

21ST Century Skills of Nueva Vizcaya State University Bambang Campus, Philippines

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Date Received: January 17, 2015; Date Revised: March 8, 2015

Abstract- *This study determined the 21st Century Skills of students in Nueva Vizcaya State University, First Semester, SY 2014-2015. Specifically, it ascertained students' profile, their 21st century skills learning and innovation skills, information, media and technology skills and life and career skills. It further ascertained if a significant correlation exists between profile variables and the 21st century skills and if significant correlations exist between and among the dimensions of the 21st century skills.*

Thirty-five (35) respondents of the AB English Program under the College of Arts and Sciences were chosen using random sampling. It used the descriptive method and a 71 item- questionnaire developed by Vadil (2013). Quantitative data was treated with frequency, percentage and mean. The Pearson-r was used to determine the correlation between profile variables and the 21st century skills and the correlations between and among the dimensions of these skills.

Findings revealed that the majority are in their teenage years, mostly female, and are Ilocanos, with fathers' educational attainment higher than mothers. Significantly, social and cross-cultural- skills along life and career skills surfaced as excellent skill among other 21st century skills. The respondents have a "very good" 21st century skills on other skills along learning and innovation skills, as well as information, media and technology skills. The highest educational attainment of father significantly correlates with learning and innovation skills and gender correlates with information, media and technology literacy and life and career skills. Very significant correlations exist between and among the dimensions of the 21st century skills

Key words: 21st Century Skills, Information, Media and Technology Skills, Learning and Innovation Skills, Life and Career Skills.

INTRODUCTION

Education for Sustainability is the practice of learning how to achieve global and local sustainable communities. It is an essential tool for achieving sustainable development (ESD Agenda).

The UN Decade of Education for Sustainable Development (DESD), as declared by United Nations General Assembly [1], designed its goals of providing an opportunity for refining and promoting the vision of, and transition to, sustainable development – through all forms of education, public awareness and training; and to give an enhanced profile to the important role of education and learning in sustainable development. The ASEAN integration that is geared to build a strong and sustainable community is believed to pave the way for economic, social, cultural, environment development. However, in spite of the potent advantages it may provide for excellence and sustainability of every nation, it may as well pose threats to industries and organizations- from the public or private sector, manufacturing or services, big or small.

With the end goal of envisioning globalization through sustainability and excellence in all aspects, human resources who possess the knowledge and skills to man industries and organization are those directly and greatly affected.

Reports reveal that the employment titan in Manpower shows that despite the recession, 31 percent of employers throughout the world struggle to find qualified workers because of "a talent mismatch between workers' qualifications and the specific skill sets and combinations of skills employers want." On the other hand, The National Association of Manufacturers further reports, "Today's skill shortages are extremely broad and deep, cutting across industry sectors and impacting more than 80 percent of companies surveyed. This human capital performance gap threatens our nation's ability to compete . . . [and] is emerging as our nation's most critical business issue." [2].

With the issues confronting human resource on job mismatch, knowledge and skill shortage this may result to work inefficiency, less production, mediocrity and instability. The educational sector, therefore, has its pivotal role to provide the necessary knowledge, skills and attitude to human resources in order to cope up with the changing needs and demands for global competence. Education at all levels, therefore, has to face the tremendous and continuing challenge for change to attain excellence and sustainable development.

While sustainable education must be customized for individual learners, [3] Tilbury and Wortman (2004) identified the skills that are essential on the contexts of sustainable development. These comprised of envisioning, critical thinking and reflection to help people learn to examine economic, environmental, social and cultural structures, systemic thinking, building partnership and participation in decision-making to empower people.

In today's information age, ground work has been laid for sustainable education worldwide. Recent changes in service learning among educational systems focused on literacy and skills as well as standards to support interdisciplinary thinking. This becomes the major thrust and role of educational systems in a globalized economy.

The country, Philippines has taken its initial steps to be globally competitive. One manifestation is the adoption of the Enhanced Basic Education Act or RA 10533 on the K-12 curriculum. Such move in the education arena increases the visibility of translating the country's educational framework to global standards and somehow responding to the thrusts of the ASEAN integration. Hence, bolstering the 21st century skills and learnings among the youth has to take its step forward this goal.

With the rapid presence of technology, the society is developing towards an information and information system, the knowledge society metaphor refers primarily to economic system where ideas or knowledge function as commodities [4].

It is important to realize that society not only faces a change in the types of jobs that are needed, but the young people now a day's also need to be educated for a job that does not yet exist [5-6].

The president of the Partnership for 21st Century Skills, Ken Kay, stated that the "21st century skills set us the ticket to economic upward mobility in the new economy" [7]. Our world economy has evolved from an industrial era to an information era and is now on the way to the creativity era while at the same time our

schools are stagnant in the industrial model. The 21st century skills are key elements in supporting out youth not only in surviving but excelling in the new global environment. The same author mentioned that it is a world in which comfort with ideas and abstraction is the passport to good learning, in which creativity and innovation are the keys to the good life, in which high level of education— a very different kind of education that most of us have had are going to be the only security there is.

[8] Apple (2008) cited that 21st century skills are necessary for "students strive in the future" while CEO (2001) consider these skills as imperative that schools cannot ignore. In order to achieve 21st century skills, education is turning to the evidence of technology integration. This integration "can help the nation's school deliver a world-class education that will improve student achievement and develop 21st century skills" and "provide educator with valuable tool to teach, develop and reinforce 21st century skills by dramatically altering the options for inquiry, analysis and expression" [9] (CEO, 2001).

On the other hand, the reality of building capacity for the 21st century poses uncertainty in the work for the future or how the technology will influence health or balance of financial issues [10]. The challenge is then to prepare students to think critically, to engage in mental activity or habit of mind that "use facts to plan, order and work toward an end; seek meaning or explanations, to be self-reflective; and use reason to question claims and make judgment" [11]. It may be that our task is not only to prepare students to "fit into the future" but to shape it. If the complex questions of the future are to be determined by human being making one choice rather than another, we should educate youth – all of them to join in the conversation about those choices and to influence that further [12].

In order to cope up with the trends and threats brought by the ASEAN Integration, the felt need to assess the knowledge and existing skills is deemed essential for students. Since educational institution provides the manpower needs of the society, it takes its tremendous and crucial role in ensuring academic excellence and sustainability. Thus, the conduct of this study on the 21st century skills among students at Nueva Vizcaya State University, Bambang Campus, Bambang, Nueva Vizcaya for SY 2014-2015.

This study ascertained the 21st century skills of students enrolled in the Bachelor of Arts in English program of the College of Arts and Sciences, NVSU. Specifically, it sought to answer the following objec-

tives: to determine the profile of respondents along age, gender, ethnicity, highest educational attainment of father and mother; to determine the perception of respondents on their 21st century skills along: Learning and Innovation Skills comprising of creativity and innovation skills, critical thinking and problem solving skills; communication and collaboration Skills; Information, Media and Technology Skills comprising of information literacy, media literacy and ICT Literacy: Life and Career Skill comprising of flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility; to test if there is significant relationship between the profile variables and the perceived 21st century skills of the respondents; and to test the significant relationships between and among the dimensions of 21st century skills of the respondents.

MATERIALS AND METHODS

The study made use of the descriptive method and a designed survey tool which consists of a profile checklist and a 71 item-questionnaire developed and validated by Vadil [13] with 0.68 as reliability coefficient. The items in each dimension were based on the indicators provided by the Partnership of 21st Century Skills (P21). The P21 is a unique public-private organization that is working “to create a successful model of learning for this millennium that incorporates 21st century skills into our system of education”.

Thirty-five (35) respondents were chosen using random sampling from a total of 119 Bachelor of Arts in English students. According to Gay, as cited by Tallungan (2014), for correlational research, 30 is the minimum acceptable sample size and for descriptive research 10% of the total population is considered. Quantitative data along ascertaining profile variables and 21st century skills was treated with frequency, percentage and mean respectively. The Pearson-r was used to determine the correlation between profile variables and the 21st century skills and the correlations between and among the dimensions of these skills.

The Five (5) point Likert scale was used to describe the responses in all dimensions and it was likewise used to establish the qualitative description for the area means.

RESULTS AND DISCUSSION

1. Most of the respondents are 17-19 years old, female, mostly Ilocano, with the majority of their father as degree holders whereas the respondents' mothers have attained secondary education.

2. The respondents have a “very good” 21st century skills along the three major areas of Learning and Innovation Skills, Information Media and Technology Skills as well as Life and Career Skills as illustrated below:

Dimensions on the 21st Century Skills	Area Means	Qualitative Description
Learning and Innovation Skills	3.74	Very Good
Information Media and Technology Skills	3.78	Very Good
Life and Career Skills	4.02	Very Good

Along Learning and Innovation Skills, all dimensions of creativity and innovation, critical thinking and problem solving as well as communication and collaboration skills are “often” manifested; hence are generally “very good as 21st century skills. Significantly, respondents’ view failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes as well as respondents can elaborate, refine, analyze and evaluate their ideas in order to improve and maximize creative efforts emerged with the highest mean of 4.11. However, to solve different kinds of problem both in conventional and innovative ways surfaced with the least mean of 3.20 with a “sometimes” remarks among the respondents.

Along Information Media and Technology Skills, all dimensions of information literacy, media literacy as well as technology literacy are “often” manifested; hence are generally “very good” as 21st century skills. Being aware of how media can influence beliefs and behaviors as well as using technology as a tool to research, organize, evaluate and communicate information emerged with the highest means of 4.40 and 4.23 respectively. However, evaluating information critically and competently gained the least mean of 3.49 among other dimensions.

Along Life and Career Skills, only social and cross-cultural skills as a dimension of the 21st century skills surfaced as “excellent”. The other dimensions of flexibility and adaptability, as well as initiative and self-direction, are described as “very good”. Significantly, respecting cultural differences and working effectively with people from a range of social and cultural backgrounds arise with the highest mean of 4.54 among others, qualitatively described as “always”. Contrastingly, defining, prioritizing, and completing

tasks without direct oversight arise with the least mean of 3.63 among other dimensions.

3. The highest educational attainment of father significantly relates or influences learning and innovation skills and gender relates or influences information, media and technology literacy as well as life and career skills. Tables 2-4 illustrates these findings

Table 2. Summary of Correlation Analysis Showing the Relationship between the Profile Variables and the 21st Century Skills of the Respondents along Learning and Innovations Skills

Profile Variable	Correlation Coefficient	Remarks
Gender	-0.070	Not Significant
Age	0.046	Not Significant
Ethnicity	-0.015	Not Significant
Highest Educational Attainment of Father	0.193	Significant, Slightly Correlated
Highest Educational Attainment of Mother	0.037	Not Significant
df=33; two-tailed; $\alpha=0.50$		critical $r = \pm 0.1179$

As gleaned in Table 2, only the highest educational attainment of the father as a profile variable significantly and slightly correlates with the 21st century skills of the respondents along learning and innovation skills at 0.50 level of significance with the computed r-value of 0.193. Thus, the null hypothesis is rejected. The data on the table further implies that the higher the educational attainment of the father, the higher the learning and innovation skills of the respondents.

On the other hand, there are no significant relationships among other profile variables such as gender, age, ethnicity and highest educational attainment of mother as with the respondents' 21st century skills in learning and innovation skill with the computed r-values of -0.070, 0.046, -0.015 and 0.037 respectively. This finds support in the studies of Colom & Garia-Lopez [14], Allik, Must, & Lynn [15], Lynn [16] which reveal that there is no gender difference in intelligence among adolescents and adult age samples with their respective studies on gender differences in IQ. Similarly, mother's level of education had no significant influence on the students' performance [17-18].

Table 3. Summary of Correlation Analysis Showing the Relationship between the Profile Variables and the 21st Century Skills of the Respondents along Information, Media and Technology Literacy

Profile Variable	Correlation Coefficient	Remarks
Gender	-0.194	Significant, Slightly Correlated
Age	0.024	Not Significant
Ethnicity	0.015	Not Significant
Highest Educational Attainment of Father	-0.043	Not Significant
Highest Educational Attainment of Mother	-0.041	Not Significant
df=33; two-tailed; $\alpha=0.50$		critical $r = \pm 0.1179$

Table 3 reveals that gender as a profile variable significantly and slightly correlates with the 21st century skills of the respondents along Information, Media and Technology Literacy at 0.50 level of significance with the computed r value of -0.194. Hence, the null hypothesis is rejected in this regard. The data on the table further implies that female respondents have higher Information, Media and Technology Literacy as 21st century skills than male respondents.

It is further inferred that considering the emerging roles and responsibilities of modern women of today being exposed to various industries, their career advancement is further enhanced through utilization of Information, Media and Technology Literacy where they are employed.

At the contrary, the other profile variables such as age, ethnicity, highest educational attainment of father and highest educational attainment of mother do not significantly correlate with the 21st century skills of the respondents along Information, Media and Technology Literacy with the computed r-values of 0.024, 0.015, -0.043, -0.041 respectively.

As shown in Table 4, the profile variable gender significantly and lowly correlates with the 21st century skills of the respondents along Life and Career Skills at 0.50 level of significance with the computed r value of -0.218. Hence, the null hypothesis is rejected.

Table 4. Summary of Correlation Analysis Showing the Relationship between the Profile Variables and the 21st Century Skills of the Respondents along Life and Career Skills

Profile Variable	Correlation Coefficient	Remarks
Gender	-0.218	Significant, Lowly Correlated
Age	0.050	Not Significant
Ethnicity	0.006	Not Significant
Highest Educational Attainment of Father	-0.015	Not Significant
Highest Educational Attainment of Mother	0.087	Not Significant
df=33; two-tailed; $\alpha=0.50$		critical $r = \pm 0.1179$

This further implies that female respondents have higher Life and Career Skills than male respondents. This corroborates the finding on the emerging roles of women in this modern age where most women are employed in work industries. As cited by [19] Ancheta (2011), women in this modern age do not delimit their responsibilities at home but in the workplace. Hence, their roles and functions are now at par with responsibilities of man.

At the contrary, the other profile variables such as age, ethnicity, highest educational attainment of father and highest educational attainment of mother do not significantly correlate with the 21st century skills of the respondents along Life and Career Skills with the computed r - values of 0.050, 0.006, 0.015, 0.087 respectively.

4. The dimensions between and among the 21st century skills have very significant correlations as shown in the succeeding tables (Table 5-7)

Table 5. Correlation Coefficient between the Learning and Innovation Skills and Information, Media and Technology Literacy of the Respondents

Compared Variables	Computed r -value	Critical r -value	Coefficient of Determination	Remarks
Learning and Innovation Skills vs Information, Media and Technology Literacy	0.8217 Very High Correlation	0.3338	48.79%	Very Significant

$df=33$; two-tailed; $\alpha=0.05$

Table 5 depicts that Learning and Innovation skills has a very high correlation with Information, Media and Technology Literacy having a computed r value of 0.8217 with 33 degrees of freedom at 0.05 level of significance (two-tailed). Hence, this leads to the rejection of the null hypothesis. Since the coefficient of determination is 48.79%, the respondents' learning and innovations skills have a very significant relationship with information, media and technology literacy. It is inferred that in this information age, most of the learnings or advancements is attributed through the utilization of technology.

In the study of Vadil (2013) as quoted by Cradler (1994) Technology helps prepare students for the workforce when they learn to use and apply applications used in the world of work...Workforce skills are mastered with technology use. When content and strategies meet accepted education standards, research shows that technology increase mastery of vocational

and workforce skills and help prepare students for work when emphasize as a problem- solving tool.

Table 6 reveals a very high correlation between Learning and Innovation Skills with that of Life and Career Skills evidently reflected by the computed r -value of 0.8357 that is greater than the critical r - value 0.3338 with 33 degrees of freedom at 0.05 level of significance (two-tailed). As further revealed in the data, a coefficient of determination of 50.19% was noted for a very significant relationship between the two dimensions of 21st century skills. In this regard, the null hypothesis is rejected.

It is inferred that enhanced learning and innovation skills are achieved through the continuous quest for advance education and continuous exploration of creative and innovative ideas.

As Philosopher John Dewey believed "the aim of education is to enable individuals to continue their education...The object and reward of learning are contin-

ued capacity for growth” of course these higher-level thinking skill, or learning skills, is not new, but they are increasingly important in workplaces and community life.

Learning experiences can be more developed when learners will “embrace the knowledge, imagination and analytical ability to adapt and learn new thing over and over again, [20]. Students should finish their studies wanting (and able) to continue to learn and develop for their entire lives, enthused by the ethos of

(relevant) continuous professional and personal development which will run throughout their higher level learning whether this has been on a university campus at their workplace, electronically or by some hybrid combination of these, “ we need to change fundamentally how individual and businesses treat skills acquisition and development: from one- off experience in our youth to a lifelong commitment; from a business expense to an essential recurring investment in a competitive advantage and business success” [21] .

Table 6

Correlation Coefficient between the Learning and Innovation Skills and Life and Career Skills of the Respondents

Compared Variables	Computed r-value	Critical r-value	Coefficient of Determination	Remarks
Learning and Innovation Skills	0.8357	0.3338	50.19%	Very Significant
vs	Very High Correlation			
Life and Career Skills				
<i>df=33; two-tailed; $\alpha=0.05$</i>				

Table 7

Correlation Coefficient between the Information, Media and Technology Literacy and Life and Career Skills of the Respondents

Compared Variables	Computed r-value	Critical r-value	Coefficient of Determination	Remarks
Information, Media and Technology Literacy	0.7650	0.3338	43.12%	Very Significant
vs	High Correlation			
Life and Career Skills				
<i>df=33; two-tailed; $\alpha=0.05$</i>				

As evinced in Table 7, the Information, Media and Technology Literacy is very significantly correlated with Life and Career Skills as reflected by the computed r-value of 0.7650 which is greater than the critical r-value 0.3338 with 33 degrees of freedom at 0.05 level of significance (two-tailed). Thus, the null hypothesis is rejected. The 43.12 % coefficient of determination led to the very significant relations, specifically, with high correlations between Information, Media and Technology Literacy with that of Life and Career as 21st century skills of the respondents.

It is inferred that through information, media and technology transfers, there is advancement in life and career.

As cited by US undersecretary of commerce for technology, Philip J. Bond “All around as we see, the information technology revolution in progress- in communication, business and commerce, how we educate and trained our people and how we manage our personal lives.

CONCLUSION AND RECOMMENDATION

Majority of the respondents are in their teenage years, mostly female, and are Ilocanos, with fathers’ educational attainment higher than mothers. The respondents have a “very good” 21st century skills along creativity and innovation, critical thinking and problem solving, communication and collaboration, infor-

mation, media and technology literacy; flexibility and adaptability, initiative and self-direction, productivity and accountability, as well as leadership and responsibility. Distinctly, they have “excellent” social and cultural skills.

The higher the educational attainment of parents, the higher the learning and innovations skills among learners. Further, females have higher Information, Media and Technology Literacy as well as Life and Career Skills than males.

Very high correlations exist between learning and innovation skills with information media and technology literacy as well as learning and innovation skills with life and career skills compared with information media and technology literacy with life and career skills.

In the light of the conclusions drawn, the following recommendations are offered:

1. Students or children should encourage parents to avail of alternative learning or informal learning or experiences to upgrade their knowledge and skills to be of assistance to the personal and academic growth of their children since this study identified the level of academic attainment of parents which is influential and contributory to the development of their children

2. Since learning and innovation skills, information media and technology skills, as well as life and career skills, are the prime skills that have to be developed among students, they are encouraged to further their skills by being creative and innovative through experimenting, exploring, questioning, creating assumptions, using analysis, imagination, synthesizing information and evaluation as core elements of critical thinking.

Students should likewise be engaged to work in group setting and hold discussion with peers in order to adapt, to learn, to explore alternative perspectives and practice objective thinking salient for the enhancement of their critical and problem solving skills.

Students’ exposure to information, media and technology will further equip them with the skills needed to face problems and issues which demand critical thinking. They should learn to be flexible and adaptable but more importantly, they should be open minded or receptive to accept innovative ideas. With these, students develop their initiative and self-direction, hence leading them to be productive, and socially responsible individuals.

Teachers, on the other hand, can foster creativity among students by encouraging intrinsic motivation and problem-solving. They should promote regular

team brainstorming sessions, which allow students a chance to produce a high quantity of ideas and should create an encouraging study environment. If students see that their ideas are encouraged and accepted, they will be more likely to be creative, leading to potential innovation in the classroom.

3. Parents should be consciously aware of their complimentary role and influence on the development of the 21st century skills among their children. Hence, they should adopt initiatives and avail of opportunities to upgrade their knowledge and skills.

4. Since the school has its primary role in developing the learning and innovative skills in today’s information age, it should provide a collaborative study environment because creativity and innovation can stem from students studying together to reach a goal. Information, media and technology skills are complementary skills to harness the learning and innovation skills among learners.

The school should foster communication between and among students and teachers in order to help hand in hand in providing motivation and direction to students’ decisions, actions and career development.

For curriculum developers, the AB English curriculum should include more courses/subjects that will develop among students the ability to understand and use the practical and conceptual tools of current information technology relevant to education and the areas of work and professional life that the students expects to inhabit.

A training or seminar for students should be conducted yearly in school in order to develop their ability to continuously adapt to, understand, evaluate and make use of the continually emerging innovations in information technology in order to make intelligent decisions about the adoption of new ones.

Future researchers should conduct similar studies such as to explore in socio-cultural diversity and its impact on life and career development among professionals.

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