



Skilled Teachers and Resources Towards the 21st Century Educational Change: a Theory Development

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Abstract- The societal and economic changes in the 21st century have increased the need for educational change. Although students are exposed to technology and social media, it does not guarantee their competence in 21st century skills. Teachers are needed to guide students in acquiring these skills to be globally competitive. However, teachers are trained in 20th century classroom practice, thus, it is imperative for them to upgrade themselves to become the 21st century teachers. This study investigated the 21st century skills of teachers especially their knowledge and practices along information, media and technology skills, learning and innovation skills, life and career skills and effective communication skills. This also looks into their challenges and opportunities in terms of resources. Qualitative and quantitative methods were employed in this study. The data were gathered through the use of questionnaires and survey forms, which were described and critically analyzed. The findings of the study revealed that the teachers have fair to good knowledge and practices in the 21st century skills but were challenged in terms of resources.

Keywords- *The 21st Century Educational Change, Resources, Skilled Educators*

I. INTRODUCTION

Change is inevitable, it has become the prevailing motivating force of the society. As frontrunners of the education arena, teachers' roles are crucial to the continuous implementation of change. Yet, "The current school system cannot anymore provide all the answers for its students" as Mitra (2014) strongly believed, especially in the Philippine public basic education where change has not felt yet.

Meinardus (2003) argued that the quality of Philippine education has observed to have continuously deteriorated, that schools lose its power to provide knowledge to the citizens as well as make them the competent, responsible, productive and self-fulfilling. There is a threat that the teachers may not be able to facilitate the desired 21st century educational change, and higher threat that Filipino students may not be able to compete in the future needs of the business industry, being trained in the obsolete classroom practices. It is important that teachers need to reflect on these observations and use effective classroom strategy, since not all students are self-motivated to learn (Olsen,2015).

For a long time, the quality of teaching in the public schools has been a struggling issue. As observed, many teachers in the DepEd are dying for change, but the conditions they are in do not allow change to happen. In DepEd the 21st century change is somewhat a phenomenon that many are aware but no one truly initiates as manifested in the teachers' lack of knowledge on the 21st century. Many of the DepEd teachers are aware of the needed educational shift in the 21st century, yet grope for ways to start the change. Many of the secondary teachers in the Department of Education have knowledge and skills in basic Microsoft operations. In fact it has become a trend to use PowerPoint presentations in delivering classes, or showing videos, as they believe these would make them 21st century educators. Others allow the students to discuss the topics in group to come-up with an answer, gambling on the benefits of collaboration, and have the students present their output. Yet, contrary to the expected collaborative and communicative skills developed by the students, blatant student dependency on others during group work is observed and most of the time group leaders or the rapporteur does all the job. Thus, the quality education is still not elevated.

To hone students' 21st century skills is to possess these skills. Filipino teachers have been trained by a 20th century learning and teaching methods in a 19th century classroom by a 20th century teacher. Many DepEd teachers still struggle to work with information, media and technology. Others believe that the 21st century teaching is merely the use of technological advancements in class rather than helping students to meet the global demands through the use of media, information and technology. Many teachers lack the time to further their studies or conduct research, thus communicating broadly and understanding diverse perspective are limited. Some teachers are afraid to innovate or strategize, they would rather stick to the old practices they are used to. They do not risk change.

The goal of this research is to delve into the knowledge of the DepEd Secondary Teachers along the 21st century skills as well as the challenges and opportunities of the teachers in terms of resources. The result of this study will be beneficial in achieving the vision of the Enhanced Basic Education Act of 2013 and seize its potential to become competitive in the 21st century and to improve the country especially the lives of the Filipinos.

With the foregoing observations and toward this end, this study is conceived.

A. *Statement of Objectives*

This study investigated the 21st Century Skills of the Secondary teachers in the Division of Danao City.

Specifically, it sought to:

- 1- Establish the teachers’ knowledge level along the following skills:
 1. Information, Media and Technology Skills
 2. Learning and Innovation Skills
 3. Life and Career Skills
 4. Effective Communication
- 2- Determine the teachers’ challenges and opportunities in terms of resources as personally observed and observed by the school head.
- 3- Develop a theory.

II. RESEARCH METHODOLOGY

The methodology includes the research design, the research respondents, the research locale, the instrumentation and the data-gathering procedure.

A. *Material*

1) *Research Locale.*

The locale of this research is the Division of Danao City. DepEd Division of Danao City was created in 1963 and started its operation of overseeing the educational institutions of the city. A number of secondary public schools were founded years later. As of the present there are a total of 16 secondary schools. At present, it has 16 schools.

2) *Research Respondents.*

The respondents of this research were high school teachers of 30 – 40 years old Junior High School teachers. The sampling was purposive, which was selected based on the age of the teachers. A universal population was tested from among the 30 – 40 years old.

The table below shows the number of research respondents per school, which include the teachers and the school head, and their sum.

3) *Research Instrument.*

This research used a researcher-made questionnaires, observation tool, inventory checklist as method for gathering the data. These tools are linked to each other in order to verify and validate the data gathered. These instruments were patterned after the online self-test of the 21st century of mindtools.com and academia.edu. Questions of the instruments are based from the definition of the Partnership for the 21st Century on the 21st century skills.

The questionnaire 1 was made to establish teachers’ level of knowledge and determine the current 21st century skills of the teachers along with the extent of practicing those skills in

the classroom. The teachers’ knowledge was represented in terms of the knowledge ranges as “Excellent: 5.00-5.99”, Very Good: 4.00 - 4.99”, “Good: 3.00 - 3.99, “Fair 2.00 – 2.99”, Poor: 1.00 – 1.99.

“Excellent” was a representation where there is an extensive breadth of knowledge along the 21st century skills. “Very good” represented enough knowledge to practice the 21st century skills, “good” represented the average knowledge to practice the 21st century skills, whereby teachers needs knowledge updating through research and training. “Fair” represented lack of knowledge in the 21st century skills and “Poor” represented no knowledge in the 21st century skills and practices. The questionnaire for teachers had 4 parts. Each part had 20 question, the first 10 was designed to collect data on the level of knowledge of the teachers in the necessity of the 21st century skills.

4) *Instrument Validation.*

A pilot test was done in order to validate the research tools prior to the actual collection of the data. The result is tested with a result of 0.786.

TABLE I. RESEARCH RESPONDENTS OF THE DIVISION OF DANA O CITY

Name of School	Number of School Heads	Number of 30-40 years old teachers	Total Number of Research Respondents
Baliang National High School	1	4	5
Beatriz D. Durano Memorial National High School	3	22	25
Bibiana Integrated School	3	3	4
Binaliw Integrated School	1	1	2
Cogon Cruz Integrated School	2	2	4
D.T. Durano Memorial Integrated School	2	5	7
Eduardo Gorre Integrated School	2	6	8
Elpidio H. Perez Memorial Tech-Voc High School	1	4	6
Estefa O. Monte Memorial National High School	2	6	7
Guinacot Integrated School	2	3	7
Guinsay National High School	2	20	22
Lawaan National High School	1	3	5
Maslog National High School	2	11	15
Nicholas U. Tiongko Memorial National High School	1	1	2
Ramon M. Durano Sr. Foundation-STE C	2	11	16
Ramon M. Durano Sr. Memorial National High School	1	3	4
Raymunda B. Hermosilla Integrated School	1	1	2
Ubaldo Iway Memorial National High School	2	12	17
Sabang National High School	2	15	17
Santican National High School	1	3	4
Total	34	136	170

B. Method

This research is an exploratory-descriptive design which centers on investigating the 21st century skills of the Department of Education teachers of the Division of Danao City. Using qualitative and quantitative methods the data were presented, analyzed and interpreted.

1- Preliminary Preparation. Before the distribution and administration of the questionnaires, the researcher secured a permission from the Schools Division Superintendent to conduct research of all the secondary level schools.

2- Collection of Data. When the letter of permission was already provided, the questionnaires were administered to all 30-40 secondary teachers-respondents to gather the data needed. The data was collected from the teachers, the school heads and through a class observation conducted by the researcher.

3- Presentation and Analysis of Data. The data was presented in table, graphs and pies for easy visual reference and analyze based on the stated sub-problems.

4- The data was presented in graph to establish comparison among the skills and to identify the level of teachers' knowledge along with the stated 21st century skills. Each skill was then individually presented in table, interpreted and analyzed.

III. THEORY DEVELOPMENT

The inductive approach to theory development is employed to create a theory that would explain the phenomenon observed.

A. Axioms

1) *Teachers as school resources often create opportunities for school change.*

The mark of a great school is a good teaching. Teachers have been said to be the most crucial part of a school resource as they build base for all professions. According to Cordeiro (2010) faculty members play a vital role in the success of an educational institution. A quality pool of teachers make a quality educational institution. Teachers' roles are central to the effective implementation of school change. As Fullan (2012) stated that teachers are change agents, where students are knowledge workers. As they have direct influence on students, teachers as facilitators could create individual capable of self-learning.

Students who are good at technology may be called digital natives but as Parren (2015) argued that unless someone teaches them to use the power of the machines well, the interactions between students and technology are typically fairly shallow. Teacher due to experience and understanding on learning skills are vital to encourage deeper thinking and learning. In the 21st century, teachers' important roles in the classroom for the technology-oriented students is to be the internet safety wall. All teachers need to be helping learners harness the power of technology to engage students in authentic tasks, solving real-world problems. Digital natives

and immigrants can become digital partners (Parren, 2015). Teachers as important school resource often create opportunities for schools to create real change, especially on the students' lives.

2) *Teachers sometimes utilize the 21st century skills in the classrooms.*

The 21st century is the mark for globalization brought by technology. Based on Gregorian calendar, the 21st century commenced in January 1 of 2001. Along with the rapid advancement of technology is the change of the modes of communication, information technology revolution, which made a huge impact on business and the skills needed for the jobs. This has brought in educational systems and policies. Due to these changes, teachers are expected to mold learners with 21st century skills needed for their future jobs.

Prensky (2001) defined digital natives as those born into an innate new culture, while digital immigrants are old-world settlers, who have lived in the analogue age and immigrated to the digital world. Teachers are expected to belong to the termed "digital immigrants" by definition and rarely acquire the digital skills. Digital immigrants are believed to be less quick to pick-up new technologies than digital natives.

3) *Philippine schools rarely have enough resources aligned for the implementation of the 21st century education.*

Technology has become an integral part in the classroom. Technology improves education to a greater extent and it has now become a need for revolutionizing education for the better. Saxena (2013) noted that the 21st century tools allow teachers to communicate effectively and provide teachers with the ability to give students immediate feedback about how they are performing (Eduview, 2008). Yet in the Philippines, the availability of technological tools in the classrooms, along with the other resources, pose a challenge in implementing the desired 21st century education. In fact, Barlong (2015) proved in his study that lack of infrastructure is one of the issues confronting the Department of Education. In addition, the research conducted by Allamillo and Criso (2014) proved that the lack of teachers' readiness is due to the lack of facilities and classroom resources that will make the K to 12 program effective. Indeed, Philippine schools rarely have enough resources aligned for the implementation of the 21st century educational change.

4) *The school's availability of resources is often an opportunity for implementing educational change.*

The 21st century school is beyond integrating technology into the system but leveraging the use of technology to power schools in better ways. 21st century change occur when change agents build coalition (Ellsworth, 2001). Technological availability in school capacitates the school as a whole to implement a new technology, make it reliably available for use, and train users to effectively employ it (Twigg, 2000). The availability of educational technology as tools, create a collaborative school, and change the school culture and practices, which make the desired change.

Provided with flexible learning environment, students and teachers avail hands-on learning experiences. With available technological resources in the learning environment, teachers

facilitate the application, critical thinking and problem solving (Leapaldt, 2016). The availability of technological resources in schools is critical to the successful implementation of the desired change.

B. Proposition

Based on the axioms, the following propositions are made:

Proposition 2.1: In terms of the availability of resources, DepEd schools rarely have the opportunity in implementing educational change. (Axiom 3, 4)

Proposition 2.2: DepEd teachers as school resources sometimes utilize 21st century skills in the classroom. (Axiom 2,3)

Proposition 2.3: Teachers sometimes create opportunities for school change. (Axiom 1, 2)

C. Hypothesis

In the view of the propositions, the following hypotheses are made:

Hypothesis 3.1: Due to limited school resources, teachers in the Department of Education rarely create opportunities for the 21st century educational change. (Proposition 1, 3)

Hypothesis 3.2: DepEd teachers who are knowledgeable and utilize the 21st century skills create opportunities for educational change.

D. Theory

Skilled teachers and resources create the 21st century skills

IV. RESULTS AND DISCUSSION

The data are presented accordingly in graphs and tables for easy visual references before the analysis and interpretation.

A. Teachers' Level of Knowledge along Media, Information and Technology Skills.

The Enhanced Education Act of 2013 mandates to produce Filipinos who have possessed the knowledge and skills necessary to compete in the 21st century. In order to attain this directive teachers needs to practice and acquire the 21st century skills. These are digital skills necessary to be acquired by the teachers in order to function and become relevant in the 21st century.

1) The level of Teachers' knowledge along IMT Skills

Table 2 shows that along the media, information and technology skills the teachers have fair knowledge Good knowledge of the use of technology in keeping track with workloads, schedules and tasks as well as the use of technology and different forms of media in classroom activities. It is also evident that they have Poor knowledge in the importance of using different forms of media in sharing and using information (1.9). They also have Poor knowledge in the need to apply legal and ethical values in writing blogs and reacting to issues (1.7 mean), as well as the necessity of asking permission to authors on the use of citations by sending them message (1.6 mean). In sum, teachers have Fair knowledge in the use of media, information and technology skills.

TABLE II. THE LEVEL OF TEACHERS' KNOWLEDGE ALONG MEDIA, INFORMATION AND TECHNOLOGY SKILLS

Information, media and technology skills. The teachers know that they need to. . . .	Weighted Mean	Description
1. Read both local and global news in print media (newspaper).	2.8	Fair
2. Read both local and global news using the internet.	2.8	Fair
3. Write blogs as a reaction to issues and problems to local scenarios ethically and legally.	1.7	Poor
4. Join in the discussion on issues related to global trends, politics, economy, environment etc.	2.6	Fair
5. Use technology to keep track of work load, schedules and tasks and avoid paper-pencil notes.	3.1	Good
6. Participate in the discussion on issues that are non-offensive and avoid information that are destructive to society.	2.9	Fair
7. Send message to the author asking permission in using quotes or citations.	1.6	Poor
8. Write blogs on personal beliefs and share information ethically using different forms of media.	1.9	Poor
9. Verify information gathered in creating and designing new products.	2	Fair
10. Share beneficial and new information in the internet?	2.6	Fair
11. Develop students' skills in using media, information and technology.	2.9	Fair
12. Allow the students to use mobile phones in class in order to share or help others share information.	2.5	Fair
13. Help students to interact directly with experts such as authors or members of local/global communities through the internet.	2	Fair
14. Show to students how to communicate through email, virtual mail using technological tools.	2.3	Fair
15. Help students to manage and create information and design using technology to successfully function in the knowledge economy.	2.6	Fair
16. Assess students' skills in media, information and technology.	2.8	Fair
17. Use technology and forms of media in classroom activities	3.3	Good
18. Instruct students to send assignment through emails.	2	Fair
19. Set classroom activities that allow students to evaluate the credibility and relevance of the information in the internet?	2.4	Fair
20. Examine how students interpret media messages differently?	2.3	Fair
TOTALITY	2.46	Fair

Teachers' "fair" knowledge in the use of media, information and digital skills could be attributed to their lack of experience and foundation of the digital skills. Most of the teachers use technology in updating facebook status to track their friends' lives. Only very few of the teachers conduct research, thus there is no need for them to ask permission from the authors. Most of the teachers do not cite authors in their discussions as well, the reasons that they have "poor" knowledge along these skills.

They have “good” knowledge in the use of technology in keeping track of the workloads because many of them have android phones, although they still keep with them notebooks to record meetings. Further, the availability of flat screens in the classrooms allow teachers to use PowerPoint presentations in class. Yet, they do not use these technological tools to train students to use technology properly, rather, they use the flat screens if they do not want to use the chalk and the board. It is also evident that many teachers still ask the class secretary to write notes on the board for other students to copy. These are supported by Wilner’s (2015) assumptions that when educators are connected, they have at least a foundation for digital literacy comprehension, but a number of teachers are not as used to or up-to-speed on online platforms and computer literacy.

Lack of knowledge often result to the lack of practice. The lack of knowledge in the information, media and technology could be traced back to their lack of hands-on training in the use of media, information and technology. Although trainings about the use of technology in the 21st century have been provided by the Department of Education, the teachers were not given opportunities to create and design through technology as well as to assess and verify information. This is supported by Shanani’s (2015) contended, “DepEd has been conducting a number of trainings to the teachers to address the concerns mentioned, but things remain confused and unsettled.”

Another reason for the lack of teachers’ knowledge in the use of digital skills is due to the fact that during their college days, teacher education colleges emphasized the importance of visual aid in classes and teachers are trained less in training the students the use of digital tools. In fact, only very few teacher education colleges offer computer technology to teacher education students.

This lack of teachers’ knowledge on the use of media, information and technology skills could affect the teachers’ training of the students’ digital skills as well. Because the teachers cannot train the students of the digital skills, the students may use digital tools improperly.

2) Teachers’ Knowledge along Learning and Innovation Skills.

Learning and innovation skills are needed by the teachers to produce creative and critical thinkers as well as innovative students. When teachers have ample knowledge on these skills, will be able to train the students’ learning and innovation skills.

Based on table 3, the teachers have a Very Good level of knowledge in the need for allowing the students to express ideas and reasons in class (4 mean). Yet, they have good knowledge in the importance of risking to make mistakes as well as experimenting on solutions before completely implementing them (3.1 mean). It is also observable that they have “Fair” knowledge on the need to compare information from different sources such as newspaper and internet before completing a task (2.7 mean). Ultimately, the total level of teachers’ knowledge along learning and innovation skills is “Good” with 3.56 mean.

TABLE III. THE LEVEL OF TEACHERS’ KNOWLEDGE ALONG LEARNING AND INNOVATION SKILLS

Learning and innovation. the teachers know that they need to. . . .	Weighted Mean	Description
1. Compare information from different sources such as newspaper and internet before completing a task.	2.7	Fair
2. Analyze numbers, facts or relevant information before making a decision.	3.2	Good
3. Make a summary of observation first before making a decision.	3.7	Good
4. Use evidences when voicing-out ideas or reasoning.	3.5	Good
5. Value the opinion and observations of others to help them improve.	3.8	Good
6. Create ideas by concept mapping.	3.5	Good
7. Improve oneself and others people with honest and sincere feedback.	3.5	Good
8. Implement the knowledge gained from trainings and seminars	3.6	Good
9. Mistakes make them better.	3.1	Good
10. Experiment solutions before completely implementing them.	3.1	Good
11. Allow students’ expression of ideas and reasons in class.	4	Very Good
12. Help students in taking risks and learning from their mistakes.	3.8	Good
13. Encourage students to learn outside the classroom.	3.7	Good
14. Allow students to learn from classmates and peers.	3.8	Good
15. Provide students with sincere observation and feedback to help them reflect.	3.7	Good
16. Maximize interactions among students.	3.8	Good
17. Give students more time to design, create and invent.	3.6	Good
18. Allow students learn from other sources (friends, experience, and other activities) aside from the books.	3.8	Good
19. Guide students in using recent communication skills	3.6	Good
20. Train critical thinking, creativity and innovative thinking among students.	3.6	Good
TOTAL	3.56	Good

The result implies that teachers have a “very good” understanding on the necessity of allowing students to express in class. In fact, the teachers often asked the students to answer or give their opinion on the issue. Although the gap lies on the fact that because of the idea of making the students express opinions, some teachers do not give feedback as whether these opinions critically answered the questions. What teachers fail to acknowledge is the importance of providing evidences and support to opinions, as these could truly train students to think critically.

Moreover, the “fair” knowledge on the need to risk is due to the fact that in the Department of Education, teachers seldom innovate. Innovation among teachers is not encouraged

in the Department of Education, the same applies for learning. They only do whatever their superiors ask them to do. The lack of academic freedom impedes the teachers to risk and make mistakes or experiment on possible solutions. Teachers in the Department of Education are made to follow whatever curriculum is designed for them, or what the book tells them to discuss. Although the curriculum guide is made to be the main source of learning competency, books are still used as main reference in test quarterly examinations, thus, compelled the teachers to follow and use the book entirely instead. Because some textbooks are not aligned to the standards of the 21st century, teachers' lesson delivery, the lesson learned by the students are outdated. It is also observable that the culture and system of DepEd is hard-wired that when the teacher risks to make mistakes or do differently from the rest, he will be subject to criticism.

The School Learning Action Cell (SLAC) is intended for the teachers to collaborate and innovate, but in reality the SLAC is not properly implemented in DepEd. Others use the time for keeping a record of SLAC and for reporting purposes.

With the result and the observed scenario in DepEd, the lack of knowledge of the teachers in learning and innovation skills will be detrimental in producing 21st century skilled students.

DepEd (2016) claimed, "Thorough continuous trainings, teachers are enabled to develop and enhance capacities that will help them guide a generation of innovators. they are provided with a concrete understanding of basic knowledge of the new curriculum, learning standards and competencies, and assessments and teaching plans. These educators are also provided with opportunities to acquire and demonstrate the cognitive and affective competencies they need in the effective implementation of the curriculum." Yet, Fullan (2007) noted, "Only radical change in the working conditions of schools and the entire culture of the teaching profession will produce continuous learning on a large scale."

3) Teachers' Knowledge along Life and Career Skills.

These skills involve flexibility and adaptability, self-direction and initiative, productivity and accountability, and leadership and responsibility. These are needed skills for the teachers for both personal and professional growth.

The table below presents the level of teachers' knowledge along life and career skills.

Based on the table 4, the overall teachers' knowledge along life and career is skills is "Good" with 3.61 mean. It is evident that teachers have Very Good knowledge in the need to model in accepting one's mistake in class as well as recognize the need for students to accept their mistakes in class. However, teachers are only Good at setting differentiated activities to maximize student-productivity (3.4 mean) as well as they have "Good" knowledge level in leading others for the improvement of their group and professions (3.1 mean). The result also indicated that the teachers have "Fair" level of knowledge at conducting research on new trends and practices as well as using the research willingly (2.9 mean).

TABLE IV. TEACHERS' LEVEL OF KNOWLEDGE ALONG LIFE AND CAREER SKILLS

Life and career skills. The teachers understand that life and career skills is mastered when they...	Weighted Mean	Description
1. Let go of old practices and adapt new ones positively.	3.5	Good
2. Enrol in further studies.	3.1	Good
3. Set priorities and employ strategies to make work fast and easy.	3.7	Good
4. Conduct research on new trends and practices and use them willingly.	2.9	Fair
5. Recognize one's weaknesses and train oneself.	3.8	Good
6. Listen to the opinion of other people across different culture, religion and different nationalities.	3.7	Good
7. Help others in solving their issues regardless of culture, age, religion and nationality.	3.5	Good
8. Improve one's career and life status.	3.7	Good
9. Decide innovations at work without the instruction of the superiors.	3.7	Good
10. Lead others for the improvement of the group and the profession.	3.4	Good
11. Help students to adapt to the new trends and practices of the 21 st century.	3.7	Good
12. Allow students to see the perspective of the people of different races and culture.	3.6	Good
13. Set classroom activities that help students respond to each other open-mindedly.	3.8	Good
14. Allow the students to question old practices, solutions and concepts, and find better way to solve problems.	3.5	Good
15. Set activities in class for students to multitask enthusiastically.	3.5	Good
16. Set differentiated activities in the classroom to maximize student productivity.	3.4	Good
17. Observe positive values among students in dealing with children, adults and peers.	3.8	Good
18. Accept ones' mistakes in class and model students to accept their mistakes.	4	Very Good
19. Respect students' opinion and model respect of opinion among students.	4	Very Good
20. Observe students' time management, productivity and accountability.	3.7	Good
TOTAL	3.61	Good

The very good level of knowledge in modelling acceptance of mistakes proved that the teachers have already understood the importance of modelling humility to students, yet the idea of differentiated instruction and leadership are still at the middle line "good" level of knowledge. In terms of differentiated instruction, teachers could hardly specify and differentiate classroom activities due to the fact that public school classrooms are overcrowded. The ideal of 1:20 classroom to student ratio is hardly observed in the public schools. Most classrooms house 50 students more or less.

The "good" level of knowledge explains that there is already a prevailing knowledge on the necessity of differentiated instructions yet, the general conditions of the Department of Education in the Philippines inhibit the ideal

practices. Shanani (2015) also said, “The issues in education including the shortage of classrooms among others.” Similarly, Arrington (2014) in his study noted, “Classroom structure places the students as the center of learning and promotes the learning experiences needed to obtain identified 21st century skills necessary to create a 21st century classroom.”

In the same manner, the teachers have only “good” level of knowledge in leading for the improvement of the profession or group. This is traced back to the individualistic culture of DepEd. Leadership from among teachers are not always observed. Although there are indications of leading but the sincerity of leading for the improvement of the profession as well as the commitment are less observed and valued.

The teachers’ “fair” level of knowledge in conducting research is attributed to the fact that not all teachers have experienced in research and not all teachers have enrolled in further studies. When some teachers enrolled in graduate studies, they prefer to enroll in schools that require them easy graduation and less research. Unlike the higher education, which valued researches in teachers as a major factor of promotion, the Department of Education considered length of service as the major factor. This does not motivate the teachers to know more about research, conduct research or implement research results.

According to Fullan (2006) “If teachers are going to help students develop the skills and competencies of knowledge-creation, teachers need to experience themselves in building professional knowledge.” Thus, teachers’ knowledge in life and career skills need to be honed. Crobse (2005) added, “Teachers’ competency development in soft skills is a crucial factor in improving their competency and their professions.”

4) Teachers’ Knowledge along Effective communication skills.

Communication skill is a major requirement to have acquired by a teacher of any field, hence teachers need to be effective models of communication for the students to facilitate learning better. This is acquired through collaboration, understanding others’ intention, researching and conveying messages effectively.

The table below shows the level of teachers’ knowledge along effective communication skills.

Table 4 revealed the level of teachers’ knowledge on effective communication skills. It is evident that teachers have a Very Good level of knowledge in listening to others and try to see their intention behind their language used (mean of 4.1). Meanwhile, they have only “Good” knowledge level on the importance of setting classroom activities that would help students understand what other people are thinking, reminding students to use varied communication tool such as email, text-messaging, virtual mails etc., communicating effectively in diverse environments and possessing wide-range of vocabulary for effective communication (3.4 mean). They also have “Good” level of knowledge in training students with effective communication skills (3.3 mean), as well as the knowledge on the need to research on what people need to know before communicating to them (3.2 mean).

TABLE V. TEACHERS’ LEVEL OF KNOWLEDGE ALONG EFFECTIVE COMMUNICATION SKILLS

Effective communication skills. Teachers acknowledge that they need to:	Weighted Mean	Description
1. Listen to others and try to see their intention behind their language used.	4.1	Very Good
2. Possess wide-range of vocabulary for effective communication.	3.4	Good
3. Outline and organize ideas before communicating.	3.5	Good
4. Research on what people need to know before communicating to them.	3.2	Good
5. Communicate effectively in diverse environments.	3.4	Good
6. Demonstrate ability to work effectively and respectfully with diverse team.	3.5	Good
7. Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal.	3.7	Good
8. Assume shared responsibility for collaborative work, and value the individual contributions made by each team member.	3.7	Good
9. Anticipate and predict possible causes of confusion and I deal with them up front.	3.5	Good
10. Encourage students to say what they think without worrying about how others perceive it.	3.6	Good
11. Remind students to use varied communication tool (e.g. email, text-messaging, virtual mails etc.)	3.4	Good
12. Ensure a maximum student-participation in all activities.	3.9	Good
13. Allow students to express their ideas, even those different from yours.	3.9	Good
14. Train students to communicate effectively and fluently.	3.8	Good
15. Set classroom activities that would help students determine what people want and need to know before communicating with them.	3.7	Good
16. Instruct students to communicate in a variety of way.	3.7	Good
17. Train the students to use verbal and non-verbal communication skills.	3.6	Good
18. Set classroom activities that would help students understand what other people are thinking.	3.4	Good
19. Assess students’ communication skills.	3.5	Good
20. Train students on effective communication skills	3.3	Good
TOTAL	3.59	Good

Evidently, the “Good” level of knowledge on researching on what people need to know before communicating to them explains the conflict between teachers. Only at the middle line that the teachers intend to know what other people need to know before talking to them. Some teachers say all they want whatever they want said. Similarly, in classrooms many disturbed students are caused by the fact that teachers do not understand them. Some students misbehave because teachers do not recognize them, neglect them, do not appreciate them or see only their positive aspects.

Further, teachers’ knowledge level in training the students with effective communication skills fall on “good”. This is due to the fact that teachers are not very confident at communicating especially in front of a diverse audience,

although there are positive indications that teachers desire to have better communication especially in the use of English as international language, they often do not have the opportunity, neither initiate to communicate in English with each other nor use it in classes. Most of them use vernacular in their classes. Atetwe (2013) in his study the negative influence of the use of mother tongue in the performance of English in the public secondary schools.

Kaplan (2000) said, “Teachers are models of learning. He noted that teaching is human experience. . . they should set as examples of how learning works. Teachers, therefore, must continuously train in the 21st century skills, and strategies must be geared towards the direction of change (Kaplan, 2000). In addition, a skilled teacher is an expert in complex communication, able to improvise answers and facilitate dialogue in the unpredictable chaotic flow of classroom discussion. “Effective communication is the glue that helps one deepen connections to others and improve teamwork, decision making, and problem solving”, Seagal (2016) noted.

As a whole, the teachers 21st Century Skills got a total mean of 3.31 or “Good”. The figure in the next page presents a comparative data on the teachers’ level of knowledge in the 21st century skills. It shows that they know less about Media, Information and Technology (IMT) skills with a mean of 2.46, followed by Learning and Innovation Skills with 3.56 mean, then the Effective Communication skills with 3.59 and the 3.61 for the Life and Career Skills. This shows that the teachers have relatively low 21st century skills.

This is confirmed during the interview about their level of knowledge in the 21st century skills as follows:

21st century skills, I don’t know, wait. . . 21st century skills? I am not very familiar. I already heard but not sure. It is included in the training but I am not very knowledgeable about that. I already heard but I can’t remember. (Teacher 04)

21st century skills, what was that, ummmm Ummm creative, innovative, what else, I can’t remember. (Teacher 01)

Information skills is the skill in discussing the topic, I think that’s it. If you truly master your topic and you know a lot. (Teacher 03)

The figure below shows the comparative level of knowledge along the 21st century skills.

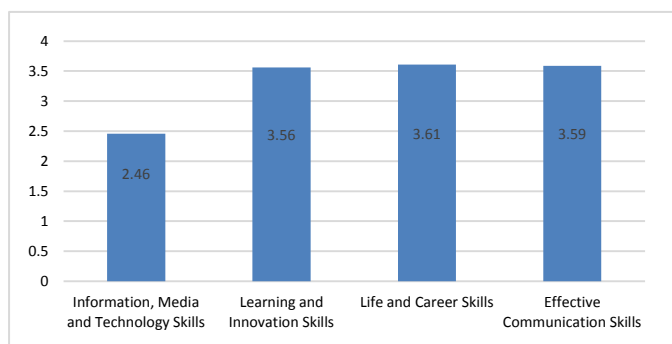


Figure 1. Comparative Representation of the Teachers’ Knowledge Level along with the 21st Century Skills

It seems that among the 21st century skills, information, media and technology are least learned by the teachers, while they have higher knowledge in life and career skills. Although good knowledge on learning and innovation, life and career and effective communication is not enough to completely transform students into 21st century learner.

B. Teachers’ Challenges and Opportunities in Terms of Resources

1) Teachers’ Resources.

The challenges and opportunities in terms of teachers’ resources are summarized in terms of teachers’ resources.

TABLE VI. THE CHALLENGES AND OPPORTUNITIES OF THE TEACHERS IN TERMS OF TEACHER RESOURCES AS PERCEIVED BY THE SCHOOL HEADS

C. 1. Teachers’ resources in...	Opportunities	Challenges
1. Utilizing local resources with maximum use	13	21
2. Using online resources in teaching	2	32
3. Accessing school resources like internet connection etc.	9	25
4. Making oneself relevant to the 21 st century teaching standards	11	23
5. Using ICT in delivering their classes	13	21
6. Providing teachers with the laboratories and facilities needed to think, synthesize, analyze, evaluate, and create	10	24
7. Making classrooms conducive place for learning	17	17
8. Providing teachers with teaching tools (e.g. laptop, projectors, screens) necessary to deliver 21 st century education	11	23
9. Giving teachers enough resources to settle student-problems and cater student needs	13	21
10. Providing enough instructional materials needed in delivering the 21 st century education	7	27
11. Providing teachers with enough salary to compensate effective and efficient teaching	7	27
12. Providing teachers with financial resources to make teaching and curriculum delivery as well as school activities properly implemented	4	30
13. Providing financial assistance readily available for the teachers to enroll in graduate schools	3	31
14. Giving teachers enough budgetary allocations for trainings and honing of their 21 st century skills	3	31
15. Giving teachers enough time and pace for lesson preparation and planning	20	14
16. Giving teachers enough time for actual teaching and student mentoring	17	17
17. Allotting enough time for the trainings given to the teachers enough	12	22
18. Giving enough time to develop teachers personally and professionally, and further their studies	14	20
19. Providing students with enough time to hone the 21 st century skills	15	19
20. Making use of the time to the maximum, and is there not an idle classroom time	12	22
Mean	11	24

It is revealed in table 5 that the mean for opportunities of the teachers in terms of resources is 11, while 24 for the challenges. These opportunities include giving teachers enough time and pace for lesson preparation and planning which got 20 school heads confirmation, followed by 17 confirmations of making classrooms conducive place for learning and giving teachers enough time for actual teaching and student mentoring.

While the challenges the challenges of the teachers in terms of resources include using online resources for teaching is the availability of online resources with 32 confirmations of the school heads, followed by the providing financial assistance readily available for the teachers to enroll in graduate schools with 31 school heads confirmed and providing teachers enough budgetary allocations for trainings and honing of their 21st century skills with 30 school heads confirmed.

These imply that teachers are given enough time as their resources for planning and implementing instructions. It is evident that the secondary teachers have at most six classes a day or less, which gave them a chance to prepare and plan for their lessons.

It is also revealed that teachers have the opportunity for the 21st century educational practices in terms of classroom conduciveness. This classroom conduciveness is made possible due to the classroom evaluation given to the teachers where teachers need to furnish their classrooms within the desired materials provided in the evaluation checklist. Teachers exert effort in making sure that their classrooms well-decorated.

The above mentioned opportunities may not cause change if the challenges in terms of resources will not be given attention to. These overwhelming challenges fall more on improving the teachers' teaching skills. Likewise, these are observed by the teachers as indicated below:

We have In Service Trainings, yet we just sit, we are not given opportunity to do hands-on on technology. They just show us and we just listen during the training that's all. (Teacher 05)

Training is the highest factor, my knowledge about the 21st century classroom practices is not enough. I am not familiar with the 21st century skills or 21st century teacher. I hope that I would be trained. A training that I would really learn and that they would involve me in the training process, not only that they teach us what is the ideals. (Teacher 02)

I will become a 21st century teacher fully if given proper training. I think that the budget for teachers' training are not allocated by the government. If they want us to help us learn technology skill, they should let the teachers handle technology during training. (Teacher 04)

Without proper training, teachers' enthusiasm and passion could become irrelevant. Teachers' transformation in preparation for the 21st century is a must. This transformation includes upgrading and updating their personal and professional development. This is supported by Dublan and Catalan (2012). "Inadequate professional development challenged teachers more", Espera (2013) believed. "Teachers not only need to learn about innovations and programs but also

how to change their teaching practice to implement such reforms to bring about improvements in student learning to better prepare the students in the 21st century", as Gregson and Turko (2007) saw.

School Resources: School resources is a major factor in bringing the 21st century change among teachers. The challenges and opportunities in terms of school resources are summarized in the next table.

2) The Challenges and Opportunities of Teachers in Terms of School Resources

TABLE VII. THE CHALLENGES AND OPPORTUNITIES OF TEACHERS IN TERMS OF RESOURCES AS PERCEIVED BY THE SCHOOL HEADS

C. 2. School resources	Opportunities	Challenges
1. Equipped with the facilities necessary to offer the 21 st century education?	4	30
2. The number of classrooms, chairs and other needed teaching facilities enough for the number of students?	11	23
3. The school possesses enough technological equipment (e.g.) laptop, projector, screens, online applications needed for the 21 st century?	2	32
4. Does the school have 24/7 online/ internet access?	4	30
5. Does the school provide teachers enough time to improve their professional and personal skills relevant to the 21 st century?	5	29
6. Is the school's budgetary allocations enough and appropriate for the 21 st century?	9	25
7. Does the school provide resources for teachers' communication skills improvement?	6	28
8. Does the school possess qualified and quality 21 st century teachers?	12	22
9. Does the school provide enough time and resources for professional learning community	13	21
10. Does the school provide trainings for teachers' innovation, creativity, critical thinking, personal development, and career growth?	14	20
Mean	8	26

The table revealed that in terms of school resources, the school heads perceived enormous challenges with the mean of 26, compared to the opportunities with mean of 8. These challenges include the availability of technological equipment in schools such as laptops, projectors, screens and online applications where 32 schools confirmed none. Moreover, 30 school heads perceived that availability of online or internet access in schools and school facilities that are necessary to offer the 21st century education is a challenge got second to the rank in terms of school resources. 29 school heads also confirmed that the schools provided teachers enough time to improve their professional and personal skills relevant to the 21st century. This resulted to the very low opportunity in terms teacher quality, where teachers as being the main school resources (12 confirmations).

It appeared that the major challenges of teachers in terms of school resources is the availability of tools and materials related to technology, where teachers could potentially use to

improve their knowledge and practices in the digital skills. These are ultimate indicators of why the teachers' knowledge and practices in media, information and technology skills are very low. Although it is established in the previous discussion that the teachers have good knowledge in the importance of technology, this knowledge is achieved through personal acquisition of the tools and less of support from the school. It was also proven in the previous discussion that practices in technology is established yet the use of media and information skills are not. This is due to the lack of availability of the school resources.

The responses below proved that school resources especially in facilities and technological tools are teachers' challenges:

If the teachers will exert effort to provide for the students' 21st century education. Teachers will end-up being broke, we have already spent a lot for the classrooms.(Teacher 12)

We need facilities, it would be really better if the students are updated, say we will give an assignment and they will just send through email, then the teachers will just check the email.(Teacher 07)

We have no computer laboratory for the students, we have no electricity in the classroom even. (Teacher 07)

Seems that aside from the lack of facilities crowded classrooms is still a challenge of resources that need to be address. Tusara (2013) confirmed, "With the current ratio of students to teacher in the classroom, teachers could not attend to each of the students' needs." Espera (2013) has similar observation in her study, she said "Teachers are the key implementers of change, when the teachers are trained and when given ample materials, they are very positive to the implementation." Dublan and Catalan (2012) saw the same scenario and said, "The teachers are qualified to teach the lack of instructional materials, inadequate facilities and lack of training for professional growth hindered them to perform their best."

Additionally, the 12 school heads' confirmations proved that among the school resources, teachers have the potential for opportunities. Although 14 school heads attested that the schools do not provide training for teachers' innovation, creativity, critical thinking, personal development and career growth. This means that the teachers may not be able to cause educational change unless the schools facilitate trainings on the 21st century skills. The responses below proved that teachers' enhancement programs are challenges:

We lack seminars and trainings. We only have INSET during the school year but it is not enough.

Our trainings are sometimes not relevant to the actual practice. During the training, they showed us videos of foreign students creating something through the use of technology, but when we go back to the classroom we go back to facing books.

Overall, in terms of resources, the driving forces and opportunity for change is only almost one-fourths compared to the restraining forces or challenges that could prevent change from happening.

It is already established in the previous discussion that among the challenges include the lack of teachers' training and the limitations of facilities that contribute to the higher percentage of teachers' challenges that prevent change. According to Dublan and Catalan (2012) upgrading of the teachers skills requires attendance to seminars and trainings and even enrollment in graduate education, but with the present conditions of the teachers in the public schools only very few can afford this, unless the government intervenes and provide upgrading activities for free. One of the teacher-respondent as expressed below:

The resources are limited, the salary is not enough, and we have a lot of things to be bought for the school not to mention the expenses for the household. Then, we need to always have tarpaulin printed for the classroom, we bring our personal computer and television in school but there is no electrical current in the classroom. (Teacher 05)

Note back Fullan's (1991) list of educational resources needed for successful change, aside from the technical support given to the teachers as well as the development of the staffs with the organization of the Department of Education, the procedures for monitoring and evaluation is another factor. One of the teachers commented:

If they want a 21st century education, they will not evaluate the result based on MPS, they should focus on evaluating the students' actual performance rather than the scores on the written tests. It is so sad to note that everything boils down to making the scores high in the periodical test for the MPS. (Teacher 02)

This means providing more resources: man, machine, money, moment and materials to the Department of Education has to be prioritized. These includes training for the human resources or the teachers, investing on instructional materials and machineries or technology for the students, spending more time on ensuring quality education, and reviewing the educational policies.

The identified challenges include providing financial assistance to the teachers to enroll in further studies, using online resources in teaching, accessing school resources like internet connection, providing teachers of instructional materials that are aligned with the 21st century standards, acquiring technological tools as well as facilities, providing resources for the improvement of the teachers' communication skills and giving teachers enough time to improve their personal and professional 21st century skills.

V. CONCLUSION

The varied level of knowledge and practices of the 21st century skills of DepEd teachers is a positive indicator of their potentials to elevate their 21st century skills. Training and resources are vital forces that unfreeze old practices, hone teachers' skills, change and push the teachers towards the desired 21st century educational. This affirms Kurt Lewin's theory of change which states that change occurs when prior learning is rejected and replaced.

Further, reinforced with resources, teachers with 21st century skills as change agent initiate, implement, continue and effect change in educational practices. Thus, 21st century skilled teachers with enough school resources create 21st century educational change. This will be materialized with Skilled Teachers and Resources (STAR) for the 21st Century Educational Change Intervention.

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