

# Growth Mindset in Relation to the Knowledge and Attitude of Medical Students on Entrepreneurship: Basis for a Proposed Medical Entrepreneurship Program

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**Abstract:** This study determined the relationship between the growth mindset and the knowledge and attitude of medical students on entrepreneurship using descriptive, comparative, and correlational methods of research. It employed purposive census sampling technique in selecting 426 medical students who answered a researcher-made questionnaire. The study used frequency, percentage, weighted mean, mean, standard deviation, chi-square test, t-test, ANOVA, and Pearson's correlation as statistical tools. The results showed that majority of the medical students were between 19 and 36 years old; mostly female (56.3%); and had no business experience (58.5%). Most of the businesses they had were non-health related (72.3%). The respondents had strong growth mindset in terms of Intelligence and Personal Qualities with average weighted mean (WM) scores of 3.69 and 3.64 respectively. They had adequate knowledge on entrepreneurship in terms of Opportunities and Innovation, Financial and Economic Literacy, and Planning with average WM scores of 3.22, 3.00, and 3.11 respectively. They had very adequate knowledge in terms of Management with an average WM score of 3.34. They had very positive attitude on entrepreneurship both on Affective and Behavioral components with average WM scores of 3.48 and 3.49 respectively. In general, they had very positive attitude on entrepreneurship (WM=3.48). The results also showed that age and business experience were associated with growth mindset; sex and business experience were associated with knowledge on entrepreneurship; and business experience was associated with attitude on entrepreneurship. Significant relationships were found between growth mindset and knowledge on entrepreneurship; growth mindset and attitude on entrepreneurship; and knowledge and attitude on entrepreneurship. Significant difference in growth mindset on entrepreneurship was revealed when the respondents were grouped according to age and business experience. They also differed in terms of knowledge on entrepreneurship when grouped according to sex and business experience, and in terms of attitude on entrepreneurship when grouped according to business experience. A medical entrepreneurship program to be incorporated in the Third-Year level to facilitate experiential learning, develop critical thinking, growth and entrepreneurial mindset, and leadership skills was proposed based on the results of the study.

**Keywords**—growth mindset, attitude, medical students, entrepreneurship

## 1. INTRODUCTION

“Entrepreneurship is a mindset – a way of thinking and acting. It is about imagining new ways to solve problems and create value. Fundamentally, entrepreneurship is about the ability to recognize and methodically analyze an opportunity and, ultimately, to capture its value” (Bachenheimer, 2018, as cited by Fernandes, 2019). This brings the concept of entrepreneurship in the field of medicine that refers to the practice of developing new ventures and strategic renewal within an existing organization of health care delivery in order to exploit new opportunities and generate economic value. Physician entrepreneurship means that doctors develop, promote, and deliver an innovative health care or medical practice with the goal of creating user defined value through clinical innovation (Meyers, 2019). Medical entrepreneurs are changing the landscape as the medical community collaborates between regions for healthcare improvement. On a daily basis, healthcare across the globe continues to improve, innovate, and change to handle and deal with health. (Hendricks, 2017).

The global nature of public health has been recognized for decades, if not centuries. Globally, encouraging entrepreneurship has become an accepted wisdom in economic management and government policy, ranging from education, provision of finance and various innovative ways to encourage entrepreneurship (Buame, et al., 2013). In the United Kingdom, to encourage entrepreneurship, medical institutions are reforming the medical curricula by incorporating health economics and teaching successful qualities of entrepreneurs. In South Asia, the role and objective of medical education system is to produce compassionate healers who then go on to serve society in their own capacity and as a collective unit. Unlike its Western counterpart, medical education in the region is still based on traditional forms of teaching and does not give attention to the issue of becoming an entrepreneur. The structure, method of teaching, roles and priorities of medical education vary across South Asia unlike the relatively homogenous systems followed in North America and Europe.

In the Philippines, the need for entrepreneurship education cannot be undervalued. Auspiciously, in the school year 2016-2017, the K-12 Curriculum in the Philippines was

implemented. Entrepreneurship as one of the contextualized subjects is integrated in all academic tracks of the Senior High School curriculum. The first two batches of the Senior High School students are currently the first and second year undergraduate college students of the academic year 2019-2020. However, medical students who need to engage with rapid innovations in the healthcare system, need to supplement their clinical knowledge with skills and techniques from the business sector (Gonzalo, et al., 2017). Unfortunately, in the College of Medicine (COM) of the locale of this study, the continuity of the entrepreneurship education for medical students to develop progression and establish higher degree of competency is null because its curriculum neither offers a medical entrepreneurship program nor an integration of entrepreneurship in any of its subjects.

The Philippines' medical education system is exclusively oriented to the basic and clinical concept of Medicine: the knowledge, skills, and attitude on how to become a physician. However, recent movements for curricular reforms by the Commission on Higher Education (CHED) are leaning towards the call of the World Federation for Medical Education (WFME) to prepare physicians for the needs and expectations of society, cope with explosion in medical scientific knowledge and technology, and adjust medical education to changing conditions in health care delivery system (World federation for Medical Education, 2019).

CHED Memorandum Order No. 18 series of 2016, Section 1, states that "in recognition of the spirit of learning outcomes/competency based/outcome-based education... the Policies, Standards and Guidelines (PSG) provides flexibility and ample space for Higher Education Institutions (HEI) to innovate the curriculum in line with the assessment on how best to achieve program outcomes in their particular context and respective mission." In Section 3.3 of this memorandum, the Program Educational Objectives states that, "...with additional training, graduates of the Medical Degree (MD) program may pursue careers such as: Medical Scientist, Innovator, Health Administrators, Health Information Manager, Health Economist, and Health Policy Maker." All these career paths embody entrepreneurship. Moreover, the Minimum Curricular Content as stated in Section 6.3 includes Health Economics, Leadership, and Management. All these PSGs are not yet available in the current curriculum of the COM of the locale of this study. These are the gaps that the author observed. Therefore, there is a need to develop a medical entrepreneurship program that will address this gap and further enhance the COM curriculum.

Moreover, the author as a graduate of the Doctor of Medicine Program, like most of the physicians in general, established a private clinic without the knowledge on how to start up, manage, and maintain a business. This is a dilemma every physician has to undergo. It is noteworthy that physicians put up their own clinic, hospital, or laboratory not to lose money but to gain profit not just to be financially successful but also to sustain their business. However, to

accomplish this goal was a challenge for the author and other physicians as well because entrepreneurship was not part of their medical education. Thus, it is the belief of the author that building a culture of entrepreneurship in the medical education institution of this study is for the current and future medical students.

Doctors represent a critical source of medical innovation. Limiting their ability to translate ideas into products or services and starting new enterprises may be detrimental to future medical innovation (Smith & Sfekas, 2013). Thus, medical entrepreneurship education needs to be incorporated in medical programs and should expose medical students to clinical scenarios not only in the lines of patient care but also in the training of entrepreneurial mindset necessary to recognize unmet needs of health care delivery and creation of services and products in response to these challenges.

Mindset is a driving force behind every decision that one makes. Mindset determines one's success or failure in business. Students with growth mindset believe that their intelligence can be developed through hard work. They possess a passionate love of learning and they view failure as a gift in contrast to students with fixed mindset. Entrepreneurial success demands that the person should have a growth mindset. Entrepreneurship can be a roller coaster ride of highs and lows, thus, the practice of entrepreneurship in medical education and medical entrepreneurship require a specific type of mindset, one that focuses on innovation, possibility, and commitment to personal growth and development (James, 2020).

Medical Entrepreneurship Education is a new concept in Medical Education. If incorporated in the curriculum, it may become a challenge for medical students. For students with growth mindset, this challenge will be viewed as a new opportunity to learn and as a useful tool to equip themselves.

Within the multifaceted nature of entrepreneurship, developing physician entrepreneurs means developing their entrepreneurial mindset. While many entrepreneurship instruction often emphasize on entrepreneurial mindset, this study considers the growth mindset of the students. This is a different concept of mindset coined by Dweck (2012) that is even more critical in helping students achieve success in their studies and career ventures as entrepreneurs (Zappe, 2018).

This study involved medical college students in a private higher education institution (PHEI) because their present medical curriculum does not have entrepreneurship education. Adding such course will also change the expected outcomes of the program. In view of the current challenges and demands of health care delivery, and the PSG of CHED Memorandum No. 18, Series 2016, entrepreneurship education in medical education and training the students to develop a growth mindset are necessary to produce medical specialists who have adequate training on health care entrepreneurship. This is the premise on which this investigative work is justified.

## 2. LITERATURE REVIEW

### History of Medical Entrepreneurship

Entrepreneurship in the health care sector is not a new phenomenon. Already before World War II, many health care professionals worked as entrepreneurs. After the war, health care professionals began to work in public services in many countries due to social and economic changes. Social, political, and economic factors such as an economic crisis, the dissatisfaction with their work, and changes in the health needs of the population and consumers have caused more health care professionals to become entrepreneurs during the last decades (Boore & Porter, 2011).

According to Drossman (2004), the practice of Medicine compared with 30-40 years ago, the patient care seen on television has become an allegory; it has moved from the bedside to the emergency room where 3-camera fast takes and multiple sound bites show the speed and quick thinking of health care teams that move from one patient to another. With regard to the day-to-day activities in teaching centers, the training of complete physical examinations has been supplanted by regional examinations based on the patient's chief complaint, and technology is becoming the "gold standard" of diagnosis. All these changes in the practice of medicine has brought about by the desire of medical practitioners to address health solutions effectively and the inevitable need that health care must be efficient, and at least financially neutral.

Changes in the practice of medicine have also been brought about by the global market demand and the drivers of growth, both of which are focused on medical entrepreneurship. According to Picazo (2013), medical travel has been going on since time immemorial, but modern medical tourism, emerged as a discernible phenomenon in the late 1990's and took off in a dramatic manner in the mid-2000s, 2006 to be exact, according to industry observers. Medical tourism is poised to continue growing globally in the next few years due to combined economic, demographic, epidemiological, communication, and transport trends. Philippine medical tourism has a share in the global economy because of highly competent medical experts, modern medical technologies, international quality of hotel-like hospitals, and services that out price its Asian competitors in surgical procedures and medical services. The Philippines, Thailand, Singapore, India and Malaysia are Asian countries involved In medical tourism. Taiwan, South Korea, and China are also poised to grab a larger share of the market in the near future. Truly, medical entrepreneurship is part of this growing business in health care.

As health care continues to rapidly evolve, according to Dr. Joshi, a primary care physician and CEO and founder of Output Medical, physician entrepreneurship also evolves and is increasingly ensuring the right changes are made for patient care. Physician entrepreneurship is not different from any other form of clinical practice. Being a physician entrepreneur does not mean sacrificing current clinical practices for a

business. Medical entrepreneurship ensures that to be successful in medical and health care innovation, doctors have to have a very strong understanding of the clinical fundamentals that they are trying to address. Medical entrepreneurship will not divert off the path of traditional clinical medicine, but will rather enhance current clinical guidelines in terms of practice (Parks, 2016). Medical entrepreneurship also considers the market needs, innovations, and the demands of excellent delivery of health care.

Healthcare in the United States and across the globe continues to improve, innovate, and change how people handle and deal with health on a daily basis. People used to dream about a time when doctors could use 4D technology to monitor the blood flow to the hearts. Now, those once distance hopes have become reality, as each year there are new healthcare entrepreneurs that are changing the landscape of how the medical community take care of people (Hendricks, 2017).

The "golden age" of medical practice is being replaced by the "golden age" of physician entrepreneurship since there has been, arguably, no better time to be a doctor who sees the business of medicine on par with the practice of medicine as another way to help patients (Meyers, 2015).

### Entrepreneurship and Its Relevance to the Health Care Profession

Entrepreneurship is a discipline which can be learned by individuals and it is not faith as those individuals whose entrepreneurial potential can create the effective education, training, and the nurturing process (Yusoff, Zainol, & Ibrahim, 2014). Entrepreneurship starts with the journey of exploration and navigating risk to create value for profit and social good (Manisha & Singh, 2016). On this basis, sociologists like Wright Mills (2002) argued that medicine is the apotheosis of an entrepreneurial profession.

According to Salminen, et al (2014), in the health care sector, entrepreneurship refers to the practice of developing new ventures and strategic renewal within an existing organization in order to exploit new opportunities and generate economic value. A nurse is defined as an entrepreneur if he or she offers different nursing services in private-sector markets: care, education, research, and administrative work (Salminen, 2014; Wilson, 2004). In health care, it means that salaried nurse develops, promotes, and delivers an innovative health care or nursing practice (International Council for Nurses, 2012). The definition of entrepreneurship in health care, thus, covers entrepreneurial movements from starting up and running a company to behave in an entrepreneurial manner in the sphere of its profession. Due to the changes in working life, entrepreneurial skills are necessary in the health care field, irrespective of the sector. For this reason, education programs in health care should pay more attention to entrepreneurship in the curriculum.

The generational demands of medical students and residents are questioning their career decisions and demanding that schools provide them with the innovation and

entrepreneurship education and training knowledge, skills and attitudes they need to thrive after graduation and throughout their careers. Restless and unemployed doctors are demanding jobs and ways to use their talents. With change, comes opportunities and those few doctors with an entrepreneurial mindset are actively pursuing them. The opportunities in health entrepreneurship are sizeable and physician entrepreneurs are increasing well positioned to capitalize on them (Meyer, 2019). Doctors and medical students with entrepreneurial mindset can create innovative solutions to problems patients experience. With increasing patient load and decreasing resources in hospitals, it is necessary that medical students are inspired to develop skills that will help them identify problems within organizations and have the knowledge and platforms to convert ideas into reality (Jeyabaladevan & Yogalingam, 2018).

One of the missions in the healthcare delivery is bringing healthcare to the community. Iyengar, et al. (2016) asserted that on the role of institutional entrepreneurship in building adaptive capacity in community-based healthcare organizations over the past 3 decades, there had been a substantial shift to the marketization of government-funded health services. For organizations traditionally buffered from the competitive pressures of for-profit enterprises, such as community-based organizations, this means developing the capacity to adapt to competitive tendering processes, shifting client expectations, and increasing demands for greater accountability.

Caroll, et al. (2019) said that entrepreneurship and innovative product design in health care requires expertise in finding and evaluating diverse types of information from a multitude of sources to accomplish a number of task, such as securing regulatory approval, developing a reimbursement strategy, and navigating intellectual property.

Today's successful health care leaders must demonstrate innovation, leadership, and resilience (Stanford Medicine, 2019). Entrepreneurship has a role in health care leadership. Changes in health care significantly require more enhanced leadership. Guo (2009) makes the linkage between entrepreneurship and health care by analyzing case studies of health care organizations that have engaged in entrepreneurial activities. She argues that in times of uncertainty, complexity, and resource scarcity, health care organizations rely on their managers to enable their organizations to gain the competitive edge. Flexible decision-making processes, open channels of communication, and organizational innovations are more readily used by health care organizations as indications of the existence of entrepreneurship and the prevalence of entrepreneurial activities taking place at all levels of health care organizations.

#### Growth Mindset

According to Dweck (2016), individuals who believe their talents can be developed through hard work, good strategies, and input from others have a growth mindset. They

tend to achieve more than those with a more fixed mindset, who believe their talents are innate gifts. This is because individuals with growth mindset worry less about looking smart and they put more energy into learning. When entire companies embrace a growth mindset, their employees report feeling far more empowered and committed; they also receive far greater organizational support for collaboration and innovation. In contrast, people at primarily fixed-mindset companies report more of only one thing: cheating and deception among employees, presumably to gain an advantage in the talent race.

Growth mindset has potentially far-reaching implications for schools and teachers, since the ways in which students think about learning, intelligence, and their own abilities can have a significant effect on learning progress and academic improvement. If teachers encourage students to believe that they can learn more and become smarter if they work hard and practice, Dweck's findings suggest, "growth mindset" can be intentionally taught to students and it is more likely that students will in fact learn more, and learn it faster and more thoroughly, than if they believe that learning is determined by how intelligent or unintelligent they are.

In a related article by Philippine Basic Education (2017) in the Philippines, it was mentioned that it is not that easy to switch to a growth mindset. There may be a simple reason: Teachers continue to treat students according to what they perceive as their talents or abilities. Teachers act as if they have a crystal ball and can predict who will excel and who will struggle in school, and then treat students accordingly. As a result, teachers force predictions to happen. Teachers talk about the importance of effort and strategies yet most of their actions often focus on what they can already see instead of what they can achieve. The students are unable to develop a growth mindset simply because teachers keep treating them with a fixed mindset. Teachers can easily talk about a growth mindset, but actually having a growth mindset guide their decision, ways of teaching, and action, is a different story. And if teachers do not change how they act in classrooms and how they perceive and treat their students, "growth mindset" will simply remain a sound bite.

A related research examined the effectiveness of a growth mindset intervention based on Dweck et al.'s (1995) theory in the Hungarian educational context done by Gabor, et al. (2017). The study was a cluster randomized controlled trial classroom experiment carried out within the framework of a train-the-trainer intervention among 55 Hungarian 10th grade students with high Grade Point Average (GPA). The results suggest that students' IQ and personality mindset beliefs were more incremental in the intervention group than in the control group 3 weeks after the intervention. The results also show that mindset beliefs are temporarily malleable and in given circumstances, they can change back to their pre-intervention state.

According to both Yeager and Walton (2011) and Garcia and Cohen (2011), mindset interventions in education during

transition points are more effective. The authors assume that the stressful nature of the transition context is important because it can allow context-dependent learning. If a well-targeted intervention (beliefs in change through effort) can help the student with immediate positive feedbacks in these transitional circumstances (i.e., positive feedbacks such as less failure in longer term, better grades attributed to more effort or better strategy, etc.), then the recently learnt strategies can be reinforced and more probably used in further stressful situations. IF interventions are done during transition period more in-depth and lengthier interventions are needed.

According to Guo (2009), the third most crucial domain of core competencies that an entrepreneurial leader should possess is interpersonal or people skills using the principles of (a) communication, (b) human resources, and (c) motivation to develop one-self and others. Motivation is the impetus and initiative exercised by the entrepreneurial leader to direct others to pursue and attain personal and organization goals. Motivating forces, the growth mindset found in the organization and in the environment are considered opportunities; thus, they are captured by the entrepreneurial leader to accomplish goals, acquire new knowledge, pursue challenging projects, and make contributions to society. All of these opportunities are seized by the entrepreneurial leader to create an atmosphere under which individuals continuously feel inspired to work hard and perform to the best of their abilities.

#### Knowledge on Entrepreneurship

Entrepreneurship knowledge plays a role on business opportunity recognition and entrepreneurship intentions. The results of the study of Li, et al. (2015) showed that prior knowledge has significantly and indirectly affected opportunity recognition through its impact on entrepreneurial alertness. The entrepreneurial alertness of non-entrepreneurial university students significantly influenced their opportunity recognition; in contrast, the prior knowledge of entrepreneurial university students greatly influenced their opportunity recognition.

According to Sakhri (2018), medical entrepreneurship has progress from defining the entrepreneurial characteristic of an individual physician to precept influential academic medical centers contemporary. The opening of the academy entrepreneurship always offered great opportunities to business enterprises that have realized significant benefits to pharmaceutical industries.

Medical business enterprise, entrepreneurship, and innovative product design in health care require expertise in finding and evaluating diverse types of information from a multitude of sources to accomplish a number of tasks such as securing regulatory approval, developing a reimbursement strategy, and navigating intellectual property. Carroll, et al. (2019) who conducted a study on information literacy to teach medical entrepreneurship and health economics found that information literacy training showed significantly improved

performance of students on aspects of project performance relevant to health care economics over student design teams that did not receive this training.

Abun, et al. (2018) on measuring entrepreneurial knowledge and entrepreneurial intention of Grade XII Accountancy Business Management students of three colleges of the Divine Word College in Region I, School Year 2017-2018, found that the entrepreneurial knowledge and entrepreneurial intention of the students were and that there was a significant correlation between entrepreneurial knowledge and entrepreneurial intentions of the students.

#### Attitude on Entrepreneurship

Intentions formation depends on attitudes toward the target behaviour which, in turn, reflect beliefs and perceptions (Krueger & Carsrud, 2010). Kautonen (2011) on predicting entrepreneurial behavior, in the context of applying the Theory of Planned Behaviour (TPB) found econometric results supported the predictions outlined in the TPB: attitude, perceived behavioural control and subjective norms are significant predictors of entrepreneurial intention; and intention and perceived behavioural control are significant predictors of subsequent behaviour. This research thus provides support to the concept of behavioural intention to understand the emergence of complex economic behaviour on entrepreneurship prior to the onset of any observable action.

According to Jumanil, et al. (2017), entrepreneurial intention is the starting point of a decision to engage in any business or venture which makes it a more important predictor of future entrepreneurial engagement as compared to trait and demographic models or attitudes and external factors which are usually situational. The study aimed to identify the factors that influence the entrepreneurial intentions of University of the Philippines - Los Banos (UPLB) graduates with agriculture-based degrees revealed that among the behavioral factors, entrepreneurial self-efficacy, personal attitude towards entrepreneurship and knowledge on the availability of entrepreneurial support were the most important predictors of entrepreneurial intention. The likelihood of realization of business ideas increases when potential entrepreneurs were made aware of the existence of entrepreneurial support such as financing, incubation programs and trainings. The results of the study lend support to utilizing entrepreneurial education as a major strategy to increase the entrepreneurial intention of students.

Marques, et al. (2018) in a study on the influence of personal entrepreneurial intentions and organizational factors on entrepreneurial intentions in the health care sector reported that the dimensions related to personal attributes, namely, motivation and entrepreneurial skills are the constructs that best explain the entrepreneurial intention of these professionals within their organizations. Health care organization administrators need to prioritize intrapreneurship while structuring their management strategies, thereby creating favorable internal conditions (e.g., support,

autonomy, rewards, time availability and appropriate organizational procedures) that enhance their nurses' entrepreneurial intention.

Resurreccion (2011) on the determinants of entrepreneurial attitudes and intentions among High School students in Iligan City found out that students generally have a favorable attitude towards entrepreneurs and entrepreneurship.

Consignado (2017) revealed in his study a high level of entrepreneurial intention among the participants, a significant difference in the level of entrepreneurial intention of entrepreneur participants and employee participants, and a significant difference in the level of creativity/innovativeness between the entrepreneur participants and employee participants.

According to the article of Reyes (2015), Filipinos view entrepreneurship positively. The Global Entrepreneurship Monitor (GEM) 2013 report said Filipinos regard entrepreneurship as a reliable means to improve one's economic and social standing. The country's huge population, high educational attainment, and the growing consumption expenditure in the domestic market motivate the population to engage in entrepreneurial activities. Filipinos rate themselves highest in the region in terms of the ability to start a business.

#### Entrepreneurship Education in Medical Education

According to Wenbi, et al. (2018), research on innovation and entrepreneurship education is of great significance to medicine. As a new educational concept, innovation and entrepreneurship education is not a simple superposition of innovation education and entrepreneurship education, but it is beyond the reach of innovation education or entrepreneurship education in terms of concept and content. Innovation and entrepreneurship education in medical education should focus on the idea innovation and technological innovation based on the position, instead of leaving the medical profession to start a company and other simple businesses. The innovation and entrepreneurship curriculum should be organically integrated with the medical professional education to help medical students better learn medical knowledge, improve practical skills, and better serve human health protection. The innovation and entrepreneurship education in medical colleges has a long way to go and needs to be highly valued and long-term.

During times of economic uncertainty, knowledge about entrepreneurship and entrepreneurial skills can be exploited when health care staff needs to figure out how to do more with fewer resources (Boore & Porter, 2010). Nurse entrepreneurs claim that when their education is based on the traditional forms of nursing, it does not provide them with enough knowledge about entrepreneurship or establishing and running a company (Salminen, 2014; Sankelo & Akerblad, 2008). Therefore, a critical discussion about the role of education in enhancing entrepreneurship among health care college students is needed.

Fuchs and Cullen (2015) published an article in the Journal of American Medical Association questioning the impact of health systems change on doctors and how the medical educational establishment should respond with curriculum reform that includes health economics and population health. According to the article, entrepreneurship is the pursuit of opportunity with scarce, uncontrolled resources. The goal of all entrepreneurs, including physician entrepreneurs, is to create user defined value through the deployment of innovation, both qualitative and quantitative component. The article also emphasized that the increasing rate of employed physicians should not be interpreted, as Fuchs implies, as decreasing entrepreneurial role of doctors and its consequent impact on medical professionalism. On the contrary, when done properly, it enhances medical professionalism. Employed physicians, whether academic or non-academic, have the potential to be no less entrepreneurial than their colleagues who are in independent practices.

There is a growing complaint in medical education that the curriculum hasn't changed very much since 1910, when educator Abraham Flexner analyzed medical school curriculums across the country and proposed standardization of pre-clinical and clinical years in his groundbreaking Flexner Report. In the last few decades, the number of students choosing to supplement their M.D. degrees with others in different disciplines is climbing, and more schools have begun offering joint Ph.D., MPH, and MA programs. More than half of M.D./M.B.A. programs started after the year 2000, and most offer the degree in a five-year timeframe, lowering the total cost that business school would traditionally add (Viswanathan, 2014).

In November 2015, National Health Service (NHS) England opened a national training programme: Integrated Clinical Entrepreneur Training, which recruits clinicians with an interest in innovation. An article was published by Jeyabaladevan and Yogalingam (2018), "A Call to Reform Medical Curricula to Sustain the NHS". With the reality of an economic crisis encompassing the NHS (NHS England, 2013), it is time there was change in the way the doctors of tomorrow are trained. Reforming the medical curricula by incorporating health economics and teaching successful qualities of entrepreneurs, medical institutes ensure doctors are trained to be drivers for change to sustain the NHS and its patients. Medical curricula need reform with the goals of instilling an entrepreneurial mindset in all graduates. Every threat to the existing practice of medicine is an opportunity for doctor entrepreneurs to create solutions.

However, in the review of Accreditation Council for Graduate Medical Education (ACGME) core competencies in 2018, it was concluded that there should be an increased emphasis on nonclinical core competencies such as professionalism and system-based practice. Noticeably absent are demonstrating competencies in the business of medical practice, medical practice entrepreneurship, and the process of medical innovation and quality improvement. These learning

gaps contribute to poor patient outcomes, persistent systemic dysfunction, and patient experience problems because of ignorance about best practices, many of which derive from non-sick care industries (Meyers, 2018).

In today's urgent health challenges demanding 21st century solutions, Harvard Medical School (Harvard Medical School, 2019) as part of its mission to alleviate human suffering from disease encourages and supports innovation and entrepreneurship by its talented community of students, faculty, postdocs, alumni, and staff. Harvard provides resources—from mentors to technical expertise to funding—to help turn creative ideas for improving health into reality. The spirit of innovation infuses the School's core activities of teaching, research, and patient care.

In the Philippines, Ronda (2017) reported that according to Commission on Higher Education (CHED) chairperson Patricia Licuanan more young Filipinos are taking up entrepreneurship courses in college, stressing the importance of aligning entrepreneurship education with international standards. In her keynote address at the opening ceremonies of the three-day 6th United Nations Educational, Scientific, and Cultural Organization- Asia Pacific Program of Educational Innovation for Development (UNESCO) Meeting on Entrepreneurship Education Monday morning, Licuanan said that the aside from the efforts at developing the formal curriculum, schools offering Entrepreneurship must create a learning environment that demands excellence, as well as encourage taking risks, and makes space for failure – especially failing early, for the cause of learning. There are currently 288 Philippine higher education institutions (HEIs) offering baccalaureate and graduate programs in entrepreneurship with the largest number of these located in Metro Manila. The enrollment has increased steadily over the past five years with 31,034 in academic year 2016-2017. Aside from these programs in entrepreneurship, there are other programs that have started incorporating entrepreneurship courses such as Business Administration, Engineering, Information Technology, Computer Science, Agribusiness, and Science courses.

### 3. RESEARCH QUESTIONS

This study sought to determine the relationship between growth mindset and the knowledge and attitude of medical students on entrepreneurship.

The study answered the following research questions:

1. What is the demographic profile of the medical students in terms of the following:

1.1. Age;

1.2. Sex;

1.3. Year Level;

1.4. Business experience: Yes \_\_\_\_ No \_\_\_\_,

If Yes:

1.4.1. Past or Current; and

1.4.2. Health related or Non-health related?

2. What is the growth mindset of the medical students on entrepreneurship in terms of:

2.1. Intelligence; and

2.2. Personal Qualities?

3. What is the knowledge of the medical students on entrepreneurship in terms of the following:

3.1. Opportunities and Innovations;

3.2. Financial and Economic Literacy;

3.3. Planning; and

3.4. Management?

4. What is the attitude of medical students on entrepreneurship in terms of the following:

4.1. Affective Component; and

4.2. Behavioural Component?

5. Is there a significant association between the demographic profile and the growth mindset of medical students?

6. Is there a significant association between the demographic profile and the knowledge on entrepreneurship of the medical students?

7. Is there a significant association between the demographic profile and the attitude on entrepreneurship of the medical students?

8. Is there a significant relationship between the growth mindset and the knowledge on entrepreneurship of the medical students?

9. Is there a significant relationship between the growth mindset and the attitude entrepreneurship of the medical students?

10. Is there a significant relationship between the knowledge and attitude on entrepreneurship of medical students?

11. Is there a significant difference in the growth mindset of the medical students when grouped according to their demographic profile?

12. Is there a significant difference in the knowledge on entrepreneurship of the medical students when grouped according to their demographic profile?

13. Is there a significant difference in the attitude on entrepreneurship of the medical students when grouped according to demographic profile?

14. How may the results be used as bases for a proposed medical entrepreneurship education program?

#### 4. HYPOTHESES

Based on the aforementioned problems, the following hypotheses were tested:

Ho1: There is no significant association between the demographic profile and the growth mindset of the medical students.

Ha1: There is significant association between the demographic profile and the growth mindset of the medical students.

Ho2: There is no significant association between the demographic profile and the knowledge on entrepreneurship of the medical students.

Ha2: There is significant association between the demographic profile and the knowledge on entrepreneurship of the medical students.

Ho3: There is no significant association between the demographic profile and the attitude on entrepreneurship of the medical students.

Ha3: There is significant association between the demographic profile and the attitude on entrepreneurship of the medical students.

Ho4: There is no significant relationship between the growth mindset and the knowledge on entrepreneurship of medical students.

Ha4: There is significant relationship between the growth mindset and the knowledge on entrepreneurship of medical students.

Ho5: There is no significant relationship between the growth mindset and the attitude on entrepreneurship of medical students.

Ha5: There is significant relationship between the growth mindset and the attitude on entrepreneurship of medical students.

Ho6: There is no significant relationship between the knowledge on entrepreneurship and the attitude on entrepreneurship of medical students.

Ha6: There is significant relationship between the knowledge on entrepreneurship and the attitude on entrepreneurship of medical students.

Ho7: There is no significant difference in the growth mindset when the medical students grouped according to demographic profile.

Ha7: There is significant difference in the growth mindset when the medical students grouped according to demographic profile.

Ho8: There is no significant difference in the knowledge on entrepreneurship when the medical students grouped according to demographic profile.

Ha8: There is significant difference in the knowledge on entrepreneurship when the medical students grouped according to demographic profile.

Ho9: There is no significant difference in the attitude on entrepreneurship when the medical students grouped according to demographic profile.

Ha9: There is significant difference in the attitude on entrepreneurship when the medical students grouped according to demographic profile.

#### 5. SCOPE AND LIMITATIONS OF THE STUDY

This study investigated the growth mindset and the entrepreneurial knowledge and attitudes of medical students in a private higher education institution. The respondents were medical students who were enrolled on the second semester of Academic Year 2019-2020. They were selected regardless of age, year level, sex, and business experience. The total number of medical students enrolled at the time of data gathering was 430. However, due to the leave of absence of four (4) medical students because of force majeure (Taal Volcano eruption), only 426 students were included as respondents with an effective response rate of 99.07%.

Excluded in the study were the Senior Interns or the Fifth Year medical students since they graduated already from the COM and were under the supervision of the hospital and not of the COM. Likewise, other health allied courses were not included in this study because entrepreneurship was already part of their curriculum.

Data gathering was done from January 6, 2020 to January 31, 2020. It employed a descriptive survey using questionnaires to collect data through census sampling of the medical students in a private higher education institution.

#### 6. RESEARCH METHODOLOGY

This study utilized the descriptive-correlational since it investigated the relationship in between growth mindset, knowledge, and attitude on entrepreneurship of the medical students. Descriptive-comparative research method was also used to look into the difference that existed between growth mindset, knowledge, and attitude on entrepreneurship of the medical students when grouped according to demographic profile.

Purposive census sampling technique was employed in the study. The respondents involved the entire student population from first to fourth year level of the COM of a PHEI enrolled on the Second Semester of Academic Year 2019 – 2020, regardless of age, sex, year level, and business experience. As of January 20, 2020, according to the University Registrar's Office, the distribution of enrolled medical students according to year level was as follows: For the First Year, a total 135 students or 31% of the population; Second Year had 103 students or 24% of the population; Third Year had 98 students or 23% of the population; and Fourth Year had 94 students or 22% of the population. Other health allied courses of the

private higher education institution were excluded because entrepreneurship was already part of their curriculum.

The instrument that was utilized in this study was a researcher-made questionnaire. The questionnaire was composed of four parts namely: 1. Demographic profile: Age, Sex, Year Level, Business Experience (Yes or No, Current or Past, Health or Non-Health Related); 2. Growth mindset with its two components: Intelligence (14 items) and Personal Qualities (6 items); 3. Knowledge on entrepreneurship with its four components: Opportunities and Innovation (4 items), Financial and Economic Literacy (4 items), Planning (3 items) and Management (4 items); and 4. Attitude on entrepreneurship with its two components: Affective Component (6 items) and Behavioral Component (6 items).

All questions were answerable by four alternatives: a.) strongly agree, b.) agree, c.) disagree, and d.) strongly disagree.

Questions were culled from literature and were subjected to content validation by three experts: 1) the Vice-President for Planning and External Affairs of the PHEI who is a Fellow of the Philippine Society of General Surgeons, and a graduate of Masters in Hospital Administration, 2) the College Secretary of the COM of the PHEI who is a Fellow of the Philippine Society of Otolaryngology-Head and Neck Surgery and also a PhD graduate, and 3) the MBA Program Research Coordinator, also a PhD graduate. The questionnaire was also validated by a registered psychometrician and was proofread by an English professor. Suggestions and comments of the validators were considered in revising the questionnaire.

After the validation process, approval from the Research and Development Center - Ethics Research Board was sought and was granted an ethics approval with protocol no: 2019-36.

After the approval of request to conduct a pilot study was granted by the Dean of the College of Dentistry in the locale of the study, the questionnaire was pilot tested and was administered to 30 students, 15 were from the second year, and another 15 students were from the fifth year. The results were tallied and reliability testing followed. The results of the reliability test with a Cronbach's Alpha coefficient of 0.883 showed that the instrument was reliable.

#### Data Collection Procedure

A letter of request to conduct the study was secured and was granted by the Dean of the College of Medicine of the private higher education institution which served as the locale of the study. The letter was signed by the researcher, was noted by the researcher's adviser, and had the recommending approval of the Dean of the School of Graduate Studies. The approved letter was appended to the cover letter describing the purpose of the research and the questionnaire to be filled out by the respondents. The actual study was then conducted. Data gathering, tallying of the responses, data analysis, and interpretation transpired from January 6 to 31, 2020.

The researcher explained to the respondents the nature of the research, the purpose of the study, and the way to answer the questionnaire. All the participants were assured of their anonymity and the confidentiality of the data. This was done as studies involving humans as subjects require the need for full disclosure of the purpose of the study and the assurance of confidentiality of information regarding the respondents and the data obtained.

All reasonable efforts were made to ensure the ethical treatment of the respondents and the data gathered for this research. The respondents' involvement was totally voluntary, and the option to withdraw at any time during the study was communicated to the participants. Respondents were allowed to participate in the data gathering after informed consent was secured. Privacy was maintained by ensuring that electronic files and physical documents were protected and secured, and that no unusual risks existed for any respondent. Distribution and retrieval of the questionnaires were done personally by the researcher for efficient collection of all questionnaires.

#### Data Analysis

To analyze and interpret the results of the study, the researcher use percentage, weighted mean, Chi-square, independent t-test, analysis of variance (ANOVA) and Pearson Product-Moment Coefficient Correlation (r).

The data were encoded and tallied in SPSS version 10 for windows. A total of 430 medical students who were enrolled at the time when the study was conducted were included as respondents. From a total of 430 questionnaires, only 426 were retrieved which corresponds to an effective recovery rate of 99.07%.

1. What is the demographic profile of the medical students in terms of the following:

1.1 Age;

1.2 Sex;

1.3 Year Level;

1.4 Business experience : Yes or No?

If Yes :

1.4.1 Past or Current; and

1.4.2 Type of Business Health Related or Non-Health Related?

**Table 1.** Percentage and Frequency Distribution of the Demographic Profiles of Medical Students

	Frequency (n=426)	Percentage
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<b>Age (in years)</b>		
≤20	20	4.7
21 – 25	330	77.5
26 – 30	68	16.0
>30	8	1.9
Mean ± SD = 23.82 ± 2.50		
<b>Sex</b>		
Male	186	43.7
Female	240	56.3
<b>Year Level</b>		
1 <sup>st</sup> year	135	31.7
2 <sup>nd</sup> year	103	24.2
3 <sup>rd</sup> year	98	23.0
4 <sup>th</sup> year	90	21.1
<b>Business Experience</b>		
Yes	177	41.5
No	249	58.5
<b>Business</b>	(n=177)	
Past	68	38.4
Current	109	61.6
<b>Type of Business</b>	(n=177)	
Health Related	46	26.0
Non-Health Related	128	72.3
Both	3	1.7

Table 1 shows the respondents' age ranging from 19 to 36 years with a mean age of 23.82 years. There were more female students than male, 56.3% and 43.7% respectively. Less than half of the respondents, 41.5%, had business experience in which 61.6% was current business experience and majority, 72.3% was non-health related type of business. The mean age of the respondents suggests that the medical students had continuously studied from pre-school at the age of 3-4 years of age up to present with a mean age of 22.3 years of age. They also had no time in engaging into business that was why majority of them did not have business experience. The results also suggest that there were more females who were into medical profession as compared to men.

2. What is the growth mindset of the medical students on entrepreneurship in terms of:

- Intelligence; and
- Personal Qualities?

**Table 2.1** Growth Mindset of Medical Students on Entrepreneurship in terms of Intelligence

	Weighted Mean (WM)	Verbal Interpretation (VI)
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1. My intelligence is something I can improve through efforts.	3.68	SGM
2. I can be truly good at business – I just have to work for it.	3.32	SGM
3. The harder I work at something, the better I will be at it.	3.78	SGM
4. All of us human beings are capable of learning through hard work.	3.78	SGM
5. I am capable of learning new things.	3.77	SGM
6. Trying new things excites me.	3.60	SGM
7. No matter how much intelligence I have, I can enhance it.	3.59	SGM
8. I can always improve my knowledge by looking into new perspective.	3.65	SGM
9. Running a business can be learned by anyone of us.	3.28	SGM
10. I can easily learn entrepreneurship through education.	3.23	GMSFM
11. I appreciate when parents, coaches, teachers give me feedback about my performances.	3.68	SGM
12. I make use of feedback to improve myself.	3.66	SGM
13. Even if I am smart, I still need to try hard to achieve my goals.	3.76	SGM
14. I find school activities as opportunities to new learnings.	3.60	SGM
<b>Over-all Average WM</b>	<b>3.69</b>	<b>SGM</b>

*\*Strong Growth Mindset (SGM): 3.26-4.00; Growth Mindset with Some Fixed (GMSFM) : 2.51-3.25; Fixed Mindset with Some Growth Mindset (FMSGM) : 1.76-2.50; Strong Fixed Mindset: (SFM) 1.00-1.75*

Table 2.1 shows the learning capacity of the medical students that can be applied towards adaptive behavior within a growth mindset context. In general, the findings showed a Strong Growth Mindset except for item no. 10 (I can easily learn entrepreneurship through education) that had a WM of 3.23 or a VI of Growth Mindset with Some Fixed Mindset (GMSFM). For all items except one (item no.10), the result of

Strong Growth Mindset of the students suggests that the students believed in their intelligence and learning capacity and this could be used to adapt to changes and accept new learning opportunities. However, in Item no. 10 the result suggests that either some students might think that entrepreneurship could be taught, some believed it could only be taught by other entrepreneurs who had experienced it, and some believed that some skills could be taught and other skills could be learned while they were doing it.

**Table 2.2.** Growth Mindset of the Medical Students on Entrepreneurship in terms of Personal Qualities

	<b>Weighted Mean (WM)</b>	<b>Verbal Interpretation (VI)</b>
15. I can always change basic things about the kind of person I am.	3.25	GMSFM
16. I am willing to be corrected to improve myself.	3.68	SGM
17. Some of us are good and kind, and some are not – I can always choose to be kind.	3.53	SGM
18. I can do things differently, and the important parts of who I am can still be changed.	3.38	SGM
19. I can always choose to be good.	3.58	SGM
20. I am open to all challenges.	3.48	SGM
<b>Over-all Personal Qualities Average WM</b>	<b>3.52</b>	<b>SGM</b>
<b>OVER-ALL MINDSET Average WM</b>	<b>3.64</b>	<b>SGM</b>

Table 2.2 shows the personality traits, characteristics, or attributes of the medical students that can be applied towards adaptive behavior within a growth mindset context. Majority of the students had a WM of 3.26 - 4.00 or a Strong Growth Mindset (SGM) except for item no. 15 (I can always change basic things about the kind of person I am) with a weighted mean of 3.25 or a VI of Growth Mindset with Some Fixed Mindset (GMSFM). The results suggest that in terms of personal qualities, the students had a strong growth mindset, that may imply that they had the traits and character that were committed to life-long learning; they had the passion to learn and see opportunities to improve and succeed. Furthermore, the students believed that traits and characters could be changed, and they could adapt with changes, and see challenges as an opportunity to improve their characters. Item no.15, however, directly pointed out to the “kind” of person

the student was. This may suggest that the question was something very personal to the student, it may imply that he/she knew himself/ herself more, and for that, he/she knew that the “kind” of person he/she was could not be totally changed, especially the basic things that he/she possessed.

3. What is the knowledge of the medical students on entrepreneurship in terms of the following:

- Opportunities and Innovations;
- Financial and Economic Literacy;
- Planning; and
- Management?

**Table 3.1** Knowledge of the Medical Students on Entrepreneurship in terms of Opportunities and Innovation

	<b>Weighted Mean (WM)</b>	<b>Verbal Interpretation (VI)</b>
1. I can identify business opportunities that are related to my future profession to address health care needs that have not been met.	3.28	VA
2. I can assess the strengths and weaknesses of a business idea in comparison to existing products and services.	3.16	A
3. I can create products and health services by doing needs analysis.	3.13	A
4. I can identify and serve my customers depending on their status and needs.	3.32	VA
<b>Over-all Opportunities and Innovations Average WM</b>	<b>3.22</b>	<b>A</b>

*\*Strongly Agree/Very Adequate (VA): 3.26-4.00; Agree/Adequate (A): 2.51-3.25; Disagree/Somewhat Adequate (SA): 1.76-2.50; Strongly Disagree/Not Adequate (NA):1.00-1.75*

Table 3.1 shows how the medical students are able to see a situation or a gap as a chance to do something in the context of health care entrepreneurship. In general, the WM for knowledge in terms of opportunity and innovation was only at 2.51 - 3.25 or a VI of Adequate (A). The respondents of the study were students focusing currently on their medical studies, as such knowing the opportunities and the chance to

innovate in the context of the health care system was not due in time. However, the results showed that medical students had adequate knowledge on how to see opportunities and may translate to innovation when needed. The result suggests that even if the students had no prior training on entrepreneurship, they had adequate, but may be limited knowledge on seeking opportunities and innovation because of lack of formal education and business experience. Therefore, the medical entrepreneurship program should emphasize that competencies on opportunity and innovation must be developed completely.

**Table 3.2** Knowledge of the Medical Students on Entrepreneurship in terms of Financial and Economic Literacy

	Weighted Mean (WM)	Verbal Interpretation (VI)
5. I am knowledgeable in financial management.	2.82	A
6. I can identify profit or loss for a business.	3.00	A
7. I can plan and manage the budget for a simple activity.	3.24	A
8. I can determine my business strategies.	3.01	A
9. I can identify sources of business finance.	2.97	A
<b>Over-all Financial and Economic Literacy</b>	<b>3.00</b>	<b>A</b>

Table 3.2 shows that the medical students had adequate knowledge on all of the items in terms of Financial and Economic Literacy with a WM of 2.51-3.25. The medical students had adequate understanding of the concept of budgeting, managing resources, financing and loss and profit. The result suggests that even if the students had no prior training on entrepreneurship, they had adequate, but may be limited knowledge on financial and economic literacy because of lack of formal education and business experience.

**Table 3.3** Knowledge of the Medical Students on Entrepreneurship in terms of Planning

	Weighted Mean (WM)	Verbal Interpretation (VI)
10. I can develop business plan that is related to my profession.	3.15	A

11. I can anticipate and manage market changes, setbacks, and risks that may affect my business.	2.98	A
12. I can understand the mindset of my customersto market my services/products to them.	3.15	A
<b>Over-all Planning Average WM</b>	<b>3.11</b>	<b>A</b>

Table 3.3 shows that in all items and the over-all survey on planning, the medical students had adequate (A) knowledge on the concepts on how to do business plan, build strategy, and market analysis. The knowledge of the respondents was only adequate. The result suggest that even if the students had no prior training on entrepreneurship, they had adequate, but may be limited knowledge on planning because of lack of formal education and business experience. Therefore, the medical entrepreneurship program should emphasize that competencies on business planning must be developed completely.

**Table 3.4** Knowledge of the Medical Students on Entrepreneurship in terms of Management

	Weighted Mean (WM)	Verbal Interpretation (VI)
13. I can collaborate and recognize the value of teamwork.	3.56	VA
14. I can inspire people to work with me in my business.	3.30	VA
15. I can manage and maintain business records for business requirements.	3.27	VA
16. I can communicate my business ideas to my mentors, customers, potential partners, and other people.	3.31	VA
<b>Over-all Management Average WM</b>	<b>3.34</b>	<b>VA</b>
<b>OVER-ALL KNOWLEDGE Average WM</b>	<b>3.18</b>	<b>A</b>

The findings in Table 3.4 show that in all items and the over-all survey on management, the WM was at the range of 3.26 - 4.00. This shows that the medical students had very adequate knowledge on the concepts in relation to managing a business in terms of working with people, keeping business records, and selling products and services. The students had very adequate knowledge on managing a business which was a good start to build a culture of good management. Students could be great managers in their future business. Medical professionals and entrepreneurs are going to be responsible for making sure that things are done properly. While entrepreneurial leaders may bring the vision and inspiration, excellent managers will see them through efficient implementation.

4. What is the attitude of medical students on entrepreneurship in terms of the following:

- Affective Component; and
- Behavioral Component?

**Table 4.1** Attitude of the Medical Students on Entrepreneurship in terms of Affective Component

	Weight ed Mean (WM)	Verbal Interpretatio n (VI)
1. I consider self-employment and running my own clinic/laboratory a priority.	3.26	VP
2. I believe that aside from earning money, my business objective should be guided by moral principles.	3.66	VP
3. I consider entrepreneurship subject very interesting to be an option for my chosen career.	3.32	VP
4. I believe that running a business is not very easy but it is a rewarding career.	3.52	VP
5. Profit in business motivates me towards success in life.	3.41	VP
6. Being an entrepreneur is an opportunity to help more people by employing them to work for my company.	3.48	VP
<b>Over-all Affective Component Average WM</b>	<b>3.48</b>	<b>VP</b>

*\*Strongly Agree/ Very Positive (VP): 3.26-4.00; Agree/ Positive (P): 2.51-3.25; Disagree: Somewhat Negative (SN) 1.76-2.50; Strongly Disagree/ Negative (N):1.00-1.75*

Table 4.1 shows a very positive (VP) feelings and emotions of the medical students on entrepreneurship, how they see the importance of entrepreneurship, and whether eventually they will like it or not. The result suggests that the medical students were most likely prewired to be entrepreneurs, and this was an advantage to teach them the entrepreneurial knowledge and skills to get it done. In starting a venture, there will be setbacks. Those who are strongly internally motivated will far outnumber that instances in which one succeeds particularly early on. The ability to absorb and rise above negative developments is key (Meyers, 2019 as cited by Murphy, 2019).

**Table 4.2** Attitude of the Medical Students on Entrepreneurship in terms of Behavioral Component

	Weight ed Mean (WM)	Verbal Interpretati on (VI)
7. At the start of my business, I ready myself physically and emotionally.	3.51	VP
8. I will face challenges that will really stretch my abilities rather than things I can do easily.	3.48	VP
9. I will attend entrepreneurship trainings to improve my knowledge in running my own clinic/health care facility.	3.51	VP
10. I will put hard work and a lot of sacrifices in managing my business.	3.55	VP
11. When I am in a group, I like to take the lead.	2.98	P
12. I will equip myself with technical knowledge to run my business competitively.	3.47	VP
13. When I am faced with challenges, I think more of success than failure.	3.47	VP
14. I can see myself starting and running my own clinic/laboratory/delivery service in the future.	3.46	VP
<b>Over-all Behavioral Component Average WM</b>	<b>3.49</b>	<b>VP</b>

**OVER-ALL ATTITUDE 3.48 1. VP**  
**Average WM**

Table 4.2 shows that the students had a range of WM of 3.26-4.00 or a VI of Very Positive (VP) behavior on entrepreneurship except for a WM of 2.98 or a VI of Positive (P) in item no. 11, "When I am in a group, I like to take the lead", which is a behavior in the context of leadership. The result of a very positive behavior of the medical students may imply that they had the willingness to take action and they had the inner voice egging them to accept new challenges and opportunities to know entrepreneurship and to become medical entrepreneurs. Without this very positive behavior, it will entail a lot of persistence and encouragement to take up this new concept. However, the result in Item no. 11 suggests that not all were born to be leaders and some might have hesitations of being a leader. The results may also imply that the current curriculum was not giving adequate leadership skills training to the medical students. Hence, the competence of the students to stand as a leader was not yet achieved. This will require leadership skills training among medical students and the mandatory review of the current curriculum particularly on leadership skills training and competencies.

5. Is there a significant association between the demographic profile and the growth mindset of medical students?

**Table 5.** Association Between the Demographic Profiles and Growth Mindset of Medical

PROFI LE & Over- all Growt h Minds et	Tabu lar Chi- suar e Valu e	Degre e of Freed om	Compu ted Chi- square Value	Decision	Interpreta tion
Age	7.82	3	10.643	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significa nt Associati on
Sex	3.84	1	0.105	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Year Level	7.82	3	3.243	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Busine ss	3.84	1	6.681	H <sub>0</sub> : Rejected	Significa nt

Experi ence				H <sub>A</sub> : Accepted	Associati on
Busine ss	3.84	1	0.100	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Type of Busine ss	5.99	2	1.153	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt

Table 5 shows that in using chi-square at 0.05 level of significance among the demographic profiles tested, age and business experience yielded a significant association with the growth mindset of medical students. On the other hand, sex and year level were not significantly associated with the growth mindset of the medical students. The results imply that as the students grow and become older, they gain experience and more knowledge, and their mindsets also improve. Students are becoming more prepared of their future as medical professionals. Likewise, any experience, particularly, having business experience makes a person more knowledgeable and confident therefore also improves his mindset. The results imply that in the application of the entrepreneurial program, experiential learning must be ensured through different teacher-student learning activities e.g. game simulations, active participation of the students and emphasis on team work using role playing, case based discussion to simulate business experience. Medical entrepreneurs may also be invited as guest lecturers or as faculty to facilitate sharing of direct business experience and learnings.

6. Is there a significant association between the demographic profile and the knowledge on entrepreneurship of the health care college students?

**Table 6.** Association Between the Demographic Profile and the Knowledge on Entrepreneurship of Medical Students

PROFI LE & Over- all Growt h Minds et	Tabu lar Chi- suar e Valu e	Degre e of Freed om	Compu ted Chi- square Value	Decision	Interpreta tion
Age	12.59	6	2.508	H <sub>0</sub> : Accepted	Not Significa nt

Sex	5.99	2	12.375	H <sub>A</sub> : Rejected	Significa nt Associati on
Year Level	12.59	6	6.297	H <sub>0</sub> : Rejected	Not Significa nt
Busine ss Experi ence	5.99	2	14.493	H <sub>A</sub> : Accepted	Significa nt Associati on
Busine ss	5.99	2	1.275	H <sub>0</sub> : Accepted	Not Significa nt
Type of Busine ss	9.49	4	7.229	H <sub>0</sub> : Rejected	Not Significa nt

Table 6 shows that in using chi-square at 0.05 level of significance among the demographic profile variables tested, sex and business experience yielded a significant association with knowledge on entrepreneurship of medical students. On the other hand, age and year level were not significantly associated with medical students' knowledge on entrepreneurship. Business experience naturally affects growth mindset as the respondents already experienced growth, failures, and success. Having an experience can be an asset both as an individual and as a member of the class or a group. Student with business experience can integrate and collaborate within the ecosystem. The result also implies that an experiential learning will be a great learning tool for the entrepreneurship program through the use of different teacher-student learning activities e.g. game simulations, active participation of the students, and emphasis on team work using role playing, and case-based discussion to simulate business experience.

7. Is there a significant association between the demographic profile and the attitude on entrepreneurship of the medical students?

**Table 7.** Association Between the Demographic Profile and the Attitude on Entrepreneurship of Medical Students

PROFI LE & Over- all Growt h Minds et	Tabu lar Chi- suar e Valu e	Degre e of Freed om	Compu ted Chi- square Value	Decision	Interpreta tion
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Age	12.59	6	5.775	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Sex	5.99	2	1.834	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Year Level	12.59	6	4.055	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Busine ss Experi ence	5.99	2	15.356	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significa nt Associati on
Busine ss	5.99	2	2.023	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt
Type of Busine ss	9.49	4	2.169	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significa nt

Table 7 shows that in using chi-square at 0.05 level of significance among the demographic profile variables tested, business experience yielded a significant association with attitude on entrepreneurship of medical students. On the other hand, age, sex, and year level were not significantly associated with medical students' attitude on entrepreneurship. The results suggest that the medical students' attitudes came from direct business experience. The medical students also had positive experiences in their respective businesses. Positive experiences in business had caused the medical students to have favorable attitudes towards entrepreneurship. Therefore, the medical entrepreneurship program must ensure different teacher-student learning activities using experiential learning e.g. game simulations, active participation of the students, and emphasis on team work using role playing, and case-based discussion to simulate business experience. Medical entrepreneurs may also be invited as guest lecturers or as faculty to facilitate the sharing of direct business experience and learning.

8. Is there a significant relationship between the growth mindset and the knowledge on entrepreneurship of the medical students?

**Table 8.** Relationship Between the Growth Mindset and the Knowledge on Entrepreneurship of Medical Students

	Tabular Pearson Value	Degree of Freedom	Computed Pearson Value	Decision	Interpretation
Over-all Growth Mindset & Knowledge	0.09	424	0.34	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Relationship

Table 8 shows that in using Pearson r at 0.05 level of significance, there was a significant relationship between the growth mindset and the knowledge on entrepreneurship of medical students. The result implies the importance of prior knowledge (what you know) and the yearning of wanting (mindset) to learn new information. The human brain is constantly looking for connections that will use prior knowledge to build bridges to new material. Knowledge on entrepreneurship motivates students towards becoming medical entrepreneur. These baseline data are important in the entrepreneurship program in building the competencies of the medical students. As the knowledge of the medical students is enriched, the growth mindset will also improve.

9. Is there a significant relationship between the growth mindset and the attitude on entrepreneurship of the medical students?

**Table 9.** Relationship Between the Growth Mindset and the Attitude on Entrepreneurship of Medical Students

	Tabular Pearson Value	Degree of Freedom	Computed Pearson Value	Decision	Interpretation
Over-all Growth Mindset & Knowledge	0.09	424	0.46	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Relationship

Table 9 shows that in using Pearson r at 0.05 level of significance, there was a significant relationship between the growth mindset and the attitude on entrepreneurship of medical students. The result suggests that medical students are ready mentally (growth mindset) and emotionally (attitude) to accept entrepreneurship education as an opportunity for them to grow and improve.

10. Is there a significant relationship between the knowledge and attitude on entrepreneurship of medical students?

**Table 10.** Relationship Between the Knowledge and the Attitude on Entrepreneurship of Medical Students

	Tabular Pearson Value	Degree of Freedom	Computed Pearson Value	Decision	Interpretation
Over-all Growth Mindset & Knowledge	0.09	424	0.57	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Association

Table 10 shows that in using Pearson r at 0.05 level of significance, there was a significant relationship between knowledge and attitude on entrepreneurship of medical students. The result indicates that the provision of accurate and timely information about entrepreneurship to medical students will translate into favorable attitude and beneficial entrepreneurial practices in the future as they gain more knowledge in their education.

11. Is there a significant difference in the growth mindset of the medical students when grouped according to their demographic profile?

**Table 11.** Comparison of the Overall Growth Mindset on Entrepreneurship of Medical Students According to the Different Demographic Profile

PROFILE & Over- all Growth Mindset	Tabular F or T- test value	Degree of Freedom	Computed F or T- test Value	Decision	Interpretation
Age	F = 2.626	3, 422	F = 3.604	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Difference
Sex	T = 1.65	424	T = - 0.323	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Year Level	F = 2.626	3, 422	F = 0.563	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Business Experience	T = 1.65	424	T = 2.599	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Difference

Business	T = 1.658	175	T = -0.328	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Type of Business	F = 3.047	2,174	F = 0.571	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant

Table 11 shows that using either the F-test or t-test at 0.05 level of significance, the results showed that there was a significant difference in the growth mindset on entrepreneurship according to age and business experience. On the other hand, there was no significant difference in the growth mindset of medical students according to sex and year level. The results suggest that because of the business experience and as the students age, the mindset also improved towards a growth mind set. This may be because the students' age and their experience make them more knowledgeable and aware of the nature of entrepreneurship. This may also have something to do with their confidence. The results suggest that age is a critical factor in determining the medical students' readiness to take entrepreneurial education. However, since only 41.5% of the medical students had business experience as shown in Table 1 (Distribution of Demographic Data), different teacher-student learning activities should be done using experiential learning e.g., game simulations, active participation of the students, and emphasis on team work using role playing, and case-based discussion to simulate business experience. Medical entrepreneurs may also be invited as guest lecturers or as faculty to facilitate the sharing of direct business experience and learning.

12. Is there a significant difference in the knowledge on entrepreneurship of the medical students when grouped according to their demographic profile?

**Table 12.** Comparison of the Overall Knowledge on Entrepreneurship of Medical Students According to the Different Demographic Profile

PROFILE & Overall Growth Mindset	Tabular F or T-test value	Degree of Freedom	Computed F or T-test Value	Decision	Interpretation
Age	F = 2.626	3, 422	F = 0.612	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant

Sex	T = 1.65	424	T = 3.499	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Difference
Year Level	F = 2.626	3, 422	F = 0.563	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Business Experience	T = 1.65	424	T = 3.675	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Difference
Business	T = 1.658	175	T = 0.748	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Type of Business	F = 3.047	2,174	F = 2.292	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant

Table 12 shows that in using either the F-test or t-test at 0.05 level of significance, the results showed that there was a significant difference in the knowledge on entrepreneurship according to sex and business experience. On the other hand, there was no significant difference in the knowledge on entrepreneurship of medical students according to age and year level. The significant difference between knowledge and sex may imply that entrepreneurship areas of knowledge might have different gender appeal. This is also true for the business experience profile of the students, naturally, as they had gained the experience, they had also gained more knowledge in business. These results suggest that in teaching entrepreneurial education, gender must be considered. Gender minorities must be empowered and must be developed so that there will be more acceptance of the new program.

13. Is there a significant difference in the attitude on entrepreneurship of the medical students when grouped according to demographic profile?

**Table 13.** Comparison of the Attitude on Entrepreneurship of Medical Students According to the Different Demographic Profile

PROFILE & Overall Growth Mindset	Tabular F or T-test value	Degree of Freedom	Computed F or T-test Value	Decision	Interpretation

Age	F = 2.626	3, 422	F = 1.594	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Sex	T = 1.65	424	T = 0.625	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Year Level	F = 2.626	3, 422	F = 0.208	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Business Experience	T = 1.65	424	T = 3.980	H <sub>0</sub> : Rejected H <sub>A</sub> : Accepted	Significant Difference
Business	T = 1.658	175	T = 0.303	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant
Type of Business	F = 3.047	2,174	F = 0.923	H <sub>0</sub> : Accepted H <sub>A</sub> : Rejected	Not Significant

Table 13 shows that in using either the F-test or t-test at 0.05 level of significance, the results showed that there was a significant difference in the attitude on entrepreneurship according to business experience. On the other hand, there was no significant difference in the attitude on entrepreneurship of medical students according to age, sex, and year level. The results suggest that direct business experience has a powerful influence on the attitudes of the medical students. Research has shown that attitudes that are derived from experience are stronger, are held more confidently, and are more resistant to change. Having the right attitude and the experience can translate to a more positive outcome. This implies that the entrepreneurship program should maintain or improve the positive attitude of the medical students. Special consideration should be given on experiential learning tools to create positive impact in learning.

14. How may the results be used as bases for a proposed medical entrepreneurship education program?

The results of the study were used as bases in determining the content, focus, and appropriate teaching and learning strategies of the proposed Medical Entrepreneurship Program.

FINDINGS	PROPOSED CONTENT AND FOCUS OF THE PROGRAM
<p>1. The medical students consisted mostly of females. The mean age was 23.82. More than half of the population had no business experience. Majority of the business experience was from a non-health related business.</p>	<p>The program will use team or group learning strategy (Small Group Discussion), and will make sure that women will be equally distributed to all groups to ensure equal gender distribution in each group.</p> <p>Since majority of the respondents had no business experience and most businesses were non-health related, the content must focus on the basic core of business and entrepreneurship topics to ensure learning of every student.</p>
<p>2. Overall, the medical students had Strong Growth Mindset both in terms of Intelligence with a WM of 3.69 or a VI of Strong Growth Mindset.</p> <p>All of the items showed a Strong Growth Mindset for Intelligence except for item no. 10 (I can easily learn entrepreneurship through education) that had a weighted mean of 3.23 with a verbal interpretation of Growth Mindset with Some Fixed Mindset.</p> <p>In terms of Personal Qualities, all items except item no. 15 "I can always change basic things about the kind of person I am," had a weighted mean of 3.25 with a verbal interpretation of Growth Mindset with Some Fixed Mindset.</p> <p>In general, in terms of Personal Qualities, the computed average WM score was 3.52 with a VI of Strong Growth Mindset.</p>	<p>Incorporate growth mindset/entrepreneurial mindset development and enhancement in the contents and competencies.</p> <p>The program will facilitate an experiential learning and will use simulation games as tools to reinforce content and practice skills since the results suggest that students believed that entrepreneurship could not be easily learned only through education.</p> <p>Throughout the program, from introduction to end, the development of growth mindset and entrepreneurial mindset will be ensured through the monitoring of the outcomes of the learning objectives, and enhancement of critical thinking and learner-centered learning.</p>

FINDINGS	PROPOSED CONTENT AND FOCUS OF THE PROGRAM	FINDINGS	PROPOSED CONTENT AND FOCUS OF THE PROGRAM
The overall computed average WM score of mindset was 3.64 with a VI of Strong Growth Mindset.		terms of Management was 3.34 with a VI of Very Adequate Knowledge	critical thinking, and entrepreneurial mindset.
3. The medical students' knowledge on entrepreneurship in terms of Opportunities and Innovation showed a WM of 3.22 with a verbal interpretation of Adequate Knowledge.	Incorporate in the contents and competencies of the program the basic business core and entrepreneurship core topic. The approach on the teaching strategies will be on developing an entrepreneurial mindset while learning the topics of business and entrepreneurship functions developing competencies on opportunities and innovation, financial and economic literacy and planning.	4. The attitude of medical students on entrepreneurship in terms of the Affective Component had a WM of 3.48 or a VI of Very Positive Attitude towards entrepreneurship.	A very positive attitude of the students on entrepreneurship indicates that they will most likely find the program acceptable. This will be enhanced and maintained through: <ul style="list-style-type: none"> <li>• Different student-teacher learning activities</li> <li>• Simulation games</li> <li>• Team work</li> <li>• Standard grade evaluation</li> <li>• Outcome-based competency</li> <li>• Student-centered learning activities</li> </ul>
In terms of Financial and Economic Literacy, all items had a VI of adequate knowledge. The overall average WM was 3.00 with a VI of Adequate Knowledge.	The topics on management functions and developing management skills will be augmented since the results showed a Very Adequate Knowledge in terms of management.	Overall, computed average WM for the Behavioral Component was 3.49 or a VI of Very Positive Attitude.	Enhance leadership skills through quality instructional design with emphasis on entrepreneurial leadership.
In terms of Planning, all items had a verbal interpretation of Adequate Knowledge, and the overall computed WM was 3.11 with a VI of Adequate Knowledge.	The teacher-student learning strategies are diversified from interactive discussion, case-based discussion, and game simulations to continuously develop students' curiosity,	The overall computed average WM of attitude of the medical students towards entrepreneurship was 3.48 with a VI of Very Positive Attitude.	A separate activity focused on leadership skills training will be allotted in the program.
In terms of Management, all items had a VI of Very Adequate Knowledge. The overall computed WM in		In terms of Behavioral Component, the only item that had a WM score of 2.98 with a VI of Positive Attitude was item no. 11, "When I am in a group, I like to take the lead."	
		5. Age and business experience were significantly associated with growth mindset.	The program will be introduced in the Third Year Level.  Experiential learning, critical thinking, and life-long learning will be ensured throughout the implementation of the program.

FINDINGS	PROPOSED CONTENT AND FOCUS OF THE PROGRAM
6. Sex and business experience were significantly associated with knowledge on entrepreneurship.	<p>Equal gender distribution must be ensured in dividing the class into group/team to ensure gender minority empowerment.</p> <p>Different teacher-student learning activities will be done using experiential learning e.g., game simulations, active participation of the students, and emphasis on team work using role playing, and case-based discussion to simulate business experience. Medical entrepreneurs may also be invited as guest lecturers or as faculty to facilitate the sharing of direct business experience and learning.</p>

## 7. CONCLUSIONS AND RECOMMENDATIONS

From the foregoing findings the following conclusions were drawn:

1. Most of the medical students were 24 years old; female; and had no business experience. Those who had business experience ventured in non-health related enterprises. The respondents had no gaps in their study from pre-school to medical school.

2. The medical students had strong growth mindset both in terms of intelligence and personal qualities. This means that they had strong positive self-perception on their intelligence and abilities. They believed that they could learn more and further improve if they work hard and overcome challenges. The introduction of Entrepreneurship Program in the curriculum in the College of Medicine (COM) is a new concept. Considering the already congested medical education curriculum in the Philippines, the strong growth mindset of the medical students as found in the study indicates the likelihood that they are ready to accept such enhancement in their program of studies.

3. The medical students had adequate knowledge on entrepreneurship in terms of opportunities and innovation, financial and economic literacy, and planning. They had very adequate knowledge in terms of management. They had more knowledge in terms of business management as compared with other entrepreneurship functions. Majority of the medical students had no formal education on business and entrepreneurship. Likewise, they had no business experience to learn the functions of entrepreneurship. They only had adequate knowledge on entrepreneurship.

4. The medical students had very positive attitude on entrepreneurship in terms of affective and behavioral components. Nevertheless, they still need to enhance their leadership skills in the behavioral component. The results suggest that the medical students had positive feelings and emotions on the importance of entrepreneurship. They were most likely to accept the medical entrepreneurship program. The results further revealed that the leadership skills training was inadequate in the existing curriculum of the COM.

5. Age and business experience had an influence on the medical students' growth mindset. Learning from business experience can motivate the medical students to pursue entrepreneurship education. As the students age, they also mature. As they near graduation, their mindset moves towards equipping themselves through entrepreneurship education.

6. Sex and business experience were significantly associated with the medical students' knowledge on entrepreneurship. The results suggest that male students were more inclined towards entrepreneurship and that those with business experience were most likely to be more knowledge on entrepreneurship.

7. Business experience was significantly associated with the medical students' attitude towards entrepreneurship. Hence, business experience can motivate students towards medical entrepreneurship.

8. There was a significant relationship between the respondents' growth mindset and their knowledge on entrepreneurship. Medical students who have strong growth mindset are expected to have more knowledge on entrepreneurship.

9. There was a significant relationship between the respondents' growth mindset and their attitude towards entrepreneurship. The respondents' strong growth mindset can change the course of their lives. The medical students believed that their ability and characteristics were merely starting points for entrepreneurial development and that their ability to achieve more and overcome deficiencies was not limited. There was a significant relationship between the respondents' knowledge and attitude on entrepreneurship. The better the knowledge on entrepreneurship of the medical students, the more positive their attitude towards entrepreneurship becomes.

10. The respondents significantly differed in terms of their growth mindset when grouped according to age and business experience. The growth mindset of those who were older and those with business experience was stronger. As medical students become older, they gain more experience, and their mindset become stronger.

11. The respondents significantly differed in terms of their knowledge on entrepreneurship when grouped according to sex and business experience. Male medical students and those with business experience were more knowledgeable on entrepreneurship.

12. The respondents significantly differed in their attitude on entrepreneurship when grouped according to business experience. Actual business experience motivated the medical students to have positive attitude towards entrepreneurship. Medical students who personally gained profit from their business and saw opportunities in entrepreneurship had very positive attitude towards entrepreneurship.

13. The results of the study were used in designing a medical entrepreneurship program which focuses on medical students' knowledge on the functions of business and entrepreneurship. This includes opportunities and innovations, financial and economic literacy, planning, management, and leadership.

The following recommendations are presented based on the results of the study:

1. School administrators particularly those in the fields of medicine and allied health programs may consider integrating an entrepreneurship program in the curriculum. This will give their institution an edge in education as their graduates may have more opportunities after they graduate.

2. School administrators may revisit their medical education curriculum to ensure its alignment with the integration of medical entrepreneurship education. Students' growth and entrepreneurial mindset may be developed through the inclusion of medical entrepreneurship program in the current curriculum, faculty development on entrepreneurship, and reorientation of students.

3. School administrators who wish to include medical entrepreneurship in their curriculum may market their medical education program to their stakeholders particularly to the parents. This will give them an option to choose a medical education program which offers entrepreneurship and promotes through a holistic approach the development of "five-star" physicians.

4. School administrators of the medical school where the present study was conducted may implement the proposed Medical Entrepreneurship Program. They may evaluate its effectiveness after its implementation for further enhancement.

5. Teachers and professors may use the results of this study to develop new learning strategies, teaching tools, and innovation of new materials to enhance the entrepreneurial skills and growth mindset of their students.

6. Medical entrepreneurs may consider teaching in medical schools as guest lecturers for them to share their firsthand experiences and knowledge to medical students. It may be noted that experiential learning was found to be an effective teaching and learning strategy in the present study.

7. Writers and publishers may consider using this study as a basis in preparing instructional materials on medical entrepreneurship.

8. Researchers may use the survey questionnaire developed in this study in their future investigation involving medical entrepreneurship.

9. Future researchers may conduct a similar study involving other allied health programs and other medical schools

10. Future researchers may conduct a qualitative research among faculty members of medical schools to determine their views on the integration of medical entrepreneurship in the curriculum.

## 8. REFERENCES

- [1] Abun, D., et al, (2018). Measuring entrepreneurial knowledge and entrepreneurial intention of ABM grade XII, senior high school of Divine Word Colleges in Region I, Philippines. International Journal of Educational Research. March 2018, Vol. 2, no. 3, pp.27-43. DOI: 10.13140/RG.2.2.31410.66249
- [2] Association of American Medical Colleges. (2014). Core entrustable professional activities for entering residency: curriculum developers' guide. Association of American Medical Colleges. Retrieved July 16, 2019 from <https://members.aamc.org/eweb/upload/core%20EPA%20Curriculum%20Dev%20Guide.pdf>
- [3] Boore, J. & Porter, S. (2011). Education for entrepreneurship in nursing. Nurse Education Today. 31,(2): pp. 184–191, <https://doi.org/10.1016/j.nedt.2010.05.016>
- [4] Commission on Higher Education (CHED), (2019). Retrieved at <https://ched.gov.ph/2019-higher-education-facts-and-figures/> on February 19, 2020.
- [5] Consignado, M., (2017) . Entrepreneurial intention and entrepreneurial traits of business management college graduates of Cavite State University Carmona Campus 2012-2016. Presented at the DLSU Research Congress 2017, De La Salle University, Manila Philippines June 20-22, 2017. Retrieved on April 5, 2020at <https://www.dlsu.edu.ph/wp-content/uploads/pdf/conferences/research-congress-proceedings/2017/EBM/EBM-I-007.pdf>
- [6] Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Boston, MA: Pearson Education, Inc.
- [7] Dweck, C., (2016). What having a "growth mindset" actually means. Harvard Business Review. Retrieved August 9, 2019 at <http://thebusinessleadership.academy/wp-content/uploads/2017/03/What-Having-a-Growth-Mindset-Means.pdf>
- [8] Dweck, C. S. (2012). Mindset: The New Psychology of Success. Constable & Robinson Limited.
- [9] Entrepreneurship and Career (2018). 12 Theories of entrepreneurship (explained with examples). Retrieved

- July 16, 2019, from <https://www.googlesir.com/theories-of-entrepreneurship/>
- [10] Entrepreneur and Classes (2014). Management of Small and Medium Enterprises. Re-trieved July 15, 2019, from <http://www.bms.co.in/what-is-kunkals-theory-of-entrepreneurship-supply/>
- [11] Fernandez , P. (2010). Entrepreneurship defined: What it means to be an entrepreneur. Business News Daily. Retrieved at <https://www.businessnewsdaily.com/7275-entrepreneurship-defined.html> on March 29, 2020
- [12] Franco, M., Haase, H., & Lautenschlager, A. (2010). Students' Entrepreneurial Inten-tions: An Inter-Regional Comparison. Education & Training, 52(4), 260–275.
- [13] Fuchs, V., & Cullen, M., (2015). The transformation of US physician. Journal of American Medical Association, 2015;313(18):1821-1822. doi:10.1001/jama.2015.2915
- [14] Garcia, J., and Cohen, G. L. (2011). A social psychological perspective on educational intervention.In The Behavioral Foundations of Policy, ed E. Shafir (Princeton, NJ: Princeton University Press), 329–347.
- [15] Gonzalo, J., Caverzagie, K., Hawkins, R., Lawson, L., Wolpaw, D., Chang A., (2017). Concerns and responses for integrating health systems science into medical education. Academic Medicine. Vol. 93 no. 6, pp. 843–849
- [16] Gózdź, B. (2011). Wpływ Zachowania Pacjentów Na Działalność Przedsiębiorczą W Służbie Zdrowia. Studia i Materiały Polskiego Stowarzyszenia Zarządzania Wiedza / Studies & Proceedings Polish Association for Knowledge Management, 54, 163–173.
- [17] Grazier, K., (2015). The emergence of the entrepreneurial hospital. Dove Press Journal: Innovation and Entrepreneurship in Health. Retrieved August 26, 2019 from [https://www.researchgate.net/publication/276104447\\_The\\_emergence\\_of\\_the\\_entrepreneurial\\_hospital](https://www.researchgate.net/publication/276104447_The_emergence_of_the_entrepreneurial_hospital).
- [18] Guo, K., (2009). Core competencies of the entrepreneurial leader in health care organi-zations. The Health Care Manager. Vol. 28, no. 1, pp. 19-29. Retrieved August 12, 2019 from <https://pdfs.semanticscholar.org/fcfc/54363bf4d03efabe48ae5cf589ae9702c3b2.pdf>
- [19] Harvard Medical School, (2019). The President and Fellows of Harvard College. Retrieved August 12, 2019 from <https://hms.harvard.edu/about-hms/campus-culture/innovation-entrepreneurship-hms>
- [20] Hendricks, D., (2017). 20 inspiring entrepreneurs improving health for all. Inc. This Morning. Retrieved on October 7, 2019 from <https://www.inc.com/drew-hendricks/20-inspiring-entrepreneurs-improving-health-for-all.html>
- [21] International Council for Nurses, (2012). Handbook on Entrepreneurial Practice. Nurses creating opportunities as entrepreneurs and entrepreneurs. Geneva, Switzerland International Council of Nurses. (2004). Guidelines on the Nurse Entre/Intrapreneur Providing Nursing Service. Geneva, Switzerland.
- [22] Iyengar, S., Katz, A., & Durham, J. (2016). Role of institutional entrepreneurship in building adaptive capacity in community-based healthcare organisations: realist review protocol. BMJ Open, 6(3), e010915. doi: 10.1136/bmjopen-2015-010915
- [23] Jumamil, A., Depositario, D., and Zapata, N., (2017). Factors influencing the entrepreneurial intentions of UPLB Agri-Based Graduates. Presented at the DLSU Research Congress 2017, De La Salle Univaersity, Manila, Philippines, June 20-22, 2017. Retrieved on April 5, 2020 at <https://www.dlsu.edu.ph/wpcontent/uploads/pdf/conferences/research-congress-proceedings/2017/EBM/EBM-I-004.pdf>
- [24] Kautonen, T., Gelderen, MV., & Tornikoski, E., (2011). Predicting entrepreneurial behaviour: a test of the theory of planned behaviour. Applied Economics. Vol. 45, No. 6, pp. 697-707. <https://doi.org/10.1080/00036846.2011.610750>
- [25] Krueger, N., & Carsrud, A., (2010). Entrepreneurial intentions: Applying the theory of planned behaviour. Entrepreneurship & Regional Development, An International Journal. Vol. 5, No.4, pp. 315-330. <https://doi.org/10.1080/08985629300000020>
- [26] Kunming Medical University. (2018). Journal of Kunming Medical University / Kunming Yike Daxue Xuebao, 39(1), 140–143.
- [27] Ladachart, L., & Ladachart, L. (2019). Thai science educators' perspectives on students' prior knowledge: A documentary research. Science Education International, 30(2), 116–127.
- [28] Malabena, MJ., (2017). Knowledge of entrepreneurial support and entrepreneurial intention in the rural provinces of South Africa. Development of Southern Africa. Vol.34, No.1, pp.74-89. <https://doi.org/10.1080/0376835X.2016.1259990>
- [29] Marques, C. S., Valente, S., & Lages, M. (2018). The influence of personal and organizational factors on entrepreneurship intention: An application in the health care sector. Journal of Nursing Management (John Wiley & Sons, Inc.), 26(6), 696–706. <https://doi.org/10.1111/jonm.12604>
- [30] Meyers, A., (2019). Barriers to physician entrepreneurship. Innovation Excellence. Retrieved September 27, 2019 from <https://www.innovationexcellence.com/blog/2018/07/24/barriers-to-physician-entrepreneurship/>
- [31] Meyers, A., (2015). What is physician entrepreneurship?. MD Magazine. Retrieved at file:///Users/tingbucad/Desktop/PHd20Dissertation/rrl/entrepreneurship/What%20Is20Physician20Entrepreneur

- ship%3F%20%7C%20MD%20Magazine.webarchive on March 11, 2020.
- [32] Meyers, A., (2018). Medical practice entrepreneurship. Journal of American Medical Association Otolaryngology - Head & Neck Surgery. 2018. Vol.144, No. 10, pp. 949-950. doi:10.1001/jamaoto.2018.1576
- [33] Murphy, B., (2019). Effective med student-entrepreneurs have these 5 traits. American Medical Association. Retrieved on April 6, 2020 at <https://www.ama-assn.org/residents-students/medical-school-life/effective-med-student-entrepreneurs-have-these-5-traits>
- [34] NHS England Clinical entrepreneur training programme. England.nhs.uk. (2018). Retrieved August 12, 2019 from: <https://www.england.nhs.uk/ourwork/innovation/clinical-entrepreneur/>
- [35] NHS England (2013). The NHS belongs to the people: a call to action. Retrieved August 12, 2019 from <https://www.england.nhs.uk/2013/07/call-to-action/>
- [36] Picazo, O., (2013). Medical tourism in the Philippines: Market profile, Benchmarking Exercise and SWOT analysis. Philippine Institute for Development Studies. Retrieved at <https://dirp4.pids.gov.ph/ris/dps/pidsdps1345.pdf> on March 16, 2020
- [37] Resurreccion, P., (2011). Determinants of entrepreneurial attitudes and intentions among high school students in Iligan City. The Mindanao Forum. 24 (2) Retrieved April 5, 2020 at <https://ejournals.ph/article.php?id=7105>
- [38] Reyes, R. (2015). Filipinos view entrepreneurship positively. BusinessMirror. Retrieved April 5, 2020 from <http://www.businessmirror.com.ph/filipinos-view-entrepreneurship-positively/>
- [39] Romero, C. (2015). What we know about growth mindset from scientific research. Mindset Scholars Network. Retrieved February 20, 2020, from [https://mindsetscholarsnetwork.org/research\\_library/what-we-know-about-growth-mindset-from-scientific-research/](https://mindsetscholarsnetwork.org/research_library/what-we-know-about-growth-mindset-from-scientific-research/)
- [40] Ronda, R. A., (2017). More Filipinos take up entrepreneurship courses. The Philippine Star. Retrieved on April 5, 2020 at <https://www.philstar.com/other-sections/education-and-home/2017/10/25/1752459/more-filipinos-take-entrepreneurship-courses>
- [41] Sakhri, S., (2018). Entrepreneurship in medical academic : What is its place in Algeria?. Scholarly Journal of Otolaryngology. Vol.1. pp. 36-50, 2018. DOI:10.32474/SJO.2018.01.000109
- [42] Salminen, L., Lindberg, E., Gustafsson, M.L., Heinonen, J., & Leino-Kilpi, H. (2014). Entrepreneurship education in health care education. Education Research International. Volume 2014, Article ID 312810; 2014. <http://dx.doi.org/10.1155/2014/312810>
- [43] Sankelo, M. & Åkerblad, L., (2008). Nurse entrepreneurs' attitudes to management, their adoption of the managers's role and managerial assertiveness. Journal of Nursing Management. Vol. 16, no. 7, pp. 229–236, 2008. <https://doi.org/10.1111/j.1365-2834.2008.00917.x>
- [44] Smith SW. & Sfeekas A., (2013). How much do physician-entrepreneurs contribute to new medical devices?. Medical Care. vol. 51, no. 5, pp. 461-467. DOI: 10.1097/MLR.0b013e3182836d76
- [45] Stanford Medicine, (2019). The innovative health care leader: From design thinking to personal leadership. 2020 Program. Retrieved August 26, 2019 from <https://www.gsb.stanford.edu/exec-ed/programs/innovative-health-care-leader>
- [46] Viswanathan, V., (2014). The rise of the M.D./M.B.A. degree. The Atlantic. Retrieved at <https://www.theatlantic.com/education/archive/2014/09/the-rise-of-the-mdmba-degree/380683/> on March 11, 2020
- [47] Wang, C., & Wong, PK., (2014). Entrepreneurial interest of university students in Singapore. ScienceDirect. Vol. 24, no. 2, pp. 163-172. [https://doi.org/10.1016/S0166-4972\(02\)00016-0](https://doi.org/10.1016/S0166-4972(02)00016-0)
- [48] Wenbin, T., Jian, Z., Jianning, Q., Xue, W., Yugang, Y., Feng, Q., and Weijuan, D., (2018). Practice and reflection on innovation and entrepreneurship education in medical colleges and universities in China. Advances in Social Science, Education and Humanities Research, vol 250.
- [49] Wilson, A., Averis, A., & Walsh, K., (2004). The scope of private practice nursing in an Australian sample. Public Health Nursing. Vol.21,no.5, pp. 488–494, 2004. <https://doi.org/10.1111/j.0737-1209.2004.021511>.
- [50] World Federation for Medical Education. Retrieved September 30, 2019 at <https://wfme.org/accreditation/>
- [51] Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. Educational Psychologist, 47(4), 302-314.
- [52] Yeager, D. S., and Walton, G. M. (2011). Social-psychological interventions in education They're not magic. Rev. Educ. Res. 81, 267–301. doi: 10.3102/0034654311405999
- [53] Yusoff, M., Zainol, H., & Ibrahim, M., (2015). Entrepreneurship education in Malaysia's public institutions of higher learning—a review of the current practices. International Education Studies. Vol. 8, no. 1, p17. doi:10.5539/ies.v8n1p17
- [54] Zappe, S., (2018). Promoting a growth mindset when teaching entrepreneurship. Ventrewell. Retrieved from <https://venturewell.org/growth-mindset/> on August 26, 2019