Students' Perceptions of Beneficial Learning Experiences in the 21st Century

Mary[1] / Jasmine Kong-Yan Tang[2]

[1]English Department, Mohnyin Degree College, Ministry of Education, Myanmar

[2]Languages and Literature Department, SUNY Geneseo, USA.

Abstract

The term 21st century skills refers to the skills seen as prerequisites for success in a global workforce. In addition, it is often said that educational change depends on what teachers think and do (Fullan, 1991), but students themselves are often overlooked when it comes to evaluating information about what change is needed in the classroom. In combining these thoughts, the purpose of this study was to learn more about student perceptions of teaching and learning based on the 21st century Learning and Innovation Skills: communication, collaboration, critical thinking, and creativity (4Cs) (Partnership for 21st century Learning, 2011). Learning Skills (The Four C's) are by far the most popular 21st Century skills. These skills are also called learning skills. More educators know about these skills because they are universal needs for any career. They also vary in terms of importance, depending on an individual's career aspirations: Critical thinking: Finding solutions to problems; Creativity: Thinking outside the box; Collaboration: Working with others; Communication: Talking to others. Students' perspective of current teaching and learning approaches in the classroom is an essential component of evaluating the

degree to which the needs of learners are being met for success in a global economy and a 21st century world. Therefore, the purpose of this research is to evaluate university students' perceptions of 21st century learning in the classroom as they are involved with communication, collaboration, critical thinking, and creativity (4Cs). Positive perceptions were found from students regarding the importance of all 4Cs for use beyond university (67.80%, 72.40%, 81.50%, 70.60%, respectively). Although over 60% of the participants agreed that each of the 4Cs is an important 21st century skill, there are much less experiences in creating presentations and posting online. There was a significant gap in students' views and experiencing the practice of these skills in the majority of students' classes. Findings from the study suggest that it is essential that educational leaders acknowledge and continue to support the incorporation of the 4Cs into daily instruction.

Keywords: students' perceptions, learning experiences, careers in the 21st Century

Introduction

Educators and workforce experts alike often warn that our students need improved 21st century skills. Without these skills, they will not be able to successfully participate in the global economy. They will not be adequately prepared for university and work. Each 21st Century skill is broken into one of three categories:

> *1.1 Learning skills*
>
> *1.2 Literacy skills*
>
> *1.3 Life skills*

Each of these categories pertains to a specific part of the digital curriculum experience.

Learning skills (the four C's) teach students about the mental processes required to adapt and improve upon a modern work environment.

Literacy skills (IMT) focus on how students can discern facts, publishing outlets, and the technology behind them. There is a strong focus on determining trustworthy sources and factual information to separate it from the misinformation that floods the Internet.

Life skills (FLIPS) take a look at intangible elements of a student's everyday life. These intangibles focus on both personal and professional qualities. Altogether, these categories cover all twelve 21st century skills that contribute to a student's future career.

Learning Skills (The Four C's) are by far the most popular 21st century skills. These skills are also called learning skills. More educators know about these skills because they are universal needs for any career. They also vary in terms of importance, depending on an individual's career aspirations: **Critical thinking**: Finding solutions to problems; **Creativity**: Thinking outside the box; **Collaboration**: Working with others; **Communication**: Talking to others. Research recently analyzed four major areas designed to improve the development of 21st century skills. While each data has slightly different list of critical skills, all agree on four critical areas for development:

- Critical thinking
- Creativity and imagination
- Collaboration and teamwork
- Communication

The common items focus on developing the communication, collaboration and teamwork, creativity and imagination and critical thinking skills students will need to be successful.

1. Critical Thinking

Students need the ability to think creatively, which includes proficiency with comparing, contrasting, evaluating, synthesizing, and applying without instruction or supervision. Creative thinking means being able to use the higher end of Bloom's Digital Taxonomy or higher-order thinking skills (HOTS). Tasks that require learner thinking and routine cognitive work are being outsourced more and more. So, it is essential to guide students towards being able to perform creative thinking. It is crucial to their ability to succeed in life after the classroom. Creative thinking is a significant part of what makes up information fluency. Creative thinkers see data and information in many different dimensions, and from multiple angles. They are adept at conceptualization, organization and classification, and knowledge synthesis. These types of skills are invaluable because they allow students to deal practically with problems of a social, mathematical, and scientific nature. It empowers them to make effective and level-headed decisions in their lives and relationships. It is easy to see why critical and creative thinking skills are important to succeed beyond University.

2. Creativity

Students need to be able to think and work creatively in both digital and non-digital environments to develop unique and useful solutions. Our digital students are in a constant state of stimulation and neural development with

technology use. They are natural producers and consumers of information. Students are constantly searching for ways to express themselves and their uniqueness. Through social media, they display this creative edge and are given constant and instantaneous feedback from their peers. This same level of creative power is used as they face interesting challenges and figure out how to meet them with ingenuity and vision. This is why creativity fluency is one of the essential fluency skills. Creativity is a vital outlet that inspires students to see who they are and what they can do, and to realize what they can accomplish. Creativity is the ability of a person to create, perform, or think of something in a way that has not been done before. Creativity is something within that involves thinking in depth with different and analytical ideas.

3. Collaboration

Students must possess the ability to collaborate seamlessly in both physical and virtual spaces, with real and virtual partners globally. Students of the digital age are social by nature. They text, post, update, share, chat, and constantly co-create in technological environments with each other. When they are unable to do this in university, they become disengaged and unattached to their learning. Connection and collaboration with others are essential not only to their learning but their mental and emotional health. It is a skill that educators must exercise with them regularly, and understanding collaboration fluency will assist with this. Students agree that they need the ability to solve complex problems in real time. In the future, complex problems that they cannot even conceive right now will be everywhere. As society advances, so will the complexity of its manageable conflicts. The more we focus on students' ability to devise effective solutions to real-world problems, the more successful those students will become.

4. Communication

Students must be able to communicate not just with text or speech, but in multiple multimedia formats. They must be able to communicate visually through video and imagery as effectively as they do with text and speech. Students love to communicate using technology. This is an essential part of media fluency. But it is more than just being able to effectively use digital media. It is about personal interactions as well. We must remind our students that responsible communication practice puts forth their best representation of who they are as individuals in every relationship and alliance they make in their lives. Whether talking face-to-face, blogging, texting, or creating a visual product, their values and beliefs are defined by how well they communicate with others. Encouraging them to develop and hone every aspect of their communication skills will serve them well in both their personal and professional lives.

Research Method

The purpose of the study is to use a student-reaction survey in order to learn more about university students' perceptions of this research study in the classroom related to the 4Cs (communication, collaboration, critical thinking, and creativity). While the focus on 21st century learning brings with its unbounded ways of teaching and learning, it is not clear whether or not students perceive these skills and methods as presented in their classrooms and important for their futures. Educational leaders have encouraged teachers and educational systems to rethink the education they are providing students by promoting techniques such as project-based learning, blended learning, and customized learning in order to create optimum learning environments that enhance post-graduation success (Collins & Halverson,

2009). While these skills are being promoted in university system around the country, there is little evidence on students' perceptions related to how effectively these skills are being taught in their classrooms (Bryk, 2015). Students' perspectives of current teaching and learning shifts in the classroom are an important component of evaluating the degree to which the needs of learners are being met in a global economy and a 21st century world (Hillman, 2015). Students' achievement will ultimately reveal the success or failure of current teaching methods; however, it seems prudent to assess the perceptions of progress for students made thus far.

   1. Research Questions

            To uncover the perceived importance and fidelity of practice of 21st century learning using the 4Cs, the following research questions guided the study:

            1.1   Do students view the 21st century skills of communication, collaboration, critical thinking, and creativity as being important for use beyond university?

            1.2   Do students experience the teaching of 21st century skills — communication, collaboration, critical thinking, and creativity (4Cs) — in the majority of their classes?

            1.3   Which learning experiences would be beneficial for the student in helping to become successful in the 21st century world?

            This study explored an improved understanding of the 21st century educational experiences of university students and their perceptions of learning and teaching using the 4Cs portion of the P21 Learning Framework.

   2. Research Design

            A survey was chosen as the form of research for this study because survey research is highly structured (Sapsford, 1999) and collects the quantifiable

information needed to look for patterns and trends (Calhoun, 2008). As Calhoun

stated, "Survey research provides an effective means for collecting data on many

different variables which are capable of being quantified and processed". (Calhoun,

2008)

3. Design of Survey Instrument

The following steps recommended by Fowler (2013) were used to

design the survey instrument with the goal of increasing reliability and validity:

1.4 Informal focus group discussions

1.5 Drafting of a tentative set of questions

1.6 Critical review of each question

1.7 Placement of the questions into a survey instrument and

1.8 Pretesting of the survey

In designing the survey instrument, the researchers chose to identify

the 21st century skills and methods related to learning and teaching through the use of

focus groups and a critical review of related literature. To assist in drafting a tentative

set of questions, the researchers reviewed copies of perception survey instruments

from published studies in the field of education. After the survey questions were

drafted, the researchers conducted informal focus groups with other professional

development teachers. As Fowler (2013) suggested, these focus groups allow the

researchers to find out whether the questions are able to be consistently understood

and answered without confusion. The researchers then placed the questions into a

survey instrument to pretest it with a pilot group of classroom teachers, and

eventually with a sample of 18-year-old students in the same university where a pilot

study would be conducted.

4. Layout of Survey Instrument

A self-administered and closed-question student reaction survey was used to inquire about the importance of the 4Cs for use beyond university and whether or not students experience the teaching of these 21st century skills in the majority of their classes. The survey instrument that the researcher created consisted of 4 sections and 20 questions. Prior to the 21st century skills question items, participants were asked to check their specialization: Science or Arts. The next question items asked which learning experiences the student believed would be beneficial in helping to become successful in the 21st century world. Choices included conducting research, learning from peers, creating presentations to share ideas with others, working with my peers on projects, and working with peers on projects. Next question item asked participants what learning activities they participated in during the classes. The choices included sharing thoughts and ideas with others, working with peers to reach a goal, looking at problems in new ways, and posting created works online. The next questions were contained in four sections covering each of the 4Cs. Each section contained four questions (agree/disagree) related to the use and perceived importance of communication, collaboration, critical thinking, and creativity as 21st century skills. Two of the questions within each section addressed the importance of the skill, and two questions addressed the practice of the skill. The survey took approximate 7 minutes to complete.

5. Data Collection

Via email, the researchers explained the study and asking permission to distribute the surveys. A hard copy of the self-administered and closed-question survey was completed by students 18 years old (or older) who volunteered to

participate. The researchers chose to use a hard copy version instead of an electronic version. The survey took approximately 5–7 minutes to complete.

    6. Participants

        Participants in this study consisted of arts and science university students who self-identified as being 18 years of age or older and attended the arts and science university in Myanmar. Table 1 shows the frequency distribution for the respondents.

Table 1

Students' responses by specialization (n=371)

Specialization	Science		Arts		Total	
	N	%	N	%	N	%
Total	173	46.63%	198	53.37%	371	100%

        During the study, 371 students from 13 different arts and science universities volunteered to take the survey about the importance of the 4Cs for use beyond university and whether or not they experience the teaching of these 21st century skills in the majority of their classes. Students surveyed came from all demographic areas within the university system, representing various socioeconomic statuses.

    7. Data Analysis

        After all surveys were collected, the student responses were entered into an Excel spreadsheet in order to capture the raw data and were disaggregated by specialization and gender. Each of the 4Cs sections in the survey had two questions regarding importance of the skill and two regarding the practice of the skill. Students had to agree with both questions about importance or practice in order to count as a

positive response. Students who did not answer both questions were excluded and were not counted in the sample. In order to look for discrepancies between importance and practice, each pair of questions were subtracted from each other.

Research Results

Data collected from the survey results of 371 students in 13 selected universities were analyzed to address each of the research questions and sub-questions with regard to the 4Cs — communication, collaboration, critical thinking and creativity. In addition, the tables present the data and significant findings for each research question. Of the surveys collected, 173 (46.63%) were from Science specializations and 188 (53.37%) came from Arts specializations.

1. Overall Results of the Importance of the 4Cs

In order to answer the first research question whether students view the 21st century skills of communication, collaboration, critical thinking, and creativity as being important for use beyond university, the researchers asked this question in each of the 4Cs categories in order to search for agreement or disagreement. Therefore, students had to agree on both importance questions within each "C" in order to count positively. Students who did not answer this question were excluded and were not counted in the sample. All others were counted as answering negatively. Overall, results exhibited positive perceptions regarding the importance of the 4Cs. The majority of participants agreed that each of the 4Cs is an important 21st century skill. The results in percentages of critical thinking, creativity, collaboration and communication are shown in the following tables.

Table 2

Overall combined results by percentage agreeing and disagreeing for importance and experience of the 21st century skills of 'Critical Thinking' (n=371)

Q No	Items	Responses		
		Agree	Not Decided	Disagree
1	Do you view the 21st century skills of 'Creative Thinking' as being important for use beyond university?	86%	10%	4%
2	Do you experience the teaching of 21st century skills of 'Creative Thinking' in the majority of your classes?	52.5%	28.5%	19%
3	I have the ability to see data and information in many different dimensions, and from multiple angles.	32.5%	40.5%	27%
4	I think that students need the ability to think creatively, which includes proficiency with comparing, contrasting, evaluating, synthesizing, and applying without instruction or supervision.	78%	15.5%	6.5%
5	In a 21st century world, it will be important for me to be able to look at problems in new ways.	90%	5.5%	4.5%
Avg		67.8%	20%	12.2%

According to the dada, the participants agree that it will be important for them to be able to be inventive and innovative in a 21st century world. They see why critical thinking skills are important to succeed beyond University.

Table 3

Overall combined results by percentage agreeing and disagreeing for importance and experience of the 21st century skills of 'Creativity' (n=371)

Q No	Items	Responses		
		Agree	Not Decided	Disagree
1	Do you view the 21st century skills of 'Creativity' as being important for use beyond university?	84%	15.5%	0.5%
2	Do you experience the teaching of 21st century skills of 'Creativity' in the majority of your classes?	53.5%	22%	24.5%
3	I have the ability to create, perform, or think of something in a way that has not been done before.	59.5%	22%	18.5%
4	I think that students need to be able to think and work creatively to develop unique and useful solutions.	81.5%	13%	5.5%
5	In a 21st century world, it will be important for me to use my imagination and / or try new approaches when producing work.	83.5%	15%	1.5%
Avg		72.4%	17.5%	10.1%

In view of the responses of the participants, they agree that it will be important for them to use their imagination and/or try new approaches when producing work in a 21st century world.

Table 4

Results by percentage agreeing and disagreeing for importance and experience of the 21st century skills of 'Collaboration' (n=371)

Q No	Items	Responses		
		Agree	Not Decided	Disagree
1	Do you view the 21st century skills of 'Collaboration' as being important for use beyond university?	94%	5%	1%
2	Do you experience the teaching of 21st century skills of 'Collaboration' in the majority of your classes?	59%	21%	20%
3	In a 21st century world, it will be important for me to work with my global partners to reach a goal.	83%	5.5%	11.5%
4	In a 21st century world, it will be important for the students to work with their peers on projects and/or assignments.	86.5%	11%	2.5%
5	In a 21st century world, it will be important for me to be able to work with others to text, post, update, share, chat, and constantly co-create in technological environments with each other.	85%	11.5%	3.5%
Avg		81.5%	10.8%	7.7%

The data indicate that students would have a higher likelihood of agreeing "In a 21st century world, it will be important for me to be able to work with others to reach a goal." This is because "agree" responses were found higher than "disagree" responses, so the higher the average percentage, the more students agreed. In a 21st century world, it will be important for them to work with others on projects and / or assignments.

Table 5

Results by percentage agreeing and disagreeing for importance and experience of the 21st century skills of 'Communication' (n=371)

Q No	Items	Responses		
		Agree	Not Decided	Disagree
1	Do you view the 21st century skills of 'Communication' as being important for use beyond university?	83%	9.5%	7.5%
2	Do you experience the teaching of 21st century skills of 'Communication' in the majority of your classes?	50%	20.5%	29.5%
3	In a 21st century world, it will be important for me to have the ability to incorporate multi-faceted levels of interaction and sharing information.	79%	11.5%	9.5%
4	In a 21st century world, it will be important for the students to have the ability to develop and hone every aspect of their communication skills that serve them well in both their personal and professional lives.	69.5%	28%	2.5%
5	In a 21st century world, it will be important for me to connect my University learning to the real world.	71.5%	16%	12.5%
Avg		70.6%	17.1%	12.3%

Most of the participants agree that in a 21st century world, communication skills will be important for them to use beyond university. Communication is a broad term that incorporates multi-faceted levels of interaction and sharing information. The students know that all 4Cs are important for them to be successful. The results show that positive attitudes were found from the students regarding the importance of 4Cs.

Table 6

Overall combined results by percentage agreeing and disagreeing for importance and experience of the 21st century skills of 4Cs (n=371)

SN	21st century skills	Responses		
		Agree	Not Decided	Disagree
1	Critical Thinking	67.80%	20.00%	12.20%
2	Creativity	72.40%	17.50%	10.10%
3	Collaboration	81.50%	10.80%	7.70%
4	Communication	70.60%	17.10%	12.30%

According to Table 6, positive perceptions were found from students regarding the importance of all 4Cs for use beyond university (67.80%, 72.40%, 81.50%, 70.60%, respectively). Working in group is a hallmark of the digital age. Our classroom and businesses incorporate teamwork into their daily practices. As such collaborative abilities have a permanent place among the most beneficial lifelong learning skills all students should develop.

Table 7

Students' responses for beneficial learning experiences for the success in 21st Century World (n=371)

Learning experiences	Learning from my peers		Working with my peers on projects		Creating presentations to share my ideas with others		Posting created works online	
	N	%	N	%	N	%	N	%
Total	110	29.65	181	48.79	49	13.21	31	8.35

The data revealed that students specifically perceived 'Working with my peers on projects' to be important at a higher rate (48.79%) than (29.65%) perceived 'Learning from my peers' to be important. Although there were significant differences, students found 'Collaboration' important. It was found that there are much less experiences in creating presentations and posting online.

Discussion

Specifically, the study asks, 'Do students see these skills as important, and are they experiencing the teaching and /or practice of these skills in the majority of their classes?'. The second purpose of the study was to see if students experience the teaching of 21st century skills - communication, collaboration, critical thinking, and creativity (4Cs) - in the majority of their classes and the third one was to see student perceptions of the teacher practice of the 4Cs. Table 8 provides the overall

combined results by percentage for each pair of questions regarding the importance of each of the 4Cs. In order to answer the research questions, table 8 provides the results by percentage regarding the practice of each of the 4Cs.

Table 8

Overall Combined Results by Percentage Agreeing for Practice

SN	21st century skills	Q items	Responses		
			Agree	Not Decided	Disagree
1	Creativity	Q 1: In the majority of my classes, I am often asked to use my imagination.	61.25%	18.00%	20.75%
		Q 2: In the majority of my classes, I am often asked to try new approaches when producing University work.			
2	Critical Thinking	Q 3: In the majority of my classes, I am often asked to look at problems in new ways.	64.00%	21.50%	14.50%
		Q 4: In the majority of my classes, I am often asked to connect what I have learned to the real world.			
3	Collaboration	Q 5: In the majority of my classes, I am often asked to work with my peers to reach a goal.	70.00%	14.00%	16.00%
		Q 6: In the majority of my classes, I am often asked to work with my peers on projects and/or assignments.			
4	Communication	Q 7: In the majority of my classes, I am often asked to share my thoughts and ideas.	68.50%	14.75%	16.75%
		Q 8: In the majority of my classes, I am often asked to share possible solutions to problems.			

The results showed positive perceptions of teaching of the 4Cs and importance of these skills. It is interesting to note the low percentage on creativity. Although student responses reported creativity to be an important 21st century skill, only 61.25% of students perceived experiencing the practice of creativity in the majority of their classes. Critical thinking follows suit with some of the students agreeing that it is an important 21st century skill, yet only 64.00% agreed with experiencing the teaching and/or practice of it in the majority of their classes. Student perceptions related to the importance of current teaching and learning trends in the classroom is a crucial component in evaluating what is relevant for meeting the needs

of a global economy and a 21st century world (Hillman, 2015). The findings of this study regarding student perceptions of the importance and practice of the 4Cs are particularly pertinent as educational leaders continue to develop theories on effective University instruction and create professional development for teachers in the future.

Recommendations

The purpose of the study was to learn more about student perceptions of teaching and learning based on the P21 Learning and Innovation Skills: communication, collaboration, critical thinking, and creativity. While the focus on 21st century learning brings with its unbounded ways of teaching and learning, it is not clear whether students perceive 21st century skills, especially the 4Cs skill set, as important and as being practiced in their classrooms. Along with the shift in teacher/student roles and technology-infused lessons, the use of the 4Cs is necessary for student performance to match student potential (Blair, 2012). Student achievement will ultimately reveal the success or failure of current teaching methods; however, it seems prudent to assess the student perceptions of progress made thus far. Educational leaders must seek to check with the students if they see value in the prescribed methods for learning in the 21st century classroom (Martens, Bastiaens, & Kirschner, 2007). The study's findings provide educational leaders with a more extensive understanding of the educational experiences of public high University seniors and their perceptions of learning and teaching using the 4Cs portion of the P21 Learning Framework. The information gleaned from this study is beneficial to educational leaders in moving forward with the development of curriculum related to effective learning and teaching in the 21st century. More specifically, the study revealed which of these 4Cs students think are most important for use beyond high

University and if they are experiencing the practice of these skills in the majority of their classes. The findings also revealed gaps in experiencing the practice of the 4C skills across tier, race, and gender. This exposure is especially meaningful because it highlights that educators need to ensure that all students receive the same level of opportunity and rigor no matter one's race, gender, or in which zip code a student resides.

References

Blair, N. (2012). Technology integration for the new 21st century learner. *Principal, 2012*(1), 8-13.

Bryk, A. S., Gomez, L.M., Grunow, A. & LeMahieu, P.G. (2015). *Learning to improve: How America's schools can get better at getting better*. Cambridge: Harvard Education Press.

Calhoun, C. (2008). *'Cosmopolitanism and the Modern Social Imaginary', Daedalus, 137*(3), 105-113. [doi://dx.doi.org/10.1162/daed.2008.137.3.105]

Collins, A and Halverson, R. (2009) *Rethinking education in the age of technology*. New York: Teachers College Press.

Fowler Floyd J, Jr. (2013). *Survey research methods, (5th ed.).* Center for Survey Research, University of Massachusetts Boston, USA

Fullan, M.G. (1991). *The New meaning of educational change*. New York: Teachers College Press.

Hillman, Nicholas W. (2015). "Geography of college opportunity: The case of education deserts." *Working paper, Madison*, WI: Wisconsin Center for the Advancement of Postsecondary Education.

Martens, R., Bastiaens, T. & Kirschnet, P. A. (2007). New learning design in distance education: The impact on student perception and motivation. *Distance Education, 28*(1), 81–93.

Orcher, L. T. (2005). *Conducting research: Social and behavioral science methods*. Glendale, CA: Pyrczak Publishing.

Sapsford, R. (1999). *Survey research*. London: Sage Publications.

Authors

Ms. Mary, M.A., Associate Professor, English Department, Mohnyin Degree College, Ministry of Education, Myanmar. Tel: +9592130210

Email: dawmary4@gmail.com

Ms. Jasmine Kong-Yan Tang, Ph.D., Professor, Languages and Literature Department, SUNY Geneseo, USA. Tel: +1 585-245-6349

Email: tangj@geneseo.edu