

**An Examination of the Higher Education Curriculum for  
Meeting Labor Market Demands of 21<sup>st</sup> Century Skills in  
Students:  
A Case Study of a University in Dubai, UAE**

تقييم كفاءة مناهج التعليم العالي في تلبية متطلبات سوق العمل لمهارات القرن  
الحادي والعشرين لدى الطلاب  
دراسة حالة لجامعة في دبي، الإمارات العربية المتحدة

by

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## **ABSTRACT**

Under the UAE National Agenda and Vision 2021, providing high quality education to all is a priority. Higher Education plays a major role in developing human capital and contributing to the economic development of the country. This research, therefore, aimed to evaluate the if the higher education curriculums are adequate for meeting labor market demands and economic development of the country. More specifically, the research aimed to assess if higher education were teaching 21<sup>st</sup> Century Skills to students sufficiently and to propose policy and procedure changes that can help develop 21<sup>st</sup> century skills in students graduating. The research was conducted at the British University of Dubai, and used a mixed methodology involving survey of 221 students and Interviews of 10 teachers. The research findings support that in the students' perceptions, they were indeed learning 21st Century skills well. Similarly, it was also found that the teachers were making an effort at their level to teach these skills at their own discretion and in an ad hoc manner. However, it was noted that the curriculum did not embed the teaching of 21st Century Skills and there were no standardized protocols or procedures available to teachers to follow for teaching them. The research therefore suggests policy changes and also re-designing of curriculums and teachers' training.

## ملخص البحث

إن إتاحة فرص التعليم عالي الجودة للجميع تعد من أولويات الأجندة الوطنية الإماراتية ورؤية 2021، وللتعليم العالي دور رئيس في تنمية رأس المال البشري والمساهمة في التنمية الاقتصادية للبلاد. من هنا يهدف هذا البحث إلى تقييم كفاءة مناهج التعليم العالي في تلبية متطلبات سوق العمل والتنمية الاقتصادية، وتحديدًا تقييم كفاءة التعليم العالي في تعليم مهارات القرن الحادي والعشرين للطلاب، ويسعى إلى تقديم مقترحات لتغيير السياسات والإجراءات التي يمكن أن تساعد في تطوير هذه المهارات لدى الخريجين. تم إجراء البحث في الجامعة البريطانية في دبي باستخدام منهجية مختلطة تضمنت مسحًا شمل 221 طالبًا ومقابلات مع 10 مدرسين. أظهرت النتائج أن الطلاب يرون من وجهة نظرهم أنهم يتعلمون بالفعل مهارات القرن الحادي والعشرين جيدًا. تبين أيضاً أن الأساتذة من جهتهم يبذلون جهدهم في تعليم تلك المهارات وفق ما يرونه مناسباً وبحسب الحاجة. ولكن لوحظ أن المنهج الدراسي لم يتضمن تعليم مهارات القرن الحادي والعشرين، وأنه لا توجد تعليمات أو إجراءات موحدة على الأساتذة اتباعها في تعليم تلك المهارات. لذا يقترح البحث تغييرات في السياسات الجامعية المتبعة إضافة إلى إعادة تصميم المناهج وتدريب الأساتذة.

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## **DEDICATION**

I want to dedicate this dissertation to my dear father Saul who passed away before he could see my complete this degree. The fact that I arrived successfully at this point in my educational journey is a testament to all of the never ending and constant love, instruction and guidance he gave to me throughout my life.

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# **CHAPTER 1 - INTRODUCTION**

## **1.1 Research Background**

The UAE National Agenda, along with the country's Vision 2021 has set one of its pillars as providing high quality education to all. The National Strategy 2030 has outlined the required technical and practical skills important for economic development and entrepreneurship sector (Al-Ali, 2008). The National Strategy 2030 guides Ministry of Education and the Education Strategic Plan 2017-2021 for innovation and creativity knowledge for the students (The Cultural Division of the Embassy of the UAE, 2020.). The aim of all these initiatives was to raise the standards of education in the country. Also to make sure that knowledge in higher education was obtained according to the labor market needs, and to meet the goal of Emiratization of all sectors of the economy.

The government focused on development of human capital through quality improvements of the educational system. Higher educational institutes developed curriculums for enhanced employability, productivity and competitiveness of Emirati students. The UAE government invested a lot in education that has led to the growth of the higher education sector in the country. The UAE higher education has expanded much over the past two decades, with government sponsored higher education programs during the 1970s and 1980s, like the UAE University and Higher Colleges of Technology (HCTs). However, the government allowed private investment in the education sector to meet the growing demand of higher education in the country.

Currently, there are three national universities and a large number of private local and foreign

higher educational institutes which are accredited under Knowledge and Human Development Authority (KHDA) (CAA, 2012). A total of 62 higher education institutes are operational in the UAE with 24 of them being the International branch campuses of foreign universities from across the globe (KHDA, 2017). There are also more than 100 licensed higher education providers, thus a massive supply availability of higher education teaching is there to cover a small population of only 9.98 million people of the UAE (Soomro, 2019). The rapid investment in infrastructure development and educational reforms had brought the country to the limelight. It is an emerging hub for higher education. The UAE higher education institutions have also been ranked high on the basis of a quality indicators developed by the World Economic Forum's Competitiveness Reports (World Economic Forum, 2019).

The path of future higher educational programs should therefore be match with the Vision 2021 of the country. It also must focused upon developing a human resources that can fit with the workforce needs of the 21st Century. The UAE's education plan 2017-21 increased the rate of graduation to 98% and become one among the top 20 countries rated by PISA (Programme for International Student Assessment) by the OECD (Organisation for Economic Co-operation and Development) (The Cultural Division of the Embassy of the UAE, 2020). The National Higher Education Strategy 2030 is also aiming to develop stronger accreditation standards and a framework for better alignment of higher education curriculums with the job markets (Ashour and Fatima, 2016).

However, there are some concerns regarding the quality of graduates that pass out of these higher educational institutes. Their skill and the needs of the job markets don't seem to match. Also, there are suggestions that a more practical approach is needed for enrollment and teaching

strategies in the higher educational institutes in the UAE (Badry, 2019). Further, there are also gaps noted in the content of teaching, and delivery modes of the teaching content. Most teaching is done based on the Western system of education and Western approach to learning, which may not be suited to the socio-cultural and demographic settings of the students from the UAE (Badry, 2019). The socio-cultural and political backdrop of the country is very different from the West. Also it is to be noted that education has only recently been given the focus and most students may be from a non-formal educational background. Thus, there is a need to modify the educational curriculums to teach the students from the country (Frache, Tombras, Nistazakis, & Thompson, 2019).

Currently, the higher education structure allows direct enrollment of students into professional and technological courses like the natural sciences, engineering and medial. This means that the students do not need to have undertaken any foundational course in these subjects (Arabian Gazette, 2016). This strategy helps in getting more students enrolled. But it may be a cause of concern regarding the students' basic aptitudes and abilities to fully understand and apply the technological courses. Also, there is a shift in the global business environment toward knowledge based business processes and activities (Majid, Liming, Tong, & Raihana, 2012). This means that future workforce needs to have discipline specific knowledge plus practical applications of that knowledge in diverse settings (Ilieva, Killingley, Tsiligiris and Peak, 2017; Kivunja, 2014; Krskova, Wood, Breyer, & Baumann, 2020). In acknowledgement with this requirement, there has been a drastic change in the regional educational policies as seen in the case of Qatar, Saudi Arabia and Egypt (Camilleri, 2019; Aljaber, 2019; Yamamura and Koth, 2018). Most countries in the Middle East have developed an educational vision that not only targets universal literacy, but also at expansion and development of higher education

(Yamamura and Koth, 2018). Also, globally, there is a shift toward making curriculum that helps application of knowledge and skills (Barrie and Pizzica, 2019). Global higher education is extremely competitive, with different countries investing heavily in educational technologies and developing suitable human resources to attract high quality students (Altbach, Reisberg and Rumbley, 2019).

The reasons for such mismatch may be the lack of practical skills that are required to operate in a fast-paced, challenging, and ever-changing 21st Century business environment. While there is no research conducted to gauge this there have been concerns by academics and policy makers regarding the students' caliber to lead business organizations in the coming future (Greiff et al., 2014; Frache, Nistazakis, & Tombras, 2017).

The situation, therefore, calls for a re-look of the higher educational curriculums with the aim of redesigning them to help in learning of these 21st Century Skills. The current research, therefore, aims to evaluate the effectiveness of higher education in the UAE for developing 21<sup>st</sup> century skills among the students. These skills include Creativity, Communication, Collaboration, Teamwork, Critical Thinking, Cultural Sensitivity, Ethics, Life Skills, Problem Solving, Innovation and IT literacy (Dede, 2010; Mishra and Kereluik, 2011; Germaine, Richards, Koeller, & Schubert-Irastorza, 2016).

The main purpose and intent of this study is to explore the current curriculum in UAE Higher Education institutes and to evaluate whether the students are likely to develop 21st Century Skills. Next, the research focuses on understanding any issues and barriers that may be leading

to lack of development of the 21st Century Skills, and finally, it will aim at developing recommendations for policy making.

## **1.2 Research Objectives**

The main objective of the research is:

**To assess the university curriculum for meeting the current and future labor market demands and economic development of the country.**

Further, the main aim was supported by the following objectives:

- To understand the current higher education curriculum used at a specific institute of higher education in the UAE
- To determine the extent to which the curriculum at a specific institute of higher education in the UAE aligns with the 21<sup>st</sup> Century Skills by document analysis
- To evaluate whether the skills students are taught at a specific institute of higher education in the UAE meet labor market demands.
- To propose higher education policies, procedures, protocols, and guidelines that can help develop 21<sup>st</sup> century skills in students graduating from college of higher education in the UAE.

## **1.3 Research Questions**

The study developed a set of research questions that focused on helping to attain the above objectives. The main research question was:



Research Question 1: To what extent is the curriculum at a specific institute of higher education in the UAE effective for developing 21<sup>st</sup> century skills that can meet the labor market demand?

**Sub-Questions:**

1. To what extent is the curriculum at a specific institute of higher education in the UAE designed to link pedagogical quality standards and knowledge creation to labor market demands and economic development?
2. To what extent are students at a specific institute of higher education in the UAE taught 21<sup>st</sup> Century Skills that are aligned with the labor market designs?

**1.4 Research Methods**

The research used a phenomenological paradigm and a mixed methodology. Both quantitative and qualitative methods for data collection were used. Since the research aimed to explore the perceptions of the teachers and the skills of the students, it was thought best that a phenomenological approach was the most suited to provide contextually rich and in-depth findings (Cohen, Manion, & Morrison, 2013). The research was therefore conducted in two phases. First phase was targeting the students of a specific institute of higher education in the UAE as participants and conducting with administering quantitative surveys. The survey questionnaires helped in evaluating the students in their development of 21<sup>st</sup> Century Skills. Therefore this survey also helped in assessing the effectiveness of the higher educational institute in preparing them to meet the labor market needs. In the next phase, qualitative interviews were done with teachers of the same college of higher education in the UAE as the participants.

The interviews helped in developing the understanding of the current curriculum, pedagogy, and its match with the development of 21st Century Skills in the students. The study also followed all ethical considerations related to research with human participants (Green, Camilli, & Elmore, 2012). The research methodology is discussed in more detail in Chapter 3.

#### **1.4 Research Significance**

The research proposes to evaluate the effectiveness of higher education in the UAE for making graduates meet the labor market demands. Also, to understand if the graduates could contribute in the economic development of the country. The research aimed to assess the higher education institutes in their ability to teach students the 21<sup>st</sup> century skills like Creativity, Communication, Collaboration, Teamwork, Critical Thinking, Cultural Sensitivity, Ethics, Life Skills, Problem Solving, Innovation and IT literacy (Johnson, 2009; Dede, 2010; Mishra and Kereluik, 2011). These skills are considered as essential for transformative learning and preparing students for practical life and real jobs (Taylor & Cranton, 2012). As such, the research is significant as it provides practical and important insights about gaps in higher education. It also helps in developing a set of recommendations for filling those gaps.

The research is of both academic and practical importance. Academically, it fills a gap in existing literature, as there are very few studies that have explored the utility and scope of teaching of 21st Century Skills in the context of the UAE higher educational institutes (O'Sullivan, & Dallas, 2017). The research has practical significance as it can help in policy making regarding curriculum development. It may lead to the development of 21st Century Skill-based curriculum that will create a workforce better suited for the current and future job market demands of the UAE.

## **1.6 Summary of Chapters**

*Chapter 1 Introduction* gives the research background, research aims and questions, research methods, and significance and scope of research. It also provides a brief overview of the remaining chapters.

*Chapter 2 Literature Review* presents a discussion and critical review of the existing literature on 21st Century Skills, Higher Education Standards, Higher education in the context of the UAE and UAE market needs.

*Chapter 3 or Research Methodology* will include a discussion and presentation of the research paradigm, research methods, and research design employed for the conduction of the empirical study

*Chapter 4 Findings* will present the findings from the survey of the students and the interviews of the teachers.

*Chapter 5 Discussion* will merge the findings from the survey and the students and develop a comprehensive discussion about the research results within the context of the existing literature.

*Chapter 6 Conclusions and Recommendations* is the last chapter that discusses the conclusions drawn from the research, their practical and academic implications, and recommendations for higher education in the UAE.

## **1.7 Conclusions**

The chapter gave the research background and contextualizes it within the Education Vision 2021 of the UAE government. It provides a rationale for the need to conduct research that can gauge the readiness of the higher education students in meeting the demands of the labor market and successfully contributing to the country's economy. Further, the chapter developed research objectives of understanding the current higher educational curriculum and its alignment with the requirement of teaching the 21st Century Skills to its students, and the aim of developing recommendations for higher education policies, procedures, protocols, and guidelines that can help develop 21<sup>st</sup> century skills in students graduating from a college of higher education in the UAE. Next, the chapter gave a brief overview of the research methodology that was employed in the study, in the form of a mixed methodological approach using quantitative surveys of students and qualitative interviews of teachers. The chapter also laid out the significance of the research in the form of its ability to inform policy development and curriculum design to better match the graduates' skills with the job market requirements in the UAE.

## **CHAPTER 2 - LITERATURE REVIEW**

### **2.1 Introduction**

This chapter aims to present a review and discussion of the topics relevant to the research questions, namely, the context of the UAE Higher Education, the concept of 21st Century Skills, and a critical review of the relevance of 21st Century Skills for the job market. Finally, development of 21st skills in students is discussed in the context of its relevance to higher education policy, curriculum and teaching methods.

### **2.2 Higher Education in the UAE**

The United Arab Emirates has been constantly consolidating its higher education infrastructure to provide better education and opportunities to its natives and also attracting students from all over the world. Moreover, the country has focused equally on men and women education. As per a report by UNESCO, in 2010 the literacy rate was noted to be 89 percent in men and 91 percent in women (UNESCO, 2012) which was only 54 percent in men and 31 percent in women in the year 1975. Spranza (2016) states that the UAE established compulsory primary education and free education in 1971 at all levels for its natives as per the country's Constitution and federal laws. To govern and policy developments of the higher education institutions, the UAE government has established the Ministry of Higher Education and Scientific Research (MHESR). However, several Emirates have their own local governing bodies monitor the higher education institutions in their territories.

In the present time, the universities for higher education in the UAE are accredited by MHESR under the Commission of Academic Accreditation (CAA). Some of the foreign Universities are

governed by the Knowledge and Human Development Authority (KHDA) and are located in Dubai Emirate. These foreign Universities are called free-zone Universities and are accredited in their own countries. Free-zone Universities are only branch campuses of International Universities and have similar academic systems as their main campus in their respective home countries, for example, Britain, India, Pakistan, America, etc.

A study by KHDA in 2017-2018, states that there are 79 private higher education institutions in the UAE including 24 campuses of foreign Universities and 15 public higher education institutes (KHDA, 2020). The UAE has developed itself as one of the most aspiring higher education markets in the world. There are more than 100 licensed higher education institutions for a population of 9.54 million only (Kamal, 2018). It shows that the UAE administration has adopted aggressive policies to establish higher education institutions which will help the nation to build a knowledge-based economy and strengthen its economic growth. The UAE government has prioritized the current education plan for 2017-21 aiming to raise the upper graduation rate to 98 percent from 96.7 percent in 2016 (Embassy of the UAE, USA, 2011).

Wilkins has reported some important institutions of other countries which are established in the UAE and provide quality higher education to the students of the UAE (Kamal, 2018). As per a study, India based Amity University Dubai, which was established in 2012 in the UAE with 32-degree programs, had enrolled around 2000 students in the year 2018-2019. This is the highest number of students in any foreign-based University in the UAE. The report also listed Synergy University Dubai of Russian origin with 9-degree programs and 140 enrolled students in 2018-2019. The Modul University of Austria was established in the year 2016 in Dubai with 4-degree programs, had also attracted around 360 students for higher education. Similarly, the

Curtin University of Australia, established in Dubai in the year 2017, ran 7-degree programs with 200 students in the same year 2018-2019. A Lebanese University, University of Balmund, was also established in the year 2018 with 6-degree programs. The study also listed the University of Birmingham, the UK, established in Dubai in the year 2018 with 9-degree programs and over 190 enrolled students in the year 2018-2019. (Wilkins and Huisman, 2019). The study clearly shows that the government of the UAE is looking forward to improving rating in the education market and to establishing a strong global presence in the higher education sector.

Although the higher education system in the UAE is flourishing widely, researchers believe that it has now inclined towards the knowledge-based economy and more dependent on the market which raises few questions on the quality of education that is being imparted by the institutions (Ashour, 2017). Hence, there are many institutional and cultural challenges to be tackled in this new era. The most important challenge is to raise the employability of graduates in a knowledge society.

## **2.2 An Overview of the Concept of 21st Century Skills**

The concept of 21st Century Skills evolved with the growing awareness regarding the need for students to develop practical, usable and hands-on skills that they can depend on for managing their work lives as well as personal lives. In addition to the subject based knowledge, students need to develop specific abilities and skills that can help them not only master content learning, but also, to apply their learning in diverse situations (Anagün, 2018). 21st Century Skills, was a broad terminology that was used to define and establish the skill set that a student needed for surviving and thriving in the new century, but the skill set per se was not new, except for

enhanced technological skills (Geisinger, 2016). Broadly, the 21st Century Skills are divided into three distinct categories, learning skills, literacy skills, and life skills (Chu, Reynolds, Tavares, Notari and Lee, 2017). Learning skills include skills like critical thinking, creativity, collaboration and cooperation, and are useful for students in understanding their classroom teaching, working with others and applying their learning in different settings (Van Laar, Van Deursen, Van Dijk and De Haan, 2017). More specifically, critical thinking abilities can help students to think for themselves and find out solutions that may be most practical and effective; creativity is an essential requirement for finding novel solutions and innovations and helps students to look at things from diverse perspectives that can lead to problem solving at a new level. Similarly, collaboration and cooperation are needed in a world that is increasingly connected and inter-dependent, and students need to be able to adjust with and synergize their work within teams (Chalkiadaki, 2018; Van Laar et al., 2017). The learning skills are therefore considered as the core skills that people need to survive in a modern and globalized work environment, and it is essential that colleges assist students in developing these skills in addition to their subject knowledge.

Literacy skills, on the other hand are more tuned with the requirements of a digitalized world. Within Literacy skills, students learn how to use technology, media and information accurately, and how-to de-clutter from information explosion while at the same time taking in useful insights from the plethora data available. These are essential skills simply because all workplaces are digitalized to some extent, and information and data form the core driving forces for other business processes (Van Laar et al., 2017). Life skills are probably the most abstract of the skills, as these were not taught explicitly earlier, instead, they were often considered to be inherent in some and non-existent in others (Chalkiadaki, 2018). These skills include



flexibility, leadership, initiative taking, social skills and managing productivity against distractions (Van Laar et al., 2017). Together, the three sets of skills are expected to enable a student to take on the challenges that a 21st Century workplace may pose to them (Chu et al., 2017). Due to the growing acceptance of the need for students to have these 21st Century Skills, several frameworks were evolved in the last decade to facilitate their development, as discussed in the next section.

### **2.3 Overview of Frameworks for Teaching 21<sup>st</sup> Century Skills**

Some of the important frameworks like Partnership for 21<sup>st</sup> Century Skills Framework (2006) from the USA, also known as the P21 Framework emphasizes the elements which are not typically covered in schools' and colleges' curriculum. It includes global awareness, financial and economic skills; business development skills, civic sense; and health and wellness. The P21 Framework asserts the importance of these skills besides traditional education and focusses on continued learning and innovation throughout the student's life. Moreover, this framework also indicates the requirement of skills like leadership, work and cultural ethics, accountability, and adaptability in a graduate.

The other important framework is The EnGauge Framework from Metiri and NCREL which is centralized on four basic skills and several sub-skills. It accounts for digital literacy as the most important skill in the 21<sup>st</sup> century and further includes basic, scientific, and global awareness in the technological sector (Voogt and Roblin, 2012). Other important key skills include inventive thinking, effective communication, and high productivity.

The Organization for Economic Cooperation and Development (OECD) framework suggests that interactive use of tools, effective interaction in heterogeneous groups, act autonomously and the ability to use oral and verbal language are a few more important competencies that should be incorporated in the education system. Further, this framework also asserts the importance of skills like developing life plans and understanding the needs, rights, and limitations.

The American Association of College and Universities (AACU) Framework identifies some skills which are relevant in this 21<sup>st</sup> century like knowledge and understanding of diverse culture, acknowledgement of nature and physical world, intellectual development, civil responsibility, efficient and integrative learning.

As per The Center for Public Education's (CPE) Framework, basic subjective expertise and ability to use this subjective knowledge in the real-life situations is also a relevant skill that needs to be developed for this new age. It would help to enhance professional and personal well-being. The International Society for Technology in Education (ISTE) framework discusses the importance of skills like safe and legal use of information and technology, developing new ideas in groups and autonomously, using models and simulators for expressing complex ideas and plans, and finally, skills to identify future trends and forecasting.

There are several frameworks and almost all of them display basic similarities in their model and ideas required to identify the 21<sup>st</sup> century skills. The basic idea behind the concept is to develop knowledge in core subjects, its application in the real-life situations and capacitate the

student to develop soft skills like communication, ethics, cultural and emotional competencies for a better and easy life.

It is seen from the above review of the Frameworks, that there is considerable overlap in them, though any one of them can provide suitable guidance for including the content as well as structure for teaching the 21st Century Skills.

## **2.4 Relevance of 21st Century Skills for Job Market Demands**

### **2.4.1 Global Context for 21st Century Skills for Job Market Demands**

Higher education is expected to provide specific knowledge and skills to the students which they require to be successful in college and then in the workplace. However, recent studies and researches have indicated that the students which are graduating from higher institutes lack, basic skills that are needed to be successful in institutions and increase their employability in the market (O'Sullivan, 2017). There has been a rapid change in social and technological fields which has shifted the global economic paradigm from industrial to an information-based economy. As per Kirsch (2015), a large number of jobs are being created which require broader skill sets in addition to technical and subjective knowledge.

Reviews by several scholars have described the critical skills needed for living and contributing to the present societies through various frameworks (Binkley et al., 2012; Dede, 2010; Mishra & Kereluik, 2011; Voogt & Pareja Roblin, 2012). These frameworks point out that 21<sup>st</sup> century skills are the different combinations of communication skills, digital tech know-how, problem-solving abilities, critical approach, creativity, and higher productivity.

In the present scenario, 21<sup>st</sup> century skills are already in demand by employers. A study conducted by Rios (2020) claims that besides subjective knowledge, oral and written communication skills were highly requested by the employers. Collaboration and problem-solving skills are also in high demand followed by social intelligence and self-direction. These skills now appear even on the job advertisements of various companies which signify the importance of the 21<sup>st</sup> century skills in the present scenario. The hiring companies now assert that these skills are critical for workplace success and must be inculcated in the job seekers for better employment opportunities. A research survey on 1000 business executives and hiring officials in the US indicated that approximately only 40 percent of the graduates acquire adequate communication skills to be hired in the job market and succeed in their workplace. Communication skills, both oral and written are in high demand in the job market (Hart Research Associates, 2018).

These surveys indicate that there is an imbalance between the skills developed in the higher education institutes and those which are needed in the workplace. As per the study by Autor (2003), there has been an increase in the complexity as well as the diversity of the tasks at the workplace which further require more diverse skill sets to meet such demands in the job market. In addition to increased advancements in technological fields, globalization also created diversified customers and hence diversified work tasks. These developments lead to an increase in the demand for new and diversified skills in the job market (Friedman, 2016). Employers are seeking 21<sup>st</sup> century skills as bridging the gap between a graduate degree and the actual skills which are required for the fulfillment of the job. Glass (2014) suggests that, although bachelor's degrees are a common requirement for job applications, the degrees have become less effective

in providing the information that the applicants actually possess those particular skills that are in demand in the present job market.

#### **2.4.2 The UAE Job Market and 21st Century Skills**

Recent advancement in the technology front and globalization has led a shifting of global economic paradigm towards an economy that is more based on knowledge and therefore the human capital needs to be more resourceful and competitive to meet present trends (Jessop, 2017). The UAE is also shifting towards a knowledge-based economy that is different from the current hydrocarbon domain (Ashour, 2020). Since the workforce market and education policies are changing rapidly in the country; there is a need to modify the relationship between educational institutions and industries. The higher education institutions must develop employability skills in their graduates by reshaping their curriculum as per industrial demands (Rajan, 2019).

As per McKinsey Global Institute (2017), only 22 percent of the UAE students have the opinion that their education is relevant for their career success. Research by Federal Competitiveness and Statistics Authority shows that only 14 percent of students enrolled in private institutions and only 32 percent of students in government-run institutes took admissions in subjects like engineering and information technology (FCSA, 2017). A majority of the students in the UAE are enrolled in social sciences which sums up to 67 percent in private institutes and 56 percent in government universities. The remaining percent of students are enrolled in health and medical science. The study and figures reveal that there is considerable disparity between education preferences and the job market needs (Hvidt, 2016).

It is, therefore, an utmost requirement for the UAE government to guide the Universities to remodel their education policies and attract students to enroll in needed fields as per the job market demands. Universities must redirect their capital, human resources, and curriculum to support the degree programs that are needed for the UAE's future workforce (Ashour, 2020). Esposito et al (2017) states that the UAE is making considerable investments in the science, technology, engineering, and mathematics (STEM) education along with developing a strong information infrastructure. Universities should customize the education system to develop skills that are required in the 21<sup>st</sup> century workplace and contribute towards a growing knowledge-based economy of the UAE.

## **2.5 21st Century Skills and Pedagogical Approaches**

A review of literature has indicated that formalization of teaching of the 21st Century Skills has still not been made mainframe, though there are several different initiatives that are in use across the world. For example, Personal Development Education (PDE) is taught as a separate subject in some colleges to enable students learn interpersonal skills and interaction skills, which are part of the 21st Century Skills (Jacobson-Lundeberg, 2016). The The Common Core State Standards (CCSS) is another initiative that allows colleges to teach collaboration and communication skills as part of their curriculums (Jacobson-Lundeberg, 2016). However, examples of 21st Century Skills as explicitly embedded in the curriculums are rare; and only rarely have scholars looked at developing a specific pedagogical framework for doing this. For example, Frache, Tombras, Nistazakis and Thompson (2020) developed a Learning-By-Doing framework for teaching 21st Century Skills as part of the curriculum design, but it appears to be a lone attempt in the context of the UAE higher education. Some research is also available where schools in marginalized neighborhoods in the Western context have been teaching skills

like communication and collaboration to give them a sense of empowerment and well-being (Jacobson-Lundeberg, 2013). There have also been attempts at the global level to standardize teaching of 21st Century Skills, as seen in the Global Partnership for Education and the United Nations Sustainable Development Goal 4, both of which provide directions, guidance and resources for teaching skills that empower students practical learning and literacy skills (Andrade, 2016).

In the context of the UAE, the Ministry of Education announced introduction of formal teaching for 21st Century Skills in the UAE at school levels, through investment in infrastructure, teacher training and overall development of resources that can support students' learning (Pennington, 2017). While this policy is expected to help in laying an early foundation for the 21st Century skills among younger students, there still remains a gap in skill levels for students who are already in higher education and about to embark on their professional lives in the near future. Nevertheless, higher education policy development is needed in order to empower students to develop these skills actively and in a conscious and explicit manner.

## **2.6 Summary**

The chapter discussed the concept of 21st Century Skills as skills that provide learning, literacy and life-skills to students and better prepare them to meet the challenges of the modern day workplace. Skills like critical thinking, creativity, collaboration, cooperation, flexibility, leadership, productivity management, initiative taking, social skills information, media, and technology skills were discussed and linked to the job market needs. The chapter also critically reviewed and compared different frameworks for 21st Century Skills and discussed studies that have evaluated the relevance of these skills in the global job market as well as for the UAE job

market. The enhanced requirement of media and technology, and the need for collaboration and networking were discussed as essential aspects of the business world. Finally, the chapter also provided an overview of the policies, pedagogical frameworks, and practical implementation of curriculums for teaching the 21st Century Skills in a formal and structured manner.



## **CHAPTER 3 – METHODOLOGY**

### **3.1 Introduction**

In this section, the research methodology adopted for the study is discussed. The research approach of the author is phenomenological which meets the rich-context and in-depth findings nature of the study. Further, for the data collection of the study, both qualitative and quantitative methods are used to cover a large sample space. Moreover, the research design adopted by the author is also discussed in a further section which states that a rigid design with limited resources has been used for the study. For the sample and data collection, surveys were conducted, and questionnaires further helped for a more detailed understanding of the sample space and data analysis. Ethical considerations and limitations faced during the study are also discussed to get a clear overview of the research methodology.

### **3.2 Research Approach**

The main objective of the research is to study the perception of teachers and the opinion of students towards the skills required for their future developments. The aim of the research always influences the research approach to be used for a complete study. The author has adopted the phenomenological paradigm and a mixed methodology approach to identify the context of the research. As per Cohen (2013), for contextually rich and in-depth findings of a research, a phenomenological approach is the most suited approach. Moreover, many researchers have stated that phenomenology is an evolving philosophical stance in first and foremost position (Ray 1994; McConnellHenry et al. 2009; van Manen & Adams 2010). As per Hopkins (2016), phenomenology is a research approach that is a collection of diverse perspectives and opinions of many philosophers. This approach helps the researchers to conduct

the study with the help of their own phenomenological approach which is based on their beliefs and the research objectives. Smith et al. (2009) explain that this approach is very systematic and reflects attentively on the lived experiences of the research subjects. Hence, the approach adopted by the researcher is well justified as it brings out the diverse attitude of teachers and the students in context to the higher education which is being imparted and its utility in upcoming prospects. This is in keeping with the research focus which on understanding if the curriculum and teaching approach supports development of 21st Century Skills needed in the labor market. Such an exploration is possible through the knowing the perceptions and opinions of the people involved in the development and delivery of the curriculum (teachers and administration) as well as in learning (students).

### **3.3 Research Method**

The research method adopted for the study is both quantitative and qualitative. As per Maxwell (2013), the qualitative research methods provide a better understanding of the deeper relationships between research subjects, beliefs, values, and attitudes that cannot be reduced to numerical and operational variables. With the quantitative approach, the data collected can be quantified and studied with mathematical and statistical models. The objective of the qualitative approach is to consider various dimensions of the research and to produce in-depth and descriptive information. The quantitative methodology adopts structured procedures and logical instruments for data collection and analysis through statistical methods.

Queirós (2017) points out a few differences between qualitative and quantitative methods. As per the study, the qualitative approach has a bigger focus on understating the problem that the quantitative approach. Moreover, the theoretical framework and hypotheses for the study are

more structured in the qualitative approach as compared to the quantitative approach. The study also claims that the scope of study in time is immediate in the quantitative approach while it has a longer range in the qualitative method. In quantitative research, the results are so taken that they provide a sufficiently comprehensive view of a population (Martin & Bridgmon, 2012).

In this research, the author has adopted both the methodologies to provide a better understanding of the findings and meet the objective of the study. The survey method allows collecting information from a large number of students and thus gives the advantage of having a large sample size and increased diversity of opinions. On the other hand, the qualitative interviews of teachers allow for the inclusion of detailed opinions, thoughts, and even non-verbal cues and behaviors for giving comprehensive insights on the issue.

### **3.4 Research Design**

To make sure the research is objective and on time with limited resources, a rigid framework was used to conduct the study. Since the study has both quantitative and qualitative data collection, it is essential to have a schedule and structure to ensure that credible data is collected accurately, and ethically. A rigid framework ensures that qualitative research, which is often criticized for being subjective, is undertaken in a disciplined and accurate manner.

The research design allowed for the study to be carried out in phases, with the first phase including surveys followed by the second phase consisting of interviews.

### **3.5 Sampling, Data Collection & Data Analysis**

#### **3.5.1 Sampling**

The research sample for the survey consisted of students the British University in Dubai. The sampling was done using a random sampling approach, in which the researcher posted a notice on the college premises, asking students to participate. Interested participants provided their email addresses, and a link to the survey was sent to them through email. A total of 221 students finally participated. Random sampling allows for the chance inclusion of participants and gives a sample that is representative of the target population (Queirós, Faria and Almeida, 2017), and as such, its findings are considered to be valid and reliable (Maxwell, 2013).

The interview participants were selected using a judgmental sampling method. The institute that was used for the surveys, was asked to give permission for allowing teachers participation in the interviews. The administration of the British University in Dubai provided the names of ten interview participants who were contacted and asked to participate in the research. A judgmental sample has the advantage that it allows for the inclusion of experts or people who are knowledgeable on the issue (Maxwell, 2013), instead of random chance-based participants, thus ensuring that the findings to be more accurate and credible (Hopkins, Regehr and Pratt, 2017).

#### **3.5.2 Data Collection**

In the first phase, students of the higher education institute were provided with surveys for data collection. The survey questionnaires mostly consisted of the questions related to self-assessment of the students' 21<sup>st</sup> Century Skills using a Likert style scale. The survey helped in

evaluating the preparedness of future graduates for the growing and changing job market needs. It also provided a better understanding of the effectiveness of the education curriculum as per the labor market and the perceptions of the students about their learning and readiness to participate in the job markets in the future.

In the second phase, qualitative interviews of the teachers of the college of higher education in the UAE were done. The 10 interviews were scheduled as per the convenience of the teachers, and they were asked to give their opinion about the current curriculum, pedagogy, and the skills required in this 21<sup>st</sup> century. Moreover, they were further questioned regarding developments and improvements required in the higher education fields to make it more suitable for the students. As per the data collected, all the teachers were well involved in the interviews and gave long answers to put forward their opinions.

### **3.5.3 Data Analysis**

The data collected through quantitative survey was analyzed to calculate the scores of students on individual 21<sup>st</sup> Century Skills, as well as overall score for all Skills.

Further, to provide a statistical approach to the study, means and averages were calculated as per participants' scores which further classified into below average, average, good, and excellent (Martin and Bridgmon, 2012). The calculated scores of participants reflected their understanding of the 21<sup>st</sup> Century Skills, and their preparedness for meeting the labor market needs.

The interviews were assessed manually using thematic content analysis process (Maxwell, 2013). The transcripts were read individually first and then all together for a better presentation of the data. The data analysis identified some themes which were relevant as per the current curriculum, pedagogy, and its match with the development of 21<sup>st</sup> Century Skills in the students. These two findings streams were later merged, using themes developed in thematic content analysis as the base and survey findings to give enriched insights about the current status of learning in the colleges.

### **3.6 Ethical Consideration**

The study also followed all ethical considerations related to research with human participants (Green, Camilli, & Elmore, 2012). Many researchers have simplified the implementation of ethics to the research project and linked it to a few principles like Privacy, Accuracy, Property, and Accessibility. These principles should be upheld when dealing with human participants and data (Sidgwick, 1907).

In this study, the researcher had collected data from a number of students and teachers from different colleges of the targeted institute of higher education in the UAE. The very first ethical principle followed was informed consent. The study was conducted by collecting the data who volunteered for the research. These participants were well informed about the nature of the study and were asked to sign a form giving their full voluntarily consent about the data usage and saying that they were well informed about the purpose of the research. Further, the participants were given full anonymity by making the surveys and interviews private and safeguarding the data which is to be analyzed. As per Black (1999), maintaining the

confidentiality of the research outcomes and the anonymity of the participant is a crucial issue. Also, ethics approval was obtained from BUID.

### **3.7 Limitations**

There were certain limitations faced by the researcher during the study. The most important was the limitation of person-to-person interaction. Due to the Covid-19 pandemic, the research participants were interviewed via telephone which could be a limitation as the researcher was not able to notice and study the behavioral changes and the body language of the participants, which could have further enriched the collected data. Further, the self-report nature of the survey provides limited information and raises questions on data authenticity. The participants were asked to complete the surveys on their own as it was forwarded to them through emails. Self-report methods are subject to some limitations as participants may skip some questions, answer in haste, or may not understand the questions (Martin and Bridgmon, 2012). Moreover, the survey and the interview questions were not tested through any pilot study. Boudreau et al., (2001) states that the evaluation of the survey instruments is necessary to ensure that the questionnaire is inclusive of all the essential items and eliminate undesirable fields to a particular domain.

### **3.8 Conclusion**

The above discussion brings out the importance of the research approach and the methodologies adopted to conduct the study. The researcher had adopted a phenomenological paradigm and mixed methodology for the study. Further, both qualitative and quantitative approaches were used to collect the data from the participants, and finally, the methodology adopted to process and analyze the data for the research outcomes. The study has to undergo a few ethical

considerations like privacy and confidentiality of the data and participants of the survey. Moreover, few limitations due to pandemic situations were faced during the study. Data authenticity and survey integrity is also questioned.



## CHAPTER 4: FINDINGS

### 4.1 Introduction

The research was conducted using a mixed methodology, where 221 students were surveyed to assess their 21st Century Skills, and 10 teachers were interviewed to obtain in-depth information regarding the teaching of 21st Century Skills at the college, and teachers' understanding of the skills and their importance to prepare students for the job market. The chapter is therefore divided into two parts: findings from the students' survey and findings from the teachers' interviews. The aim of the chapter is to clearly show how survey and the interview data was evaluated and present it so as to underscore the attainment of the research aims and objectives. The following Table 4.1 shows how the research was used to achieve the research objectives.

**Table 4.1: Methods Used to Achieve Research Aims and Objectives**

Method	Research Aims and Objectives
Survey	<ul style="list-style-type: none"><li>- To evaluate the 21st Century skills of students at a specific institute of higher education in the UAE for meeting labour market demands.</li></ul>
Interviews	<ul style="list-style-type: none"><li>- To understand the current higher education curriculum used at a specific institute of higher education in the UAE</li><li>- To determine the extent to which the curriculum at a specific institute of higher education in the UAE aligns with the 21<sup>st</sup> Century Skills by document analysis</li><li>- To propose higher education policies, procedures, protocols, and guidelines that can help develop 21<sup>st</sup> century skills in students graduating from institutes of higher education in the UAE.</li></ul>

## **4.2 Findings - Students' Survey**

This section presents the findings from the survey of the students, which are divided into demographic findings - gender, age, educational background and nationality - to give a context to the sample; and into the results obtained on the 21st Century Skills assessment section of the survey.

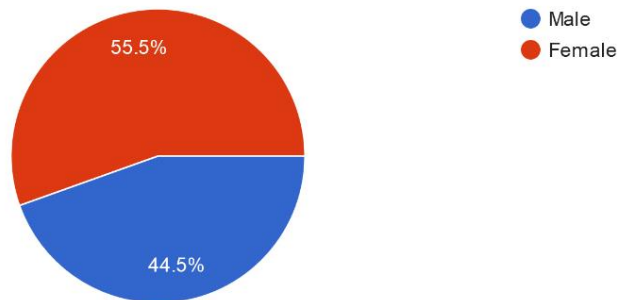
### **4.2.1 Descriptive Statistics (Demographic Profile)**

#### **4.2.1.1 Gender**

The sample had more female participants than male as seen in the following Figure 1. This is typical gender make-up of colleges of higher education in the UAE, as most higher education institutes seem to have a much higher female enrolment than male enrolment (Ashour, 2020). While this unequal proportion of male and female students has been a subject of other studies, and scholars have found several reasons (like women enrolling in higher degrees while they wait for a suitable match for marriage, but men enter workforce early on) (Ashour, 2020), there is no cause to believe that this disproportionate gender make up in the current sample would impact upon the findings.

1. What is your gender?

220 responses



*Figure 1 Gender of the Respondents<sup>1</sup>*

#### **4.2.1.2 Age**

As seen from the following Figure 2, majority of the respondents were between 24 and 26 years of age, followed by between 21 and 23 years old. However, as can be seen below, there were older students (27 years or more) and much younger students (20 years or below). The sample therefore can be said to be reflective of a college of higher education in the UAE, as age limits are not strict and students allowed enrolling at various ages to encourage higher education graduation (Carroll and van den Hoven, 2017).

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<sup>1</sup> While the total sample size was of 221 students, in some questions, the number of responses received were lesser than 221.

2. What is your age?

221 responses

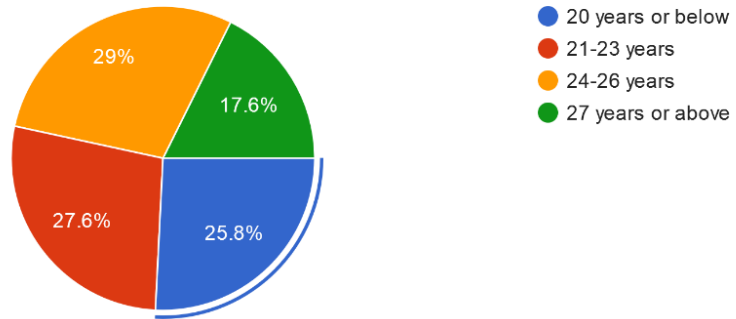


Figure 2 Age of the Respondents

#### 4.2.1.3 Educational Background

The sample consisted of a majority of students with a private educational background, which may have an impact on their readiness to learn 21st Century Skills; however, the current research did not correlate educational background with learning efficiency of 21st Century Skills, and suggests that researchers in future may explore this correlation and add to the research gaps.

3. What was your high school?

221 responses

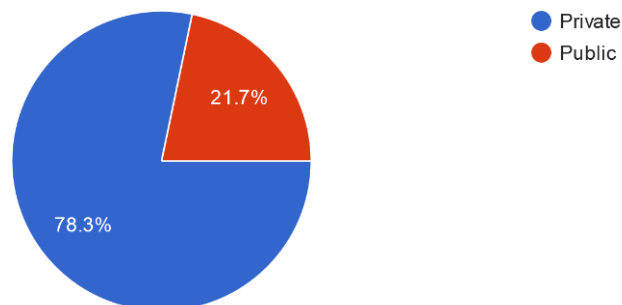
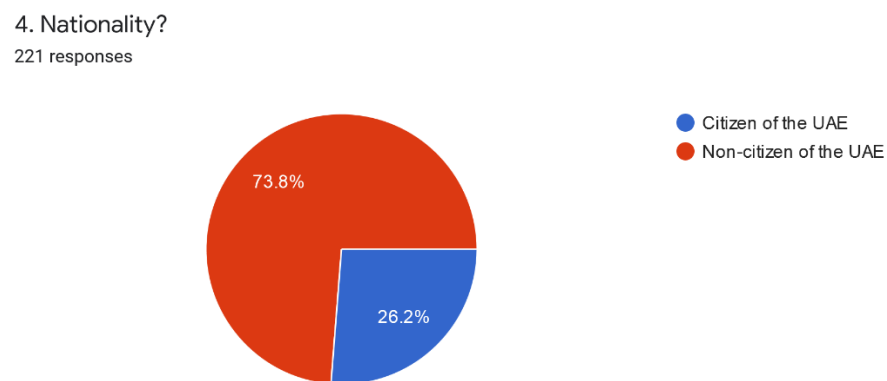


Figure 3 Educational Background of the Respondents

#### 4.2.1.4 Nationality

The sample predominantly consisted of non-citizens of the UAE (73.8%) and is reflective of the general diversity on the campuses of colleges of higher education. The results of this survey can therefore be presumed to be applicable to most of the colleges of higher education operational in the UAE, as a similar nationality make up is likely to be found in most places.



*Figure 4 Nationality of the Respondents*

#### 4.2.2 21st Century Skills

The survey questions assessed students on 21st Century Skills like Critical Thinking Skills, Collaboration Skills, Communication Skills, Creativity and Innovation Skills, Self-Direction Skills, Global Connections, Local Connections and the Skill for Using Technology as a Tool for Learning.

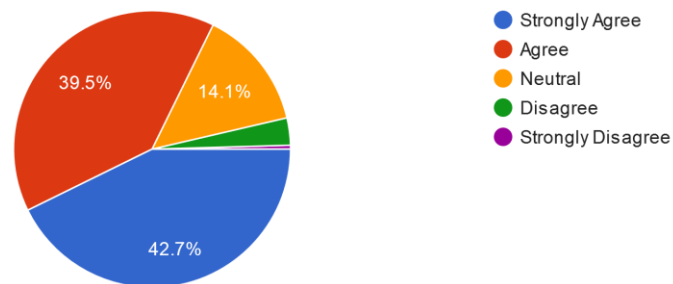
##### 4.2.2.1 Critical Thinking Skills

The following Figure 5 shows the responses of students on one aspect of critical thinking - ability to draw conclusions independently based on facts or information. It is evident that 82.2 % of the respondents believed that they possessed this skill at a higher level while about 14%

were not sure if they had it or not, and minuscule percentage, about 3.4%, professed to not having the skill.

5. I am able to draw my own conclusions using the information or facts made available to me in my readings or by my teacher.

220 responses



*Figure 5 Critical Thinking Skills (Drawing Independent Conclusions from Data) of the Respondents*

However, on the ability to interpret the classroom learning and relate it to life situations (which is another aspect of critical thinking ability) the percentage of respondents who believed that they possessed this ability to a greater degree was much less, at just 24.9%. Nevertheless, another 39.4% believed that they did have this skill. It is also noted, that a large number of respondents, 32.6% either thought that they did not have the skill, or did not know which way to answer.

6. I am able to create my own interpretation of what I read or learn in class.

221 responses

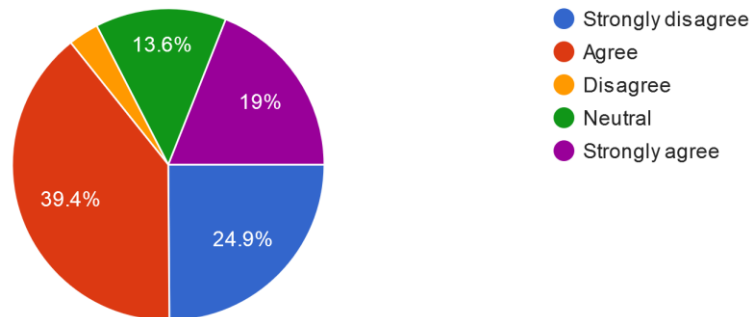


Figure 6 Critical Thinking Skills (Interpreting Learning) of the Respondents

#### 4.2.2.2 Collaboration Skills

In terms of collaboration skills, the ability to work well with teams and set goals and plans within the team's framework are crucial. On this skill, however, unlike on critical thinking skills, a larger number of respondents seem to think that they did not have this skill (strongly disagree 24.2%) or did not know if they possessed it or not (neutral 14.2%). See Figure 7 below.

7. I am able to work well in a team and set goals and plans

219 responses

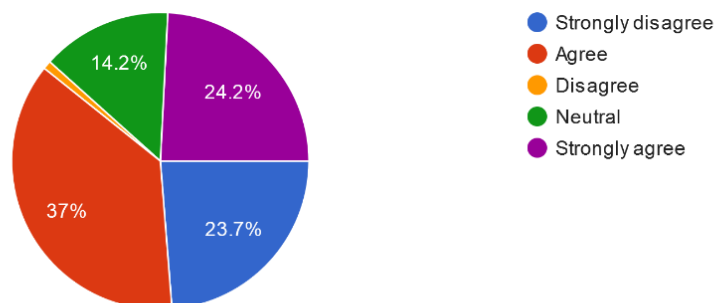
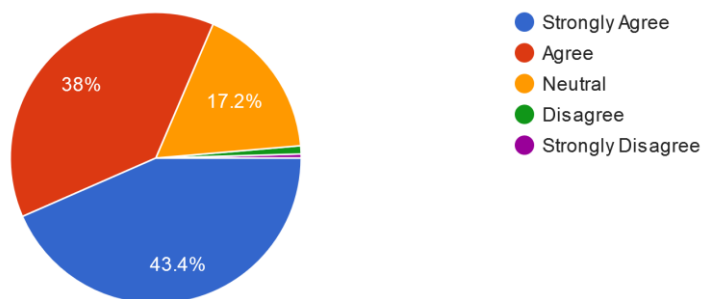


Figure 7 Collaboration Skills (Team-working and Goal Setting) of the Respondents

Another part of collaboration abilities is to be able to listen to others, accept their contributions and use it as part of teamwork. The following Figure 8 shows that 43.4% of the respondents believed they had this skill to a great extent (which is almost double the percentage who mentioned they strongly believed they had the skill for team working and goal setting in Figure 7 above), while another 38% believed that they definitely had this skill. Nevertheless, about 17.2% stated that they were not sure if they had it or not.

8. I am able to accept and add contributions from other students on my team  
221 responses



*Figure 8 Collaboration Skills (Accepting and Utilizing Teammate's Contributions) of the Respondents*

#### 4.2.2.3 Communication Skills

Another essential 21st Century skill is communications skill, which includes the ability to create written communications using visual or audio-visual tools, as well as the ability to make speeches or presentations in front of an audience. The following Figure 9 shows that 50.2% of respondents believed that they were very good at creating visual and textual content for communication, and another 29.4 thought that they were good at it. It is observed that 79.4%, therefore, believed that they were able to create charts, graphs and other visual and textual data, which is shows a similar confidence level as seen on collaboration and critical thinking skills discussed above. However, it also needs to be noted that a larger number of respondents (than



on any of the previous skills), 18.6%, did not know if they knew this skill or not.

9. I can create charts, graphs, tables and other visual and textual data for making my presentations

221 responses

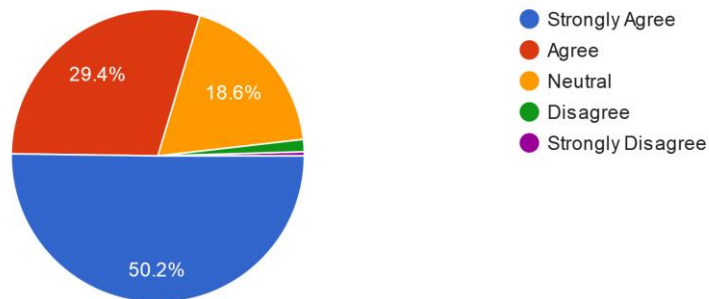


Figure 9 Communication Skills (Ability to create visual and textual outputs) of the Respondents

Similarly, for the skill related to delivery of presentations in front of the audience, there a similar trend is found. While a similar percentage, as seen in other skills, reported that they strongly agreed or agreed that they had this skill (77.3%), a much larger percentage than on any other skill, 20% reported that they were not sure if they possessed the ability to deliver presentations in front an audience or not (See Figure 10 below).

10. I can prepare and deliver presentations orally in front of others

220 responses

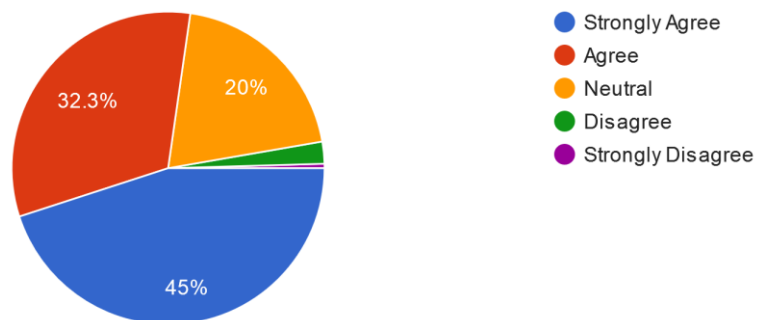


Figure 10 Communication Skills (Ability to deliver presentations) of the Respondents

This trend of choosing the "neutral" option as the answer is interesting, as creating visual or textual data and delivering presentations are skills that are easily verifiable, and can be objectively observed or evaluated, unlike critical thinking or creativity, that are rather complex when it comes to evaluation or establishing sufficiency. It is likely that the students were aware that they did not possess the communications skills but chose the neutral option to avoid giving a direct response.

#### **4.2.2.4 Creativity and Innovation Skills**

Creativity skill are relevant in the context of higher education and technical courses as it allows students to conceptualize problems, generate novel ideas and find innovative solutions (Tang, Vezzani and Eriksson, 2020). The survey therefore asked the respondents to rate themselves on two essential aspects of creativity and innovation skills, namely, ability to use tools that enable creativity (like brainstorming and concept mapping) (See Figure 11 below), and ability to generate independent and new ideas for solving problems (See Figure 12 below).

Figure 11 indicates majority (80%) of respondents believed that they had this skill but, about 18.6% also reported that they were not sure.

11. I use brainstorming and concept mapping methods well  
220 responses

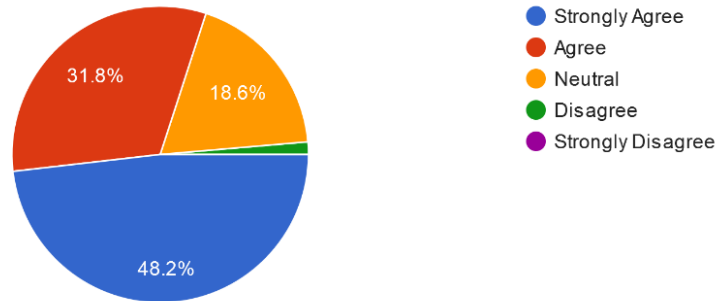


Figure 11 Creativity and Innovation Skills (Ability to use brainstorming and concept mapping) of the Respondents

A similar trend is seen in Figure 12 below, where 81.8% believed that they were good at generating independent ideas, while 17.3% refrained from giving a clear answer and chose the option "neutral."

12. I can generate my own ideas about solving a problem  
220 responses

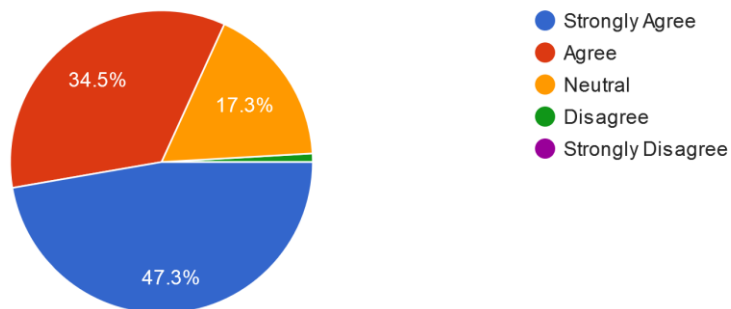


Figure 12 Creativity and Innovation Skills (Ability to generate ideas for problem solving) of the Respondents

#### 4.2.2.5 Self-Direction Skills

Self-Direction skills are measured by the students' ability to take initiative for problem solving (Figure 13 below) and the ability to direct their own learning (Figure 14 below). 80.5% of the

students believed that they were able to take initiative when faced with problem, but 18.6% also stated that they were not sure if they could take such an initiative or not.

13. I can take initiative when I face a difficult problem  
221 responses

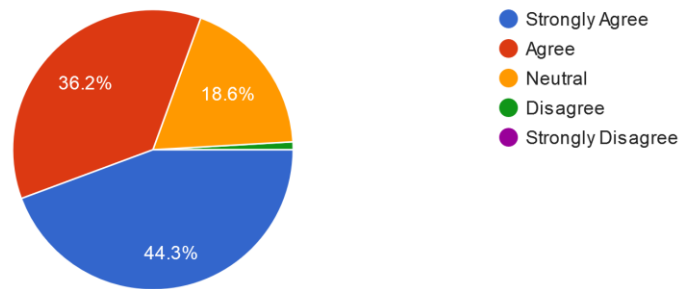


Figure 13 Self-Direction Skill (Ability to take initiative for problem solving) of the Respondents

Similarly, about 78.3% believed that they were able to self-direct learning, by choosing topics of learning and self-managing their progress. The fact that repeatedly, some students refrain from acknowledging whether they have a skill or not (as even in the current case for Figure 14, 19.9% chose the neutral option), probably indicates at a hesitation to give direct answers or to accept that one may not be good at a particular skill.

14. I can choose my own topics for learning  
221 responses

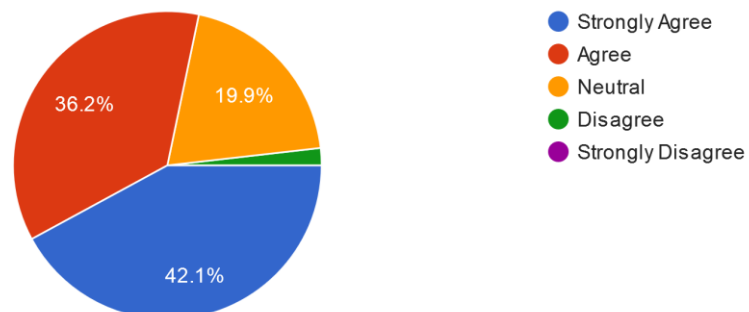


Figure 14 Self-Direction Skill (Ability to self-direct learning) of the Respondents

#### 4.2.2.6 Global Connections

Keeping in alignment with the global nature of workplaces and business interactions, it is essential that students possess skills to make global connections. These skills were, therefore, assessed on the survey by asking if the students liked studying about other cultures, and if they were able to use and adopt ideas and information from other cultures. Figure 15 below shows that majority of the students, 78.3% were indeed interested in studying about people from other cultures, and Figure 16 shows that a similar large percentage of respondents (78.7%) believed that they had the skills to adopt and take ideas from people who were different from them.

15. I like studying about other cultures and people from other countries  
221 responses

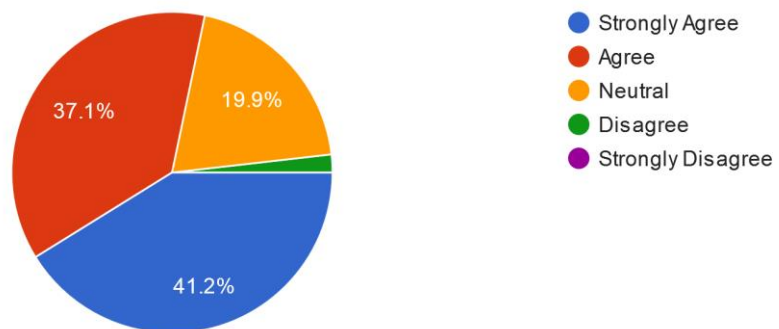


Figure 15 Global Connection Skill (Interest to Study Other Cultures) of the Respondents

16. I can use information and ideas from other cultures

220 responses

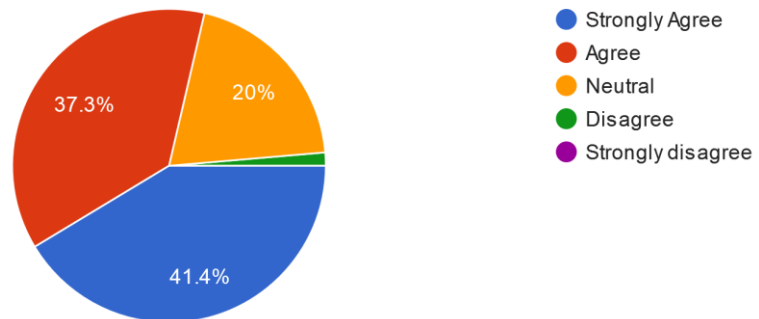


Figure 16 Global Connection Skill (Ability to use ideas from Other Cultures) of the Respondents

#### 4.2.2.7 Local Connections

The ability to understand issues and problems of the local region or community and to be able to apply one's learning to solve local problems is also an essential 21st Century Skill. Figure 17 below shows that 80% of the respondents were confident of having this skill.

17. I like to study topics that are directly related to my own community

221 responses

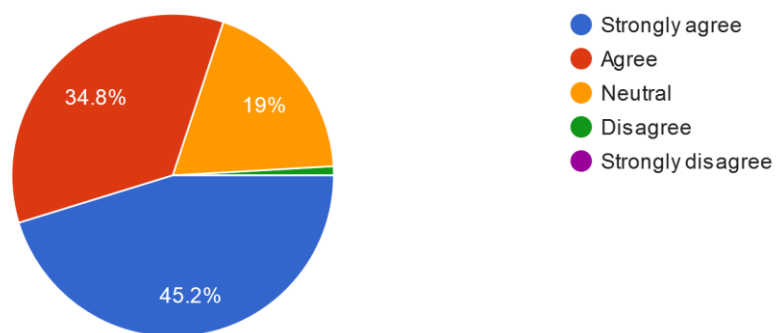
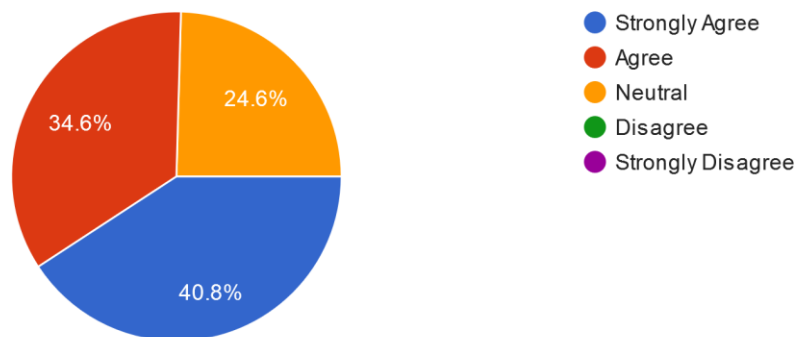


Figure 17 Local Connection Skill (Ability to study topics related to the local community) of the Respondents

Further, Figure 18 below indicates that a slightly lower percentage, about 75.4 % were likely to be able to apply their learning to solve local problems. An interesting aspect of the responses was that nearly a third of the respondents were not sure if they could apply their learning or not to solving local problems.

18. I can apply my learning to solve my local community's problems  
228 responses

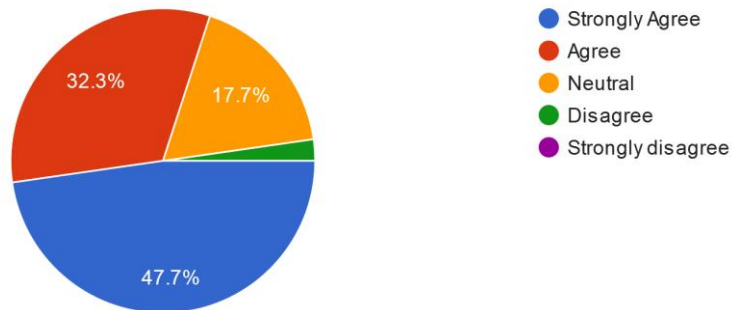


*Figure 18 Local Connection Skill (Ability to apply learning to solve local problems) of the Respondents*

#### **4.2.2.8 Using Technology as a Tool for Learning**

It is evident from the following Figure 19 that 80% of the respondents believed that they were able to use technological tools and apps to support their learning.

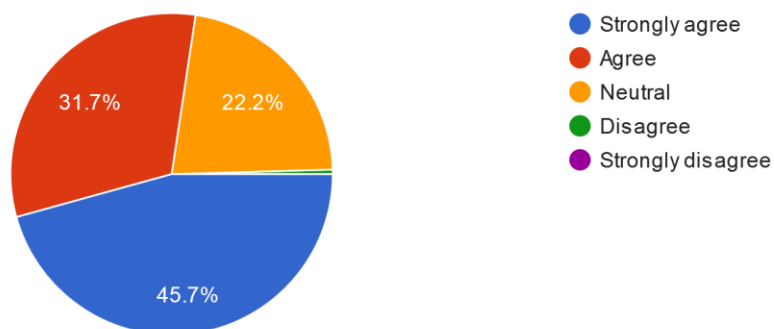
19. I am able to use technology based apps like spreadsheets, databases, visual info-graphics  
220 responses



*Figure 19 Using Technology as a Tool for Learning (Ability to use database and graphical apps) of the Respondents*

Also, 77.4% of the respondents also believed that they could share information using the latest technological and multi-media apps.

20. I am able use technology for sharing information through blogs, presentation software and multi-media apps.  
221 responses



*Figure 20 Using Technology as a Tool for Learning (Ability to share information through blogs, software and multi-media apps) of the Respondents*



### **4.3 Findings - Teachers' Interviews**

The 10 interviews with the teachers were analyzed using thematic content analysis, which involved reading the individual interview transcripts several times, followed by selection of similar responses from different transcripts and clubbing them together under themes. The findings from the thematic content analysis are presented below in the form of themes:

#### **Theme 1: College curriculum not adequately supporting the development of 21st Century Skills**

One theme that emerged from the thematic content analysis was that teachers perceived a lack of official support from the college or the curriculum in enabling learning of 21st Century Skills in students. Only 2 out of 10 teachers thought that the curriculum was adequate. For example, one of them stated that:

*"Yes, very much so. Critical thinking, digital communication, cultural competency, and strong analytical and language skills are a priority."*

However, the remaining teachers firmly maintained that the current curriculum did not take fully into account the job market skills. While communication skills were acknowledged as taught consciously through the curriculum, other essential skills like critical thinking skills or creativity were not explicitly taught. For example, one respondent stated that:

*"Not completely. They do teach good communication skills, but they are lacking in other skills like critical thinking and problem-solving."*

Similarly, another respondent mentioned:

*" Considering we are now entering a post-COVID world, I do not believe our current curriculum supports the development of skills that our students will need for the new job market."*

## **Theme 2: Teachers using diverse approaches and methods to teach 21st Century Skills**

A theme that emerged from the interviews was that the teachers were using a multitude of approaches, methods, and techniques to help students learn different skills. There was, however, no official plan or recommendation from the curriculum, but, the teachers were using their own thoughts and assessments in helping student develop different skills.

For teaching critical thinking skills, the approaches ranged from requiring students to engage with content and think more, debate and present both sides of an argument, giving practical life examples to highlight critical thinking, use of case studies, and to using assessments and tests that required students to do critical thinking. For example, one teacher mentioned:

*"I get them to do argumentative essays and to debate with each other. I also ask them to analyze things like advertisements and the media so that they can see the difference between appealing to people's emotion and appealing to the facts."*

For developing problem solving skills, teachers use methods like presenting practical world problems and ask students to come up with solutions; asking students to analyze situations, case studies or media content and give multiple solutions; and as part of assignments that require

them to solve problems using their past knowledge and statistical or mathematical skills. As mentioned by one teacher:

*"I get them to do assignments where they have to come up with their own solutions to some social issues that they see in the media, or I give them moral dilemma type of writing activities."*

Similarly, other skills like collaboration are taught through group assignments, team-based assessments, and developing in-class activities that allow students to work in groups. According to one teacher:

*"I use a team-based learning strategy throughout the system, and assign these teams tasks with interdependence, such that each student in the group must participate effectively."*

For teaching creativity and innovation, teachers use multiple approaches, like, presenting case studies or real-life problems and asking students to give diverse solutions. For example, one respondent stated that:

*" Asking them to come with innovative ideas, looking for different ways to solve the problems, and think differently."*

Other approaches mentioned by the respondents included encouraging students to think originally; exposing them to latest technology like artificial intelligence and machine learning and helping them think of innovative ways these emerging technologies can be used in future or to solve current problems.

The respondents also mentioned teaching global connections and local connections to students.

For example, according to one respondent, he taught global connection skills,

*"...by giving them examples from the global perspective and discuss it and try to compare with locally."*

Another respondent stated that,

*"We do this in terms of understanding how they will be affected economically by globalization and how they are feel and their jobs will be impacted and changed in the future. We also look at how the world is becoming a smaller place and how they need to learn how to communicate with people from different cultures."*

It was also seen that the teachers were using materials, activities, Ted-talks and real-life examples to enable students see how the world is connected globally and how their workplaces will too be connected and linked.

For local connections, some of the respondents stated that they encourage students to participate and contribute to local communities. Others mentioned discussing local news and sharing local examples during lectures so that the students are able to link their learning to their local contexts. Also, it was mentioned by one teacher that,

*" Much of student research is done locally and we gear our assessments accordingly to ensure a link to local issues and context is made."*

Next, the teachers used a variety of methods to enable self-direction, from giving individual assignments, tasks that involve both library research or empirical research, and conducting formative assessments. Teachers also reported helping students develop communication skills by encouraging them to communicate in class, role play, debate, writing assignments, presentations and by personally modeling good communication skills. Finally, using technology as a tool for facilitating learning was mentioned as an in-built characteristic of the learning environment. Students were encouraged to use blackboard application, and almost 35% of all assignments are submitted online. According to a respondent,

*"In addition to teaching online, students do online research and use various apps and platforms. I also use WhatsApp for office hours."*

### **Theme 3: Essential Suggestions for Developing 21st Century Skills**

Some of the recommendations that were made during the interviews were:

- As academics, teachers need to be aware of new trends in education and the job market and to make sure to include them in the courses and teaching practice
- To encourage students to work harder instead of allowing them to qualify easily for the next level.
- To develop tasks, workshops, seminars and content that facilitates self-learning
- To change the existing courses
- To develop professors' skills
- To formalize the 21st Century skills learning within the course
- To redefine 21st century skills for a post-COVID world, and then redesign curricula accordingly.

- To improve students basic reading, writing, and math skills
- To enable language development through writing and discussion

#### **4.4 Summary of Findings**

The research questions were successfully answered by the study, as the findings from the survey and the interviews above indicated. The research sub-question 1 (*To what extent is the curriculum of a college of higher education in the UAE effective for developing 21<sup>st</sup> century skills that can meet the labor market demand?*), can be answered affirmatively for the college's capacity to teach effective skills, as the students survey showed they rated themselves well on all the skills; However, these findings need further exploration and are discussed thoroughly in the next chapter. Also, though, the interviews revealed that the teachers took initiative to teach them, there was no indication of a formal curriculum structure that supported delivery of such teaching.

It was observed that the research sub-question 2 (*To what extent do students at a specific institute of higher education in the UAE develop 21st Century Skills that are aligned with the labor market's needs?*) can be answered by the responses from the survey, as there is indication that the students were in possession of the 21st Century Skills that can meet the labor market demand. Overall, research question 1 can be answered as that the higher education college curriculum was effective in developing the 21st Century skills in students, if only the students' survey responses are considered. However, the interviews of the teachers revealed more complex issues and concerns that need to be addressed and are discussed in detail in the next chapter.

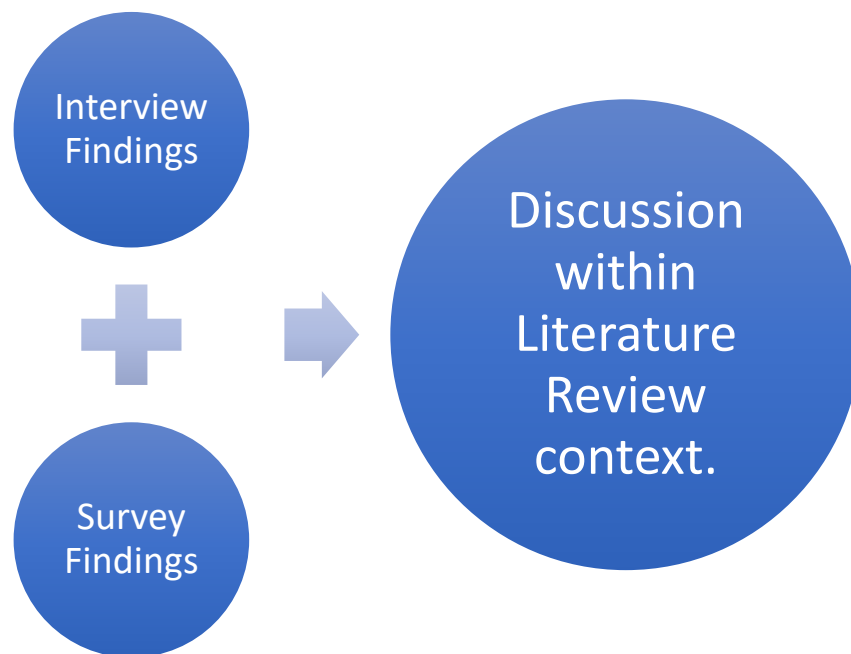
## **4.5 Conclusions**

The students' survey indicated that close to 80% of all students believed that they possessed good or excellent skills related to critical thinking, collaboration, creativity and innovation, communications, self-direction, global connection, local connection and using technology. However, the teachers' interviews revealed that they perceived a lack of formalization when it came to 21st Century Skill based curriculum. It appeared that the teachers were probably doing their best - by evolving their own methods and approaches for developing skills they thought the students need to develop to meet the job market needs. As such, the teachers' recommendations ranged from redesigning the curriculum, to formalizing teaching of 21st Century Skills that are relevant in a post-Covid world, to developing teachers' capabilities to support better learning.

## CHAPTER 5 - DISCUSSION

### 5.1 Introduction

The findings from the survey of students were analyzed in order to assess their perceived effectiveness on 21st Century skills, and also to evaluate how effectively the college is imparting the skills that are needed in the job market. The findings from the interviews of the teachers were analyzed using thematic content analysis to develop themes around the teachers' perception about whether the college was effectively imparting 21st Century skills, and how they can improve the teaching of the same. This chapter merges the findings from both the streams of the data and discusses them in the context of the literature review. The discussion is structured using the themes developed from the interview thematic content analysis and by adding the interpretations from the survey and the interview findings together.



*Figure 5.1 Merging of Findings from Surveys and Interviews*



The previous chapter, Chapter 4 revealed that the students perceived themselves as effectively skilled on all the 21st Century Skills, while the teachers also believed that they were teaching the 21st Century Skills, though in an informal and ad hoc manner. The findings are interesting and insightful, and these are discussed further in the context of the literature in the following sections.

## **5.2 Discussion**

### **Adequacy of the College curriculum for the development of 21st Century Skills in Students**

It is interesting to note that majority of the teachers believed that the college curriculum did not include a formal provision or directions for them to follow in order to help the students develop 21st Century skills. However, in contrast, the self-assessment of skills by the students on the survey indicated that a large majority, in most cases, around 80% of them, believed that they had learnt 21st Century skills well or extremely well. These findings are interesting as it appears that while there is probably no or very little formal or structured teaching of the 21st Century skills, the students seem to believe that they indeed have sufficiency on them. A reason for this could possibly be explained by the next theme that had emerged - that teachers adopt a variety of initiatives and approaches to develop 21st Century skills in students.

However, it is also possible that the self-report method allowed the students to assess themselves better than they actually were, or that the students wanted to save face in front of the researcher and say that they possessed the skills (Bell et al., 2018). Nevertheless, it is important to note, that from the findings it is evident that there is a lack of structure or formalization and standardization of the skill teaching methodology in the college included in

the research. This is a notable gap in the system, especially, for a country like the UAE that invests substantially in the educational sector and is committed to raising the graduation rate (Embassy of the UAE, 2011). The government of the UAE also aims to develop the country as a hub for global education in the higher educational sector, and in order to attain that aim, it is essential that the institutes of higher education deliver graduates that are high quality and skilled in all essential requirements that are needed to be successful in the job market (Wilkins and Huisman, 2019). The findings from this research therefore underscored the need to develop a curriculum that is aligned with developing capabilities in students that are linked to having cultural sensibilities, critical and problem-solving skills, creativity and innovation and use of latest technologies (Ashour, 2017).

### **Teachers using diverse approaches and methods to teach 21st Century Skills**

As discussed above, the students perceived that that they possessed 21st Century Skills, and probably the reason for such confidence lay in the fact that the teachers were investing time and effort in teaching them these skills in their own unique ways. As the thematic content analysis of the teachers' interviews highlighted, different teachers were using different methods and techniques to develop different skills in students, in spite of the fact that there was no formal guidance or requirement from the curriculum to do so. However, from the interviews it was evident that, though the teachers appeared to make effort and are committed to helping students, they probably need more training and guidance about teaching individual skills. There are notable frameworks available from literature and provide adequate directions and hands on support for teaching 21st Century skills. For example, Partnership for 21<sup>st</sup> Century Skills Framework (2006) from the USA, also known as the P21 Framework provides information regarding teaching skills that create global awareness, financial and economic skills, business

development skills, civic sense, and health and wellness - in a comprehensive and standardized manner supported by the college curriculum (Tang, Vezzani and Eriksson, 2020). The EnGauge Framework from Metiri and NCREL helps provide directions for developing global awareness and technological skills (Voogt and Roblin, 2012), and the

Organization for Economic Cooperation and Development (OECD) framework helps students develop team working, communication and ethical skills using interactive tools. Similarly, the American Association of College and Universities (AACU) Framework too, provides guidance on developing cultural awareness, ethical and civic responsibilities along with critical thinking and technological savvies. The teachers could have been trained to use these frameworks in order for them to teach the skills in classrooms in a more systematic manner. In reality, it was seen that teachers were following ad hoc and spur of the moment approaches to create learning moments - for example, for critical thinking skills, teachers were indulging in suitable methods like case study analysis or analysis of real-life example, but at times, they were also adopting vague measures like 'encouraging the students to think critically.' In a similar manner, it was seen that for teaching creativity, most teachers mentioned encouraging students "to be creative with their ideas," which is a rather vague approach to teaching the skill.

The following Table 5.1 compares self-reported efficiency level of students for corresponding teaching methods or techniques used by teachers for teaching those skills:

**Table 5.1: Self-Reported Effectiveness at Skills and Corresponding Teaching Methods**

**Employed by Teachers**

<b>21st Century Skill</b>	<b>Students Effectiveness on the Skill</b>	<b>Methods of Teaching</b>
<b>Critical Thinking -</b> ability to draw conclusions independently based on facts or information.	82.2 %	<ul style="list-style-type: none"> <li>-Encouraging students to engage with content and think more</li> <li>-Debate and present both sides of an argument</li> <li>- Use of case studies</li> <li>-Assessments and tests that required students to do critical thinking</li> <li>-Write argumentative essays</li> </ul>
<b>Critical Thinking -</b> ability to interpret learning to real life situations	64.3%	<ul style="list-style-type: none"> <li>-Giving practical life examples to highlight critical thinking</li> <li>- Analyze advertisements and the media so that they can see the difference between appealing to people's emotion and appealing to the facts.</li> <li>-Presenting practical world problems and asking students to come up with solutions</li> <li>-Case studies or media content to generate multiple solutions.</li> <li>- Assignments that require them to solve problems using past knowledge and statistical or mathematical skills.</li> <li>-Solve situations involving moral dilemma or ethical issues.</li> </ul>

<b>21st Century Skill</b>	<b>Students Effectiveness on the Skill</b>	<b>Methods of Teaching</b>
<b>Collaboration</b> - ability to work well in teams and set goals and plans	61.2%	-Group assignments -Team based assessments -In-class activities that allow students to work in groups.
<b>Collaboration</b> - ability to accept and utilize teammates' contributions	81.4%	-Assigning tasks with interdependence, such that each student in the group must participate effectively for the task to be completed
<b>Communications</b> - ability to create written, textual, audio-visual communications	79.4%	-Writing assignments -Presentations and -By personally modeling good communication skills.
<b>Communications</b> - ability to deliver oral presentations and speeches	77.3%	-Encouraging them to communicate in class -Role play -Debate
<b>Creativity and Innovation</b> - ability to use brainstorming and concept mapping tools	80%	-Presenting case studies or real-life problems and asking students to give diverse solutions. -Asking students to come with innovative ideas - Encouraging students to look for different ways to solve the problems, and to think differently.
<b>Creativity and Innovation</b> - ability to generate own ideas for problem solving	81.8%	-Encouraging students to think originally -Exposing them to latest technology like artificial intelligence and machine learning and helping them think of innovative ways

<b>21st Century Skill</b>	<b>Students Effectiveness on the Skill</b>	<b>Methods of Teaching</b>
		these emerging technologies can be used in future or to solve current problems.
<b>Self-Direction</b> - ability to take initiative for problem solving	80.5%	-Individual assignments and tasks that involve both library research or empirical research
<b>Self-Direction</b> - ability to self-direct learning	78.3%	- Conducting individual formative assessments.
<b>Global Connection</b> - studying about other cultures and people from different countries	78.3%	-Encouraging students to understanding how global events may impact locally. -Discussing globalization its impact on local jobs in the future. - Emphasizing the concept of global village and the need to learn the skills for communicating with people from different cultures.
<b>Global Connection</b> - ability to use ideas from other cultures	78.7%	-Giving students examples from the global perspective and discussing it and comparing it with the local situation - Using materials, activities, Ted-talks and real-life examples to enable students see how the world is connected globally and how their workplaces will too be connected and linked.
<b>Local Connections</b> - ability to understand issues and problems of the local region or community	80%	-Encouraging students to participate and contribute to local communities -Discussing local news and sharing local examples during lectures so that the students

<b>21st Century Skill</b>	<b>Students Effectiveness on the Skill</b>	<b>Methods of Teaching</b>
		are able to link their learning to their local contexts.
<b>Local Connections -</b> ability to apply learning to solve local problems	75.4%	-Using assignments that require <i>research</i> to be done locally. -Assessments and tests that ensure a link to local issues and context is made
<b>Using Technology as a tool for learning -</b> ability to use apps like spreadsheets, databases, graphics	80%	-Students were encouraged to use blackboard application -Online assignment submissions -Online teaching and resources
<b>Using Technology as a tool for learning -</b> ability to use data sharing apps and multi-media software	77.4%	- Using social media and other technology platforms for information and data sharing between students and teachers.

It is observed from the above Table 5.1 that most students perceived they had the skill, except in the case of critical thinking and collaboration skills. However, it needs to be noted that the survey was a self-reported one, and that no actual assessment of the skill was undertaken; and as such, the findings are simply reflective of students' perceptions and not of actual achievement. The corresponding teaching methods for each of the skills are based on the teachers' perceptions of how the skill can be learnt and range from informal to formal approaches of teaching. Instead, it would be more suited if the teachers are given a format

based on curriculum, over which they can develop their lesson plans with a conscious inclusion of activities that encourage learning of 21st Century Skills (Li, Pyrkova and Ryabova, 2017). All of the skills, including creativity and innovation, global and local connections, can be taught in a structured manner, using appropriate lesson plans, teaching content, and activities (Piggott, 2020). There have been numerous studies that have discussed the steps involved in teaching 21st Century Skills, which includes development of pedagogical approaches like Learning-By-Doing and experiential learning (Bradberry and De Maio, 2019), and these could be included in the development of a curriculum for the college.

It was also evident from the respondents, that some of the teachers did not think that it was part of their job to help students develop skills like critical thinking or creativity, as they considered themselves to be responsible only for delivering course or subject related content. This attitude of teachers too, needs to be modified through training and by creating a managerial vision that clearly emphasizes the inclusion of 21st Century skills learning as an objective for the college.

### **Theme 3: Essential Suggestions for Developing 21st Century Skills**

Some of the recommendations that were made during the interviews were based on the teachers' perception regarding lack of formalization in teaching methods for developing 21st Century Skills. The teachers were aware, to a certain extent, that they needed formal support, structure, a curriculum that could give them stepwise and systematic guidance for teaching of the skills and backing from the management to formalize the teaching of these skills. The students' surveys revealed a higher degree of confidence among students about their skill levels, though, it is possible that their performance may not actually match with their perceptions, as noted in some studies on graduate capabilities for students in the UAE (Ashour, 2020; Carroll and van



den Hoven, 2017). The teachers rightly pointed out to the need for them to be aware of any new trends in education and the job market and to make sure that their students learn those skills. However, teachers can only do this much at their own level, and in order to prepare the students to meet the job market demands in the coming future, courses and teaching practices need to be modified and adjusted. The teachers also hinted that probably the college was too lenient on the students for their own good, and similar findings have been reported in a few studies earlier (Carroll and van den Hoven, 2017), where students enrollment criteria is too easy and graduating is effortless. There is a need to make stringent assessment criteria that ensure students passing out of the college are adequately prepared to meet the practical life challenges (Houjeir, Al-Kayyali, Alzyoud and Ahmad-Derweesh, 2019). Some of the suggestions that the teachers recommended were, in addition to restructuring and redesigning curriculum to include active and structured training of 21st Century Skills, to develop training programs for teachers that can equip them to deliver teaching more effectively. One of the more innovative recommendations made by a few teachers was that there is a need to revisit the 21st Century Skills frameworks, as these skills were relevant during the start of the century; and two decades down the line, coupled by the complications brought about by Covid pandemic, there is a need to rethink the skills and develop a framework for more modern and updated skills.

### **5.3. Conclusions**

The chapter discussed the findings from the survey of 221 students and interviews of 10 teachers, by merging the analysis results from the two data streams. When read together, it was evident that the teachers' efforts to teach the skills (that ranged from both informal and ad hoc to somewhat formalized methods of creating assessments that gauged the specific skills) were fruitful at least, in the way the students' perceived their effectiveness on the 21st Century Skills.

However, the findings have underscored a serious gap in the college's approach, in the form of lack of formalization of teaching of 21st Century Skills, lack of standardization on teaching methods, and scope of improving teachers' awareness about teaching methodologies.

## **CHAPTER 6 - CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Introduction**

The chapter aims to provide an overview of the main research findings that can be drawn from the study, and to provide evidence for answering the research questions and meeting the research objectives. The chapter also presents a brief overview of the study including the methodological aspects and gives the limitations and establishes further areas of research. It also presents the academic and practical implications of the research and develops a set of recommendations.

### **6.2 Overview of the Research**

The research was conducted with the underlying aim of evaluating if the colleges of higher education in the UAE were successful in imparting 21st Century Skills to its students that would enable them to fit well with the job market needs in future. More specifically, the following research aims, and objectives were developed:

To assess the university curriculum for meeting the current and future labor market demands and economic development of the country.

Further, the main aim was supported by the following objectives:

- To understand the current higher education curriculum used at a specific institute of higher education in the UAE.
- To determine the extent to which the curriculum at a specific institute of higher education in the UAE aligns with the 21<sup>st</sup> Century Skills by document analysis

- To evaluate whether the skills taught at a specific institute of higher education in the UAE meet labor market demands.
- To propose higher education policies, procedures, protocols, and guidelines that can help develop 21<sup>st</sup> century skills in students graduating from institutes of higher education in the UAE.

The research took a phenomenological stand as it was deemed suitable to obtain the perceptions of the people directly involved in the situation - students and teachers. The research was conducted using a mixed methodological approach to ensure that the limitations of both the individual methods were overcome and a more comprehensive overview of the situation could be assessed. The students' survey was undertaken to evaluate their perceptions regarding their possession of 21st Century Skills, while the teachers were interviewed in order to understand how they were teaching the skills and if the college curriculum provided them with content and delivery guidance for the teaching.

### **6.3. Highlights of the Findings**

The study was able to obtain answer for the main research question, as the question, "Is the curriculum of British College of Dubai effective for developing 21<sup>st</sup> Century Skills that can meet the labor market demand?" can be answered in a negative, as from the teachers interviews it was evident that they did not get any formal or structured support for teaching students 21<sup>st</sup> Century Skills.

The sub-question1, *"Is the curriculum at the British College of Dubai designed to link pedagogical quality standards and knowledge creation to labor market demands and economic*

*development?"* is answered with caution, as the study did not reveal any record of a standard pedagogical framework that was being following at the college for developing the students have the quality standards and knowledge to meet the labor market demands. Nevertheless, both the survey and the interviews revealed that students perceived themselves to be equipped with almost all of the 21st Century skills that have been linked in literature with the emerging labor market. Teachers too seemed to be making substantial efforts to teach these skills. However, the answer to the sub-question 1, can only be stated as a negative - the college did not have a curriculum designed to link pedagogical quality standards with 21st Century Skills teaching.

These finding, therefore, also meets the objectives -

- To understand the current higher education curriculum used at a specific institute of higher education in the UAE
- To determine the extent to which the curriculum at a specific institute of higher education in the UAE aligns with the 21<sup>st</sup> Century Skills by document analysis

Next, the second sub-question, *"Do students at the British College of Dubai possess 21st Century Skills that are aligned with the labor market designs?"* could be answered more conclusively, as both the students and the teachers seemed to believe that the students indeed acquired 21st Century Skills.

The responses indicated that at least, within the perception of the students, they possessed the skills, and within the perception of the teachers, they were teaching these skills. More specifically, the following research objectives were therefore fulfilled by the study.

- To evaluate whether the skills taught to students at an institute of higher education in the UAE meet labor market demands.

However, as the student survey was self-report and the interview responses were solely based on teachers' perceptions; and it was found that there was no formal structure or curriculum-based teaching of the 21st Century Skills - it is likely that there is scope for further improvement, and as such, the following recommendations are made to meet the research objective:

- To propose higher education policies, procedures, protocols, and guidelines that can help develop 21<sup>st</sup> century skills in students graduating from institutes of higher education in the UAE.

## **6.4 Recommendations**

- To re-design the college curriculum that could embed teaching of 21st Century Skills within the subject content

21st Century Skills are required to be embedded within the class lectures and class activities, which can be undertaken by the teachers based on their understanding and capabilities to a certain extent. However, it is recommended that a proper curriculum be prepared that takes into account the explicit and continuous teaching of these skills using pedagogical frameworks that are best suited for such skills (for example, experiential learning or learning-by-doing).

- To provide more detailed and comprehensive lesson plans that can deliver not only subject specific skills but also help students develop 21st Century Skills

It is also recommended that and gives clear, detailed and hands on guidance to the teachers be provided in the form of comprehensive lesson plans for each class. These lesson plans need to be standardized, with specific sets of activities for the students and with specific assessment criteria so that both teaching and evaluation of the 21st Century Skills be undertaken regularly.

- To formally include testing of 21st Century Skills in formal assessments and to make it part of the overall student grades

The main exams, along with tests, quizzes or semester assignments need to have an in-build element for testing the 21st Century Skills. This needs to be backed by research-based tests and pedagogy, rather than be undertaken in an ad hoc manner by the teachers as currently done.

- To provide targeted and rigorous training to teachers to enable them to teach the 21st Century Skills in a structured framework and using standardized and tested methodologies.

A critical recommendation from the research is to ensure that the teachers are aware of the 21st Century Skills and are sufficiently trained to help students develop them. For this, teachers' training is needed based on their skill development as well as attitude change.

## **6.5 Research Implications**

The findings of the study have implications for both academic and practical considerations.

### *Academic Implications*

The study fills a gap in literature in the context of the UAE Higher Education institutes pedagogical quality standards and the appropriateness of their teaching for the development of skills in students that can help them in the labor market. There is substantial research on the subject in the context of the Western countries, and some emerging research from the Middle East, but research gaps existed for the UAE higher education. The research points out to the areas of research in the development for the curriculum, as well as for the development of practical support for teachers so that they can provide structured and formal teaching on 21<sup>st</sup> Century Skills.

### *Practical Implications*

The research has underscored the fact that the college under study lacked in a formal set up for teaching 21<sup>st</sup> Century Skills, which are hailed as essential for graduates starting on their jobs in a competitive business. The findings are expected to enable the authorities at the university to re-think and redesign their curriculum to make them more suitable for learning of 21<sup>st</sup> Century Skills.

Further, it is seen that teachers are involved with the students firsthand, and as such their recommendations need to be imbibed in the curriculum for developing students' 21<sup>st</sup> Century Skills.



## **6.6 Research Limitations**

The research suffered from a limitation that it was conducted at a single college, and hence its findings may not be applicable to the entire higher education sector of the country. More research is needed to replicate the findings and to establish the scope of the findings further. Also, even in the context of the single college, the sample size for the teachers' interviews was only 10, while the total number of teachers in the college was over 30. Further, the research also did not include any interview of the management personnel or of the curriculum developers, due to time and resources constraints. By including the perceptions and suggestions of the people involved in the development of the pedagogical approach could have led to more insights about the situation.

Another limitation of the research was that for assessing students' proficiency on the 21<sup>st</sup> Century Skills, a self-report type of questionnaire was used. So, instead of testing their actual effectiveness on any of the skills, the research instrument only recorded what they (the students) believed about their proficiency. This limitation needs to be overcome in future studies where actual skill tests can be conducted to gauge the students' development of 21<sup>st</sup> Century Skills and their readiness for the labor market.

## **6.7 Summary**

The research was successfully conducted, and all research questions were answered. It was noted that the college of higher education lacked in terms of a curriculum that has embedded teaching of the 21st Century Skills, and recommendations made for curriculum re-designing, using learning-by-doing approaches to help students learn these essential skills. It was also found that the teachers were teaching the skills in an ad hoc manner, and hence the need for

standardizing and formalizing the teaching of 21st Century Skills was underscored. Finally, the students reported as having effective skills, but there is a need to test them objectively, and as such, their formal assessments are recommended to include testing on 21st Century Skills.

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