Differences among Generational Groups of Teachers in a Public School District in Their Practice of 21st Century Teaching-Learning Skills

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Abstract
This study explores the differences in the 21st century teaching and learning skills practices among generational groups of teachers in a public school district in the Philippines. It was conducted to find if there is any significant difference in the perceptions between and among generational groups of teachers in terms of their overall application of 21st century teaching and learning skills. Included in this study are eight key components commonly referred to by experts and practitioners in the field, namely: critical thinking, collaboration, communication, creativity and innovation, self-direction, global connections, local connections, and the use of technology.
Results revealed significant differences between the boomers (1946-1964) and the generation Y (1981-1995) teacher-respondents in terms of their overall 21st century teaching and learning skills, particularly in their 1) critical thinking skills, 2) creativity and innovation skills, and in 3) establishing global connections. Based on the results, boomers used the 21st century teaching and learning skills more profoundly than the younger teachers. Findings also showed that boomers perceived their practice of 21st century teaching skills to a very great extent. No significant differences among the generational groups of teachers were found among the rest of the skills under study, namely: 1) collaboration, 2) communication, 3) self-direction, 4) local connections, and 5) the use of technology.

Keywords: 21st century skills, generational groups of teachers, Department of Education Philippines, teaching and learning skills, K to 12 classroom

Introduction

The teaching and learning process in the field of education continues to take huge leaps of changes throughout the years. Few decades ago, students learned without the help of technology that is present today. In the past, students have had to rely mostly on their teachers, their books and their social circles in learning their lessons; today, students indulge themselves in the vast world of internet, the ease of online communication, and the highly technological gadgets that make a lot of tasks easier. With these circumstances in mind, the challenge is to make the current education system adaptable, relevant, innovative, and precise to meet the needs of tomorrow's nation builders. There is a great demand for 21st century shift, yet there is a gap where educators are hanging on to the traditional viewpoint of schools, and others who are looking at 21st century education and preparing kids for the digital world (Yarrington as cited by Henebery, 2015). This statement echoes the concern of this study. Generational groups of teachers might have varied interpretations of the value of 21st century education.

In response to this challenge, the Department of Education (DepEd) implemented in gradual stages the Republic Act 10533, or the Enhanced Basic Education Act, more popularly known as K-12 Law which supported the kind of education that uses the appropriate and timely pedagogical approaches for 21st century learners. A new K-12 curriculum was formulated which revolved around 21st century demands and expectations. Six years after the law was passed, it might be safe to say that all Philippine schools, especially the public sector, strictly adhered to the focus on 21st century skills in teaching and learning. However, as reported in newspapers and denounced in street rallies, problems in the implementation of this law continue to hound many schools all over the country despite the frequent monitoring activities of the DepEd management. One way of responding to this call of transforming the education system is through a research that helps provide useful information for varied aspects of implementation.

This study explored into how 21st century skills in teaching and learning are operationalized in the classroom. Educators are concerned about reinventing teaching and learning in view of 21st century expectations. This brings to the fore, a question as to how teachers of varied age groups view such skills and how they practice it in the classroom. A list of 21st century skills is usually mentioned in education and futuristic articles. For this reason, key components of 21st century skills have been narrowed down, 8 of which are also the focus of the study by Hixson, Ravitz & Whisman (2012) entitled, "Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey." The eight key components under study include: 1) critical thinking, 2) collaboration, 3) communication, 4) creativity and innovation, 5) self-direction, 6) global connections, 7) local connections, and 8) the use of technology.

This study aimed to determine: (1) any significant difference among the generational groups of teachers in terms of their overall 21st century teaching and learning skills; (2) any significant difference between and among the generational groups of teachers in terms of their perceptions and practice of the eight selected key components of 21st century teaching and learning skills (Hixson, Ravitz & Whisman, 2012), namely: a) critical thinking, b) collaboration, c) communication, d) creativity and innovation, e)

self-direction, f) global connections, g) local connections, and h) the use of technology; and (3) the extent of how each generational group perceive their practice of the 21st century teaching and learning skills under study.

This study is limited to a randomly selected stratified sample of one hundred (100) public elementary school teachers in the District of Indang, Cavite who responded online to the preliminary selection process. The study focused on how they perceived their teaching practices demonstrating specific 21st century teaching and learning skills, limited to eight (8) identified key components, namely: 1) critical thinking, 2) collaboration, 3) communication, 4) creativity and innovation, 5) self-direction, 6) global connections, 7) local connections, and 8) the use of technology. This study was conducted from February to May 2017. Responses were gathered through online survey. The results and findings cannot be used to generalize the 21st century teaching and learning skills among the generational groups of teachers from other school districts, nor from the private sector, as these are specific to a particular school district in the public sector.

Review of Related Literature

Various authors have defined generational groups of people throughout history. Lancaster and Stillman (as cited by Reeves & Oh, 2007) categorized 4 generations of people, namely: traditionalists (1900-1945), baby boomers (1946-1964), generation Xers (1965-1980), and millennials (1981-1999). Oblinger and Oblinger (as cited by Reeves & Oh, 2007) created another classification, namely: matures (< 1946), baby boomers (1947-1964), gen-Xers (1965-1980), and gen-Yers (1981-1995). Tapscott (as cited by Reeves & Oh, 2007) named 3 cohorts of generation, namely: baby boom generation (1946-1964), generation X (1965-1975), and digital generation (1976-2000). It is evident that there is a lack of consistency among the labels of age groups, although most experts have argued that they are shaped by history rather than by chronological dates (Reeves & Oh, 2007). The common thread though is that groups are divided according to common characteristics.

Sladek and Grabinger (2014) created the most detailed description of the generational groups according to 7 distinct generational characteristics. Table 1 shows these different generational groups and their characteristics.

Table 1
The different generational groups and their characteristics
(Sladek & Grabinger, 2014)

	Boomers	Gen X	Gen Y	Gen Z
Birth Years	1946-1964	1965-1981	1982-1995	1996-2009
Other names	Me Generation Love Generation The Gray Ceiling	Slackers MTV Generation	Millenials Echo Boomers Trophy Generation	The iGeneration Generation C (Connected) Digital Natives
Characteristics	Hardworking, Loyal, Confident, Cynical, Competitive	Anti-authority, Highly individualistic, Self- reliant, Family focused	Confident, Digital thinkers, Sense of entitlement, Needy	Realistic, Creative, Hyper-connected
Why they are the way they are	The wealthiest, healthiest, largest generation of their time. Raised to pursue their dreams	Children of workaholics and divorce; the arrival of cable television and computers. Raised to be self sufficient	Micro-managed by their parents, technology, always rewarded for participation. Raised to be high achievers	Raised in a culture of fear, mobile technology, helicopter parents, social media
Communication styles	Prefer detailed dialogue in person or via phone. Appreciate meetings, Believe no news is good news.	Prefer close, concise communication - not over-explaining clichés' or corporate jargon. Prefer email	Prefer frequent feedback and problem solving via technology instead of phone calls or meetings	Prefer visual communication via technology instead of in-person meetings.
Problems they are facing now	Dwindling retirement funds job dislocation, rising health care, cost of inadequate health care coverage	Debt, caring for young children and aging parents, balancing life and career stuck in middle management	Debt, unemployment difficulty transitioning from college career negative stereotypes, being taken seriously	Finding an identity, lack of job opportunities, being taken seriously
Flaws	Have been there, done that attitude not always "open" to new ideas	Have difficulty committing, tend to have a "wait and see" approach	Have short attention spans and high demands and asks, "what's in it for me"	Need for structure, over-confident in their knowledge, lack interpersonal skills

To be able to fully implement the needed shift to the 21st century teaching and learning competencies, educators must first look into the underlying issues that would become a stumbling stone in implementing the educational reforms. One of the important issues that need to be addressed immediately is the generation gap between teachers and their students. Van Damme (2014) emphasized the importance of the connection of teachers and their students in terms of understanding the behavior, issues, culture, and values of the latter to effectively engage them in high-quality teaching and interactive learning.However, he also pointed out the difficulty of connecting both parties in the case that the age gap between the teacher and the students is more than 35 years. This gap could be linked to attitudes and expectations that come along with the people born within a certain generation as defined by the confluence of macro forces that drives change at an extraordinary magnitude and pace (Tulgan, 2017).

The trend of the increasing gap between the generations of teachers and students could lead to more serious issues in education. Unfortunately, this gap continues to increase as the percentage of younger teachers (< 50 years old) has not yet surpassed the percentage of the older ones (>50 years old) (Organization for Economic Cooperation and Development [OECD], 2014). According to their report, the average age of the male primary school teacher arose from 42.9 years old in 2000 to 43.2 years old in 2011. For the female primary school teachers, their average age rose from 42.3 to 43.3 years old in the years 2000 and 2011 respectively (OECD, 2014). Although this report is limited to OECD countries, this pattern of increase in the mean age of primary school teachers was also evident in other international studies conducted in the past years. In 2009, the average age of primary school teachers went up to 46.59 years old (UNESCO as cited by Albert, 2013) from 45.8 years old in 1999 (Siniscalco, 2002).

As expected, this huge chasm of generations between the teachers and students created some issues. In the United States, it was reported that boomers, who comprised 33% of the population of US teachers, felt that they are forced towards the uncomfortable technology environment that further resulted to dissatisfaction in both the teachers and the students (Carroll as cited by Blackboard, 2008).

Aside from the generation gap between and among the teachers, the pervasive presence of technology also causes a generation gap between the students and teachers. Results of a recent study encouraged teachers to engage students in the use of technology, explore, and participate in collaborative groups, interact with others and make connections to real world experiences. They are also encouraged to use technology as instructional method in teaching (Lisenbee, 2016).

Another study concluded that understanding the intergenerational diversity and structuring educational experiences to meet the needs and predilections of this new generation will result in working together toward the common goal of the institution (Moreno-Walton, Brunett, Akhtar & DeBlieux, 2009). It is mentioned in this study the observed differences of generation X and generation Y such as:

> “Comparisons between generation X and generation Y yield important differences in attitudes toward authority, lifestyle preferences, and social

> values. Members of generation Y demonstrate high expectations for their own performance but also place high demands on their work environment, requiring a more individualized approach to their professional growth and mentorship. Although members of gen Y are described as optimistic, they insist on prompt solutions to problems, making them more challenging to motivate and manage in the work place." (Moreno-Walton et al., 2009, p. 20)

The urgent need to respond to the timely challenges of the 21st century (e.g. globalization, technology, migration, international competition, changing markets, and transnational environmental and political challenges) makes it very crucial to develop a set of teaching and learning skills that will help the students to survive in their life, work, and citizenry (Research and Development [RAND] Corporation, 2012). Unfortunately, aside from the challenges that are now being experienced in society, experts are predicting more revolutionary changes and challenges to rise in the future (Ontario Principals Council, 2014). Given these issues, education needs to play the most significant role to prepare the students for the future. Hence, schools should start rethinking the knowledge and skills that students need for their success as well as the educational strategies and systems required for the students to achieve them (RAND Corporation, 2012).

Mastery of the key subjects and 21st century themes is vital for all students in the 21st century (Partnership for 21st Century Skills [P21], 2011). The 21st century interdisciplinary themes, such as global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy, are also needed to promote a higher level of understanding of the academic content among the students (P21, 2011). In addition to the content knowledge in key subject areas, it is also important that the students learn the 21st century skills. The key 21st century skills according to the P21 Framework (2009) are learning and innovation, critical thinking and problem solving, communication and collaboration, information, media and technology, life and career skills, and productivity and accountability).

Methodology

Respondents

Two-hundred thirty-six (N=236) public elementary school teachers in the District of Indang, Division of Cavite, Department of Education were asked to provide their birth dates online to identify the generations to which they belonged. From this list, 46 Boomers, 137 generation X, and 53 generation Y teachers were identified. No teacher was identified under generation Z. Originally, 146 respondents (28 Boomers, 85 generation X, and 33 generation Y) were selected through stratified random sampling; however, only 100 out of 146 target respondents (21 Boomers, 55 generation X, and 24 generation Y) participated. Table 2 shows the population and sample size of the public elementary school teachers in the District of Indang as of April 2017.

Table 2

Population and sample size of the public elementary school teachers in the District of Indang (as of April 2017)

Generation of Teachers	Population	Sample Size
Boomers (1946-1964)	46	21
Generation X (1965-1981)	137	55
Generation Y (1982-1995)	53	24
Total	236	100

Note: The sample characteristics are not far from the population characteristics. (Confidence level = 95 %, confidence interval = 7.8)

Data Gathering Instrument

The level of practice of the 21st century teaching and learning skills were measured using the Survey for Measuring 21st Century Teaching and Learning (Hixson, Ravitz & Whisman, 2012). Permission to use the survey for this study was obtained from Dr. Ravitz. Hixson and colleagues (2012) reported excellent reliability (std. alpha > .90, inter-item correlations > .58); support for content validity based on the review of existing frameworks and measures (Shear, Novais, Means, Gallagher, & Langworthy, 2010; The William and Flora Hewlett Foundation, 2010 as cited in Hixson, Ravitz & Whisman, 2012); and the support for concurrent validity.

The survey instrument intended to measure 8 selected components of the 21st century teaching and learning skills, namely: 1) critical thinking, 2) collaboration, 3) communication, 4) creativity and innovation, 5) self-direction, 6) global connections, 7) local connections, and 8) use of technology as a tool for learning. Each component covered a section of the online survey. For each component, a definition was provided, followed by a set of practices related to each component, and a set of measures on the perceptions of the respondent relative to their application of the above-mentioned key components.

This instrument used the Likert scale, in which 5 was the highest, and 1 was the lowest. The response choices for the set of 21st century teaching and learning practices and their corresponding scores in the Likert scale were as follows: "almost never" = 1 point; "a few times a semester" = 2 points; "1-3 times per month" = 3 points; "1-3 times per week" = 4 points; and "almost daily" = 5 points. In the perceptions on the teaching of each component, the response choices and their corresponding choices in the Likert scale were: "not really" = 1 point; "to a minor extent" = 2 points; "to a moderate extent" = 3 points; to a great extent" = 4 points; and "to a very great extent" = 5 points.

Data Gathering Procedures

Permission to conduct the survey was secured from the District Office of Indang (Appendix B). The link for the online survey form was sent to all principals through the District Office. Two weeks were given to the respondents to complete the survey.

Data Analysis Procedure

The scores obtained in each component were tabulated for each generational group. To determine if there is any significant difference among the generational groups, the

mean scores were computed and tested using Analysis of Variance (ANOVA) and Least Significant Difference (LSD). To describe the mean scores for the over-all perception on the practice of 21st century teaching and learning skills, the following range of means was used (Table 3).

Table 3
Range of means and description

Range of Means	Extent of Practice
4.20 - 5.00	very great extent
3.40 - 4.19	great extent
2.60–3.39	moderate extent
1.80–2.59	some extent
1.00–1.79	no extent

Results

The mean scores on the practice and perceptions of the different generational groups of teachers on the 21st century teaching and learning skills are presented in Tables 4 to 11. The overall statistics is presented in Table 12.

Critical Thinking Skills
The mean scores on the practice and perceptions among the generational groups of teachers in terms of the critical thinking skills component are shown in Table 4.

Table 4
Mean scores on the practice and perceptions in critical thinking skills among the generational groups of teachers

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	4.51[a]
Generation X (1965-1981)	4.07[b]
Generation Y (1981-1995)	3.94[b]

Note: Mean scores having different superscripts are significantly different (P>0.05).

Findings revealed that boomers have taught critical thinking skills to a greater extent than the rest. This could be attributed to the great deal of knowledge, and wisdom gained by Boomers from more experience in their use of critical thinking processes, which they naturally bring further to the classroom (Koloc, n.d.; Speakeasy Communications Consulting, 2015). The younger generations of teachers probably had less experience in their use of these skills.

Generations X and Y were not significantly different from each other in terms of critical thinking skills. This can be attributed to the similar attitudes of generations X and Y (Crofts, Cuervo, Wyn, Woodman, Reade, Cahill & Furlong, 2016), in which their perceptions on their teaching practices and teaching perspectives largely depend on. Further, Hopkins (2012) cited that both of these generations lack critical skills despite their immense talent.

Collaboration Skills
The mean scores on the practice and perceptions among the generational groups of teachers in terms of their collaboration skills are shown in Table 5.

Table 5

Mean scores on the practice and perceptions in collaboration skills among the generational groups of teachers

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	4.60
Generation X (1965-1981)	4.37
Generation Y (1981-1995)	4.24

Note: Mean scores obtained are not significantly different from each other at 5 % significance level.

Findings showed that in terms of teaching collaboration skills in the classroom, the generational groups did not have any significant differences among each other. Tolbize (2008) found that boomers and generation Xers have similar characteristics in terms of collaborative attitudes. This finding contradicts the results of the study of Giang (2013), who concluded that boomers rank lowest among the generation groups when it comes to collaboration, while generation X ranks the highest.

Communication Skills

The mean scores of the practice and perceptions among the generational groups of teachers in terms of the communication skills are shown in Table 6.

Table 6

Mean scores on the practice and perceptions in communication skills among the generational groups of teachers

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	4.33
Generation X (1965-1981)	4.10
Generation Y (1981-1995)	4.00

Note: Mean scores obtained are not significantly different from each other at 5 % significance level.

In terms of communication skills, boomers, generation X, and generation Y teachers showed to have similar mean scores. This result contradicts the findings of Zhou (2011), who asserted that generation Y are more communication-oriented than the generations before because the previous generations are less creative and entrepreneurial. Another study that counters the finding is conducted by Harber (2011) who has posited that boomers and generation Xers have better communication skills than those of generation Y.

Creativity and Innovation Skills

The mean scores of the practice and perceptions among the generational groups of teachers in terms of the creativity and innovation skills are shown in Table 7.

Table 7

Mean scores on the practice and perceptions in creativity and innovation skills among the generational groups of teachers

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	4.48^{a}
Generation X (1965-1981)	4.16^{ab}
Generation Y (1981-1995)	3.86^{b}

Note: Mean scores having different superscripts are significantly different (P>0.05).

Results showed that boomers have higher creativity and innovation skills than generation Y. Generation X showed similarities with both the boomers and generation Y in terms of the above-mentioned skills. Contrastingly, Zhou (2011) concluded that boomers and generation X are less creative than generation Y. Moreover, another study by Workfront (2015), found that generation Y is perceived as most creative among the generation cohorts.

Self-direction Skills

The mean scores on the perceptions among the generational groups of teachers in terms of the self-direction skills are shown in Table 8.

Table 8

Mean scores on the practice and perceptions in the self-direction skills among the generational groups of teachers

Generational Groups of Teachers	Means
Boomers (1946-1964)	4.09
Generation X (1965-1981)	3.88
Generation Y (1981-1995)	4.07

Note: Mean scores obtained are not significantly different from each other at 5 % significance level.

Findings revealed that boomers, generation X, and generation Y teachers have similar self-direction skills. However, results of the study by Salesforce (as cited by Investopedia, n.d.) have indicated that generation X are more self-directed than the Baby Boomers. Another study countered the findings that generation X has higher self-direction skills than generation Y as found in Ivanova & Smrikarov (2009).

Global Connections

The mean scores of the perceptions among the generational groups of teachers in terms of the global connection are shown in Table 9.

Table 9

Mean scores on the practice and perceptions in the global connections among the generational groups of teachers

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	3.76^{a}
Generation X (1965-1981)	3.35^{ab}
Generation Y (1981-1995)	2.96^{b}

Note: Mean scores having different superscripts are significantly different (P>0.05).

Boomers showed higher global connection skills than generation Y. This could be because of vast knowledge of boomers gained from longer years of teaching and reading more books, which they have brought to the classroom as compared to those who belonged in the younger generation (Koloc, n.d.). This finding, however contradicts the American Management Association (2017) and Gutfreud (as cited by Asghar, 2014), who wrote that generation Y is the first global-centric generation and hence, more global than its predecessors, having come of age during the rapid growth of the internet.

Local Connections

The mean scores of the perceptions among the generational groups of teachers in terms of local connections are shown in Table 10.

Table 10

Mean scores of the perceptions in the local connections among the generational groups of teachers

Generational Groups of Teachers	Means
Boomers (1946-1964)	4.14
Generation X (1965-1981)	3.87
Generation Y (1981-1995)	3.67

Note: Mean scores obtained are not significantly different from each other at 5 % significance level.

No significant difference was found among the generational groups in terms of local connections. This finding does not support previous researches in this area. The Corporation for National and Community Service (2015) reported differences in the level of local connections in the form of civic engagement among generational groups. This organization asserted that generation X have the highest level of local connections among the group, while generation Y have the lowest.

Using Technology as Tool for Learning

The mean scores on the practice and perceptions in using technology as a tool for learning are shown in Table 11.

Table 11

Mean scores on the practice and perceptions among the generational groups of teachers in terms of their use of technology

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	3.94
Generation X (1965-1981)	3.74
Generation Y (1981-1995)	3.59

Note: Mean scores obtained are not significantly different from each other at 5 % significance level.

The analysis did not reveal any significant difference among the generational groups in terms of the use of technology in the classroom as tool for learning. This contradicts the findings of the International Education Advisory Board (n.d.). They found that boomers generally hold to tradition, generation X adapts to technologies easily, and generation Y accepts and adapts to the new technology.

Overall Results on 21st Century Teaching and Learning Skills

The mean scores on the practice and perceptions of the different generational groups of teachers on the 21st century teaching and learning skills are presented on Table 12.

Table 12

Mean scores on the practice and perceptions in the overall 21st century teaching and learning skills among the generational groups of teachers

Generational Groups of Teachers	Mean scores
Boomers (1946-1964)	4.23[a]
Generation X (1965-1981)	3.94[ab]
Generation Y (1981-1995)	3.79[b]

Note: Mean Scores having different superscripts are significantly different (P>0.05).

Results showed that boomers have higher perception and practice of the 21st century teaching and learning skills as compared with generation Y. This can be attributed to the rich experience, expertise, and knowledge gained by the boomers from decades of teaching students (Koloc, n.d.; Capital Ideas, 2016; Auvin, 2017). Furthermore, boomers have more stable resources to support the 21st century skills development in the classroom (Value Options, n.d.). Generations X and Y yielded similar results, which coincide with the study of Crofts et al. (2016). According to them, both generations have more similarities than differences in a way that they have almost the same attitudes, goals, and priorities.

Extent of Practice of the 21st Century Skills

The mean scores and level of perceptions of the generational groups are presented in Table 13. The level of perceptions was gauged using Table 3 as guide.

Table 13

Extent of practice and perceptions among the generational groups of teachers in terms of their extent of practice

Generational Groups of Teachers	Mean scores	Extent of practice
Boomers (1946-1964)	4.23	Very great extent
Generation X (1965-1981)	3.94	Great extent
Generation Y (1981-1995)	3.79	Great extent

It was evident that boomers had practiced the 21st century teaching and learning skills to a greater extent than did generations X and Y. This shows that despite the misconceptions that boomers are resistant to change, a component vital to the development of the 21st century skills (Dukes, 2016), they still extend more effort in teaching these skills to their students. The great deal of knowledge, and wisdom gained from more experience have contributed to the results (Koloc, n.d.; Speakeasy Communications Consulting, 2015), although their younger counterparts, generations X and Y, were also commendable in terms of practicing the 21st century teaching and learning skills to a great extent.

Conclusion

Based on the findings in the study, boomers have greater skills in extending the 21st century skills to their classroom than generations X and Y. Older groups of teachers (boomers), both in age and in length of service, are presumed to lack 21st century skills and the capacity to practice the same in their classrooms, yet results of this study belie this presumption. Boomers are veteran teachers who have the experience and ability to cope with new changes in 21st century demands and as required by the K-12 Law. Further, veteran teachers may not have the expertise to use technology in the classroom, but they have the expertise to utilize certain 21st century skills earned

from years of experience. Hence, generational differences in chronological age are not a hindrance to the implementation of educational innovations and the teaching and learning skills that support 21st century expectations.

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