

# Utilization of Oral Presentation to Reinforce Undergraduate Students the 21st Century Skills as Active Learning

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## Abstract

Research oral presentation had an impact on undergraduate students' the 21<sup>st</sup> century skills as active learning. This was quantitative research to examine which of the 21<sup>st</sup> century skills impressed the undergraduate students on active learning after oral presentation at the 2022 UDRU Education Students' Research Oral Presentation at Udon Thani Rajabhat University. The population were 91 English-language education students who verbally presented their research at the event. Based on convenience sampling, 54 English-language education students who gave response to a questionnaire were samples of this study. A research instrument was an online questionnaire's close-ended questions designed from the Google Forms and derived from a five point Likert scale. Data analysis was based on mean, standard deviation and percentage. The findings found that the research oral presentation impacted the undergraduate students' 21<sup>st</sup> century skills as active learning at the high level ( $4.17 \pm 0.98$ ). Based on this, the first three 21<sup>st</sup> century skills most satisfied by the undergraduate students comprised: (1) the research oral presentation promoted the undergraduate students' critical thinking skill when searching data from various sources ( $4.24 \pm 0.95$ ); (2) the research oral presentation brought about self-leadership and responsibility to the undergraduate students ( $4.24 \pm 1.03$ ) and (3) the research oral presentation could further the undergraduate students' research useful for applying in teaching and learning management ( $4.20 \pm 1.02$ ) respectively. The outcome from the study was a database for developing the UDRU Education Students' Research Oral Presentation another time.

**Keywords:** Research oral presentation; 21<sup>st</sup> century skills; Active learning

## Introduction

Conducting educational research is still a significant indicator to scale up instructional quality of teachers in various educational places. Focusing on education in Thailand, Minister of Higher Education, Science, Research and Innovation is now campaigning to motivate Thai teachers to do research and publicize to the public (Pongsin et al., 2023). Importance of educational

research relies on development of education in removing problems, difficulties or issues relevant to teaching and learning management. Also, it emphasizes on experimenting, researching, examining or exploring of various pedagogical approaches in order to obtain the most suitable teaching approach for enhancing learning capability of students in all levels. Outcome acquired from the educational research is advantageous in many perspectives such as: (1) it helps promote every field of academic knowledge; (2) it shows facts and findings of different pedagogical approaches; (3) it could be used and applied in learning classrooms; (4) it is as an alternative for teachers to single out the most suitable pedagogical approach for their learners; (5) it assists teachers to solve problems of teaching and learning management which directs to the point; (6) it is as a database for proposing a policy or regulations so that teaching and learning management can be proceeded properly and effectively; (7) it shows a new discovery of pedagogical theories and invention of instructional materials; and (8) it helps predict different might-be-happened situations from teaching and learning management in which teachers can prepare themselves beforehand, so the teachers become able to handle these situations well (Lindqvist & Forsberg, 2023). These benefits are obvious and significant to teachers, so preparing the teachers to get familiar with educational research is interesting. Ungsuchaval et al. (2023) suggested that promoting creation of educational research should begin with education students as they play a significant role in enhancing education quality of students in the future. Supporting the education students with skillful instruction equipped with creation of academic knowledge towards educational research produces effective teachers and the effective teachers can lead their students to effective learners.

Importance of conducting educational research has been found to relate to the 21st century skills. These skills are the latest trend of worldwide education which its highlight is on life-long learning rather than knowledge transfer. The most important concept of the 21st century skills is to change students as an active learner. This means allowing students to first-hand experience towards self-study, experimentation, creativity, analysis and assessment is a proper way. Andersen and Rustad (2022) clarified relationship between students and the 21st century skills by making use of educational research. Its details demonstrated that under research procedures, students are naturally engaged with active learning processes. That is, when they see a problem, they locate an issue for studying and finding possible solutions towards research processes like searching related data, constructing research instruments, designing data collection, analyzing data and summarizing acquired data. These skills motivate the students' learning curiosity which enables them to assess their work and then improve for a better version. A study by Kozanitis & Nenciovici (2022) reported that since the current trend of education has been focused on the 21st century skills, traditional learning activities based on traditional instruction should be decreased whereas new active learning activities derived from active learning instruction should be increased. Additionally, effective learning outcome also depends on characteristics of learning activities. An individual work is suitable for hard skills enhancement; on



the other hand, teamwork matches soft skills development. Based on this, designing active learning activities should be in response to students' capability and learning environment. Dahri et al. (2023) further stated that the 21st century skills are beneficial to students of all levels due to five reasons: (1) it assists students to improve skills necessary for adaptation to their real life; (2) it prepares students to comprehend the real world and change of globalization; (3) it makes students learn how to learn; (4) it supports students' learning in a positive way; and (5) it is relevant to students' real life. The 21st century skills are vital that they should be brought to bolster students' learning skills.

Positive outcome of active learning and the 21st century skills leads to reinforcing students to acquire the 21st century skills as active learning. To attain this goal, many educational places in Thailand are updating their curricula to endorse students' competency, particularly in the university level. Among Thai universities, the Faculty of Education, Udon Thani Rajabhat University sees significance of integrating active learning and the 21st century skills, so they had constructed the UDRU Education Students' Research Oral Presentation. The first event took place in 2022 which only English-language education students were invited to participate in this event as pilot study. The research oral presentation aims to: (1) strengthen undergraduate students' educational research; (2) produce knowledge sharing relevant to educational research for further development; and (3) apply appropriate pedagogical approaches in teaching and learning management. All processes of the research oral presentation are in English language. Accordingly, it is interesting to see how the research oral presentation impacts the undergraduate students' 21<sup>st</sup> century skills as active learning. The findings gained would be presented to the Dean of the Faculty of Education for further suggestions and recommendations for developing the UDRU Education Students' Research Oral Presentation another time.

### **Research Objective**

The objective of this study was to examine which of the 21st century skills impressed the undergraduate students on active learning after oral presentation at the 2022 UDRU Education Students' Research Oral Presentation at Udon Thani Rajabhat University.

### **Literature Review**

#### **1. Importance of the 21st Century Skills**

The 21st century skills are important to students all over the world. Based on this fact, there are four supported reasons why these skills are paramount. First, it is because of the growth of digital technology. The 21st century is an era that digital technology gets involved into daily life of students and people throughout the world. Development of technology in communication and information has changed rapidly which could be seen in students and people utilizing the Internet connection for multi-purposes like working, communicating, advertising or entertaining in an increasing rate, and this leads to change of work, education, communication and daily life. Second, social and cultural transformation is arisen. The 21st century significantly causes social

and cultural transformation. Accessing data and media causes alterations of learning styles including communication, running a business and online culture. Besides, it also has political movement, fighting for rights and equality, a more focus on diversity and social acceptance. Third, the global economy changes. The 21st century contributes rapid economic change in development of technology, communication, transportation and digital economy while job creation and change of labor market are also seen. Lastly, environmental change happens. The environmental change in the 21st century causes environmental degradation and a claim to conserve the environment. Besides, it also has problems of weather change, loss of marine life, and deterioration of natural life (Miller et al., 2023). The era of the 21st century induces alterations and rapid development of technology, social context, politics and environment. Due to these reasons, giving students necessary modern skills as well as guideline for self-adaptation in the real world should be promoted.

## 2. Prominent Skills in the 21st Century

Dilekci and Karatay (2023) defined the 21st century skills as a package of skills, knowledge and capability essential for students to grow up with effective life and peaceful living in the 21st century. These skills, unlike other skills, emphasize on preparation for students to get ready for rapid change of globalization and challenges they might confront. Necessary skills in the 21st century comprise of three predominant skills: learning skills, digital and information literacy skills, and life skills (Taar & Polojoki, 2022). These skills are described respectively.

The learning skills known as the four Cs focus on students' mental procedures in which the students are able to adapt and improve themselves among a variety of modern working environment. The learning skills consist of four important skills: critical thinking, creativity, collaboration and communication. The critical thinking skill is students' ability in analyzing data, assessing situations and thinking creatively for solving complexed problems. The creativity skill is to invent new ideas, develop new products or service, and utilize technology for solving different difficulties. The collaboration skill highlights on working in team, ability to work with others, communication, sharing of duties and responsibilities, and solving conflicts for achieving the oriented goal. The communication skill refers to students' effective communication towards listening, speaking, writing, online communication and intercultural and social communication (Pérez & Montoya, 2022).

The digital and information literacy skills enable students to distinguish reliable data and unreliable data from trustworthy and untrustworthy sources, especially on the Internet where misinformation is flooded. The digital and information literacy skills are composed of three skills: information literacy, media literacy and technology literacy. The information literacy relates to students' capability of searching, using and assessing various data. It also includes using data from different authentic sources or digital sources in an appropriate way. The media literacy is relevant to students' ability to analyze different data and data sources whether they are trustworthy or not. This skill enables students to search reliable facts in the world full of fake data. The



technology literacy pertains to students' knowledge in computers, electronic devices or specialized equipment associated with technology. Knowing all these apparatuses helps students adapt themselves to use modern technological items wisely and effectively (Muthmainnah et al., 2022).

The life skills emphasize on students' individual behavior and ways of life which affect their personal and professional qualities. The life skills consist of five skills: flexibility skill, leadership skill, initiative skill, productivity skill and social skills. The flexibility skill focuses on students' capability of adapting themselves to changes and unfamiliar things. The leadership skill refers to students' potential in motivating their teamwork to achieve the oriented goal. The initiative skill associates with students' ability to conduct any projects or produce any work by their own selves. The productivity skill means students' competence in completing any work based on different skills and technological application. The social skills appertain to students' ability to effectively communicate and interact with others among the diverse and interconnected world. The social skills are very important especially when working with others (Martinez, 2022).

### 3. Active Learning

Active learning is one of modern learning strategies that students are engaged with the highest learning procedure. It is also a pedagogical approach that allows students to manage learning by themselves. With active learning, a teacher creates simulations for students to learn towards listening, speaking, reading and deep thinking. Besides, the teacher lets the students think, analyze and integrate information or any media data to produce concept by their own selves. The highlight of the active learning is to draw and motivate students to collaborate in learning with their willingness which at last, the students become able to construct body of knowledge based on their own experience (Torres et al., 2022). Ren et al. (2021) introduced teachers with five steps of active learning that can lead students to active learners. The first step is to stimulate students' interests by applying questions to them which later they look for answers and further as knowledge expansion. The second step is allowing students to do a survey or research work through simulations and then letting them analyze whether their data and data sources are reliable or not. The third step is to let students discuss and conclude the learning by means of interactions like sharing, discussing or exchanging with others. This action shows collaborative work which finally brings about a learning conclusion known as concept. The fourth step is to let students produce a learning product based on the concept. To do this, a teacher asks students to bring the concept to link with their prior knowledge as well as other data to produce a learning product in terms of body of knowledge. The last step is to give students feedback and reflection on their work in order that they are able to develop their work and integrate using with other fields of study.

## Research Methodology

### 1. Population and Samples

The population were 91 English-language education students who verbally presented their research at the 2022 UDRU Education Students' Research Oral Presentation, Udon Thani Rajabhat University. Based on convenience sampling, 54 English-language education students who gave responses to a questionnaire were samples of this study. Steps of selecting population and samples are shown in Figure 1.

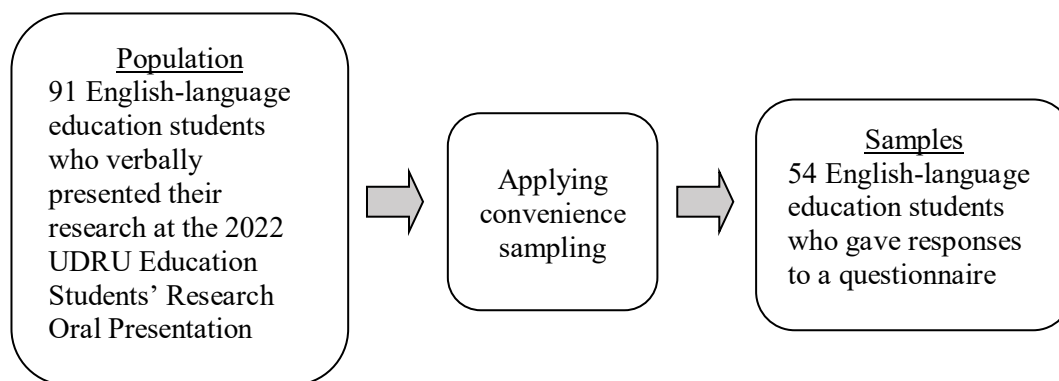


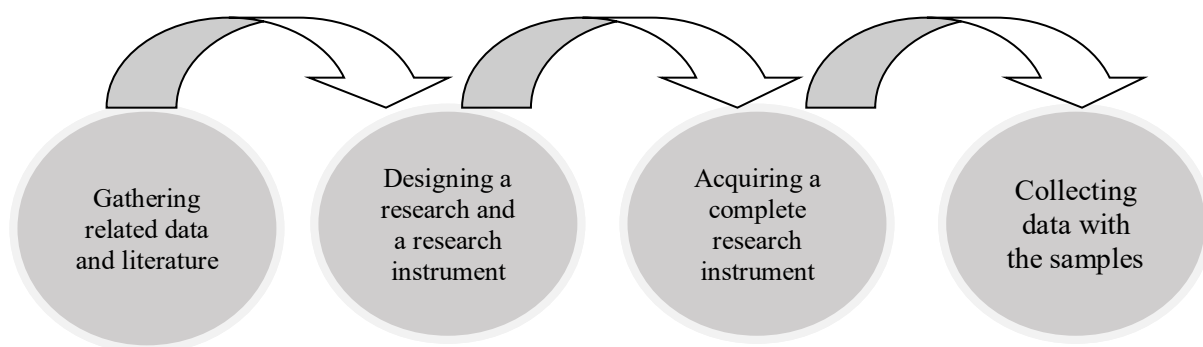
Fig. 1 Selection of Population and Samples

### 2. A Research Instrument

The research instrument of this study was an online questionnaire designed from the Google Forms and derived from the five point Likert scale. The online questionnaire included 11 close-ended questions inspecting undergraduate students about acquisition of the 21st century skills after oral presentation at the 2022 UDRU Education Students' Research Oral Presentation, Udon Thani Rajabhat University. Interpretation of the five point Likert interval was as follows: 5 = strongly agree (4.21-5.00), 4 = agree (3.41-4.20), 3 = neutral (2.61-3.40), 2 = disagree (1.81-2.60), and 1 = strongly disagree (1.00-1.80). All the data acquired from the questionnaire was reported as quantitative data.

### 3. Data Collection

Collecting data was completed elaborately. At the beginning, it was gathering data, document and literature related to the 21st century skills and active learning from various sources. All the gathered data was as a database for designing a research as well as locating a research objective. According to the objective, this study was designed as quantitative research mixed with research method, and a questionnaire was a single research instrument of this study. After achieving the complete questionnaire, it was then utilized with the samples. Summarized details of data collection are in Figure 2.



**Fig. 2** Stages of Data Collection

#### 4. Data analysis

Descriptive statistics like mean, standard deviation and percentage was utilized for analyzing the obtained data which later was reported as quantitative data.

### Research Results

From all the 91 undergraduate students who were presenters at the research oral presentation, there were 54 undergraduate students (59.34%) giving responses to the online questionnaire's 11 close-ended questions. Due to the online questionnaire's results, it showed that the research oral presentation impacted the undergraduate students' 21st century skills as active learning at the high level ( $4.17 \pm 0.98$ ). Based on this, the first three 21st century skills most satisfied by the undergraduate students comprised: (1) the research oral presentation promoted the undergraduate students' critical thinking skill when searching data from various sources ( $4.24 \pm 0.95$ ); (2) the research oral presentation brought about self-leadership and responsibility to the undergraduate students ( $4.24 \pm 1.03$ ); and (3) the research oral presentation could further the undergraduate students' research useful for applying in teaching and learning management ( $4.20 \pm 1.02$ ), respectively. In this part, the first two skills were satisfied at the highest level whereas the last skill was satisfied at the high level.

Other eight 21<sup>st</sup> century skills satisfied by the undergraduate students were also reported. These eight skills were all indicated at the high level and were respectively reported as follows: (1) the research oral presentation supported the undergraduate students to apply using technology effectively ( $4.19 \pm 0.95$ ); (2) the research oral presentation induced flexibility and adaptability to the undergraduate students ( $4.19 \pm 0.97$ ); (3) the research oral presentation produced communication skill and collaborative skill to the undergraduate students when working with others ( $4.19 \pm 1.03$ ); (4) the research oral presentation fulfilled the undergraduate students with problem-solving skill ( $4.17 \pm 0.93$ ); (5) the research oral presentation promoted the undergraduate students with self-confidence in which they were able to consider and assess many things by their own selves ( $4.15 \pm 0.98$ ); (6) the research oral presentation brought about social skills which the undergraduate students could apply and use with different individuals ( $4.15 \pm 1.00$ ); (7) the research oral presentation helped increase the undergraduate students'

information literacy ( $4.11 \pm 1.08$ ); and (8) the research oral presentation generated the undergraduate students' creativity and invention of innovation ( $4.09 \pm 0.87$ ). Conclusion of all the results is demonstrated in Table 1.

**Table 1** Undergraduate Students' Satisfaction with the 21st Century Skills as Active Learning

Content	$\bar{x}$	S.D.	Interpretation
1. The research oral presentation promoted the undergraduate students' critical thinking skill when searching data from various sources.	4.24	0.95	Highest
2. The research oral presentation brought about self-leadership and responsibility to the undergraduate students.	4.24	1.03	Highest
3. The research oral presentation could further the undergraduate students' research useful for applying in teaching and learning management.	4.20	1.02	High
4. The research oral presentation supported the undergraduate students to apply using technology effectively.	4.19	0.95	High
5. The research oral presentation induced flexibility and adaptability to the undergraduate students.	4.19	0.97	High
6. The research oral presentation produced communication skill and collaborative skill to the undergraduate students when working with others.	4.19	1.03	High
7. The research oral presentation fulfilled the undergraduate students with problem-solving skill.	4.17	0.93	High
8. The research oral presentation promoted the undergraduate students with self-confidence in which they were able to consider and assess many things by their own selves.	4.15	0.98	High




**Table 1** Undergraduate Students' Satisfaction with the 21st Century Skills as Active Learning (Cont.)

Content	$\bar{x}$	S.D.	Interpretation
9. The research oral presentation brought about social skills which the undergraduate students could apply and use with different individuals.	4.15	1.00	High
10. The research oral presentation helped increase the undergraduate students' information literacy.	4.11	1.08	High
11. The research oral presentation generated the undergraduate students' creativity and invention of innovation.	4.09	0.87	High
<b>Total</b>	<b>4.17</b>	<b>0.98</b>	<b>High</b>

## Discussions

The UDRU Education Students' Research Oral Presentation can be one of appropriate pedagogical approaches to reinforce undergraduate students' the 21<sup>st</sup> century skills as active learning. According to the undergraduate students' overall satisfaction results indicated at the high level, it means all the processes of research oral presentation helped strengthen the undergraduate students' active learning towards the 21st century skills. This success might be because the undergraduate students must prepare themselves well before presenting their research. Preparing themselves in this case refers to the undergraduate students completing all the research processes by their own selves. With this, it is like a compulsory moment making the undergraduate students pay high attention to it. Under the research procedures, the undergraduate students are engaged with active learning through hands-on experience, beginning with locating a research topic, followed by searching for related data, collecting relevant literature, designing a research, creating research instruments, collecting data, analyzing data, and reporting results, respectively. All these processes lead to the final stage that is dissemination of their research through the research oral presentation. Comments and recommendations from research experts are beneficial to the undergraduate students in developing their research as well as furthering their research for better teaching and learning management. The research oral presentation can be applied as an appropriate means to motivate active learning to the undergraduate students. This finding is consistent with Wu et al. (2023) who studied about enhancing 21st-century competencies via virtual reality digital content creation. With the student-centered active learning, the researchers applied the 21st century skills' five main competencies

including creativity and innovation, critical thinking and problem solving, communication, collaboration, and computer-information literacy. The findings found that: (1) students had progressive results in all five competencies with significant level of .01; (2) creation of student product helped increase students' learning competency; and (3) students agreed that a final product resulted from their hands-on experience affected their motivation and distinctiveness in a positive way. This result is one of empirical evidence showing that active learning can be sought from the 21<sup>st</sup> century skills. Therefore, utilizing the 21st century skills to promote active learning is useful.

The research oral presentation gives a variety of positive results in active learning towards the 21st century learning; however, only the first three skills most satisfied by the undergraduate students are discussed. Beginning with critical thinking skill, the research oral presentation promotes the critical thinking skill to the undergraduate students at the highest rate. According to this study, the critical thinking skill arises when the undergraduate students were searching data from different sources. Because the modern world is interconnected and borderless communication with simplified data access, misinformation or fake data is flooded, particularly on the Internet. With this situation, the undergraduate students must consider different data using critical thinking to achieve only useful and reliable data from trustworthy online sources. This action is basis to help the undergraduate students distinguish between fact and fake information and to protect them from naive behavior. This finding is in line with Loyens et al. (2023) who situated higher-order thinking, critical thinking, and critical-analytic thinking in problem-based and project-based learning environments which were later reported as a systematic review. The study showed that there was an absence of critical-analytic thinking on project-based learning whereas a more focus on gaining critical thinking via project-based learning processes was found. Besides, the project-based learning also produced positive effects on higher-order thinking but less than the critical thinking. The study further reported that critical thinking gives the most useful active learning in problem solving and collaboration which both of them are one of the significant 21st century skills. the 21st century skills and active learning should be concurrent for fostering students to learn and achieve positive outcome.

The research oral presentation brings about self-leadership and responsibility to the undergraduate students. The self-leadership in this study means the undergraduate students' active learning in winning over themselves to continue doing a research until they accomplish a complete research. Among the undergraduate students' satisfaction, the self-leadership and responsibility are ranked second. Generally, the undergraduate students with project-based learning or problem-based learning pay more attention to their work in which self-leadership and responsibility transmitted through self-study as active learning are the most important factors to motivate them to accomplish the work. The research oral presentation is an obvious instance that project-based learning is involved. Since the research oral presentation has been indicated as the final stage of research procedures, all the previous research processes must depend on



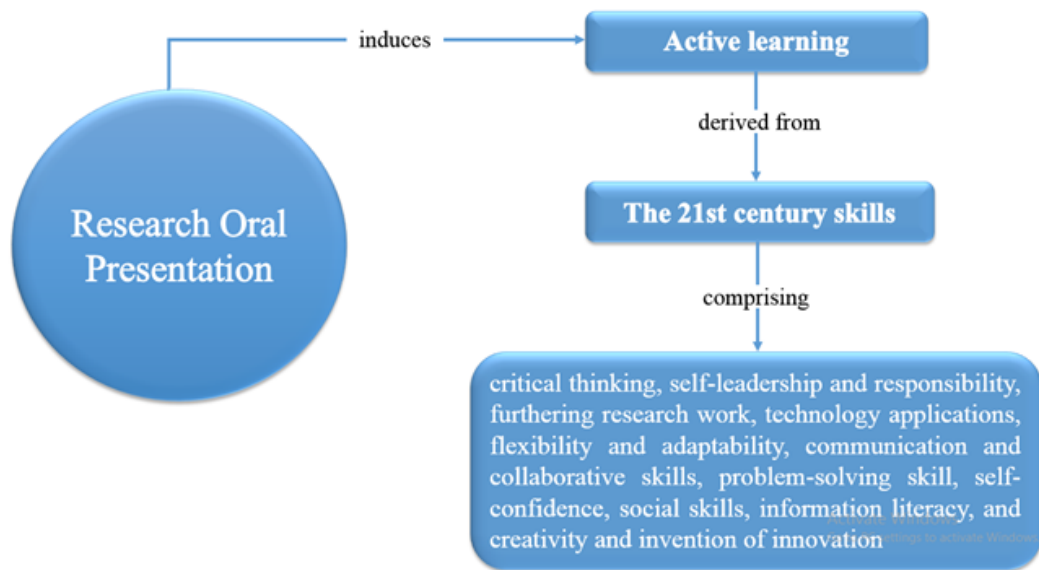
the undergraduate students' self-leadership and responsibility. The undergraduate students whose self-leadership and responsibility are deficient usually encounter a difficulty about continuation of doing a research. For this reason, self-leadership and responsibility are beneficial to active learning promotion. This conclusion is in agreement with Boonyarit (2023) who used a network analysis approach to examine relationships between self-leadership and proactive work behavior of operational employees. The study showed that the self-leadership gave the employees positive proactive work behavior in terms of self-initiation and participation in anticipatory action like taking charge, voice, individual innovation and problem prevention. In this case, the self-leadership impacted the voice and problem prevention of the employees at the highest rate. Hwang et al. (2023) also showed their study that a new active learning program called ENACT (engage, navigate, anticipate, conduct, and take action) which was created based on the 21st century skills helped reinforce students to achieve high responsibility in society known as social responsibility. The social responsibility in this regard included comprehension in social demands, participation in civic activities, and collaboration in making a decision on imposing the society's policy. The researchers concluded that reinforcing responsibility to students facilitates working and living, so increasing this skill to them is beneficial.

The research oral presentation could further the undergraduate students' research useful for applying in teaching and learning management. According to the undergraduate students' satisfaction, this part is ranked third. Furthering a research is resulted from sharing data and exchanging information about research work as well as acquiring comments and recommendations from research experts. As this part is ranked third, it implies that the undergraduate students see importance and advantages of their research work which could be furthered as future study. This circumstance brings about active learning transmitted through appreciation of work which influences on the undergraduate students' knowledge expansion. Furthermore, it also leads to an increase of educational research which all the advantages affect education development. This finding conforms to Likhachev et al. (2020) who utilized digital tools to control research activity of students, reporting that the specialized software as digital tools significantly increased students' willingness and comprehension to complete research work. At the earliest stage, approximately the first few weeks, a research supervisor was a very important person to guide and suggest the students how to do research work by making use of the specialized software. However, after the fourth week, the students became active learners who could continue doing research work without frequent assistance from the supervisor. Besides, positive competent manner of the students implied that the specialized software could be furthered as a useful active learning material to inspire students to learn and continue producing other research work. Bringing research work to enhance students' active learning should be in response to students' capability and interests because too difficult research work engages students with boredom and failure whereas the too easy one does not show increasing of students' capacity. It is better to evaluate students' ability and interests beforehand in order that

research work and students' active learning can go along with each other well (Huong et al., 2021).

### Knowledge from the Research

The UDRU Education Students' Research Oral Presentation gives undergraduate students an opportunity to share exchange and disseminate their research through oral presentation. It also fulfills the undergraduate students with useful suggestions and recommendations from research experts which help them further their research for applying in teaching and learning management. The research oral presentation can change the undergraduate students into active learners through the 21<sup>st</sup> century skills like critical thinking, self-leadership and responsibility, furthering research work, technology applications, flexibility and adaptability, communication and collaborative skills, problem-solving skill, self-confidence, social skills, information literacy, and creativity and invention of innovation. Highlight of the research oral presentation is active learning, so applying it to reinforce undergraduate students' learning in the 21st century is useful. Knowledge from the study is shown in Figure 3.



**Fig. 3** Knowledge from the Study

### Conclusion

The UDRU Education Students' Research Oral Presentation helped promote the 21st century skills to undergraduate students as active learners. the undergraduate students' satisfaction with the 21st century skills after oral presentation, it found that the research oral presentation impacted the undergraduate students' 21st century skills as active learning at the high level ( $4.17 \pm 0.98$ ). this, the first three 21st century skills most satisfied by the undergraduate students comprised: (1) the research oral presentation promoted the undergraduate students' critical thinking skill when searching data from various sources ( $4.24 \pm 0.95$ ); (2) the research oral presentation brought about self-leadership and responsibility to the undergraduate students



(4.24±1.03); and (3) the research oral presentation could further the undergraduate students' research useful for applying in teaching and learning management (4.20±1.02), respectively. Other eight 21st century skills they gained were: (1) the research oral presentation supported the undergraduate students to apply using technology effectively (4.19±0.95); (2) the research oral presentation induced flexibility and adaptability to the undergraduate students (4.19±0.97); (3) the research oral presentation produced communication and collaborative skills to the undergraduate students when working with others (4.19±1.03); (4) the research oral presentation fulfilled the undergraduate students with problem-solving skill (4.17±0.93); (5) the research oral presentation promoted the undergraduate students with self-confidence in which they were able to consider and assess many things by their own selves (4.15±0.98); (6) the research oral presentation brought about social skills which the undergraduate students could apply and use with different individuals (4.15±1.00); (7) the research oral presentation helped increase the undergraduate students' information literacy (4.11±1.08); and (8) the research oral presentation generated the undergraduate students' creativity and invention of innovation (4.09±0.87), respectively. These skills affirming the UDRU Education Students' Research Oral Presentation is appropriate to enhance undergraduate students' active learning. Besides, the outcome from the study was a database for developing the UDRU Education Students' Research Oral Presentation another time.

### Suggestions

Limited outcome of this study leads to some recommendations for further study. They are: (1) interview should be applied to acquire additional results; (2) comparing gender of undergraduate students in acquisition of the 21st century skills should be examined; and (3) inviting external experts, i.e. from other universities, as research commentators should be taken into consideration.

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