not adhere to old beliefs or work experiences	0.345	0.204	0.469	0.351	0.218	0.021	0.227
3.7 Can change working hours as required	0.342	0.301	0.452	0.244	0.355	0.296	0.033
4. Ingenuity							
4.1 Can fluently communicate in foreign languages	0.259	0.134	0.176	0.616	0.161	0.167	-
4.2 Quickly solve unexpected problems	0.223	0.243	0.038	0.549	0.368	0.318	0.158
4.3 Can get own self out of a critical situation	0.298	0.260	0.367	0.463	0.081	0.132	0.277
4.4 Be prepared for new things without fearing mistakes	0.404	0.207	0.340	0.409	0.133	0.197	0.283
5. Goal achievement							
5.1 Can envision own future clearly	0.290	0.071	0.079	0.068	0.658	0.179	0.017
5.2 Complete the tasks as assigned	0.256	0.347	0.105	0.204	0.533	0.092	0.256
5.3 Have initiative for new	0.197	0.205	0.066	0.421	0.492	0.202	0.303

Components of the 21 st century leadership for undergraduate students in autonomous universities	Component						
	1	2	3	4	5	6	7
projects							
5.4 Do not condemn coworkers when they make mistakes	0.085	0.090	0.204	0.045	0.484	0.371	0.155
6. Enthusiasm towards work							
6.1 Always finish work ahead of time	0.168	0.234	0.202	0.143	0.276	0.631	-
6.2 Always motivate own self to stay active	0.350	0.170	0.097	0.260	0.303	0.534	0.192
6.3 Strictly comply with workplace rules and regulations	0.277	0.461	0.154	0.044	0.160	0.494	-
6.4 Be attentive towards the works	0.311	0.462	0.101	0.203	0.133	0.466	0.213
6.5 Promptly start assignments	0.355	0.300	0.292	0.160	0.157	0.442	0.135
7. Teamwork and self-development							
7.1 Self-development towards career advancement	0.423	0.315	0.239	0.208	0.195	0.146	0.427
7.2 Assist coworkers without expecting any benefit	0.380	0.320	0.392	0.070	0.172	0.152	0.425
7.3 Can priorities the tasks	0.343	0.328	0.313	0.260	0.128	0.171	0.421
7.4 Courageously support the situations that are righteous and useful for work	0.278	0.346	0.133	0.096	0.402	0.163	0.405

From Table 2, the researcher compiled all seven components gathered from the analysis then sent for the appropriateness evaluation by nine experts to create the draft training program on developing the 21st century leadership for undergraduate students in autonomous universities. The evaluation result showed that the experts chose four core components that would develop into the core training plan, including critical thinking process for problem-solving, communication and use of communication technology, adaptability and flexibility, and teamwork and self-development. While the remaining three components, which are ingenuity, goal achievement, and enthusiasm towards work, would fill in the rest of the core training plan for

complete content that covered every component found through the analysis.

2. The result from the training program development on the 21st century leadership for undergraduate students in autonomous universities found that the outline of the training program on the 21st century leadership for undergraduate students in autonomous universities consisted of (1) rational criterion, (2) rational of the curriculum, (3) objectives of curriculum, (4) curriculum structure, (5) contents of curriculum, (6) activities and training methods, (7) the training media, and (8) curriculum measurement and evaluation. The appropriateness of the curriculum outline for the training program on the 21st century leadership for undergraduate students in autonomous universities was of high level in every part with the mean value equaled to 3.78 –

4.44 and every part had corresponded to each other.

3. The evaluation of the training program on the 21st century leadership for undergraduate students in autonomous universities provided the following key findings as described below.

3.1 Undergraduate students in autonomous universities had higher average scores after the training than the average scores before the training, with a statistical significance level at .01 as shown here (see Table 3).

Table 3

Mean, Standard Deviation—SD values, and a result of t-test value before and after the training of undergraduate students in autonomous universities (N = 34 persons)

Training plan	Before training		After training		t	Sig.
	\bar{X}	SD	\bar{X}	SD		
1. Critical thinking process for problem solving	6.59	3.076	11.65	2.784	30.998**	.000
2. Communication and use of communication technology	8.85	2.830	13.82	1.359	10.595**	.000
3. Adaptability and flexibility	6.24	2.720	12.91	2.327	13.475**	.000
4. Teamwork and self-development	8.44	3.027	12.91	2.248	8.942**	.000
All training plans combined	30.12	9.101	51.29	5.750	18.141**	.000

**p < .01

3.2 Undergraduate students in autonomous universities had satisfaction levels towards the training program on the 21st century

leadership for undergraduate students in autonomous universities, as shown here (see Table 4).

Table 4

Mean, Standard Deviation—SD values, and levels of satisfaction towards the training program on the 21st century leadership for undergraduate students in autonomous universities (N = 34 persons)

Evaluation topics	\bar{X}	SD	Level of Satisfaction
1. Training contents	4.68	.535	Highest
2. Location and facilities	4.79	.410	Highest
3. Training documentary materials	4.62	.697	Highest
4. Training period	4.62	.511	Highest
5. Food, snacks and drinks	4.85	.359	Highest
6. Coordination and facilitation	4.58	.557	Highest
7. Lecturers and their ability to pass on knowledge	4.85	.436	Highest
8. Training media/method	4.76	.359	Highest
9. Training has coincided with its program objectives	4.76	.496	Highest
10. Training participants motivation	4.74	.618	Highest
11. Learning activities are suitable with the topics	4.71	.629	Highest
12. Can utilize the knowledge for self-development towards 21 st century leadership	4.82	.387	Highest
13. Gain knowledge and ability to think critically for problem-solving.	4.74	.511	Highest
14. Gain knowledge on communication and effective use of media	4.58	.609	Highest
15. Gain knowledge on adaptability and flexibility	4.59	.557	Highest
16. Gain perception on self-development,			Highest

Evaluation topics	\bar{X}	SD	Level of Satisfaction
collaboration with other people and management of work relationship	4.53	.615	
17. Practicability of the knowledge from the program	4.62	.652	Highest
18. Ability to share/relay the knowledge from the program	4.53	.563	Highest
Total	4.69	.543	Highest

Discussion

The researcher had developed the 21st century leadership training program for undergraduate students in autonomous universities in this research, and the program was effectively appropriate according to the criteria. In this discussion, the researcher will discuss the findings on each objective as follows.

1. The analysis on the components of the 21st century leadership by using the exploratory factor analysis method had provided the components used to create the 21st leadership development program for undergraduate students in autonomous universities, including these components as described below.

1.1 Critical thinking for problem-solving is a development of the intellectual process to achieve prudent and rational thinking, digest the core information into separate elements and determine the significance, logic and reasoning of such factors that would lead to the pertinent problem-solving. Admittedly, the modern problems in the workplace are far more complex; therefore, identifying the cause and solution for the problem is one of the crucial skills the 21st century leaders need to possess. This concept coincided with the works of Sanrattana (2013), Wagner (2008), and Bernie & Hood (1999) that offered coordinating opinions that learning skills the 21st century leader must have are analytical skills, critical thinking, creative thinking, and problem-solving thinking.

1.2 Communication and use of communication technology are the developments on efficient communication within the organizations and appropriate use of media and communication technology. Communication is a necessary skill for 21st century leaders and must

be developed and promoted among undergraduate students. This idea resonated with the opinions of National Association of Secondary School Principals (NASSP) (2013), Krames (2014), and Redmond (2016) that future leaders should have communication skill, which is the ability to communicate effectively. Leaders shall have an ability to communicate the goals clearly in every aspect, whether they are the wordings, listening skill, attentiveness towards others, actions, and symbols. The leaders must also possess technological media literacy and presentation skill, be technologically literate, understand new-media literacy, and have digital literacy skill.

1.3 Adaptability and flexibility are the development of a person's capacity to adapt and be flexible while working, adapt to the characteristics of the job, workplace environment and colleagues, and the flexibility to collaborate with other people and organizations. This component corresponded with the work of Khampiranon (2013), Greenberg (2012), and Stock (2014) that described flexibility and adaptability as the skills for learning, working, and being 21st century citizens. These type of flexibility and adaptability aim for the goal achievement, not just being absently flexible and adaptable without principle. The rapid, drastic and unexpected changes will get even more drastic in the future, which renders the fixed work plan useless. Humans in the 21st century must possess high flexibility and adaptability to attain goals and values. Besides confronting the changes, the work in the future will face the limit of resources, whether it is time or other resources. The work must coordinate with the rhythm of other works in the big picture and other works located in other parts of the world far away. It is the situation in need of flexibility and adaptability. And the conditions to adapt may lie in the competitions with other challengers. The best way to adapt is to turn adversity into opportunity by using problems

to find solution creatively and create the epitome of learning opportunity. The more difficult and complex the project, the more opportunities workers can use and learn flexibility and adaptability skills.

1.4 Teamwork and self-development are the development of the ability to self-develop the advancement and improvement of the work process, understand the work responsibility, work system, and relationship between the person and coworkers, to manage the workplace relationship better. Promthong (2016), Perreault & Zellner (2012), and Toastmaster (2013) stated that the learning skills of the 21st century relating to self-development and teamwork consisted of multiple working skills, work responsibility, and networking coordination. The leaders must be knowledge seeker, create a positive working atmosphere, encourage and create good relationships with the organization personnel, develop long-lasting relationships, comply with the rules, coordinate with coworkers, improve team effectiveness, and emphasize achieving organization goals. The literature mentioned above indicated that self-development and teamwork are other essential elements for developing 21st century leaders.

2. The result from the training program development on the 21st century leadership for undergraduate students in autonomous universities found that the outline of the training program consisted of rational criterion, the rationale of the curriculum, objectives of the curriculum, curriculum structure, contents of curriculum, activities and training methods, the training media, and curriculum measurement and evaluation. The researcher had adapted the technique of curriculum development of Taba (1962) as the main principle for drafting the training program, along with the concepts relating to curriculum development by McGriff (2000) called ADDIE Model. These concepts also corresponded with the concepts by Chantarasamee (2015) and Srinimitkaew (2018), which provided that the creation of the curriculum should consist of the following: state of problems and training needs, the rationale of the curriculum, objectives of the curriculum, contents of curriculum, training guidelines, training process, training period, training media and training evaluation on the curriculum content and result of the program.

3. The evaluation of the training program on the 21st century leadership for undergraduate students in autonomous universities showed the result as follows below.

3.1 The achievement after training was higher than before training in every aspect with the statistical significance level at .01. This result may be contributed by the appropriateness of the training program on the 21st century leadership for undergraduate students in autonomous universities created by surveying the necessary characteristics for the 21st century leadership from the sample group of various undergraduate students from different institutions, years, and faculties. The survey data led the researcher to the essential components that were significantly corresponded with the genuine needs and requirements of the undergraduate students. Furthermore, the curriculum creation had followed the comprehensible planning process such as rational criterion, the rationale of the curriculum, objectives of the curriculum, curriculum structure, contents of curriculum, activities and training methods, the training media, and curriculum measurement and evaluation. The result had coincided with the findings by Ponathong, Suvarnasara, & Patrawiwat (2019) and Jerasujarittum (2010) that the sample group gained knowledge average scores on characteristics of change leadership after the training higher than before training with the statistical significance level of .05. The average comparative result from the evaluation of change leadership behavior before and after training found that the sample group had higher average scores on change leadership behavior after the training than before training in every aspect.

3.2 The result from the satisfaction evaluation found that the training program participants on the 21st century leadership for undergraduate students in autonomous universities were satisfied with the training program on the 21st century leadership for undergraduate students in autonomous universities at the highest level in every aspect. The contributions for the highest level of satisfaction may include the appropriate setting and process of the training and curriculum that consisted of contents, lecturer selection, training media, learning activities, and the learning environment. These factors supported the

learning process under the program curriculum. Moreover, the program also took the characteristics of the participants on their expectations, requirements and limitations into consideration. Thus, the program generated a positive result, which coincided with Panjathongkome (2014) study findings on The Development of Leadership Training Curriculum for Higher Secondary School Students that the satisfaction level towards the leadership training program for higher secondary school students was at the high level. At the same time, the study of McCauley, C. D., & Velsor, E. V. (2004) found that leadership behavior will be exhibited naturally and easily within each group and each person immediately after they had attended the training project. And the project was generally accepted by the workers because they had recognized the value of the project, the method that was able to develop the organization leadership effectively, and the development that was easier than changing the learned experience.

Conclusion

The research on the training program development on the 21st century leadership for undergraduate students in autonomous universities had produced the knowledge on the components of the 21st century leadership for undergraduate students in autonomous universities in 7 aspects, i.e. (1) critical thinking process for problem-solving, (2) communication and use of communication technology, (3) adaptability and flexibility, (4) ingenuity, (5) goal achievement, (6) enthusiasm towards work, and (7) teamwork and self-development. The curriculum and training program developed using these components would become a crucial part of the 21st century leadership potential development for the undergraduate students in autonomous universities. Because the program originated from this research laid down the method, process, learning achievement evaluation, and approaches in developing the participants' knowledge and skills toward 21st century leadership that will prepare them for the labor market in the future.

Recommendation

1. The lecturer assistants should assess the leadership by observing the behavior of the participants. In this case, the number of assistants

must be adequate with the number of participants for evaluation accuracy.

2. Anyone who would like to utilize this program should study the curriculum and the contents of each teaching plan thoroughly for a better perception of the program, leading to the effective utilization of the program. Moreover, the program's organizer should invite lecturers with expertise in each subject to deliver the knowledge to increase the 21st century leadership characteristics even further.

3. The lecturers should select the activities that are appropriate with the content and up-to-date to reflect the ideas of the contents through the activities. This approach will encourage participants' interest to learn constantly.

References

- [1] Bernie T. & Hood P. (1999). Learning, technology, and education reform in the knowledge age, or "We are wired, webbed, and windowed, now what?". *Educational Technology*, 5–18.
- [2] Chantarasamee, S. (2015). The Development of Training Curriculum to Servant Leadership for Private School Administrators in Chonburi. Doctor of Philosophy dissertation, Burapha University.
- [3] Chuchuyay, P., Khawwongsri, S., & Srimai, W. (2015). Factor Analysis of the Desirable Characteristics of University Graduates in South of Thailand. In *The 6th Hatyai National Conference* (pp. 1216-1231). Songkla: Hatyai University.
- [4] Jerasujarittum, W. (2010). A Development of Enrichment Curriculum to Promote Youth Leadership Skills in Catholic Vocational Schools. Doctor of Education dissertation, Srinakharinwirot University.
- [5] Jitmitarapap, S. (2010). Learning towards the Changes. Bangkok: Professional and Organizational Development Network of Thailand Higher Education.
- [6] Khampiranon, D. (2013). Flexibility and Adaptability. Retrieved March 17, 2021, from http://www.kruinter.com/show.php?id_quiz=3269&p
- [7] Krames, J. A. (2014). Jack Welch and the 4E's of leadership: how to put GE's leadership formula to work in your organisation. New York: McGraw-Hill.
- [8] Loew, L., & Wentworth, D. (2013). Leadership: The State of Development Programs. Delray Beach, FL: Brandon Hall Group.
- [9] McCauley, C. D., & Velsor, E. V. (2004). The center for creative leadership handbook of

- leadership development. San Francisco: Jossey-Bass.
- [10] McGriff, Steven J. (2000). Instructional System Design (ISD): Using the ADDIE Model. *Instructional Design Models*. 226(14): 1-2.
- [11] National Association of Secondary School Principals (NASSP). (2013). *Breaking Ranks: 10 Skills for Successful School Leaders*. Retrieved January 10, 2021, from https://www.nassp.org/Content/158/BR_tenskills_ExSum.pdf
- [12] Panjathongkome, K. (2014). *The Development of Leadership Training Curriculum for Higher Secondary School Students*. Master of Education thesis, Thepsatri Rajabhat University.
- [13] Perreault, G., & Zellner, L. (2012). *Social Justice, Competition and quality: 21st century Leadership Challenges*. USA: National Council of Professors of Educational Administration.
- [14] Ponathong, A., Suvarnasara, C., & Patrawiwat, K. (2019). Development of Change Leadership Training Course for Students in Higher Education Institutions. *Journal of MCU Peace Studies*, 7(2), 332-347.
- [15] Promthong, J. (2016). Self-Development to be a Learning Person in the 21st century. *FEU Academic Review Journal*, 10(2), 63-72.
- [16] Redmond, K. (2016). *Indicators of 21st century Leadership Skills for Basic Education Administrators*. Doctor of Education dissertation, Mahamakut Buddhist University.
- [17] Runcharoen, T. (2010). *School Administration in the Era of Education Reform*. Bangkok: Khoafang.
- [18] Sanrattana, W. (2013). *New Paradigm on Education: Vision towards the 21st century Education*. Bangkok: Thipwisoot.
- [19] Srinimitkaew, L. (2018). Curriculum Training Development to Raise Leadership Character for Students' Club Committee Faculty of Home Economics Technology. *UTK Research Journal*, 6(2), 88-99.
- [20] Strock, J. (2014). 25 Essential 21st Century Leadership Skills. Retrieved January 10, 2021 from <http://www.lifescienceleader.com/doc/essential-21st-century-Leadership-skills-0001>
- [21] Taba, H. (1962). *Curriculum Development: Theory and Practice*. New York: Harcourt Brace and World.
- [22] Toastmaster. (n.d.). Must have leadership skills for the 21st century. Retrieved January 10, 2021 from https://westsidetoastmasters.com/article_reference/must_have_leadership_skills_for_21st_century.html
- [23] Wagner, T. (2008). *The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need and What We Can Do About It*. New York: Basic Books.
- [24] Wongkitroongreung, W., and Jitruet, A. (2013). *Skills of the New Future: Education for the 21st century*. Bangkok: Open Worlds