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Technical Capability, Instructional Strategies and Learners' Engagement in Online Learning Instruction: Basis for Framework Development

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Abstract

Schools are faced with the challenge of developing and implementing an online framework model especially in Radiology technology program. Online courses offer an excellent way for students to broaden their educational opportunities and stay competitive in the ever-demanding realm of education. Learning engagement in technology mediated learning and its effect on learning effectiveness and satisfaction, and their experimental data showed that the effects of technology-mediated learning were mediated by learning engagement, learning engagement had a positive effect on learning effectiveness whether in face-to-face learning or technology-mediated learning. Moreover, effective design of instructional materials elicits appropriate cognitive processes in the learner and mediates more successful learning outcomes ensuring an engaging and worthwhile online learning is necessary to achieve the same result of achieving quality learning, therefore it is important to address these topics on faculty technical capability, standard instructional strategies and learner's engagement strategies to the development of dynamic and an effective online framework model for Radiology technology program. This study aimed to assess the teachers' level of technical capability, instructional strategies utilization and level of learners' engagement strategies that set as the basis to enhance the online framework model for radiology technology program. Descriptive correlational research design was employed. The study revealed that Radiologic Technology Professors in terms of technical capabilities, instructional strategies and learner's engagement had a very confident concept in online learning. In essence, the results yield the delivery of education with the use of technology introduces a platform that gives a more accessible learning system.

Keywords: Technical Capability, Instructional Strategies, Learners' Engagement, Online Learning Instruction

Introduction

Delivering education with the use of technology introduces a platform that gives a more accessible learning system. Therefore, the government promotes the use of Information and Communication Technologies in all sectors. As stated in Republic Act No. 10844. This provision rationalizes the effort of the Commission of Higher Education (CHED) to deliver a quality and accessible education especially in times of crisis. As stated in CHED Memorandum No. 4, Series of 2020 that it has become an urgent need to explore other innovative learning modalities that will facilitate migration from traditional to flexible teaching and learning options. It is also stipulated in the said memorandum that Higher Education Institutions (HEIs) are encouraged to maximize the use of technology to support learning and teaching. The Commission on Higher Education calls it “flexible learning” which also includes online or e-learning that many colleges and universities in the Philippines have been doing even in the past (Mansilla, 2020).

Furthermore, knowledge and skills developed for teaching face-to-face classes are not adequate preparation for teaching online (Yang, 2018). Other issue in an online learning raised by Baran et.al in Kebritchi, et.al (2017) is that instructors of online education preparation programs may not know how to prepare instruction for transition from the traditional face-to-face training to the online teaching. Kebritchi, et.al (2017) pointed out also that content issues included the role of instructors in content development, integration of multimedia in content, role of instructional strategies in content development, and considerations for content development. Although, according to McMurtry (2016) the instructor’s teaching approach is student-centered, focusing not just on providing the content and grading the student’s efforts, but also on whether each student is engaged in the learning process, understanding the content, and making progress toward the course goals. It indicates that instruction should encourage independent learning that is incorporated with interactive technological instructional strategies.

Online courses offer an excellent way for students to broaden their educational opportunities and stay competitive in the ever-demanding realm of education. Ensuring an engaging and worthwhile online learning is necessary to achieve the same result of achieving quality learning. Hence, students embarking on the path of higher education through online coursework need to be self-motivated, independent, and responsible learners (Gilbert, 2018). But pushing oneself to engage in an online educational setting is just one factor that needs a motivator. Findings suggest that interactivity seems to be a key in keeping students involved and achieving, with specific activities routinely favored by students. Farrel et.al (2020) postulated that a successful online student engagement was influenced by a number of psychosocial factors such as peer community, an engaging online teacher, and confidence and by structural factors such as life load and course design. However, in the study of Hu et.al (2018) it found out that due to lack of communication between teachers and students, the performance of students who participate in online learning is not satisfactory, and their persistence and efficiency are also poor.

With such, this study aimed to determine the technical capability, instructional strategies and learners’ engagement in online learning instruction. This will also serve as the basis for a proposed online learning instruction framework for Radiologic Technology students.

Methods

The study used descriptive-correlational research design since it determined the technical capability, instructional strategies and learners' engagement in online learning instruction in different Higher Educational Institution in Region 4A. Likewise, it identified possible patterns of relationships that exist among variables. Data used in the investigation came from 58 Radiologic Technology professors for Academic year 2020-2021. Out of 58 respondents, Slovin's formula was employed arriving at 51 sample respondents who were randomly given an online research questionnaire instrument, representing 88.37 percent retrieval rate.

The research used a researcher-made questionnaire for the purpose of collecting the needed primary data. The first part included the level of technical capabilities, second parts was the utilization of Instructional Strategies and the third part include the level of learners' engagements which was measured using the Likert-Scale. The researcher made used of email and social media to give the letter of intent addressed to the dean of the selected school/ colleges in different higher educational institution for their approval for the conduct of the study. After gaining the permission, the researcher floated the online survey instrument to the respected respondents. To make sure that data gathered were precisely treated weighted mean was used to determine the respondents' level of technical capabilities, instructional strategies and level of learners' engagement in online learning. Descriptive statistics such as Pearson Product Moment of Correlation or Pearson-r was used to ascertain if there is relationship between the respondents' technical capabilities, instructional strategies and learners' engagement in online learning.

Results and Discussion

Discussion on the technical capabilities, instructional strategies and learners' engagement in online learning is presented in the succeeding tables and textual presentations:

Table 1. The Respondents’ Level of Technical Capabilities on Online Learning Instruction

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Properly connect main components, configure, peripherals and install drivers when required	3.43	Highly Capable	7.5
2. Configure computer settings of various software and hardware	3.37	Highly Capable	10
3. Organize and manage computer files, folders and directories	3.67	Highly Capable	2
4. Use online and offline help facilities for trouble-shooting, maintenance and update of application	3.41	Highly Capable	9
5. Format text, control margin, layout and tables	3.49	Highly Capable	6
6. Use word processor to enter and edit text and images	3.61	Highly Capable	4
7. Use a presentation package to add text and sequence a presentation	3.61	Highly Capable	4
8. Stitch together video footages and sound-tracks and add simple enhancements-transitions, titles and etc.	3.43	Highly Capable	7.5
9. Effectively use search engines, web directories and benchmarks	3.61	Highly Capable	4
10. Download and install relevant applications including freeware, shareware, updates, viewers and support applications.	3.73	Highly Capable	1
Average	3.54	Highly Capable	

Legend: (Strongly Agree/ Highly Capable – 4, Agree/Capable – 3, Slightly Agree/ Slightly Capable – 2, Disagree/Not Capable – 1)

As seen in Table 1, for The Respondents’ level of Technical Capabilities on Online Learning Instruction indicator 10 “Download and install relevant applications including freeware, shareware, updates, viewers and support applications.” got a weighted mean of 3.73 was interpreted as Highly Capable and was rank 1. Indicator 3 “Organize and manage computer files, folders and directories.” had a weighted mean of 3.67 was interpreted as Highly Capable and was rank 2., indicator 6 ,7 and 9 “Use word processor to enter and edit text and images.” And Use a presentation package to add text and sequence a presentation, effectively use search engines, web directories and benchmarks with a weighted mean of 3.61 were interpreted as Highly Capable and was rank 4.

On the other hand, indicator 5 which states that “Format text, control margin, layout and tables.” obtained a weighted mean of 3.49 was interpreted as Highly Capable and was rank 6. Indicator 1 and 8 “Properly connect main components, configure, peripherals and install drivers when required” and Stitch together video footages and sound-tracks and add simple enhancements- transitions, titles and etc. which had a weighted mean of 3.43 was interpreted as highly capable and was rank 7.5. indicator 4 “Use online and offline help facilities for troubleshooting, maintenance and update of application” with a weighted mean of 3.41 was interpreted as highly capable and was rank 9. Lastly indicator 2” Configure computer settings of various software and hardware” with a weighted mean of 3.37 was interpreted as highly capable and was rank 10.

To sum up, an average weighted mean of 3.54 revealed that the respondents had highly capable on the Technical Capabilities on Online Learning Instruction. This means that the in creating an efficient and effective digital classroom requires online teachers to develop exceptional technical capabilities skills. Teachers should be able to demonstrate proficiency in Downloading and install relevant applications including freeware, shareware, updates, viewers and support applications. Ability to troubleshoot minor technical issues and refer to technical support personnel when necessary. Likewise, full knowledge of accessibility requirements for technology in the classroom and online instruction are needed.

The findings of the study support Beetz, et.al (2016) stated that Integrating innovative technology during classroom practices inevitably demands teachers to acquire new technological capabilities and pedagogical skills. This includes Organize and manage computer files, folders and directories, properly connect main components, configure, peripherals and install drivers when required. This also includes the effective use search engines, web directories and benchmarks.

Table 2. The Respondents' Utilization of Instructional Strategies on Online Learning Instruction

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Use appropriately slide presentation, video audio and other media in an online classroom	3.80	Very Often	2
2. Teach students to use various multimedia materials for the reports and class presentations	3.63	Very Often	7
3. Use various synchronous and asynchronous communication tools (email, chat, whiteboard, forums and blogs)	3.82	Very Often	1
4. Design rubrics for assessing student performance in the use of various technologies	3.39	Very Often	10
5. Use of electronic means of administering quizzes and examinations	3.73	Very Often	3.5
6. Explore the use of electronic assessment tools like submission of projects via email or online facilities	3.73	Very Often	3.5
7. Encourage students to do data analysis, problem solving, decision making and exchange of ideas and information	3.61	Very Often	8
8. Facilitate cooperative online learning and exchange of ideas and information	3.69	Very Often	5.5
9. Make effective class presentations using the slides and LCD projector	3.69	Very Often	5.5
10. Make computation, use formula and create graphs using spreadsheets	3.51	Very Often	9
Average	3.66	Very Often	

Legend: (Strongly Agree/ Very Often – 4, Agree/Often – 3, Slightly Agree/ Rarely – 2, Disagree/Never – 1)

As shown in Table 2, for the respondents' utilization of Instructional Strategies on Online Learning Instruction indicator 3 which states that "Use various synchronous and asynchronous communication tools (email, chat, whiteboard, forums and blogs." with a weighted mean of 3.82 was interpreted as very often and was rank 1. Indicator 1 "Use appropriately slide presentation, video audio and other media in an online classroom." obtained a weighted mean of 3.80 which was interpreted as very often and was rank 2. Indicator 5 and 6 "Use of electronic means of administering quizzes and examinations." Explore the use of electronic assessment tools like

submission of projects via email or online facilities with a weighted mean of 3.73 was interpreted very often and was rank 3.5

On the other hand, indicator 8 and 9 which states “Facilitate cooperative online learning and exchange of ideas and information.” Make effective class presentations using the slides and LCD projector got a weighted mean of 3.69 was interpreted very often and was rank 5.5 Indicator 2 “Teach students to use various multimedia materials for the reports and class presentations.” with a weighted mean of 3.63 was interpreted as very often and was rank 7. indicator 7” Encourage students to do data analysis, problem solving, decision making, and exchange of ideas and information obtained a weighted mean of 3.61 was interpreted as very often and was rank 8. Indicator 10” Make computation, use formula and create graphs using spreadsheets.” obtained a weighted mean of 3.51 was interpreted as very often and was rank 9. Lastly indicator 4” Design rubrics for assessing student performance in the use of various technologies”. obtained a weighted mean of 3.39 was interpreted as very often and was rank 10.

To sum up, the average weighted mean of 3.66 revealed that the Respondents’ frequently utilize the different Instructional Strategies on Online Learning Instruction. This means that in Employing Multimodal Strategies in Online Teaching several strategies were explore especially the use various synchronous and asynchronous activities.

The findings of the study support the research of Gillett-Swan (2017) which stated that the importance of creating a learning community, providing personalized experiences to the students, designing courses using proper technology, and forming supportive community (for both students and faculties) to learn from each other. Moreover, on-line strategies such as monitoring discussion regularly to direct the discussions towards the intention of creating mastery of the content and Incorporate collaborative works in the beginning and assignments that involve arguments like debating etc. can occur when the learning community is formed this will lead to reduce chances of conflicts and will Create positive social environment in the class, Positive learning environment denotes higher level of learning and learner satisfaction is achieved.

Table 3. The Learners’ Engagements on Online Learning Instruction as Perceived by the Respondents

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Engage in analyzing information, comparing and contrasting ideas using computers	3.43	Highly Engage	8
2. Students use multiple sources of information (internet, references etc.	3.63	Highly Engage	3.5
3. Interact with other students in the course using emails and WebCT	3.51	Highly Engage	7
4. Engage in representing understanding of concepts by using computer	3.63	Highly Engage	3.5
5. Communicate with the professors using emails and WebCT	3.69	Highly Engage	1
6. Collaborate within classmates on shared learning projects	3.61	Highly Engage	5
7. Use the web to share digital files related to the course (sharing photos, audio files, digital documents, websites etc.)	3.67	Highly Engage	2
8. Use an ePortfolio system to record the achievements for future use beyond the course of the studies	3.37	Highly Engage	9
9. Use a personal dashboard on the university intranet to access all the academic information related to courses, grades and etc.	3.55	Highly Engage	6
10. Design and build web pages as part of the course	2.90	Engage	10
Average	3.90	Highly Engage	

Legend: (Strongly Agree/ Highly Engage – 4, Agree/Engage – 3, Slightly Agree/ Slightly Engage – 2, Disagree/Unengaged – 1)

As shown in Table 3, for the Learners’ level of Engagements on Online Learning Instruction as Perceived by the Respondents indicator 5 which states that “Communicate with the professors using emails and WebCT.” with a weighted mean of 3.69 was interpreted as highly engage and was rank 1. Indicator 7 “Use the web to share digital files related to the course (sharing photos, audio files, digital documents, websites etc.)” obtained a weighted mean of 3.67 which was interpreted as highly engage and was rank 2. Indicator 2 and 4 “. Students use multiple sources

of information (internet, references etc.” Engage in representing understanding of concepts by using computer with a weighted mean of 3.63 was interpreted highly engage and was rank 3.5

On the other hand, indicator 6 which states “Collaborate within classmates on shared learning projects got a weighted mean of 3.61 was interpreted highly engage and was rank 5. Indicator 9 “Use a personal dashboard on the university intranet to access all the academic information related to courses, grades and etc..” with a weighted mean of 3.55 was interpreted as highly engage and was rank 6. Indicator 3” Interact with other students in the course using emails and WebCT obtained a weighted mean of 3.51 was interpreted as highly engage and was rank 7. Indicator 1” Engage in analyzing information, comparing and contrasting ideas using computers.” obtained a weighted mean of 3.43 was interpreted as highly engage and was rank 8. Indicator 8” Use an eportfolio system to record the achievements for future use beyond the course of the studies” obtained a weighted mean of 3.37 was interpreted as highly engage and was rank 9 Lastly indicator 10, Design and build web pages as part of the course,” obtained a weighted mean of 2.90 was interpreted as engage and was rank 10.

To sum up, the average weighted mean of 3.90 revealed that the level of learners’ engagements on online learning Instruction as perceived by the respondents were highly engage in any aspect on online learning instructions techniques and strategies. This means that the students were assertive and fascinating on different online learning practices.

The findings of the study support the research of Zhou. et. al (2017) studied the role of learning engagement in technology mediated learning and its effect on learning effectiveness and satisfaction, and their experimental data showed that the effects of technology-mediated learning were mediated by learning engagement, learning engagement had a positive effect on learning effectiveness whether in face-to-face learning or technology-mediated learning. When students are more engaged in learning, they will gain more in their learning activities. When students are less engaged in learning, they will find it difficult to engage in learning roles and thus gain little in learning activities. In online learning, whether students can participate in learning activities and whether they can participate in learning activities are the most critical and most important factors to ensure the learning effectiveness. The essence of online learning is the continuous development of students’ cognitive level, and to acquire effective learning, students need to participate actively in learning.

Table 4. Relationship between the Respondents Level of Technical Capability and Instructional Strategies on Online Learning Instruction

Indicators	Pearson r	p-value	Interpretation
Respondents Technical Capability and Instructional Strategies on Online Learning Instruction	0.702 High correlation	0.000	Significant
Significant @ 0.01			

As shown in the table there was a significant relationship between the respondents' level of technical capability and their instructional strategies on online learning instruction. This implies that the better the technical capability of the respondents the better their instructional strategies on online learning instruction.

As shown in Table 4, for the relationship between the Respondents level of Technical Capability and Instructional Strategies on Online Learning Instruction, the p-value of 0.000 was obtained which was lower than 0.01 level of significance; this showed that there was a significant relationship between the respondents' perception of the technical capability and their attitude in using instructional strategies towards online learning instruction. This means the higher the respondent's level of the technical capability, the more they become assertive in using instructional strategies on online learning instruction.

The findings of the study support the research of Maher D. (2019) cited that technology has positively impact the design of instructional strategies since technical competencies are specific to the use of the technology, technical knowledge and proficiency in the use of current technology, the ability to troubleshoot technology issues, and the ability to assist learners effectively the faculty need to evaluate the instructional effectiveness and value of learning materials for a course, as well as ensure those selected align to the given context, curriculum, and outcomes. Faculty also adjust materials based on credibility, clarity, validity, reliability, accuracy, currency, accessibility, usability, and quality of course resources Materials may include text; audio, video, and other delivery media; and simulations to aid student understanding, interpretation, and internalization of new information.

Table 5. Relationship between the Respondents Level of Technical Capability and Level of Learners' Engagement on Online Learning Instruction

Indicators	Pearson r	p-value	Interpretation
Respondents Technical Capability and Learners' Engagement on Online Learning Instruction	0.521 Moderate correlation	0.000	Significant
Significant @ 0.01			

As shown in Table 5, for the relationship between the Respondents level of Technical Capability and level of Learners engagement on Online Learning Instruction, the p-value of 0.000 was obtained which was lower than 0.01 level of significance; this showed that there was a significant relationship between the respondents' perception of the technical capability and learner's engagement on online instruction. This means the higher the respondent's level of technical capability, the higher is the level of learners' engagement in on online learning instruction.

The findings of the study support the research of Halverson. et. al (2017) cited that due to the growing use of online and blended modalities, and the ever-increasing use of digital tools by students, it has been suggested that engagement is particularly relevant to the field of TEL and have showed that university students engage in learning in a mobile, flexible and multimodal way by using the affordances of different technologies and by employing digital skills related to multimodal literacy. Thus, the possession of certain digital skills creates suitable conditions for productive engagement with learning technologies.

Table 6. Relationship between the Respondents Instructional Strategies and Level of Learners' Engagement on Online Learning Instruction

Indicators	Pearson r	p-value	Interpretation
Respondents Instructional Strategies and Learners' Engagement on Online Learning Instruction	0.633 Moderate correlation	0.000	Significant
Significant @ 0.01			

As shown in Table 6, for the relationship between the Respondents Instructional Strategies and level of Learners engagement on Online Learning Instruction, the p-value of 0.000 was obtained which was lower than 0.01 level of significance; this showed that there was a significant relationship between the respondents' instructional strategies and level of learners' engagement on online instruction. This means the more the respondents are confident in the

utilization of instructional strategies, the higher the level of learners' engagement on online learning instruction.

The findings of the study support the research of Chen, et. al., (2017) Online classes need efficient strategies to provide effective learning experiences to the learners. Strategies like motivation plays crucial role in online class environment. The motivated students tend to have engaging learning experiences as they spend time viewing and reviewing the course content. Providing information in small chunks, placing important information in the center of the screen, explaining why the learners are given specific information and enabling learners to read (even figures) from left to right are some cognitive strategies that can be practiced in online classes and will engage the learner.

Conclusion

The Radiologic Technology professors were very confident and constructive in terms of technical capabilities and instructional strategies. The learners' engagement in online learning instruction as perceived by the respondents was high that makes the learning more meaningful and enjoyable. This shows that the professors need to integrate innovative technology from classroom practices to online learning that inevitable demands to acquire new technological capabilities and pedagogical skills during online instruction.

Additionally, an understanding of the significant relationship between the level of technical capabilities, instructional strategies and their level of learners' engagement in online learning instruction shows the higher the respondents' level of technical capability, the more they utilize instructional strategies that would make the respondents motivated in online learning. The results signify that Radiologic Technology professors must possess certain digital skills to create suitable conditions for productive engagement on learning technologies. The proposed online learning instruction framework was made based on findings of the study.

Table 7: The Propose Online Instructional Framework for Radiologic Technology Program

Framework Elements	Mediating Web-Based Tools	Intervention of Teaching Strategies
<p>Content (primary drivers of instruction and ways in which content can be delivered & presented)</p>	<p>Online class, synchronous & asynchronous discussion, eLearning resources</p>	<ul style="list-style-type: none"> • Course introduction, online lectures • Online requirement & protocols orientation • Clear course expectation and deadlines • Weekly updates, online communication and constant reminders of discussion topics • Application of Educational apps or platform, software program development • Accessibility and links to eLibrary resources
<p>Facilitated Action (selection of tools and activities that afford mediate interaction and participation)</p>	<p>Online photos, ePortfolios, synchronous & asynchronous discussion, web links, Forum</p>	<ul style="list-style-type: none"> • Application and use of different scenarios, and situations to generate dialogs, group accountability and organized group positioning ideas • Peer feedback in any group activity and dialogues • Use of online learning laboratory activity • Video options, screen recordings, digital text options, • Use a word processing program, navigate the Internet, and download software • Accessibility and links to any technical and eLibrary resources
<p>Goal-directed (selection of authentic and relevant tasks that</p>	<p>Synchronous & asynchronous discussion, web links, web-page</p>	<ul style="list-style-type: none"> • Use of different scenarios, and circumstances to generate dialogs on various course related ideas • Use of a variety group and individual task in the course

<p>situate activity to accomplish particular goals)</p>	<p>announcements. elearning resources, Forum, Online photos,</p>	<p>discussions, assessment and activity in different pedagogical purposes</p> <ul style="list-style-type: none"> • Use of different educational media, digital text and software options • Weekly updates, online communication and constant reminders of discussion topics
<p>Collaborative Learning (shared spaces for interaction, generating ideas, collaboration and team products)</p>	<p>Online photos, synchronous & asynchronous discussion, web links, Forum</p>	<ul style="list-style-type: none"> • Use of scenario, or situations that support convincing sharing of ideas, and experiences for discussion • Peer feedback in any group activity and dialogues • Student presentation and assessment with regard to the given topic or activity • Online lecturer monitoring, mentoring, stating and linking to student awareness's to affirm their involvement on the topic • Hasty feedback to student enquiries • Reminder and representations of virtuous online communication to faculty and student • Make use of conflict resolution mechanism • Use of different educational media, digital text and software options • Accessibility and links to eLibrary resources
<p>Reflection (require students to reflect on what they learn and to share their</p>	<p>Reflection paper, Journals, Blogs/Vlogs</p>	<ul style="list-style-type: none"> • Sharing one's reflection to others • Make a pedagogical activity that requires student to reflect on what they have learn

reflections with faculty and students)		<ul style="list-style-type: none"> • Blogs, Film Recording, Video clips and journaling of activities have evolved appropriate tools & other aspects of course exercises
<p>Evaluation (allows more seamless sharing and records of evaluation and assessment activities)</p>	<p>Test questionnaire, ePortfolios, assignments, term projects, return demonstration, Video Recording of activities</p>	<ul style="list-style-type: none"> • Giving of test examination, assignments, and other formative assessment tool • Term paper, case study presentation, video and audio recording • ePortfolio presentation of images, weekly class discussion on discussion board or video • Assessment and review of teaching method, style, work and what did not work in online class

Using the framework of Khoo & Cowie (2020); Picciano (2017) a collaborative approach was adopted. This approach was taken to Jones & Simon (1991) as cited by Khoo, E., & Cowie, B. (2020) the negotiated intervention strategy framed and translated the pedagogical framework into teaching strategies. A summary of intervention teaching strategies, as well as the mediating web-based tools were adapted in the masters Research Method course is shown in table 7 in which can be propose as a framework for online learning instruction on Radiologic Technology Education.

The above proposed framework for online learning instruction was anticipated in order to guide the Radiologic Technology educators on to what was needed to enhance with regards to the enhancement of technical capability, utilization of instructional materials and to augmented the commitment of the learners to online learning. The translating framework to practice was assumed to guide the development and implementation of a pedagogical intervention which was identified from the general literature that would improve the online student learning experiences as well as the teacher preparation on online learning instruction. The researcher was keen to adopt a framework that would be relevant and suited to the teaching-and-learning context of the course (Cowie, et al 2020)

Recommendations

The present study has some limitations on the sample size which was used in the study since it was only limited to the Radiologic Technology professors on selected Higher Educational Institutions in Region 4A during academic year 2020-2021. To have a better understanding it is recommended to future researchers to conduct similar study considering the effectiveness of the propose online learning instruction framework in order to enhance the technical capability,

instructional strategies and learner's engagement in online learning instruction and to have broader information with regard to the factors studied in this research.

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