College teachers' awareness of and pedagogic practices for 21st century skills

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Abstract

This study found differences in the level of awareness of and extent of pedagogic practices for enhancing 21st century skills among college faculty members coming from different curriculum strands. This descriptive-comparative research involved 180 teachers in one university who responded to a questionnaire. Means, analyses of variance at a .05 significance level, and post hoc analyses using the Scheffé test were used. To validate results from the responses, interviews with college deans and department heads were conducted. The results show a high level of awareness of learning and innovation skills, life and career skills, and information, media, and technology skills. The level of awareness varied significantly when respondents were grouped according to curriculum strands, where some groups were significantly higher and one group was significantly lower. For pedagogic practices, inquiry-based learning was practiced to a very great extent while collaborative learning, project-based learning, and reciprocal teaching were practiced to a great extent. The extent of pedagogic practices varied significantly when respondents were grouped according to curriculum strands, where one or more groups implement the pedagogic practices to a greater extent than the others.

Keywords

21st century skills, awareness, pedagogic practices, curriculum strands

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Introduction

The existentialism philosophy of education promotes the belief that individuals have no fixed nature and shape their being as they live. Duka (2006) presents the existentialist as somebody who should enable individuals to make choices for their lives; education should be a means to open their very eyes to the naked truth of their existence and be aware of their status quo and, in so doing, it serves as a guiding spirit for them in making prudent decisions and wise actions. He further believes that teachers have the right to teach their students how to think but not what to think.

Ornstein, Levine, Gutek, and Vocke (2011) present educators adhering to the philosophy of progressivism as facilitators of learning motivating direct experience and believing that the school should be a laboratory for experimentation. They state that progressive educators oppose authoritarian teachers, exclusively book-based instruction, and passive learning.

It is believed that the most flexible and adaptive professionals are teachers. Learners, from generation to generation, change. More learning needs are challenging, so that teachers must thrive. There is a great need to shift from the traditional way of teaching to a more appropriate way that is aligned to a better way of how students learn, directing them to becoming lifelong learners; improving their talents and abilities in every way to prepare them to become part of the global village.

Bilbao, Corpuz, Llagas, and Salandanan (2015) state that to become a global teacher, one should be equipped with a wider range of knowledge of the various educational systems outside the country. In this era, the life of a teacher is not only confined inside the classroom. The teacher, who is essentially a consumer of information, must be knowledgeable about concepts and events that affect education.

Lozano (2014) did an assessment on the integration of 21st century skills in the Philippine Military Academy curriculum and found out that all 21st century skills except information, media, and technology skills, are highly integrated in the Philippine Military Academy curriculum.

Caseldo's (2014) study on competence and employability skills of teacher education students found out that the overall level of employability skills of the students was high. However, he recommends the improvement and emphasis of active learning where students "learn how to learn."

With the intention to help improve the quality of higher education, this study aimed to find out college teachers' level of awareness of and extent of pedagogic practices

for enhancing 21st century skills of learners who shall sooner or later exemplify world class productivity in their field of specialization. As the saying goes, "Knowledge is power." Awareness here refers to pedagogic knowledge while pedagogic practices refers to the effective application of pedagogic knowledge. It is believed that teachers' pedagogic knowledge and pedagogic practices empower teachers in preparing the learners to be global citizens.

The world is changing very fast. Stewart (as cited in Jacobs, 2010) states that the world in which today's students will graduate is fundamentally different from the world in which people in the past grew up. She says that the quickening pace of globalization over the past 20 years—driven by profound technological changes, the rise of China and India, and the accelerating pace of scientific discovery—has produced a whole new world. She states, "Companies manufacture goods around the clock and around the world; ideas and events traverse the internet in seconds…" (p. 97)

Facing the 21st century is an enormous challenge to colleges and universities. They are expected to train professionals who can be able to integrate themselves into the global arena. Zulueta and Maglaya (2004) believe that the higher education sector must move ahead faster than the rest. They cannot afford to be merely reactionaries in a field that is highly competitive. They further believe that the demand is for Filipinos to have quality and accessible higher education that will produce a people with a thirst for scholarship and world-class productivity.

21st century skills

According to Great Schools Partnership (2016), "[t]he term *21st century skills* refers to a broad set of knowledge, skills, work habits, and character traits that are believed—by educators, school reformers, college professors, employers, and others—to be critically important to success in today's world, particularly in collegiate programs and contemporary careers and workplaces."

Partnership for 21st Century Skills (2015) presents three core skills (and eleven subskills): learning and innovation skills (critical thinking and problem solving, creativity and innovation, communication and collaboration), life and career skills (flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility), and information, media, and technology skills (information literacy, media literacy, information, communications, and technology (ICT) literacy). (See also Partnership for 21st Century Learning (2019).)

Pedagogic practices

It is a must to provide significant human experiences to students so that they will be able to see the relevance of

what they are learning to real life situations. As presented by Llagas and Corpuz (2018), Republic Act No. 10533 (Enhanced Basic Education Act of 2013) mandates that the curriculum shall be contextualized and global. This could be done when teachers have established objectives, properly sequenced contents, and strategies that are appropriate to the needs of learners. More importantly, there is a need to integrate real life situations in facilitating learning of students so that there will be a connection of what is learned from school and what is happening in the society.

Cisco's Global Education group (Cisco, 2010), being "actively engaged in the work of transforming educational systems to meet the needs of 21st century learners, educators and organizations," suggests four pedagogic practices for 21st century learning: inquiry-based learning, project-based learning, collaborative learning, and reciprocal teaching.

Corpuz and Salandanan (2015) state that inquiry-based learning enables students to participate in a process of asking questions to learn about a problem or topic. Structured problem-solving and the Socratic method are forms of inquiry based learning. Project-based learning gives students opportunities to work on complex, real-world projects that require interdisciplinary work and result in a product that is relevant for an authentic audience. Hence, learners are encouraged to construct reality through project-making. Collaborative learning requires students to work in collaborative groups to study content and complete projects. The individual succeeds only when the group succeeds. It emphasizes individual accountability and interdependence among members of the group. Reciprocal teaching includes summarizing, self-questioning, clarifying, and predicting to improve comprehension. According to Gruenbaum (2012), reciprocal teaching techniques among students with peers focuses on bringing meaning to text. For mature learners, reciprocal teaching can be modified to fit the purpose of mastering the concepts and skills then teaching these to others.

Rotherham and Willingham (2010, p. 19) claim that "[a]dvocates of 21st-century skills favor student-centered methods—for example, problem-based learning and project-based learning—that allow students to collaborate, work on authentic problems, and engage with the community."

Curriculum

In the Philippines, a massive implementation of the beginning of the Senior High School part of the K to 12 Basic Education Curriculum started in 2016. Ocampo (2014) stated that the K to 12 program demands that subjects or courses be taught from the simplest concepts to the complicated concepts through grade levels in spiral progression. She further said that this ensures a mastery

Table 1. Respondents according to curriculum strand

Strand	N	n
ABM	52	43
HUMSS	55	49
STEM	59	47
GAS	22	18
HE	4	3
ICT	14	13
Sports	8	7
Total	214	180

of knowledge and skills after each level. Nonetheless, Senior High School will observe the disciplinal approach since it will focus on a specialization under a specific strand of the four curriculum tracks: academic, technical-vocational-livelihood, arts and design, and sports.

The academic strands are intended for students who intend to pursue higher education. There are four academic strands: accountancy, business, and management (ABM), which focuses on business and industry; humanities and social sciences (HUMSS), which focuses on individuals and societies; science, technology, engineering, and mathematics (STEM), which focuses on the natural world and technology; and general academic strand (GAS), which is for students who have not yet decided on what field to specialize in.

The technical-vocational-livelihood strands are home economics (HE), industrial arts, agricultural and fishery arts, and information and communications technology (ICT). These prepare a student to become a job-ready, skilled, middle-level worker leading to an appropriate national certificate from Technical Education Skills Development Authority (TESDA).

The arts and design track prepares a student to participate creatively at a high artistic level in art activities such as, but not limited to, literature, dance, music, painting, sculpture, theater, television, film, and multimedia art.

The sports track aims to develop high-class athletes and coaches.

Methodology

Research design
The study used a descriptive-comparative method to find any differences in the level of awareness of and extent of pedagogic practices for enhancing 21st century skills among college faculty members coming from different curriculum strands.

Population and locale of the study
The participants were tertiary faculty members of a large university in Baguio City that offers different programs aligned to the K to 12 strands through a trimestral scheme. Coming from different age groups and cultures, they finished their undergraduate and graduate degrees aligned to their field of specialization which they are also following as teachers in the tertiary level. Their distribution according to curriculum strands is shown in Table 1. (The sports track is treated as a strand.) Of the 214 teachers (including those teaching part-time) during the 2015–2016 school year, only 180 responded to the questionnaire.

The population is dominated by teachers who have been teaching for over 15 years. Teachers in the university had been required to take a 'Methods of College Teaching' course. They also participated in seminars, trainings, and workshops emphasizing 21st century skills. Moreover, the university requires them to conduct interventions to reach out to their students who are having difficulties in their studies. They are assessed and evaluated by their respective students, department heads, and deans regularly.

Aside from the faculty members, three college deans, one associate dean, one department head, and one athletic director and former department head were purposively selected and interviewed to supplement and validate the responses of faculty members, taking into consideration that they are experts in the field of teaching and that they supervise and monitor teachers in their respective curriculum clusters.

Data gathering instrument
Data were gathered using a researcher-constructed questionnaire based on the list of 21st century core skills and subskills of Partnership for 21st Century Skills (2015). There were two wings of the questionnaire. In the middle was a list of the core skills and subskills. On the left wing, respondents were asked to rate themselves according to their level of awareness of the eleven subskills under the three core skills. On the right wing, respondents were asked to rate themselves according to their extent of pedagogic practice of inquiry-based learning, project-based learning, collaborative learning, and reciprocal teaching. To guide respondents, each subskill and pedagogic practice had a brief description in the questionnaire.

The questionnaire was administered to ten faculty members from the different strands of the curriculum cluster for reliability testing. Using Cronbach's alpha, the computed reliability coefficient was .895, indicating a very high reliability.

To validate the results, the researcher sought the views of the department heads and the college deans of the different curriculum strands regarding the data generated from the responses of faculty members. A copy of the generated data was shown to the concerned department head or college dean for reference. The data were used as bases for the questions and the responses

Table 2. Scale to determine level of awareness

Value	Statistical limit	Verbal description	Level of awareness
3	2.34−3.00	Fully aware (FA)	High (aware in all aspects of the skill)
2	1.67−2.33	Partially aware (PA)	Moderate (aware in some aspects of the skill)
1	1.00−1.66	Not aware (NA)	Low (not aware in any aspect of the skill)

Table 3. Scale to determine extent of pedagogic practices

Value	Statistical limit	Verbal description	Interpretation
5	4.20−5.00	Almost always practiced (AA), practiced above 90% of the time	To a very great extent
4	3.40−4.19	Often practiced (O), practiced 65-90% of the time	To a great extent
3	2.60−3.39	Sometimes practiced (S), practiced 37-64% of the time	To some extent
2	1.80−2.59	Rarely practiced (R), practiced 10-36% of the time	To a little extent
1	1.00−1.79	Almost never practiced (AN), practiced below 10% of the time	To a very little extent

Table 4. Level of awareness of 21st century skills

Skills		Mean	Qualitative interpretation	Level of awareness of skills
I	**Learning and innovation skills**			
A	Critical thinking and problem solving	2.87	Fully Aware	High
B	Creativity and innovation	2.69	Fully Aware	High
C	Communication and collaboration	2.77	Fully Aware	High
	Overall	2.78	Fully Aware	High
II	**Life and career skills**			
A	Flexibility and adaptability	2.73	Fully Aware	High
B	Initiative and self-direction	2.74	Fully Aware	High
C	Social and cross cultural skills	2.74	Fully Aware	High
D	Productivity and accountability	2.77	Fully Aware	High
E	Leadership and responsibility	2.77	Fully Aware	High
	Overall	2.75	Fully Aware	High
III	**Information, media, and technology skills**			
A	Information literacy	2.73	Fully Aware	High
B	Media literacy	2.66	Fully Aware	High
C	Information, communications, and technology literacy	2.67	Fully Aware	High
	Overall	2.69	Fully Aware	High
	Grand mean	2.74	Fully Aware	High

of the interviewees. The general questions were based on the specific research problems of the study. Probing questions were asked based on the responses to the general questions.

Data gathering procedure

The distribution and the retrieval of the questionnaire were done through the deans' offices for two months. Within this period, the researcher also followed up from the faculty members, explained items they had doubts about, and retrieved questionnaires personally from them in their respective offices.

Interviews with the deans were conducted at their offices with their permission within a month. For more

views, interviews with the associate dean and department heads were also conducted.

Treatment of data

The following statistical tools were utilized with the help of SPSS statistics software.

Means were used to determine the level of awareness and extent of pedagogic practices. The level of awareness of the 11 subskills was determined using a 3-point Likert scale (see Table 2) and the extent of pedagogic practice enhancing the 11 subskills was determined using a 5-point Likert scale (see Table 3).

Analysis of variance at a .05 level of significance was used to compare the level of awareness and extent

Table 5. Level of awareness of 21st century core skills grouped according to curriculum strand

Strands	Learning & innovation skills	Life & career skills	Information, media, & technology skills
ABM	2.67	2.72	2.53
HUMSS	2.89	2.86	2.82
STEM	2.73	2.68	2.66
GAS	2.85	2.81	2.70
HE	3.00	2.87	2.67
ICT	2.90	2.85	2.95
Sports	2.52	2.26	2.34

of pedagogic practice among the respondents coming from the different curriculum strands.

Post hoc analysis using the Scheffé test was used to determine differences of the level of awareness and extent of pedagogic practices among the respondents coming from the different curriculum strands.

Results and discussions

Awareness of 21st century skills

Table 4 shows that the respondents have a high level of awareness of learning and innovation skills, life and career skills, and information, media, and technology skills. The data show that the effort of the faculty members to continually learn about trends during this information age is evident.

To become a global teacher, one should be equipped with a wider range of knowledge of the various educational systems outside the country. In this era, the life of a teacher is not only confined inside the classroom. The teacher, who is essentially a consumer of information, must be knowledgeable about concepts and events that affect education (Bilbao et al., 2015).

Teachers' competence can be measured through mastery of content knowledge and pedagogic skills. A competent teacher should have the professional artistry to induce learning among students. Cognitive skills like critical thinking, creative thinking, and problem solving are required of a teacher in the 21st century. These need more than a basic understanding of educational theory and classroom management (Dayagbil, 2012).

Critical thinking and problem solving skills involve identifying, interpreting, using, analyzing, synthesizing, and evaluating information, as well as reflecting on and solving problems (Partnership for 21st Century Skills, 2015).

Jan (2017), using secondary data to describe 21st century teachers in the world and in India, concluded that technology needs to be integrated to achieve best quality pedagogy and that technological aid is an integral part in effective learning.

Table 5 shows the mean values of the level of awareness of the core skills when the faculty members are grouped according to curriculum strands. For each core skill, a one-way analysis of variance (ANOVA) was used to test if there is a significant difference among the means of the faculty of different curriculum strands.

For learning and innovation skills, F = 5.995 with an observed significance level p = .003. The computed F-value is significant warranting the rejection of the null hypothesis that there is no significant difference among the means. To determine which curriculum clusters vary from each other, a post hoc analysis was conducted using the Scheffé test. The comparisons revealed that a significant difference exists only between HE and sports. The HE teachers, obtaining the significantly higher mean, are more aware of the learning and innovation skills than the sports teachers.

The difference may lie on the nature of pedagogic knowledge and skills applied by the faculty members. Although both need physical skills, HE requires more of producing a product while the other requires performing a physical skill. As Norma Maria Rutab, former dean of the College of Teacher Education of the university, claimed, "Sports have rules, somehow you cannot apply creativity; follow the steps. That is the rule of the game" (personal communication, August 28, 2015).

For life and career skills, F = 32.025 and p = .000. The computed F-value is significant warranting the rejection of the null hypothesis that there is no significant difference among means. A post hoc analysis conducted using the Scheffé test revealed that the mean of the sports track is significantly lower than those of the other curriculum strands.

The finding implies that the sports teachers may not essentially focus on life and career skills. Their mean for social and cross cultural skills was the lowest. According to Partnership for 21st Century Skills (2015), these skills are manifested in several ways: knowing when it is appropriate to listen and when to speak; conducting oneself in a respectable, professional manner; respecting cultural differences and working effectively with people from a range of social and cultural backgrounds; responding open-mindedly to different ideas and values; and leveraging social and cultural differences to create new ideas and increase both innovation and quality of work. The mission of the physical education and sports group is

Table 6. Extent of pedagogic practices for 21st century core skills

Pedagogic practices	21st century core skills			Mean
	Learning and innovation skills	Life and career skills	Information, media, and technology skills	
Inquiry-based learning	4.36	4.23	4.00	4.20
Project-based learning	4.17	4.11	3.91	4.06
Collaborative learning	4.24	4.19	3.88	4.10
Reciprocal teaching	3.85	3.91	3.71	3.82

to maintain a healthy life. The focus is on physical fitness. According to Danilo Cong-o, athletic director of the university and former head of the Physical Education Department of the university, the low rating on social and cross cultural skills may be due to the challenge of handling multi-cultural students in physical education classes—there are foreign students in class who are very unlike the Filipino students (personal communication, February 23, 2016).

For information, media, and technology skills, $F = 5.837$ and $p = .003$. The computed F-value is significant warranting the rejection of the null hypothesis that there is no significant difference among means. A post hoc analysis conducted using the Scheffé test comparisons revealed that the means of ICT and HUMMS are significantly higher than the mean of sports.

The result confirms that ICT faculty must be knowledgeable about information, media, and technology skills since this is their field of specialization. As Jeffrey Ingosan, associate dean of the College of Information Technology and Computing Sciences of the university, said "I agree with the data since these 21st century skills are agenda of the faculty development program, seminars, and meetings" (personal communication, February 16, 2016). Miriam Janeo, former dean of the College of Arts and Sciences of the university, said "I agree with these since the faculty members have been exposed to seminars on the 21st century skills" (personal communication, October 29, 2015). Although sports faculty members are part of the institutional orientation on 21st century skills, they may feel that there is a further need for training about technology as used in their field. Cong-o (personal communication, July 14, 2016) suggests "attendance of faculty to national and international seminars, workshops and trainings to level up with international standards because usually rules in sports change every year." He further said that "the field of physical education is more on 'hands-on' than lecture." This means that more time is consumed in mastering physical skills than in teacher-dominated activities where high technology is usually used.

Pedagogic practices enhancing 21st century skills
Table 6 shows that inquiry-based learning (4.20) was practiced to a very great extent while collaborative learning (4.10), project-based learning (4.06), and reciprocal teaching (3.82) were practiced to a great extent.

Faculty members in the university are also observed by deans and department heads within the school year. The items for observation include art of questioning, teaching practices, and class management which are elements of inquiry-based learning. Janeo (personal communication, October 29, 2015) said that in her classroom observations, it is evident that the teachers incorporate 21st century skills in their classroom instruction.

Overall, project-based learning is only practiced to a great extent unlike inquiry-based learning which is practiced to a very great extent. In college, usually projects are submitted at the end of the period or the trimester. Considering that projects are done in a developmental manner, there are only few to submit at the end of the term especially when teachers prioritize the process of doing the project that the project itself.

When asked about projects required from students in ICT, Ingosan (personal communication, February 6, 2016) said that they conduct software development where students need to identify a problem of an organization or from the society, analyze existing processes, organizational structures, or materials including the requirements of the problem before they design a program or system to address the problem based on their analysis. Hence, integration of action research which use inquiry-based learning is intensified.

Hou (2015) found that reciprocal teaching enhances certain metacognitive awareness and reading comprehension of students. It is considered an effective strategic instruction for developing cognitive skills and for enhancing academic performance with a comfortable learning environment and monitoring of teachers.

An interview with a department head shows this. Nelson Notarte, a former head of the Civil Engineering Department of the university, stated that, in their college, they conduct more of a participatory approach by giving students a chance to demonstrate what they have learned such as in laboratory or field work that needs critical thinking and problem solving in actual situations. He further believes that in the field of engineering and architecture, critical thinking has a great impact in solving problems. Teachers exploit the ability to solve problems with or without devices (personal communication, Febru-

Table 7. Differences in the extent of pedagogic practices for 21st century core skills grouped according to curriculum strands

Pedagogic practices	Difference		
	Learning & innovation skills	Life & career skills	Information, media, & technology skills
Inquiry-based learning	.205†	.000*	.000*
Project-based learning	.001*	.000*	.000*
Collaborative learning	.000*	.000*	.000*
Reciprocal teaching	.275†	.011*	.000*

* significant, † not significant, using a .05 significance level

ary 16, 2016).

Table 7 shows the differences in the extent of pedagogic practices when respondents were grouped according to curriculum strands. To determine which curriculum strands vary from each other, post hoc analyses were conducted using the Scheffé test.

It was found that HUMMS, GAS, HE, and ABM teachers practiced inquiry-based learning to enhance life and career skills to a greater extent than sports teachers. ICT teachers practiced inquiry-based learning to enhance life and career skills to a greater extent than STEM and sports teachers. ICT and STEM teachers practiced inquiry-based learning to enhance information, media, and technology skills to a greater extent than sports teachers.

ICT teachers practiced project-based learning to enhance learning and innovation skills to a greater extent than STEM and sports teachers. ICT teachers practiced project-based learning to enhance life and career skills to a greater extent than GAS, HE, STEM, and sports teachers. ICT teachers practiced project-based learning to enhance information, media and technology skills to a greater extent than HUMMS, ABM, STEM, HE, and sports faculty.

HUMMS, GAS, HE, and ABM teachers practiced collaborative learning to enhance learning and innovation skills to a greater extent than sports teachers. GAS teachers practiced collaborative learning to enhance learning and innovation skills to a greater extent than HE, sports, and STEM teachers. GAS and ICT teachers practiced collaborative learning to enhance life and career skills to a greater extent than STEM and sports teachers. ICT faculty practiced collaborative learning to enhance information, media, and technology skills to a greater extent than HUMMS, HE, STEM, ABM, and sports teachers.

ICT teachers practiced reciprocal teaching to enhance life and career skills to a greater extent than STEM teachers. ICT teachers practiced reciprocal teaching to enhance information, media, and technology skills to a greater extent than HUMMS, HE, GAS, STEM, ABM, and sports teachers.

The university envisions itself as a community of scholars aggressively involved in the pursuit of knowledge who help preserve Filipino culture and values and act positively by training the students to think critically and creatively. The university's mission is to provide functional knowledge and skills, dynamic interaction and leadership in various disciplines for a better quality of life (University of the Cordilleras, 2015).

The philosophy serves as a springboard for social and moral preparedness of the youth. The vision directs to the pursuit of truth and roots and acting accordingly. Further, the mission implies the training of the youth with 21st century skills. These three perfectly blend for quality education. Strikingly, the first objective of the university is to develop an environment conducive to inquiry.

All faculty members in the university are also required to take a 'Methods of College Teaching' course which is a part of the faculty development program. In this course, 21st century skills are emphasized since the university caters to the preparation for different professions. In addition to the different methods of teaching, the art of questioning is emphasized for the development of critical and creative thinking which are important subskills of learning and innovation skills.

In the department and college meetings of faculty members of the university, integration of 21st century skills has been observed. Ingosan (personal communication, February 6, 2016) stated that these 21st century skills are on the agenda of the faculty development program, seminars, and meetings. "Besides, faculty members are required to possess these."

The Ontario Ministry of Education (2014) shared their ideas about effective 21st century technology-enabled teaching and learning practices. Collaboration is key in supporting pedagogic change. It said that there are changing roles of teacher and students—becoming co-learners and collaborators. Students must be taught the how of collaboration, as well as how to provide appropriate feedback. Using collaborative inquiry approach is key in changing practice.

There is no more room for complacency in this 21st century. This fast-changing world needs people with original ideas and initiative to improve the way things are done. Rhodora Ngolob, former dean of the College of Business Administration of the university, claimed that skills under life and career are observable among her colleagues in their college through the initiative and self-direction of faculty. She added, "What we teach our

students is the coping skills and as we learn and teach, we are learning ourselves" (personal communication, September 3, 2015).

This statement of Ngolob can be alluded to the timeless principle 'One can only give what one has.' For one cannot teach what one does not have. Bilbao et al. (2015) state that the classroom is the first place of curricular engagement and that the first experience sets the tone to understand the meaning of schooling though the interactions of learners and teachers that will lead to learning. Thus, when the teacher learns more, the teacher knows more and teaches more. This will provide an avenue for meaningful learning engagement among students.

Conclusions and recommendations

In the light of the research findings, it is concluded that faculty members of the university are very familiar with 21st century skills that enhance student learning and that they extensively implement pedagogic practices to enhance the 21st century skills of their students. In the case of the said university, the curriculum strands influence the faculty members' level of awareness of and pedagogic practices for enhancing 21st century skills.

Specifically, the findings on pedagogic practices suggests a needed enhancement on pedagogic practices for teaching 21st century skills especially in the field of sports where mechanics and rules change at least every year due to the need of events and sports experiences. Administrators may provide support to pedagogic practices enhancing 21st century skills through the provision of facilities and equipment that can be maximized such as in sports classes. Provisions of areas or centers for collaborative learning and reciprocal teaching, especially if these are done outside class periods, will maximize students' learning. Hence, provision for a natural setting involving real time for experiential learning such as activities in engineering and architecture will make learning more accurate.

With the limitation of having conducted the study in a specific university offering trimestral programs in the different strands, it is recommended that researchers may look into conducting the same study in other schools using the same variables to explore generalizability or into conducting the study using other variables of significance such as best practices that are worth emulating.

Acknowledgments

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