

ASIAN STUDENTS' PERCEPTION IN GENERATING INNOVATIVE IDEASArdolf B. Arce^{*}, and Hanilyn A. Hidalgo*Central Bicol State University of Agriculture,
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Abstract — Trends have rapidly overtaken the ability of businesses to evolve. Hence, the future industry would be needing more disruptive individuals to walk the speed of the industrial revolution. This paper aims to explore Asian students' behavioral skills towards developing an innovative idea. A series of exploratory personal interviews were conducted with twenty-two Asian students. The data were analyzed using a constant comparative method using the four innovative skills in the theory of entrepreneurial opportunity recognition. Using the theory's framework, four behavioral skills emerged during the process of developing innovative ideas for new ventures such as searching, experiential learning, exploration-based learning, and networking. Data revealed that the students could create new ideas through the learnings they had acquired from their interactions with diverse people during personal and curricular events. Their curiosity served as the primary reason why they delve into searching for more information using the four behavioral skills. Curiosity, therefore, was the primary antecedent of and catalyst for opportunity recognition and creation of innovative ideas. Another factor that motivated the respondents to search for answers was the desire to change the status quo. Finally, it was found that the Asian students were able to recognize some opportunities implied by the patterns of diverse information and ideas derived from the four behavioral skills.

Keywords — Innovative skills, Asian students, opportunity recognition, disruptive innovation.

INTRODUCTION

Future jobs are shaped by innovations and technology developments in the modern economy. The concept of Industry 4.0 is now globally taking place to achieve a higher level of operational productivity through automation (Ślusarczyk, 2018). Its key features are digitization, optimization, and personalization of production; automation and adaptation; human-machine interaction (HMI); cyber-physical systems; value-creation system as well as automated data exchange and communication (Roblek et al., 2016; Posada et al., 2015; Kovács and Kot, 2017; Veselovsky et al., 2018; Abbas, 2018; Mehdiabadi et al., 2020). However, Industry 4.0 is faced with challenges on the lack of digital exposure and training, leading to the shortage of qualified staff.

The tertiary students in this era belong to generation Z. They are the people who were born beginning in 1997. They have lived in a technological environment such that changes in behaviors, attitudes, and lifestyles have been observed from this generation (Dimock, 2019). Gen Z is also termed as Children of the Internet, Digital Generation, Digital Natives 78F, Media Generation.com Generation, iGen 88F, or Instant Online (Levickaite, 2010). Noticeably, they are characterized to have some form of reliance, freedom, individualism, addiction to technology, and speed. Hence, they are more adaptive to the changing trends. The unique trait in this generation is the technological advancement that prompts businesses to upgrade their processes (Berkup, 2014). They are the prospective movers and workers of future businesses that are envisioned to be technically sophisticated. The changing demands of the market bring such Prediction. Trends have rapidly overtaken the ability of businesses to evolve. Hence, the future industry would be needing more disruptive individuals to walk the speed of the

industrial revolution.

This paper attempted to assess the perception of students in the Asia Pacific region in developing innovative ideas. More specifically, it determined their behavioral skills in creating opportunities that address the industrial revolution.

The study based its framework on the opportunity recognition theory of Dyer, Gregersen, and Christensen (2008) in generating novel ideas using four behavioral discovery skills such as questioning, observing, experimenting, and idea networking. Questioning is a mechanism for acquiring information leading to a new venture idea. It involves asking questions that challenged the current status and thinking of ways to make existing processes more efficient. Meanwhile, observing consists of utilizing multiple senses and is associated with compelling questions. It involves observing the environment and asking questions. Experimenting may refer to mental explorations, physical explorations, and tinkering with things as children and adults.

Meanwhile, idea networking means using social connections and interactions to generate opportunities as supplied by the set of inputs gathered. The tracing of behaviors of innovative entrepreneurs led the authors to understand the emergence of disruptive changes and innovations. Disruptive change is defined as severe surprises and unanticipated shocks that destabilize performance, even threaten ongoing viability. This theory was built by Christensen, which circles on the process of a new entrant with fewer resources being able to outperform an incumbent business. Its main characteristics are the initial inferiority on value attributes, new value proposition at lower prices, and the market entry from a niche (Schmidt & Junker, n.d.).

In a study on Students' Ideas on Innovations in Higher Education, the

role of innovative activity and participation in the creation, acquisition and application of innovations have become an essential factor in the academe (Jurgena and Cēdere, 2016). The shift to the industrial revolution triggers the shift to the education paradigm. The role of the academe is essential in the formation of competencies. In a formal learning environment where the mentor creates a culture of innovation, this further triggers the innovative behavior of the students (Roffeei et al., 2017). Students who are given tasks and are made to work independently are more likely to develop innovation skills (Martín et al., 2017).

Information searching was found to be an essential input in developing an innovative behavior. Zhong et al (2018) found a strong correlation between information-seeking behavior and innovation. Hence, to enhance a person's innovative behavior, the ability to acquire, process, and utilize must be cultivated (Yumin et al., 2017).

METHODOLOGY

The four behavioral patterns, such as questioning, observing, experimenting, and idea networking, were used to determine Asian students' innovative behavioral skills (Dyer et al., 2008). The respondents comprised two equally divided groups from the Philippines, Korea, Indonesia, and Japan, who belonged to the age group ranging from 20 to 41 years old. The first group consisted of eleven student attendees of the Asia Summer Program (ASP) 2019 held in Surabaya, Indonesia. The second group was composed of eleven Filipino students taking up BS Agri-Ecotourism Management Central Bicol State University of Agriculture (CBSUA), San Jose, Pili, Camarines Sur. The number of the local respondents was based on the figure of foreign respondents who participated in the survey to set a balance between the two groups. Participation was voluntary. The selection of the group from the ASP

was made based on the premise that having Asian student respondents with different backgrounds would reveal more interestingly insightful representations of students' behavioral skills in developing an innovative idea. It was by chance that more female respondents participated in the interviews. Among the eleven (11) participants of the ASP, only two (2) were males. Meanwhile, in the local respondents, the participants who agreed to join the interview were all females. The exploratory interviews were conducted via face-to-face interaction.

The majority of respondents were in 4th-year college, taking courses in agriculture, tourism/agritourism management, education, business accounting, police administration, tourism and leisure management, and interior designing. Their family income per annum ranges from Php 30,000.00 to 1,100 000.00 (all currencies were converted in Philippine peso). Their family economic status perhaps implies why most of them were dependent on their parents for educational support. However, a few of them were fully self-supporting. Nine among the twenty-two respondents have already travelled to other countries, such as Malaysia, UAE, Thailand, Cambodia, Korea, Poland, Ireland, France, Czech Republic, Hungary, UK, Germany, Vietnam, Indonesia, China, Japan, Malaysia, Singapore, Taiwan, South Korea, Singapore, East Europe, and Hongkong. In contrast, the rest have not travelled to any country yet at the time of the survey.

The following questions were adapted from Dyer et al. (2008) to assess the perception of Generation Z across Asia in developing their innovative skills:

1. Tell us about the most valuable strategic insight/novel idea that you have generated in your lifetime. Please describe the details of the idea. (For example, how the way it novel and how did you come up with the idea?)

2. In your opinion, do you have any particular skills that are important in helping you generate novel business ideas? Do you think the skills you have that have enabled you to be creative/innovative (start an innovative business) are just part of your genetic makeup? Or do you think much of this ability was learned?

3. Are there any techniques you use or habits you have developed to help you come up with innovative ideas?

An exploratory interview was conducted with culturally diverse students to understand how they think of an innovative idea. Before the interview, the students were gathered and oriented on the purpose of this research. Each question was explained to them, and clarifications were correctly answered. Each student was asked as to their willingness to participate. Indeed, students willingly participated in the interview and were not forced in any manner. The data were analyzed using a constant comparative method of qualitative analysis. The socio-demographic variables earlier mentioned were considered in categorizing, comparing, and analyzing the data (SAGE Research Methods, 2005). The instrument's applicability to students was tested during the interview since a set of innovative entrepreneurs previously used this.

RESULTS AND DISCUSSION

Searching is one of the behavioral skills Gen Z Asian students used to recognize opportunities for new venture creation. However, only a few of them relied on this behavioral skill.

A 22-year old male Filipino student studying tourism management from Northwest Samar State University, Philippines said he usually reads motivational books and articles on current events. This probably gave him the idea to organize a motorcycle drag

race in their locality, which is now an annual event.

The study revealed that one's strong desire to satisfy curiosity triggers this behavioral skill. Curiosity is a catalyst for information-seeking behavior to explore an environment and learn skills that might be useful in recognizing opportunities (Kidd & Hayden, 2016; Pathak, et al, 2017). Respondents' curiosity about things motivated them to delve into information which led to a discovery. Respondents in this study regularly spent time looking for and absorbing information by reading books, writing scholarly articles, watching educational television shows, watching DIY videos on YouTube, traveling, and hanging out with people that improve their information-searching skills. According to Pathak et al. (2017), curious people's insatiable demand for information motivates them to spend time searching and assimilating information by "listening to the music or news, browsing the internet, reading books or magazines, watching TV, movies, and sports, or otherwise engaging in activities not directly related to eating, reproduction, and basic survival."

A 21-year-old female Japanese student studying an international exchange program from Josai International University relates that if one pretends to be someone else, she can change her/his mindset and see things differently. This realization was made through her personal experience. According to her, the things that she usually does are reading books and studying. Moreover, she claimed she could memorize a lot given a short period.

Another respondent's behavioral skill is their ability to deduce and derive new ideas from their experience in the outside world. As cited in Jackson (2018), Oxford Dictionary defines experience as the "practical contact with and observation of facts or

events." Students learn formally and informally. Formal learning occurs in academic institutions, while informal learning takes place outside of schools and happens from student's exposure to and engagement in activities not done purposely for learning (Rogers, 2014 & Council of Europe).

Experiential learning means learning from experiences (Lehman, 2020), and new experiences motivate the conception of new ideas (Kolb, as cited in Mcleod, 2017). However, learning depends upon a person's ability to infer the gist implied by a particular situation (Rogers, 2014). This study discovered that Asian students had recognized opportunities and thought of new ideas from their experiences both from their schools and everyday life. According to Donaldson (2019) observation and empathy skills belong to the ten crucial soft skills of Gen Z. Soft skills are required for 4IR, along with workforce readiness, technical, and entrepreneurship. It refers to the "personal attributes, social skills, and communication abilities that support interpersonal relationships and interactions with others. It supports youth as they integrate and collaborate with internal and external workplace stakeholders" (Deloitte Global & the Global Business Coalition, n.d).

A 20-year-old female Indonesian student from Petra Christian University who studies interior designing said she always draws, brainstorm, makes diagrams, and then strolls around to refresh her mind. She claimed that through those activities, she could come up with new design ideas.

Observation skills are one's ability to acquire information from careful observation of things around him/her (Oxford Languages, n.d). On the other hand, empathy refers to the ability of a person to put oneself in the shoes of others (Morin, 2020). As a person observes his surroundings, his curiosity

is stirred up. Questions begin to pop up in his mind, and he will soon search for answers (The Owl Teacher, 2016). As inquiry happens, learning also occurs, and the desire to improve the present status quo provides the impetus to figure out valuable ideas. This was accorded by the data gathered from the respondents of this study. According to them, they had thought of new ideas out of their curiosity and desire to change the current situation. A respondent recounted that when she had seen the pathetic condition of beggars living on the streets, she began thinking of how and why they arrived in that kind of situation. Then, the sympathy she had felt made her think of some ideas that could potentially change the unfortunate situation of beggars.

Then, a 20-year old female Korean student studying police administration from Dong Seo University shared that before, she had participated in a contest with no idea of what exactly it was. She just realized what it was all about after she had won the first prize. According to her, she has critical thinking that enables her to create novel ideas. Additionally, she said she can understand people through their body language and gestures. Finally, she loves playing escape games and counting as she feels through which she is intellectually improving.

Meanwhile, when respondents were asked about the things they regularly do, four habits emerged: watching television shows and videos on YouTube, traveling, and hanging out with friends. These habits exposed them to the outside world. Their experiences taught them practical lessons that could be used to recognize opportunities and think of innovative ideas for new ventures. These habits must have ameliorated their observation skills, social skills, and emotional intelligence, among others that enabled them to assimilate, interpret, and transform information

learned from their experiences into innovative ideas.

Another behavioral skill that respondents relied on generating innovative ideas was exploration-based learning or learning by Exploration. Exploration is an act of strategic investigation for the discovery of unknown things (thesaurus.com). It plays a vital role in active learning (Thrun, 1992). Exploration-based learning is a "learning approach that helps students learn through their curiosity and inquiry" (Verma, 2019). Curiosity is an intrinsic motivating factor for students to engage in an active investigation to discover strange things (Pluck and Johnson, 2011). In business, as shown by research, curiosity is significant for an organization's performance (Gino, 2018). As curiosity is triggered, employees think more critically and create more creative solutions (Gino, 2018). Generation Z is tagged as "digital natives" and presumed to be curious since they are more exposed to more information through social media than the generation before them.

Fedunik-Hofman (2019) found that generation Z where these students belong is said to be the "least curious generation" with a 66.5 curiosity index compared to the millennials with 72.2, making them the most curious generation. Nevertheless, the study discovered that the Asian students in this study were actively engaged in curricular activities. Their involvement must have seemingly led them to mental and physical exploration driven by their desire to seek information to satisfy their curiosity.

A 23-year old male Filipino student studying agricultural students from Camarines Norte, Philippines, realized that farming was a good source of income and business when exposed to it through learning sessions (classroom and laboratory). While the rest of the respondents said, they usually read

books, browse the internet, watch videos on YouTube, stroll to different places, and hang out with friends.

Finally, the interview with Gen Z Asian students revealed that networking was also one of the behavioral skills they engaged in frequently, contributing to new ideas. Networking is an exchange of information and ideas through interaction among people of the same interest and field, either in social and formal gatherings (Kagan, 2020; Eid and Al-Jabri, 2016). Generation Z is a digital and social media native (Martis, n.d; Francis and Hoefel, 2018). Being so, they are "exposed to the internet, to social networks, and mobile systems" (Francis and Hoefel, 2018). Hence, they are assumed to be more into social networking than networking. Thus, they are more engaged in acquiring new information and ideas through social media. Aside from social networking, they were also actively involved in networking. They shared their social encounters, learnings, and skills that must have enabled them to think of new ideas.

A 21-year old female Indonesian student studying Business Accounting from Petra Christian University recounted that she thought of teaching people when she had discovered that their maid could not read. Her pity on her maid's illiteracy made her think of teaching people so that no more people would end in the same situation.

Another Indonesian student who is 22 years old studying Tourism and Leisure Management who had her internship in Taiwan said she learned how to interact with different people during her internship. Her sojourn and independence in Taiwan being away from her parents for some time taught her real-life lessons. She affirmed that having dealt with diverse people, she observed and realized that "when people are treated well, they will do the

new acquaintances. According to her, through her social interactions, she learns real-life lessons from the mistakes of others. Perhaps, her communication skills—being able to converse in different languages have enabled her to adapt to a new environment and blend with different personalities.

Networking nurtures students' communication and social skills. A Japanese respondent claims that the more people become exposed to something new, the more they learn and become adept. She can quickly adapt to a new environment, a new cohort of people, and new situations. She believes that she has probably developed this skill through her frequent transfer to different schools, which put her in a situation where she had no choice but to adapt herself to changes.

Academe serves as a training ground for students. This is where they are exposed to different curricular learning opportunities, tasks, and activities to hone their competence in a particular field. These learning activities allow students to work on tasks where they are encouraged to exchange ideas and learn from one another. The learnings derived from this interaction would influence their understanding of things. A student-respondent from Camarines Sur, Philippines, relates that she had thought of creating a trade fair when they had an extra-curricular activity in their school. The idea came up because she intended to conduct a fund-raising activity for the organization she belonged to. Through the trade fair she initiated, they were able to earn profit by selling personalized t-shirts. Nowadays, shopping is done online, where people do not need to go to a physical store. Instead of riding in a car or on a bus going to malls, what people need nowadays is just a gadget, internet connection, and of course, know-how in online searching. This

new shopping fashion has resulted in the surge of a large number of online selling activities. Thus, excellent online selling skills are indeed an advantage for entrepreneurs. She is good at online selling, which probably means that she also has skills in online searching. Perhaps, this skill enabled her to come up with the idea of creating a trade fair and selling personalized t-shirts to earn profit for their organization. The bottom line is that the idea was generated through her engagement in an extra-curricular activity.

Meanwhile, a 23-year old Filipina studying BS Agriculture from Camarines Norte State College in the Philippines said their interactions with their professors and peers during their learning sessions had influenced their generalizations about their course. Moreover, it was inevitable that it has widened their understanding of the course and enabled them to recognize what opportunities they could push through after college.

Another Filipina student from the same school who is 29 years old said she invested in farming and she had had that idea because of her friend. She agreed to invest since she was knowledgeable in crop and livestock production and at the same time in management and in communications. Besides, she loves browsing the internet and chatting with her friends on social media by which she believed could further her knowledge of running a business. Considering all of these, she believed she could manage her investment well. It appears that family, friends, or peers influence important decisions in life. It is up to us whether to believe them or not. Trust and confidence will depend on the level of knowledge of the person involved. However, the opinion of the people who influences their decisions may matter. Similarly, another respondent from the same school was also encouraged by a friend to invest in a business.

Furthermore, to understand how it was really like managing a business, her friend let her run her saloon, where she said she learned so much. According to her, she is patient and loves to learn new things. Thus, she reads magazines, watches television shows, and attends seminars. These habits would help her to generate novel ideas she may need to progress her business.

These respondents usually come up with ideas through interactions with people around them. Their networking encounters mainly transpired during curricular activities. Students consider academe as their second home, where, aside from their community, they build and maintain most of their social networks, including their teachers and peers with whom they are associated 5-times a week. These people with whom they habitually associate themselves influence them directly or indirectly. Indeed, they came up with new ideas through the influence (encouragement and inspiration) of people around them.

There was a slight difference with the four behavioral skills that emerged from the study of Dyer et al. (2008), such as questioning, observing, experimenting, and idea networking. It was presumed that the slight difference might be attributed to the differences in the socio-economic characteristics of respondents who were unarguably from different generations. Dryer's study assessed the behaviors of the innovative entrepreneurs while this study focused more on Asian students.

Data revealed that the students in this study could create new ideas through the learnings they had acquired from their interactions with diverse people during personal and curricular events. It can be inferred that curiosity and the desire to change the status quo were the antecedents and catalysts for new idea generation. Moreover, networking enabled them to

learn real-life lessons and the business endeavors to pursue after college. This context shows networking is another behavioral skill students engaged in to generate new ideas, and it mostly happened during their curricular activities.

CONCLUSIONS

The behavioral skills that emerged in this study appear to be almost similar to the behavioral skills in Dyer et al. (2008). Four behavioral skills that surfaced were *searching, experiential learning, exploring, and social networking* as significant to the acquisition of information that could be utilized to create novel ideas for new ventures. The slight difference may be attributed to the differences in the socio-economic characteristics of respondents who were unarguably from different generations. While the framework used by Dryer et al. (2008) used innovative entrepreneurs as respondents of their study, the present study employed the Asian students as respondents. Asian students could spot the opportunities implied by the patterns of diverse information and ideas derived from searching, experiential learning, exploration-based learning, and social networking. In other words, the respondents were able to recognize opportunities by integrating their associational thinking skills.

Curiosity motivated the respondents to delve into information and ideas through the four behavioral skills in this study. In other words, curiosity was the primary antecedent of and catalyst for opportunity recognition and innovative ideas that address the industrial revolution. Aside from curiosity, the desire to make things better (desire to change the status quo) also motivated them to think of innovative ideas that address the call for industrial revolution (4IR).

With these findings, the traditional method of teaching such as the lecture and classroom-type of exercises may no longer adapt to their current behavior. Academic programs may integrate a longer period for industry engagement so that the skills on searching, experiential learning, exploring, and social networking may be harnessed and used before they graduate from their respective programs.

Finally, while this study focused on identifying the curiosity factors, it did not address the motivational factors such as monetary, psychological, and social gains, which can trigger the associational thinking behaviors of the students. Further study may also be conducted comparing entrepreneurial and non-entrepreneurial backgrounds of students in developing innovative ideas.

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