IMMERSIVE LEARNING TO ENHANCE INTERNATIONAL EXPOSURE IN THAI TECHNOPRENEURS

Miss Siripen Buranapatimakorn

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Field of Study   Technopreneurship and Innovation Management

Thesis Advisor   KAVIN ASAVANANT, Ph.D.

Thesis Co Advisor   Associate Professor NOAWANIT SONGKRAM, Ph.D.

        Accepted by the Graduate School, Chulalongkorn University in Partial Fulfillment of
the Requirement for the Master of Science

        -- Dean of the Graduate School

        (Associate Professor THUMNOON NHUJAK, Ph.D.)

THESIS COMMITTEE

        -- Chairman

        (Assistant Professor NATAWUT NUPAIROJ, Ph.D.)

        -- Thesis Advisor

        (KAVIN ASAVANANT, Ph.D.)

        -- Thesis Co-Advisor

        (Associate Professor NOAWANIT SONGKRAM, Ph.D.)

        -- Examiner

        (Assistant Professor TATRI TAIPHAPOON, Ph.D.)

        -- External Examiner

        (Chanakan Sriratanaban, Ph.D.)

สิริเพ็ญ บูรณะปฏิมากร : การเรียนรู้โดยเทคโนโลยีเสมือนจริงเพื่อเพิ่มพูนการเปิดรับความ
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ความสามารถของนักธุรกิจเทคโนโลยีในประเทศไทยในการสร้างผลิตภัณฑ์ด้าน
เทคโนโลยีที่ตรงกับความต้องการของตลาดและการได้รับเงินทุนจากนักลงทุนนั้น มีความ
เกี่ยวข้องเป็นอย่างมากกับทักษะและความคิดที่เป็นสากลจากประสบการณ์ชีวิตในต่างประเทศ
อย่างไรก็ตาม นักธุรกิจในประเทศไทยส่วนใหญ่มีข้อจำกัดของทรัพยากรทางด้านการเงินในการ
เข้าถึงประสบการณ์นั้นๆ ซึ่งก่อให้เกิดผลเสียในการทำธุรกิจ เช่น การขาดความมั่นใจและทักษะ
ในการติดต่อสื่อสารระดับนานาชาติ งานวิจัยนี้มีจุดประสงค์เพื่อศึกษาและหาวิธีในการสร้าง
ทักษะและความคิดที่เป็นสากลให้สามารถเข้าถึงได้และมีประสิทธิภาพ โดยผ่านการเรียนรู้
เสมือนจริงด้วยเทคโนโลยีเสมือนจริง ซึ่งเป็นการสร้างสภาพแวดล้อมจำลองเพื่อให้ผู้ใช้งานได้
เห็นภาพ 3 มิติ และรู้สึกเสมือนจริงรวมถึงสามารถโต้ตอบกับระบบได้ งานวิจัยนี้จำลอง
สถานการณ์ของงานสร้างเครือข่ายทางธุรกิจ โดยมุ่งเน้นในการพัฒนาทักษะการนำเสนอใน
ภาษาอังกฤษสำหรับนักธุรกิจเทคโนโลยีในประเทศไทยที่ต้องการได้รับการลงทุนและได้สร้าง
พันธมิตรทางธุรกิจในระดับนานาชาติ การสร้างแบบจำลองสภาพแวดล้อมเสมือนจริงเพื่อการ
เรียนรู้นี้ อ้างอิงจากการสังเกตสถานการณ์และการสัมภาษณ์ผู้มีประสบการณ์ในวงการ ให้
ผู้ใช้งานได้สัมผัสกับประสบการณ์การพูดคุยกับนักลงทุน และฝึกเทคนิค "การนำเสนอให้สำเร็จ
ได้ในระยะเวลาอันสั้น" เพื่อนำเสนอแนวคิดทางธุรกิจให้น่าสนใจในเวลาที่จำกัด จากการศึกษา
ความเป็นไปได้ของแบบจำลองจากผู้ทดลองจำนวน 30 คน ชี้ว่าประสบการณ์ที่ได้รับจาก
แบบจำลองนั้น ได้เพิ่มความกล้าและความมั่นใจให้ผู้ทดลองมากขึ้นที่จะเข้าไปพูดคุยกับนัก
ลงทุนและพันธมิตรทางธุรกิจในอนาคต ผลการตอบรับในความสามารถของเทคโนโลยีที่สร้าง
สภาพแวดล้อมจำลองเป็นไปในเชิงบวก และผู้ทดลองทุกคนจะแนะนำผลิตภัณฑ์นี้ให้กับเพื่อน
และเพื่อนร่วมงาน

สาขาวิชา	ธุรกิจเทคโนโลยีและการจัดการนวัตกรรม	ลายมือชื่อนิสิต ....
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6087228920 : MAJOR TECHNOPRENEURSHIP AND INNOVATION MANAGEMENT

KEYWORD: International Exposure, Immersive Learning, Technopreneur, Business Partnership, Communication

Siripen   Buranapatimakorn   :   IMMERSIVE   LEARNING   TO   ENHANCE INTERNATIONAL EXPOSURE IN THAI TECHNOPRENEURS. Advisor: KAVIN ASAVANANT, Ph.D. Co-advisor: Assoc. Prof. NOAWANIT SONGKRAM, Ph.D.

The ability of Thai technopreneurs to build the right technology product in the right market and to acquire funding is closely tied to their international exposure. However, many lack the financial resources required to obtain international exposure, putting them at a disadvantage in confidence and communication skill at international level. This research explores an affordable and effective solution for providing simulated international exposure to technopreneurs via immersive learning technology. Virtual reality (VR) is an immersive technology that provides a computer-generated three-dimensional environment, in which people can physically and mentally interact. This research investigates the feasibility of employing VR technology as a means of providing a simulated networking event, focused on increasing pitching skills in English for technopreneurs seeking startup funding and partnership. A prototype immersive learning environment was built on a commercial application with a scenario developed from observation and interviews. The scenario allowed test subjects to engage with a virtual potential investor and practice presenting an "elevator pitch" describing business ideas in a limited time. Results from 30 test subjects indicate the VR experience increased willingness to engage with potential investors or partners and increased their confidence. Reactions were positive to the technological ability to provide an immersive environment, and all subjects indicated they would recommend the product for friends or team members.

Field of Study:	Technopreneurship and Innovation Management	Student's Signature ....
Academic Year:	2018	Advisor's Signature ....
		Co-advisor's Signature ....

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INTRODUCTION

1.1   Background and Importance of Problem

Finding success as an entrepreneur is no easy task, though the difficulty has not prevented many from trying. The Entrepreneurs' Organization (2018), consisting of over 13,000 entrepreneurs in 58 countries worldwide, found in their 2018 report that 83% of their entrepreneurs expressed willingness to start a new business in the current economic environment . Up to last year, intention to become an entrepreneur has also been a trend in Thailand. According to Global Entrepreneurship Monitor (2018), a London-based global consortium of researchers, the rate of the percentage of the population of Thais between 18 and 64-years-old who intended to start an entrepreneurial activity within the next three years grew by a compound annual growth rate (CAGR) of 49% between 2015 and 2017. In 2018, however, the percentage of the population intending start a business fell nearly six points, from 37.36% in 2017 to 31.53% in 2018. The actual establishment of entrepreneurial enterprises in Thailand also tells a different story. Early-stage entrepreneurs, defined as the percentage of the population aged 18-64 years-old who are either nascent entrepreneurs or who have just started a new business, significantly lags behind those with entrepreneurial intentions. Of those who have established a business for more than three years, their percentage of the population has dramatically dropped at 21% CAGR over three years, as seen in table 1. Thus, even though a significant portion of the population expresses interest in starting an entrepreneurial business, far fewer are actually able to carry out their aspirations. And of those who do, it appears that an increasing amount fail to sustain their entrepreneurial business.

Year	Entrepreneurial Intentions (%)	Early-stage Entrepreneur (%)	Established Business Ownership (%)
2017	37.36	21.62	15.18
2016	22.59	17.24	27.50
2015	16.73	13.74	24.61

Table 1 - Entrepreneurship Rate in Thailand

Over recent years, Thai government policy has promoted the growth of a particular genre of entrepreneur—the technopreneur. A technopreneur is "a person who sets up a business concerned with computers or similar technology" according to the Oxford dictionary (Lexico, 2019). The government has supported technology-related businesses in projects such as the "Innovation Coupon Project" run by the National Innovation Agency (NIA) between 2015-2016. The NIA provided a total of 170 million THB (5.2 million USD) to subsidize innovation investments to startups with up to 1.5 million THB per company (National Innovation Agency, 2016). Another program has been the "Corporate Income Tax Exemption" to enhance research and development in science and technology. Companies are allowed to base their tax reduction on 3 times the cost of their R&D expenditures (Thailand Science Park, 2015).

The Thai technology media source Techsauce reports that the private sector has been supportive of Thai technopreneurs as well (Techsauce, 2018a). Techsauce describes the "Thailand Tech Startup Ecosystem" in an annual report, and lists the following entities that support technopreneurs: of 1) associations such as Thailand Tech Startup Association 2) venture capital firms such as Digital Venture and Beacon Venture Capital 3) accelerators such as dtac Accelerate and AIS the Startup 4) communities such as Young Entrepreneur Assembly Hub (YEAH) and Thailand Programmer Society 5) media such as Techsauce and Blognone. Techsauce reported that Corporate Venture Capital (CVC) set-ups increased four times over from 2016. Opportunities for funding technopreneurs come from programs such as Addventures by SCG and ExpresSo, or Express Solution, by PTT (Techsauce, 2017).

The 2018 Techsauce report provides the graphic in figure 1 of investments made by business category in 2018, showing the relatively high amount of investment in tech-related startups.

Nevertheless, most technopreneurs and their startups struggle and tend to fail. The business intelligence firm CB Insights studied 101 failed startups in 2018 and reported the top reasons for the failure. They found that 42% of the failures involved a lack of market need, while 29% involved running out of cash. Startups mostly fail when they don't solve a market problem, which is linked to the ability to solicit funding from investors (CB Insights, 2018).

Thai investments towards Thai startups
(Percentage represents the number of deals made.)

Other
22%

Food/Bio/Restaurant
15%

ecommerce/marketplace
11%

Robotic
4%

AT LEAST 11.7 M
USD

PropTech
4%

Enterprise platform
4%

MarTech
7%

AgTech
4%

PropTech
4%

Travel
7%

FinTech
11%

Reward
7%
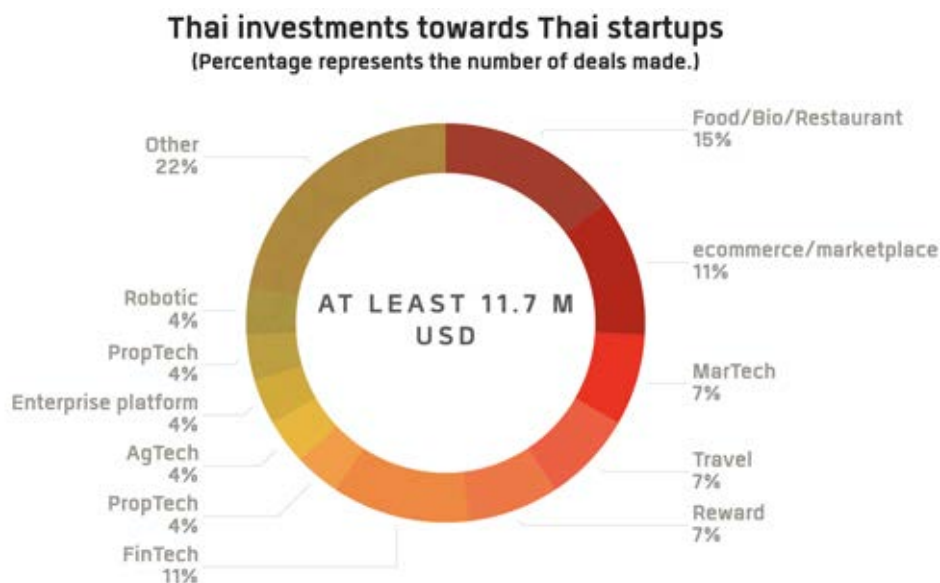
Figure 1 – Thai investments towards Thai startups

The ability of startups in non-English-speaking countries to both understand market needs and to acquire cash from investors is closely tied to their international exposure. International exposure produces a global mindset mostly obtained from three sources: an international educational background, international working experience, and frequent travelling abroad. International exposure broadens the vision and increases critical skills of entrepreneurs. Learning from international visits and attending international classes or seminars enables entrepreneurs to experience and to understand global scenarios from a different cultural perspective. Moreover, international exposure can spur personal and professional growth, instilling passion and clear direction in life.

Research supports the idea that a global mindset is closely connected to international exposure and creates many advantages for entrepreneurs (Roudini & Osman, 2012) identified five dimensions of international entrepreneurship capabilities: international networking capability, international marketing capability, innovation and risk-taking capability, international learning capability, and international experience. According to Lovvorn and Chen (2012), international experience had a direct effect on a global mindset. Overseas experience helped entrepreneurs 1) accumulate cultural knowledge 2) experience the expanding global marketplace 3) broaden their perspective 4) enhance their knowledge base and 5) heighten their interpersonal and communication skills. Gupta and Govindarajan (2002) defined the importance of a global mindset

as follows, "Global mindset combines an openness to and awareness of diversity across cultures and markets with a propensity and ability to synthesize across this diversity. Creating a global mindset is one of the central ingredients required for building such intelligence." Thus, we see that international exposure creates a global mindset, which creates opportunities for future entrepreneurs to assess the market, meet a market need, and obtain funding for their idea. Here we find the dilemma: it takes substantial financial resources to obtain the global mindset that helps one gather more resources.

Lack of resources to obtain international exposure puts many aspiring entrepreneurs at a disadvantage, especially in the area of communication. In 2017, Thailand's English language proficiency was rated as 53rd ("low") out of 80 countries surveyed and 15th out of 20 Asian countries. In 2018, Thailand fared even worse, ranking 64th out of 86 countries (EF Education First, 2018). Up to now, the best way to improve English language proficiency for non-native speakers is to attend a competent (and expensive) language institution or to study abroad. Studying abroad provides an immersive environment to experience the language in a different culture, which not only improves the communication ability, but also boosts self-confidence and ability to manage risk and uncertainty. But the cost of foreign language institutions and overseas travel is prohibitive to the majority of potential Thai entrepreneurs. Thus, this research explores lower-cost technological solutions to the problem.

One possible technological solution is artificial intelligence (AI)-enhanced learning. Underwood (2017) identified ways to incorporate voice-driven AI effectively for a class of English as a Foreign Language (EFL) students conducting classroom activities using AI language assistants. The study found that participants considered it highly engaging to speak to AI assistants. Students spoke more English when using AI assistants in group work, and they spontaneously reformulated, self-corrected, and joyfully and playfully persisted speaking English in their attempts to get AI assistants to do what they wanted them to do. AI technology, however, is still in early stages and would not yet be a cost-effective solution; there is an existing technological platform that can be adapted to provide international exposure.

Virtual reality is an immersive technology that provides a computer-generated three-dimensional environment, in which people can physically and mentally interact with the

environment using devices such as helmet-mounted screens or touch-sensitive gloves. The technology has the capacity to bring subjects inside the environment, making them an interactive part of a story being told by the program. Business people such as real estate agents have already employed virtual reality to intensify their impact in the market. Virtual reality allows an economical means of providing international exposure for potential entrepreneurs, particularly in raising their level of language comprehension and inter-cultural understanding. It even provides an opportunity to network globally, and practice entrepreneurial skills such as building business partnership and soliciting investments for business ideas. Virtual reality holds great promise for effectively and cost-efficiently allowing Thai technopreneurs to practice their skills so that their startup proposals will be able to pass appraisals from investors. This research investigates the feasibility of employing virtual reality technology as a means of providing international exposure to technopreneurs, with a focus on developing a program that increases specific business-related skills in English language and in pitching startup ideas.

1.2 Research Objectives

1. To survey technology that can be used in immersive learning to enhance international exposure in Thai technopreneurs such as virtual reality, artificial intelligence, voice recognition, and emotion recognition.

2. To observe and explore networking event scenarios, interviewing participants in order to recreate a realistic virtual network event for use in immersive learning.

3. To create a prototype of a virtual networking event and conduct a validation study.

1.3 Scope of Study

This study identifies learning factors that can be recreated in a virtual reality environment in order to simulate international exposure. The study focuses on improving business English proficiency and building business partnership. The final result should be an immersive learning program prototype using virtual reality that accelerates and improves persuasive, culturally-adept communication skills in business-focused English language.

1.4 Methodology

The methodology of the research is exploratory research. The researcher will conduct qualitative research via observation of entrepreneurial networking events and interviews, and

quantitative research in the prototype validation phase. The research is conducted in five phases, as shown in table 2.

Phase	Methodology	Result Expectation
Phase 1	Establishing conceptual knowledge - review of literature in Thai technopreneurs, international exposure and immersive learning	- Key literature reviews - All potential scenarios
Phase 2	Exploratory study – primary research by observing networking events and pitching stages then interviewing investors and judges	- Raw data from interviews
Phase 3	Concept refinement – refine the concept to develop the solution	- A detailed scenario and dialog
Phase 4	Development of solution – build the prototype	- A prototype
Phase 5	Validation test of solution – validate the solution by testing the prototype with participants	- Key conclusion of the prototype

Table 2 - Research Design

1.5 Terminology

Technopreneur: A founder or entrepreneur of a technology-focused startup business

International Exposure: Exposure to non-native cultures and languages, usually via international education, international working experience, and frequent travel

Immersive Learning: The use of various techniques and software tools, such as electronic gaming, software simulations, and virtual 3D environments, to provide a full sensory learning situation in which participants practice skills and interact with other learners (Gartner, 2019). In this paper, the focus in on Virtual Reality technology.

Language Proficiency: The ability to use a language to communicate ideas effectively and efficiently. This study focuses on a narrow scope of language proficiency: business English as it relates to pitching startup ideas, building business partnership, and soliciting investment.

1.6   Contribution

This study aims to demonstrate how technology and content innovation can provide the benefits of international exposure to aspiring technopreneurs in a cost-effective way. It will use existing virtual reality technology in innovative ways. By analyzing intercultural networking events and building a learning curriculum that can be applied in an immersive learning environment, this research promises to accelerate purposeful language learning and push abilities learned domestically to a level commensurate with that obtained by international education, overseas working experience, and travel. The high technology-delivered program should result in nascent and emerging technopreneurs with a global mindset, equipped with the skills to bring their business ideas into reality. The researcher hopes that this creative use of immersive technology can become a part of the startup ecosystem to support non-English-speaking countries such as Thailand.

CHAPTER II

LITERATURE REVIEW

2.1 Technopreneurship

The term Technopreneur in this research refers to a founder or entrepreneur of a technology-focused startup business. Because of their technical expertise as well as business skills, Technopreneurs often constitute their own business's greatest assets in the form of human capital, or as the producers of intellectual property. Brandeis University professors Paroma Sanyal and Catherine Mann, relying on year-on-year data obtained since 2004 from over 5,000 firms in the US collected in the Kauffman Firm Survey (KFS), found that "Startups with human capital embodied in the entrepreneur or intellectual property assets have a lower probability of using debt, consistent with the higher asset specificity and lower collateral value of these assets." Rather than bank debt, these types of entrepreneurs rely more on venture capital equity investments (Mann & Sanyal, 2010).

As early as 1994, professor Henry Lucas of New York University's School of Business recognized the unique challenges facing technology-oriented startups. Before his study, firms tended to use a market-driven approach, starting with customer needs and rushing to fill the needs with technology, or a technology-driven approach, developing technology and then chasing customers. Professor Lucas proposed that "firms with technologically-based products or services must closely integrate marketing and technology strategy." Such integration requires that technopreneurs have a global perspective that understands and can communicate the needs of the market and the capabilities of technology (Lucas Jr, 1994).

Technopreneur startups actually have some advantages over established businesses in pursuing an integrated strategy as describe by Lucas. Weiblen and Chesbrough (2015) point out in their article "Engaging with Startups to Enhance Corporate Innovation" in *California Management Review* that startups typically have "promising ideas, organizational agility, the willingness to take

risk, and aspirations of rapid growth." Established corporations can be a source of support for such agile and creative technopreneurs, but the authors note that startups find it difficult to approach corporations, and that "cultural differences often lead to misunderstanding." To marry up the resources of corporations with the capabilities of startups, the authors propose several models, all of which require open communication between the two sides.

2.1.1 Language Proficiency Impact on Technopreneurship Success

The World Economic Forum (WEF), an international organization for public-private cooperation, cites research showing a direct correlation between English skills of a population and the country's economic performance, such as gross national income (GNI). They further note that job seekers with "exceptional English" earned salaries 30-50% higher than their less fluent fellow citizens. The WEF's EF English Proficiency Index found a nearly straight-line correlation between English proficiency and per capita income in the 60 countries surveyed, as seen in the graph, figure 2 (McCormick, 2017).

BETTER ENGLISH AND INCOME GO HAND IN HAND
English proficiency shows a strong correlation with a country's gross national income.

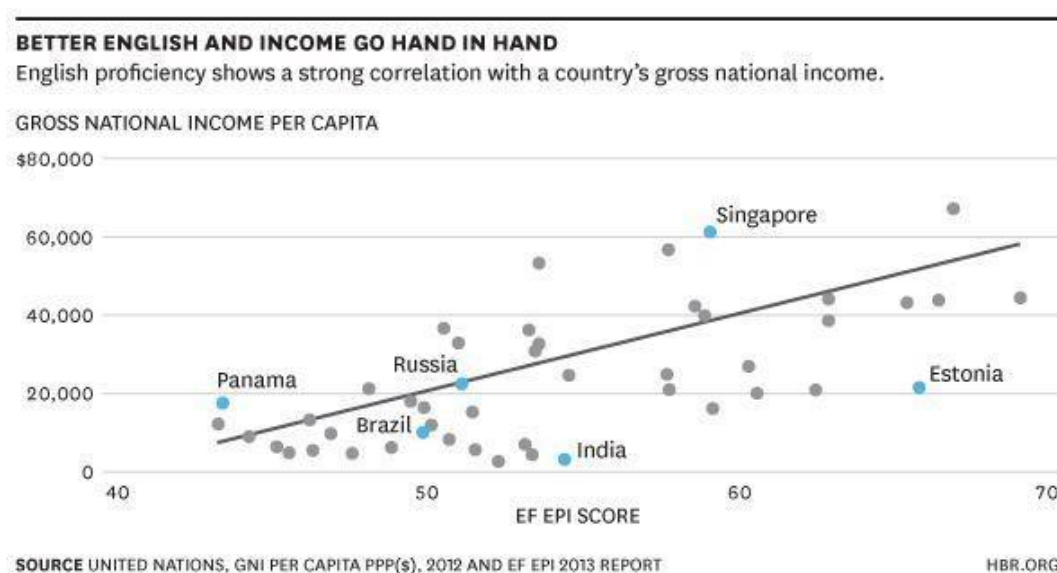SOURCE UNITED NATIONS, GNI PER CAPITA PPP(s), 2012 AND EF EPI 2013 REPORT   HBR.ORG

Figure 2 – Relationship between English proficiency and per capita GNI

Researchers from the Finnish University of Turku, studying data from the Finnish food industry, studied the role that language plays in company internationalization. They found that "the

linguistic knowledge of the decision-maker is related to international opportunity recognition and exploitation, potentially creating a 'knowledge corridor' that either encourages or prevents international opportunities from being seen." They found that language diversity and culture-specific knowledge helped managers recognize international opportunities, although their data also showed that focusing only on "Business English" may have limited the ability recognize culture-specific opportunities (Hurmerinta, Nummela, & Paavilainen-Mäntymäki, 2015).

Based on a limited sample of European online start-ups in Finland, Portugal, and Sweden, a research group of five authors found that "language ability and education are resources borne from the domestic environment which positively moderate the start-up's international success." Their research contains a significant caveat, however. Apart from the language capability, they found that entrepreneurial orientation may be intrinsic to individuals, and that entrepreneurship may be a "culture in itself, irrespective of geography." This has important implications for entrepreneurship education; a program may enhance business English capability, but it may be more difficult to affect entrepreneurial orientation (Johnstone et al., 2018).

An interesting example of the dichotomy between English capability and entrepreneurial spirit is found in Singapore. In the 2018 Education First survey, Singapore ranked 3rd in the world in English proficiency, and yet the Global Entrepreneurship Monitor has shown Singapore's "entrepreneurial propensity" to be relatively very low over the first decade of the 21st century. National University of Singapore scholar Alexius Pereira notes that the report indicates that culture, rather than capital availability, laws, or education appears to be the biggest impediment to higher entrepreneurial activity there. Pereira studied a narrow data set of undergraduates to examine their attitudes toward entrepreneurship "as a means of understanding the Singapore state's ability to 'change' mindsets" via its Technopreneurship 21 program. Pereira alleges that the respondents' positive feelings toward entrepreneurial activity in the future is evidence that "because of the capacity and capability of the highly interventionist Singapore government, it is a key agent in the process of cultural transition in Singapore." Though that claim might be dubious based upon his

narrow sample size and the ability to make such a leap of logic from an attitude survey, his paper research nonetheless demonstrates that even with high English language ability, entrepreneurial capability is not guaranteed, but can be stimulated by education (Pereira, 2007).

Although their 2003 work "A Model of Strategic Entrepreneurship: The Construct and its Dimensions" is focused on developing "strategic entrepreneurship" in existing corporations, authors Ireland, Hitt, and Sirmon's discussion of an "entrepreneurial mindset" is informative for building an immersive learning program focused on entrepreneurial activity. The authors define an entrepreneurial mindset as "a growth-oriented perspective through which individuals promote flexibility, creativity, continuous innovation, and renewal." Components of an entrepreneurial mindset include "recognizing entrepreneurial activities," "entrepreneurial alertness," and "real options logic." A curriculum that simulates international exposure via an immersive learning virtual reality platform can be designed to foster this type of mindset (Ireland, Hitt, & Sirmon, 2003).

2.1.2   Technopreneur fundraising process

Understanding the technopreneur fundraising process is essential to tailoring a business-skill English language training curriculum. Funding for startups often comes in stages, starting with a "seed fund." The investment industry often refers to the stages as "series," which are depicted in sequentially through the alphabet, such as "Series A," "Series B," and so forth, usually associated with increasing levels of funding. Research has shown that access to funding for startups can vary widely according to access to different venture capital markets. According to Japanese biotechnology researcher Kazayuki Motohashi, differences in biotech startup activities could be attributed to differences in the venture capital markets between Japan and the US (Motohashi, 2012). In the Thai context, technopreneur access to funding in the early stages is also quite limited. Many investors search for firms with the perceived ability to expand to multinational levels (Bosma, Van Praag, Thurik, & De Wit, 2004). Investors tend to view Thai startups, especially if they cannot communicate well, as local business (Bertrand, Johnson, Samphantharak, & Schoar, 2008). On the other hand, Thai technopreneurs with high English proficiency and a global mindset have a much

higher chance to obtain early stage startup funding, because of the elimination of language barriers and intercultural understanding (Techsauce, 2018b).

Startup Financing Cycle
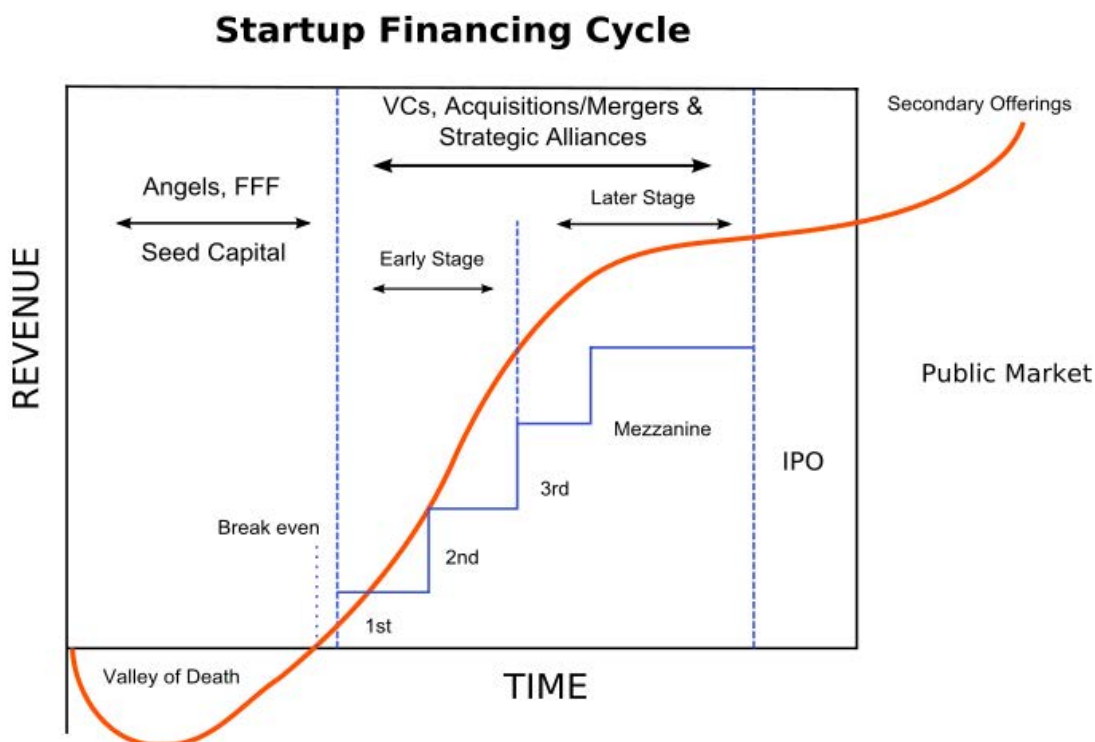
Figure 3 – Startup Financing Cycle

Corporate Venture Capital firms (CVCs) often invest in startups in order to obtain new technologies (including information such as intellectual property) that can be sold to third parties (Benson & Ziedonis, 2009). According to University of North Carolina finance professors Fulghieri and Sevilir, venture capitalists (VCs) that maintain smaller portfolios improves entrepreneurial effort by concentrating resources. VCs with larger portfolios are able to extract greater rents from entrepreneurs. Thus, from the entrepreneur's perspective, pitches to VCs should communicate the potential to sell those ideas to third parties, and should target VCs with smaller portfolios (Fulghieri & Sevilir, 2009).

Ester and Maas (2016) provide an extensive look at the ecosystem of Silicon. Relevant to this research is their discussion of Silicon Valley's network support system. As the "core of the Silicon Valley spirit," the combination of startups, corporations, VCs, lawyers, accountants,

consultants and other actors provides a specialized network support system that gives access to capital, resources, partners, and counseling. The authors discuss the role of culture and global mindset throughout their work. Silicon Valley provides a diversity that promotes innovation and increases success of entrepreneurs. An immersive learning curriculum that simulates networking events should do its best to recreate this key environment (Ester & Maas, 2016).

In his book *Accelerators in Silicon Valley,* Peter Ester (2017) explores how investors recruit startup teams and their selection criteria for new ventures. He interviewed over 23 investors, who had two main criteria for investment: those with very general criteria and those more focused on niche markets with a specific scope of technologies in a specialized field. Most accelerators prefer startup teams over solo entrepreneurs. The research describes a very selective, highly competitive process. One firm had an acceptance rate of only 2% out of 2,500+ applicants. The author concludes this section saying, "stringent selection and close mentoring are key ingredients of the success formula of Silicon Valley startup accelerators." Accelerators select by "team, technology, and market." They look for teams with complementary skill sets, such as technical expertise and marketing. The technology must fit the market, and is best if scalable (Ester, 2017).

2.2   International Exposure

According to this researcher' s previous study, in Non-English-Speaking countries such as Thailand, the amount of international exposure experienced by technopreneurs correlates directly with ability to get funding from venture capitalists. International exposure usually involves three aspects-- international educational background, international working experience, and frequent overseas travel—which tend to produce English proficiency as well as a global mindset. It appears that the majority of Thai startups who obtained funding had prior international exposure (Asavanant & Buranapatimakorn, 2018).
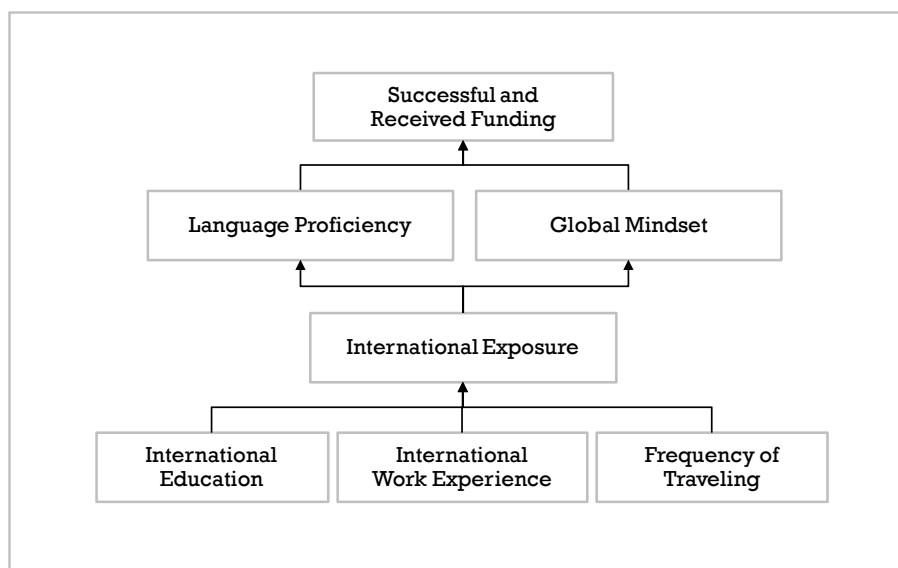
Figure 4 – Framework of Traditional International Exposure

International exposure involves experiencing and understanding foreign cultures, most effectively through living in or visiting foreign countries. Any communication and interaction with people from different countries, however, can contribute to international exposure. This research focuses on producing results of increased language proficiency and development of a global mindset by using immersive learning via a virtual reality platform to substitute or simulate the three main inputs to international exposure as seen in figure 3.

2.2.1   The Importance of English Language Proficiency

English language proficiency has become critical for non-native English-speaking technopreneurs to survive in the globalized economy. University of Leicester professor Rogerson-Revell conducted a limited study of European business people using English for International Business (EIB) to see how culture and linguistic ability affected the conduct of business meetings. She shows that English has become the 'lingua franca' of doing business around the world, but that understanding the cultural context of English-language communication between people of diverse backgrounds is a complex matter. The level of proficiency affected the level of participation and assertiveness level in meetings. She concludes that "While people may well need to 'speak the same language' in such multilingual contexts, they may not necessarily 'speak the same way', for

instance, because of underlying differences in socio-cultural conventions or differences in linguistic competence. In such meetings, different ways of speaking or interacting can lead one party to believe that the other is either intellectually incompetent or deliberately uncooperative or combative." Her work thus points out that language training must include the cultural context, and that communication involves much more than just exchanging words in the correct grammatical order (Rogerson-Revell, 2007).

Author Peter Lowenberg raises the issue of what standard of evaluation should be used for English proficiency in the international context. In the past, proficiency tests have been based on native-speaker, usually American, usage. However, the majority of the world's English users are non-native speakers living in what one researcher has termed the "Expanding Circle." Outside of the "Inner Circle" of developed nations, there is perhaps a different international standard of English usage evolving. His research demonstrates that an English language immersive learning program focused on the business use of pitching startups might not necessarily hold native-level language competency as the standard, but measure results in effectiveness of achieving the purpose (Lowenberg, 2002).

2.2.2   Global Mindset

Author and human resource management expert Stephen Cohen describes the global mindset as the ability to influence others that have different knowledge, ability to think and act both globally and locally, and ability and willingness to recognize diversity and synthesize viewpoints. He suggests that developing global leadership requires self-examination, globally-oriented education, field experience, and exposure to the world (Cohen, 2010). In "Global Managers: Developing a mindset for global competitiveness" professors Kedia and Mukherji advocate the development of a globally-oriented integrator. Leaders need to integrate three global forces of global business, regional or country pressures, and worldwide functions. They must integrate autonomous units into an interdependent network (Kedia & Mukherji, 1999).

In their *Canadian Journal of Administrative Sciences* article "A Global Mindset – A Prerequisite for Successful Internationalization?" authors Nummela, Saarenketo, and Puumalainen study Finnish information and communications technology companies to examine the drivers of a global mindset and its connection to performance. They found that managerial experience and market characteristics helped to drive a global mindset. As their study focused on tech firms, it showed that this industry drives, and demands, a global mindset. They also found that firm financial performance is positively correlated with global mindset (Nummela, Saarenketo, & Puumalainen, 2004). Entrepreneurs with the hopes of expanding to other regions and countries need to adopt a global mindset, as it allows one to act on the global stage and helps gauge international market demands for their product.
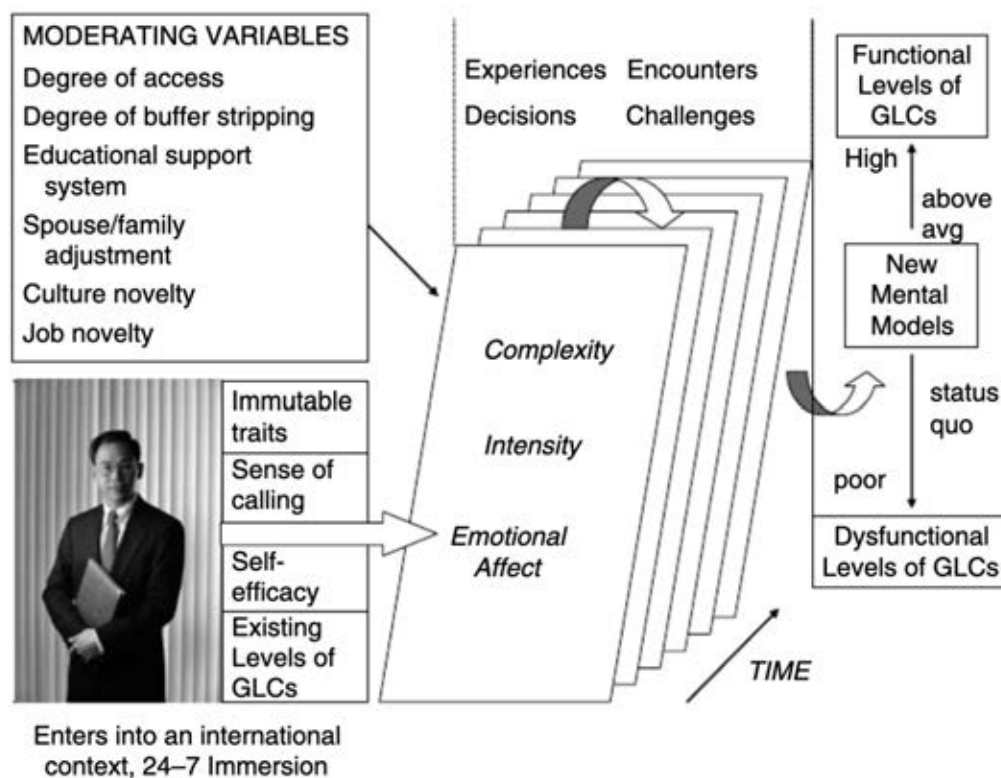
Figure 5 – The Chattanooga model of global leadership development

The work of Osland, Bird, Mendenhall, and Osland highlights the complex nature of a global mindset in leadership. Although not specifically related to entrepreneurial activity, particularly in fundraising, their work first establishes that global leadership development in individuals is "non-linear, mutually casual, emergent process moderated by a variety of key variables across time." They then propose a process model in order to understand global leadership development, pictured in figure 5.

A key here relevant to the development of an immersive learning curriculum for English learning and business fundraising skills is the "experiences, encounters, decisions, challenges" section of the model. The fact that they are "stacked" in the model refers to the interactive, systemic, and non-linear nature of experiences. They propose that "the global leadership development process is not based on independent experiences; rather each experience is tied to past, multiple experiences and constitutes a sense-making process of learning and acquiring global leadership competencies." Especially useful for bringing about change in mindset are 'crucible' experiences that challenge beliefs and test patience. They claim that "The nature of these various global/cross-cultural crucible experiences is crucial to the formation of global leadership." (Osland, Bird, Mendenhall, & Osland, 2006). Immersive learning via a virtual reality platform has the potential to simulate such 'crucible' experiences to accelerate the development of a global mindset.

Although quite dated, the work of global leadership expert Stephen Rhinesmith still provides a useful framework for elaborating the skills of a global mindset. Rhinesmith lists six skills for development, as listed in table 3 (Rhinesmith, 1995).

Mindset	Definition
1st	Bringing international knowledge into the organization
2nd	Identification, Analysis, and Management
3rd	A flexible, changeable approach to business.

Mindset	Definition
4th	Adjusting management of diverse background individuals with an approach that is functional, culturally sensitive, and positive towards the individual
5th	Being prepared to manage unforeseen and continuous change
6th	Continuously updating applicable knowledge

Table 3 - Six Skills Approach to Develop a Global Mindset (Rhinesmith, 1995)

2.3 Conceptual Framework

In general, it appears that Thai technopreneurs fall short in the production of disruptive ideas, market capability, communication skills, and global mindset that would lead to entrepreneurial funding. To address these shortcomings, the researcher proposes the following conceptual framework for developing English proficiency and a global mindset by simulating international exposure via an immersive learning experience.

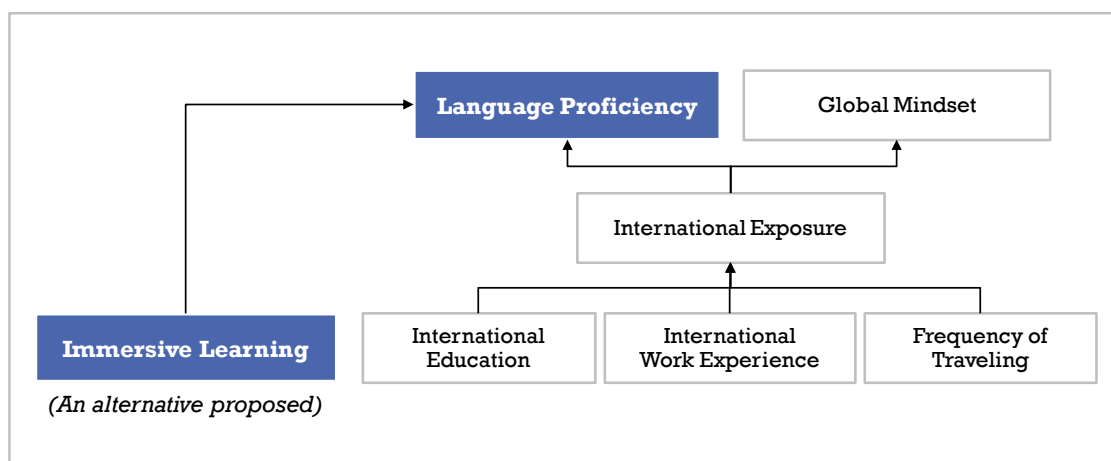Figure 6 – Framework of International Exposure Enhancement with Immersive Learning

2.4 Gap Analysis

Based on the literature review, there is strong evidence that international exposure increases startup funding opportunities and performance levels in startup companies. The cost of international exposure is prohibitive for the majority of Thai technopreneurs who don't have the resources for

international education, work, or travel, thus producing a gap between entrepreneurial intention and capabilities in language and mindset. This research intends to mend the gap by providing a means of immersive language and cultural learning focused on increasing English language proficiency and ability in pitching for partnership and funding from international investors.

2.5   Immersive Learning

According to Harvard Professor in Learning Technologies, Technology Innovation, and Education Program Dr. Chris Dede, immersive interfaces enhance learning through multiple perspectives and "situated experience," and "transfer," defined as "application of knowledge learned in one situation to another situation" (Dede, 2009). A very revealing pilot study, albeit testing only four subjects, used a 3D role-playing game as a pedagogical tool to teach English as a second language to show promising results in increasing vocabulary and student interaction. Researchers Rankin, Gold, and Gooch employed the virtual, immersive environment of role-playing game, Ever Quest 2 to engage students learning English. Intermediate and advanced students increased their English vocabulary by 40%, and experienced the use of chat messages during the eight sessions of the study (Rankin, Gold, & Gooch, 2006).

Immersive learning has already been employed beyond classrooms. It has been used in medical and military learning, for example (Herrington, Reeves, & Oliver, 2007). Educator Mary Burns (2012) reviews immersive learning technologies that were in use at the time of her article for providing adult teacher training. She notes several obstacles to using immersive environments in this way. The first is the perception that such means of instruction will be seen as only games and not taken seriously. Second, there are significant technical and financial obstacles to overcome in developing adaptable programs. A third concern is the under-researched considerations of gender differences in effective use of the immersive environments. Finally, she speculates that some users will find the technical aspect of interacting in the environments disorienting and difficult. Despite these potential drawbacks, she emphasizes that "task-oriented, collaborative, and communal qualities of immersive environments may 'mirror much of what we know to be good models of

learning, in that they are collaborative and encourage active participatory roles for users'" (Burns, 2012). Burns writes that the technology can help people learn from different points of view, as they role-play from different perspectives. The learning is engaging and allows learners to boldly make mistakes without fear. Finally, immersive learning empowers those participating, giving them increased control over their own learning (Burns, 2012). Therefore, this research proposes that immersive learning is an exceptionally appropriate tool that can simulate international exposure for language and global mindset training.

2.5.1   Virtual Reality Storytelling

Storytelling is one of the most effective ways of learning new material, as it fully engages the mind and emotions in a holistic experience. Using a virtual reality platform, learners can be put inside the story, interacting with characters and creating their own storyline. This is related to what Dede meant by "situated learning." According to Dede, "situated learning requires authentic contexts, activities, and assessment coupled with guidance from expert modeling, mentoring, and 'legitimate peripheral participation'" (Dede, 2009). The comprehensive environment embeds lessons learned more deeply in student minds. In the future, although beyond the scope of this paper, machine learning artificial intelligence and voice recognition will further enable the telling of engaging stories.

Immersive learning provides multiple benefits that cannot be achieved through traditional learning. The main teacher becomes an interactive simulated environment that allows risk-free decision making. British researchers Slater and Wilbur review the more technical aspect of immersive virtual environments and their ability to produce 'presence.' The degree of immersion possible is directly related to the technology capability of providing an "inclusive, extensive, surrounding and vivid illusion of virtual environment." Immersion is enhanced by body matching (such as getting participants to mimic the actual physical movements which their avatars undergo) and the story, which should be a self-contained plot in which participants can act and make autonomous responses. The extent of immersion affects 'presence,' which is the participant's state

of consciousness and related to a sense of being in a place. More specifically, the researchers find that achieving presence in a virtual world is related to several factors: inclusiveness, vividness, proprioceptive matching (i.e. no delay between action and visual feedback), extensiveness, and plot. Although the researchers were unaware of direct research on how plot, as a storyline, influenced presence, they did show research that correlates participant‐driven interactivity with reported presence (Slater & Wilbur, 1997). Thus, engagement in any simulated environment, such as the simulated international exposure environment that this research develops, relies much on the ability of the program to interactively tell a story with the participants.

Advantages of Virtual Reality

Virtual Reality allows learning by making decisions and failing without real life downfalls such as embarrassment. It can highlight strengths and introduce tools to correct mistakes by evaluating multiple aspects of participants, including their actions, decisions, vocalizations, or confidence level (Dede, 2009). Software/application-based learning benefits include no travel time, customizable schedules, minimal teaching costs, an international level of education no matter where the learner is situated, and lower stress levels from better time management (Hannay & Newvine, 2006).

Educator academic Veronica Pantelidis says of using virtual reality in education, "The learner can participate in the learning environment with a sense of presence, of being part of the environment" (Pantelidis, 2010). She delineates multiple reasons for using VR in education, including that provides new forms and methods of visualization, it motivates students, and can overcome time and language barriers to learning. She believes that VR provides advantages of empowering students, giving them agency in developing both skills and learning attitudes. Virtual reality can actually illustrate some features and processes that are not available by other means, such as experiencing biological processes from inside the body or visiting historical locations. VR

requires interaction, so that participants cannot remain passive. It is the ultimate way of 'learning by doing' (Pantelidis, 2010).

Similarly, Ferry et al. (2004) state that "Whilst we acknowledge that a simulation is only a representation of real-life, there are features that can enhance real-life experience. For instance, a simulation can provide authentic and relevant scenarios, make use of pressure situations that tap users' emotions and force them to act. They provide a sense of unrestricted options and they can be replayed." (Aldrich, 2003). Perhaps the greatest advantage of using virtual reality in education is that it is highly motivating. Mikropoulos, Chalkidis, Katsikis, and Emvalotis (1998) measured the attitudes of education students toward virtual reality as a tool in the educational process, and toward virtual learning environments in specific disciplines, finding motivated, favorable attitudes. As Pantelidis wrote, VR grabs and holds the attention of students more so than traditional ways of learning. VR gives an exciting feeling of being surrounded by a scenario.

2.5.2   Existing Virtual Reality Technology Platforms

At the global conference ITB 2018 in Singapore, the researcher learned of an interesting virtual reality platform, called Storyhive. According to their website, Storyhive is Hiverlab's proprietary system and platform for interactive presentation, broadcasting, and communication with immersive technology. It empowers content creators to easily upload and create their immersive experiences with simple interactive functions from the Storyhive web portal, and conducts multi-user immersive guided or facilitated experiences via the Storyhive mobile app. The platform comes with functions such as interactivity, virtual guidance, real-time dashboard, voice chat, data analysis, and more. It is compatible with major mobile platforms such as Android, iOs, and Gear VR (Storyhive, 2019).

2.5.3   Simulation of a Networking Event

This research will develop a simulation of a networking event to provide the story and context of the English language and fundraising pitch development learning objectives. According to one developed course on fundraising, developing a module on successful fundraising should

include a behavior study, framework development, marketing aimed towards fundraising, and managing the implementation of the modules (Sargeant & Shang, 2010). In developing a simulated fundraising network event, the objective is providing a practical scenario that does not neglect ethics in fundraising. In order to achieve presence in the immersive environment, the plot must be realistic with viable options for participants to act out. Real world events are quite intimidating to non-native speakers of English and are likely to cause stress. But as discussed, the 'crucible' experience, applying some pressure, will more deeply embed the lesson in the mind of the participant. The scenario to be developed for this research is will therefore be a networking event for fundraising with multiple actors.

2.5.4   Assessment and Measurement

This research investigates the feasibility of employing virtual reality technology as a means of providing international exposure to technopreneurs, with a focus on developing a program that increases skills in language and in pitching startup ideas. The research should first assess the ability of the curriculum to realistically simulate a networking event. This will be done by studying real world networking events and interviewing participants. Second, the research will assess the effectiveness of using a virtual reality platform to create a sense of presence in an immersive learning environment. This can be done by surveying participants' sense of engagement in the VR scenario. Finally, participants can also be assessed in terms of increased willingness levels to go to new partners and increased confidence levels by the same survey conducting before and after using the VR platform. This feedback assessment will be conducted by Google Form online when approach each participant in prototype validation test.

2.6   Conceptual Solution

The conceptual solution to the problem of simulating international exposure in order to increase success of Thai technopreneurs in obtaining startup funding is to test a virtual reality immersive learning platform in teaching English language and business partnership/fundraising pitch skills. The solution should improve the global mindset of participants. The application will

allow users to learn language and a global entrepreneur mindset from virtual successful mentors in an immersive environment. The researcher will focus on startups pitching to partners, judges and/or investors. To be more specific, when a user starts this immersive learning, the user will open an application and will eventually have two options to choose. For this research, only the first option will be developed. That option is designed to improve English communication skill as it relates to partnership/investment pitching. In the scenario, the participant interacts with a technopreneur pitching to an investor in a networking event. The subject participates by working with given sentences to practice and adapt on their own. This first experience applies the technology of virtual reality. A future option would added to expand the global mindset. It will begin with an artificial intelligence mentor to explain and share about their experiences, lessons, including tips for pitching. At the end, the researcher will use Emotion Recognition in Voice technology during the assessment in order to see how confidence of speaking is improved.

The research will employ selected technology, VR Platform from Storyhive. It is content and system development with immersive technology and media (VR/AR/MR). The prototype solution will be developed on the 'Storyhive' virtual reality platform. The platform will simulate international exposure by virtually producing a network event for Thai technopreneurs, allowing them to practice their business-oriented English communication skills with virtual investors.

CHAPTER III

METHODOLOGY

3.1   Research Design

The research is designed proceed through five phases as described in Table 5.

Phase	Methodology	Result Expectation
Phase 1	Establishing conceptual knowledge ‐ review of literature in Thai technopreneurs, international exposure and immersive learning	- Key literature reviews - All potential scenarios
Phase 2	Exploratory study – primary research by observing networking events and pitching stages then interviewing investors and judges	- Raw data from interviews
Phase 3	Concept refinement – refine the concept to develop the solution	- A detailed scenario and dialog
Phase 4	Development of solution – build the prototype	- A prototype
Phase 5	Validation test of solution – validate the solution by testing the prototype with participants	- Key conclusion of the prototype

Table 4 – Research Design

3.1.1   Phase 1: Establishing Conceptual Knowledge

In phase 1, the researcher reviewed literature related to technopreneurship, international exposure, and immersive learning to realistically simulate international exposure via an immersive learning platform and curriculum focused on developing business English skills in order to enhance technopreneurship success in building business partnership and soliciting funding at international networking events.

The events attended in which subjects were identified and interviewed is depicted in table 6.

Event Date	Event Name	Country
18-20 September 2018	AI Summit Singapore 2018	Singapore
27 September 2018	Thailand Immersive XR Leaders' Meeting	Thailand

Event Date	Event Name	Country
5 October 2018	Rising X Startup Runway Demo Day	Thailand
17-19 October 2018	ITB Asia 2018	Singapore
30 November 2018	Seedstars Asia Summit x True Digital Park	Thailand
28-29 March 2019	Corporate Innovation Summit 2019	Thailand
15 May 2019	International Horticultural Exhibition 2019	China
16-18 May 2019	Asian Culture and Tourism Exhibition	China
31 May 2019	UOB Let's Go, Let's Start! by the FinLab	Thailand
19-20 June 2019	Techsauce Summit 2019	Thailand

Table 5 – Attended Event List

3.1.2   Phase 2: Exploratory Study

The researcher conducted one-on-one, in-depth interviews of those involved in networking events related to startup fundraising for phase two. The interviews with related stakeholders were accomplished to put into practice knowledge gained from the literature review and to be able to construct a realistic immersive learning prototype.

Sampling: The researcher attended networking events and public pitching competitions in order to talk to the potential investors, judges, and commentators at the event or via contact information secured at the event. Selection of subjects for in-depth interviews was based on their perceived knowledge of communication and other skill requirements required in successful pitching that could be integrated into the immersive learning, simulated networking event prototype. The sample size for in-depth interviews was ten subjects, as research indicated this amount would provide sufficient qualitative research results to be used in developing the simulated event (McDaniel & Gates, 2010).

Perspective	Name/Position/Organization
Technopreneurs	1. Mr. Vasa S. Iamsuri, CEO, Fastwork
	2. Ms. Methawee Thatsanasateankit, CEO, Dress the Dream
Business Partners (Investor/ Judge/ Speaker)	3. Mr. Thanachat Tangsriwong, Chief Representative of Bangkok Office, CyberAgent Ventures
	4. Mrs. Nichapat Ark, Thailand Coverage, Openspace Ventures
	5. Mr. Aitthisak Promthanapat, Investment Manager, NVEST Ventures
	6. Mr. Warodom Khamphanchai, Ambassador, Bangkok A.I
	7. Ms. Shannon Kalayanamitr, Shark, Shark Tank Thailand
	8. Ms. Oranuch Lerdsuwankij, CEO & Co-founder, Techsauce
	9. Mr. Rawit Hanutsaha, CEO of Srichand and sasi cosmetics
	10. Mr. Weera Chearanaipanit, Vice President: Head of SME Network, K SME

Table 6 – Interviewee Name List

The interviews addressed topics that would provide a realistic portrait of international exposure via a simulated networking event. This included exploring communication requirements for technopreneurs who were interested in pursuing fundraising opportunities at a network event. The interviews were conducted via open-ended questions as shown in table 8. Additionally, interviewees were allowed to give their own opinions related to developing an immersive learning environment simulating a networking event.

Dimension	Question
Way of Approaching	**Technopreneur**
	- What are some methodologies you use when approaching a VC or new partners?
	Business Partner (Investor/Judge/Speaker)
	- What is the recommend process to get to talk to you? Do you prefer an appointment beforehand or coincidentally in the event?
Technopreneurship Characteristics	**Technopreneur**
	- What do you prepare before talking to VC or new partners?

Dimension	Question
	Business Partner (Investor/Judge/Speaker)
	- What is the first thing you look for when talking to technopreneurs?
	- At which point do you decide to continue the conversation?
Referral	**Technopreneur**
	How do you use referrals when approaching new target partners?
	Business Partner (Investor/Judge/Speaker)
	- How much do you value referral connections?
Comment	**Technopreneur**
	What would you recommend to technopreneurs without international exposure to be smarter?
	Business Partner (Investor/Judge/Speaker)
	- What are the things Thai technopreneurs currently lack to succeed in terms of their characteristics?
	- What are the key skills Thai technopreneurs should have?
	- If there is a VR simulation for Thai technopreneurs to try talking with investors or potential partners, which situations do you suggest them to practice on? Do you think it will be able to help them in a real-world situation?

Table 7 – Questionnaire list for stakeholders' interviews

3.1.3 Phase 3: Concept Refinement

In this phase, the data from the observations and interviews in phase two was used to refine the conceptual solution related to technology, innovation, and management and development of technopreneurs. The researcher analyzed the information gained from the real-world networking events and interviews in order to further design a realistic environment and situation for the immersive learning scenario. Specifically, this phase selected one of several potential scenarios developed in phase two to make a storyboard for the prototype simulation including pre-dialog with investor.

3.1.4   Phase 4: Development of Solution

The results from previous phases were used to develop the conceptual prototype of the immersive learning scenario. The concept solution was designed to develop English proficiency as well as a global mindset in Thai technopreneurs focused on successfully pitching for business partnership and funding a startup at a networking event.

Following the storyboard development in phase three, the solution was executed in the virtual reality platform 'Storyhive'. This entailed re-creating a realistic networking event environment for Thai technopreneurs in the fully immersive application. It allowed Thai technopreneurs to virtually experience a real networking event to practice their communication and other interactive skills, especially business English skills, with virtual investors who simulated international exposure.

In this stage, the researcher used pre-dialog instead of Artificial Intelligence mentor as a concept simulation example for future development.

3.1.5   Phase 5: Validation Test of Prototype Solution

In phase 5, the researcher conducted quantitative research by testing the immersive learning international networking event simulation prototype on subjects and then surveying participants. Participants' answers to the questionnaire were collated and analyzed to examine the effectiveness of the prototype in simulating a realistic international network event and its usefulness in improving business English language skills or startup partnership/funding pitching skills.

Sampling: The most desirable candidates to test in the prototype would be technopreneurs lacking international exposure and who have not had much experience or success in obtaining startup funding from international networking events, as these subjects could be measured for relevant improvement in skills. However, difficulty in securing subjects who met these narrow criteria resulted in using a proxy. The researcher directly approached startups and student startup groups and explored competition events to identify and interview unsuccessful groups. Significant statistical analysis requires a minimum of 30 participants in a sample, which was chosen as the target sample size (Student, 1908).

Data Collection: The survey was conducted online via Google survey supplemented with personal contact. Before the prototype test, interviewers asked participants to answer the survey by themselves. During and after the prototype test, the researcher interviewed the participants with the same survey and completed the online survey according to their answers.

The survey questions addressed participant exposure to investors, interest in networking events, communication skills, and reactions to the prototype. The questions were intended to assess experience with pitching to a partner/investor and language proficiency, specifically business English proficiency. The survey concluded with participant assessment of the validity of the prototype, to include usefulness and willingness to purchase if this were an actual product.

Topic	Question
Screening	1. Are you or do you want to be a technopreneur (tech startup founder)? (Yes/No)
	2. Do you have an international education? (Yes/No)
	3. Do you have international work experience? (Yes/No)
	4. Do you travel aboard more than 4 times a year? (Yes/No)
	5. Have you pitched to business partners or investors? (Yes/No)
	6. Have you been rejected by partners/investors or failed in pitching stage? (Yes/No)
	7. Do you think you have a confidence problem in communication? (Yes/No)
	8. Have you been to a networking event? (Yes/No)
	9. Are you interested in going to a networking event? (Yes/No)
	10. If not, what is the reason you don't go? (Cost, Time, Not Interested)
Basic	1. What is your age range? (16-20/21-25/26-30/31-35/36-40)
Information	2. What is your business field? (AgTech/ Business Service/ E-commerce/ Edu Tech/ Fin Tech/ Food Tech/ Health Tech/ Lifestyle & Entertainment/ Transportation/ Logistics/ Travel Tech/ Others)
Before	1. How many times do you go to local networking event/conference per year? (11 times or more, 5-10 times, 3-5 times, 1-2 times, Never)
Prototype	
Test	2. How many times do you go to international networking event/conference per year? (11 times or more, 5-10 times, 3-5 times, 1-2 times, Never)

Topic	Question
	3. How likely will you walk to new partner/investor and talk to them in networking event? (5- Always, 4- Often, 3- Sometimes, 2- Rarely, 1- Never)
	4. How much confidence level when you talk to target partner/investor? (5- Extremely confident, 4- Very confident, 3- Moderately confident, 2- Slightly confident, 1- Not at all confident)
After Prototype Test	1. How much immersive level is the simulated networking event? (5- Extremely immersive, 4- Very immersive, 3- Moderately immersive, 2- Slightly Immersive, 1- Not at all immersive)
	2. For any next event, how likely you will walk to new partner/investor and talk to them in networking event? (5- Always, 4- Often, 3- Sometimes, 2- Rarely, 1- Never)
	3. For any next event, how much confidence level is it when you talk to target partner/investor? (5- Extremely confident, 4- Very confident, 3- Moderately confident, 2- Slightly confident, 1- Not at all confident)
	4. Do you agree that the VR simulated networking event will enhance international exposure? (5- Strongly Agree, 4- Agree, 3- Neither agree nor disagree, 2- Disagree, 1- Strongly Disagree)
	5. Do you agree if you keep practicing with the VR simulated every day, you would be able to communicate well with partners/investors? (5- Strongly Agree, 4- Agree, 3- Neither agree nor disagree, 2- Disagree, 1- Strongly Disagree)
	6. Would you recommend the product to your friend/team? (Yes/No)

Table 8 – Questionnaire to validate the prototype

3.2 Research Limitation

3.2.1 Conceptual Framework Limitation

The research is scoped only Thai "Technopreneur" who is a founder or entrepreneur of a technology-focused startup business. The research explored a way to simulate international exposure by re-creating an international networking event using an immersive learning virtual

reality platform in order to increase technopreneurs' success in receiving investments for startups. However, there are more factors related to technopreneur success in securing funding than international exposure, such as disruptive technology and market capability. This research did not explore those other factors, but focused on how simulated international exposure could improve language proficiency. Technical language proficiency such as proper usage and vocabulary can be measured by test scores, although it is harder to measure communication effectiveness, such as persuasive skills in soliciting funds for a startup. It would be desirable to explore how immersive learning like this prototype could be used to improve global mindset. However, measuring "global mindset" is even more subjective and difficult and was not possible in this limited study.

3.2.2   Methodology Limitation

The methodology and data collection used in this study was based on interviews with a narrow population of young Thai entrepreneurs selected non-randomly. The small size of the test population limits the ability to generalize the results. The addition of participants with different backgrounds such as another culture or nationality, previous experiences, personal preferences, or age differentials may produce different results. Thus, this research would be valid only in a Thai context. In addition, the participants in the prototype test were only briefly exposed to the immersive learning scenario for a single instance. Longer exposure through a more thorough suite of scenarios could more easily measure the effectiveness and potential of the prototype. Furthermore, the survey results relied on self-reported experience with the prototype. Due to the nature of the online survey, responses to some questions had limited options. Also, self-reporting to an interviewer who is dictating answers into the survey is helpful in promoting response rate, but may have affected the responses as participants possibly altered their answers to reflect what they thought the interviewers wanted to hear.

3.2.3   Prototype Technology Limitation

A limitation to testing the full potential of using an immersive learning environment to simulate international exposure in an international networking event situation is technology-related. Inclusion of immersive learning-enhancing technology, such as artificial intelligence, voice

recognition, and emotion recognition could greatly expand the realism of the scenario and ability to measure its effectiveness.

3.2.4   Prototype Content Limitation

Finally, this research concentrated on simulating international exposure as a factor in improving technopreneurs' business English for pitching to investors. There are other dimensions of entrepreneurial development that increase their chances of success that were unaddressed by this research.

CHAPTER IV

RESULTS

The following table summarizes the five phases of this research with a general description of expected results of each phase.

Phase	Methodology	Result Expectation
Phase 1	Establishing conceptual knowledge - review of literature in Thai technopreneurs, international exposure, and immersive learning	- Key literature review - Potential scenarios for simulating international exposure
Phase 2	Exploratory study – primary research by observing networking events and pitching stages then interviewing investors and judges	- Raw data from interviews for building and evaluating immersive learning scenarios simulating international exposure
Phase 3	Concept refinement – refine the concept to develop the solution	- A detailed scenario and dialogue
Phase 4	Development of solution – build the prototype	- A prototype immersive learning simulation of an event focused on pitching to investors or partners
Phase 5	Validation test of solution – validate the solution by testing the prototype with participants	- Evaluation of the prototype

Table 9 – Research Design

4.1 Result of Phase 1: Establishing conceptual knowledge

From the literature review and observations in phase one, the researcher listed several networking event scenarios which could lead to opportunities in pitching to investors. All scenarios allow for subjects (technopreneurs seeking to secure funding for a startup) to interact with potential investors in order to develop their relationship and communication skills. The scenarios are listed in table 11. During the observations from technical visit and networking events, the researcher

found some answers from some interviewees that are interestingly related to the study but not the

focus, then the table of answers can be found in Appendix A.

Scenario	Description
Scenario 1	At a networking area when people are around a table talking and there is a space that can be joined
Scenario 2	At a networking area around a table of cocktail food
Scenario 3	At a networking area, when someone is standing alone
Scenario 4	On a pitching stage
Scenario 5	At a booth or exhibition
Scenario 6	After a speaker' s session
Scenario 7	Before the event starts, after speaker preparation
Scenario 8	Speed Dating
Scenario 9	Walking past someone at an event
Scenario 10	Seated next to someone
Scenario 11	Waiting for an elevator
Scenario 12	In an uncrowded elevator
Scenario 13	At a luncheon table
Scenario 14	Walking to an event together

Table 10 – Potential Scenarios – Startup Activities

4.2 Result of Phase 2: Exploratory Study

Qualitative interviews were conducted with ten subjects involved in startup networking

events who were selected based on their potential insights into such events. In order to get different

perspectives, subjects for the in-depth interviews were selected from two groups; Technopreneurs

and Business Partners. Analysis of both groups indicates that they shared one attribute: they were

successful business partnership builders. Further analysis reveals three elements for building

business successful partnerships which may be useful for incorporation in a training platform.

All interviewees agreed on three areas in which most technopreneurs can improve their

effectiveness. First, Thai technopreneurs must build their confidence level. Second, technopreneurs

need to improve communication skills not only in English language, but also in the proper use of

language in conversation with appropriate physical behavior. Finally, most networking entrepreneurs need to develop interpersonal techniques, such as listening empathetically, studying beforehand the background of potential conversation partners, and learning when to stop conversations.

Moreover, all interviewees revealed that referral is very important. If a technopreneur is referred by an influencer or mutual friends, he or she will be seen more favorably and will tend to be remembered. For example, Mr. A is an influencer to the target business partner. If a technopreneur can convince Mr. A to introduce him/her to the target business partner with a positive comment, that potential investor will be more likely to remember and recognize the technopreneur.

Interviewees also agreed that a Virtual Reality simulation of a networking event could be a viable solution for improving skills and provided suggestions for creating realistic and helpful immersive situations for technopreneurs to practice their conversation skills. For example, one subject pointed out that a VR simulation of a networking event could help technopreneurs overcome shyness in communication by firstly practicing in a VR simulation to experience a low-pressure environment. Based upon recommendations from the interviewees, it was determined that the prototype should simulate an "elevator pitch" to be used in introductory conversations. An "elevator pitch" describes oneself and one's business in a time interval limited to between 30 seconds and 3 minutes, or the length of a typical elevator ride.

Table 12 shows key answers from each interviewee. The details of all answers from interview questions can be found in Appendix B.

Interviewees	The Key Skills for Pure-Thai Technopreneur to Success in Business Partnership Building	Suitable Situation Suggested to Practice on Virtual Reality Tool
1. Mr. Vasa S. Iamsuri, CEO, Fastwork	1. Learn to overcome fear of total strangers (especially international VCs). 2. Don't be afraid to connect with the most suitable/preferable VC for your business.	1. Practice pitching 3-5 minutes.

Interviewees	The Key Skills for Pure-Thai Technopreneur to Success in Business Partnership Building	Suitable Situation Suggested to Practice on Virtual Reality Tool
	3. Be humble and polite, language should not be the barrier to success. 4. Focus on the key value proposition and talent acquisition; delegate some tasks you cannot do to someone who already knows how to do it better.	2. Q&A - Important facts and figures should be prepared and memorized.
1. Ms. Methawee Thatsanasateankit, CEO, Dress the Dream	1. Identify needs by practicing deep listening and empathy. 2. Find a mutual topic to carry on the conversation. 3. Ask smart questions, help gaining more useful insight.	1. Practice each elevator pitch introducing yourself and your business at least 100 times. 2. Prepare many types of pitches for different situations.
2. Mr. Thanachat Tangsriwong, Chief Representative of Bangkok Office, CyberAgent Ventures	1. Be confident and eager to approach and communicate with investors and pursue leads to more opportunities. 2. Change the mindset of limiting yourself to what you currently can do. 3. Try to do things you are afraid of in order to test what you can do, to find areas for improvement, or to discover natural strengths and capabilities. 4. Practicing to achieve perfection.	Create an elevator pitch that focuses only on strengths and opportunities.
3. Mrs. Nichapat Ark, Thailand Coverage, Openspace Ventures	1. Acquire communication skills that are not only verbal, but physical, emotional and interpersonal. 2. Pre-study the person you want to talk to.	Develop a good pitch introducing yourself, your business and what you need. Make it short and precise for approximately 2-3 minutes.
4. Mr. Aitthisak Promthanapat,	1. Have a strong vision with clear plans for the future.	Practice presentation in an intense environment such as a

Interviewees	The Key Skills for Pure-Thai Technopreneur to Success in Business Partnership Building	Suitable Situation Suggested to Practice on Virtual Reality Tool
Investment Manager, NVEST Ventures	2. Learn how to grow a company through strategies such as marketing and partnering.	meeting room with common questions from participants.
5. Mr. Warodom Khamphanchai, Ambassador, Bangkok A.I	1. Study the person with whom you will talk, finding common passions or interests. 2. Acquire language, communication, and technology skills.	Pitch to investors in the same manner as used in the TV show Shark Tank.
6. Ms. Shannon Kalayanamitr, Shark, Shark Tank Thailand	1. Acquire a regional/global mindset by practicing simulation. 2. Get hands-on training. 3. Be confident.	Develop an elevator pitch to introduce yourself and your business in networking events.
7. Ms. Oranuch Lerdsuwankij, CEO & Co-founder, Techsauce	1. Learn normal business conversation etiquette, such as maintaining eye contact. 2. Pre-study with whom you will talk for mutual interests and possible win/win benefits. 3. Acquire international experience for resilience. If that's not possible, then one needs a strong background in a specific area (Domain Expertise).	1. Focus on introducing oneself and one's business. 2. Pitching on stage. 3. Dealing with a Q & A session. 4. Joining 3-person conversations as the fourth person.
8. Mr. Rawit Hanutsaha, CEO of Srichand and sasi cosmetics	1. The content of conversations should be of mutual interest. 2. Thai technopreneurs should have a vision of an international scheme from the beginning, as quoted from Mr. Patai Padungtin.	1. Practice pitching 3-5 minutes. 2. Be able to respond to questions - Important facts and figures should be available.
9. Mr. Weera Chearanaipanit, Vice President:	1. Be able to make a good first impression; Dress up nicely and develop a nice personality. For new	1. Simulate a networking area. 2. Simulate a startup booth.

Interviewees	The Key Skills for Pure-Thai Technopreneur to Success in Business Partnership Building	Suitable Situation Suggested to Practice on Virtual Reality Tool
Head of SME Network, K SME	startups/technopreneurs, it is good to use a screened company logo t-shirt as a name card. 2. Be a good listener, then start with small talk on a common topic, such as the event topic or the agenda, followed by a specific topic one would like to share. 3. Set objectives, pre-study about target persons. 4. Learn to select one's wording considering the listener, avoiding the use of technical terms for general listeners.	3. Practice how to nicely join and blend into an ongoing conversation.

Table 11 – Key Answers from In-depth Interview

4.3 Result of Phase 3: Concept Refinement

As a result of the interviews, the researcher created a storyboard of some potential scenarios in order to develop the prototype as seen in Figure 7. The researcher created four main scenarios which correspond in the simulation to going left, forward, right, or exiting. The storyboard has three characters: the technopreneur, the investor, and the business partner.

In the first scenario of "to go Left", the technopreneur sees the target investor walking towards him/her and must decide whether to catch her for conversation. Then, the simulation suggests to the technopreneur to pitch to the investor with a self-introduction, after which the subject waits for the investor response. The situation could be a "YES, go ahead", or a "NO, not interested".

In the second scenario of "to go Forward", the technopreneur visits a booth area in the exhibition and may see potential business partners with similar business. At that point, the technopreneur can decide to go forward to talk to the team about a business partnership.
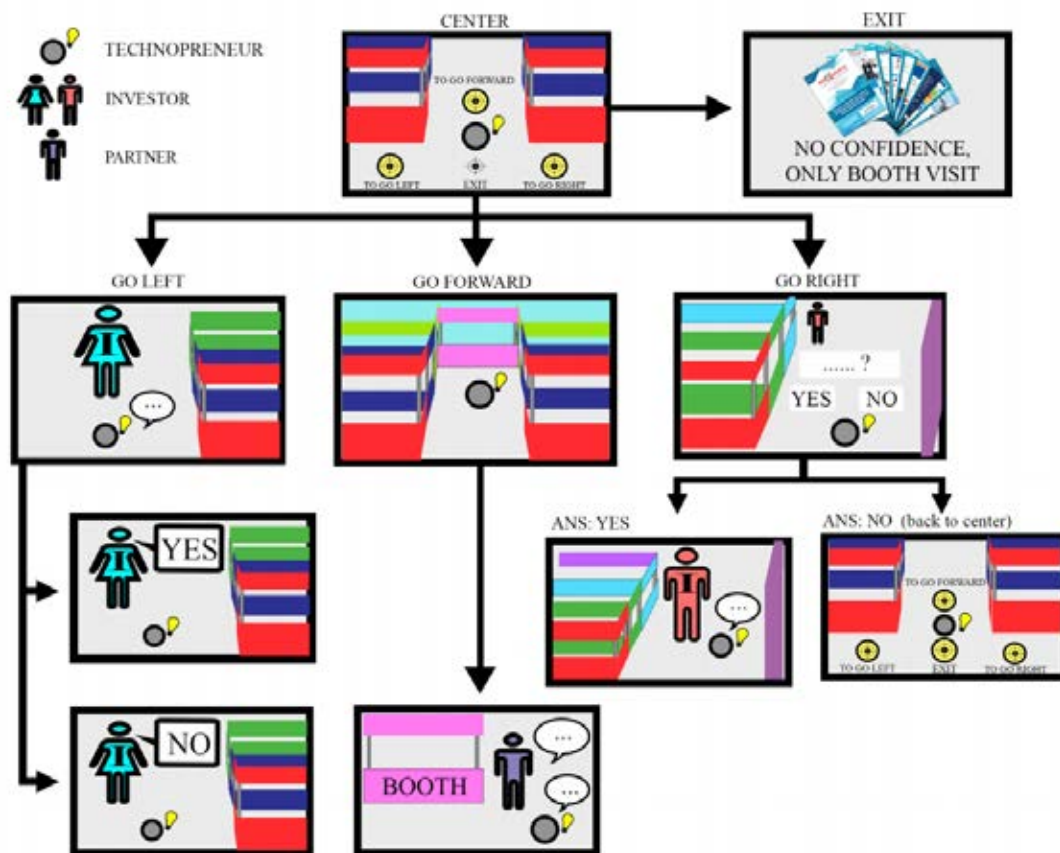
Figure 7 – Storyboard of Potential Scenarios

In the third scenario of "to go Right", the technopreneur sees a target investor far away and is given a choice whether to attempt contact via a pop-up choice of "Yes" or "No". If yes, the subject walks to the target to make a confident self-introduction. If the subject response is "No" because of shyness or having forgotten name cards, the player goes back to center.

In the fourth scenario, a technopreneur could be too shy to talk to anyone from the beginning, just pick up some brochures from a booth and go home.

The research project proceeded to conceptually develop all four scenarios, with more detailed development of the first scenario "talk with the investor". This option was chosen as the one most compatible with recommendations from the interviewees to improve skills in initiating conversations. Based upon observations and interviews, the prepared dialogue with an investor was developed as follows:

Technopreneur: Hi! Are you Ms. Anna from XX venture?Investor: Hi! Yes

Technopreneur: Wow, I just saw you on the previous session on the main stage. The transportation startup that you talked about was very insightful. I have gained so much from only listening.

Investor: Thank you! Yes, I'm an investor in this industry. Are you a startup in this field?

Technopreneur: Yes.

Investor: Okay, what do you do then? You can quickly tell me what you do.

At this point in the simulation, the technopreneur is cued to make their own elevator pitch. The prototype explains that an elevator pitch is a short description of oneself and one's startup value proposition. The subject is prompted with an example outline as follows:

- Your name and position

- Explain what drove you to found the company.

- Explain how your idea helps X achieve Y.

- Provide some "wow" traction—something unique and exciting about your idea.

- Tell action points you need from an investor, such as asking for advice, funding, or connections.

The subject in the simulation prototype is given the following example. "Hello, I'm Amanda Smith and I am a founder & CEO of "Issara". We are helping people solve their transportation problems in the frequent traffic jams experienced here by using "X" (insert a short, accurate description of your technical solution for X). This solution allows them to do "Y" (insert the expected result of your solution) and gives them more time and freedom, *Issara,* in their lives. We're currently looking for "A" amount of funding (insert your required budget) in order to do "B" (insert what things your budget will allow)."

While the simulation subject pitches, the simulated investor responds with questions typical of this situation. These include the following examples.

Example 1. Investor: There are many players in this field. How do you differentiate from others?

Example 2. Investor: How is your traction at this moment?

The technopreneur subject is then prompted to answer the questions with prepared information. This may include allowing technopreneurs to present an illustration or video of their solution if available.

The scenario concludes with the simulated investor either rejecting or accepting the test subject's pitch, with prepared dialogues as follows:

Rejection scenario:

Investor: Your project is interesting, but sorry we are in a different stage of investing. Your traction is now at the seed stage. I'm a series A investor.

Acceptance scenario:

Investor: Wow, your project is interesting. We can exchange our cards for future opportunities. You can send me your decks and request to schedule an appointment.

4.4 Result of Phase 4: Development of Solution

The above concept simulation anticipates an automatic interaction with a simulated investor. The concept is limited by technology. The following discusses some solutions to overcome these limits.

First, to simulate a networking event environment, the prototype used the Storyhive Creator Center, a VR platform service, and Google Street View application for 360-degree cameras.
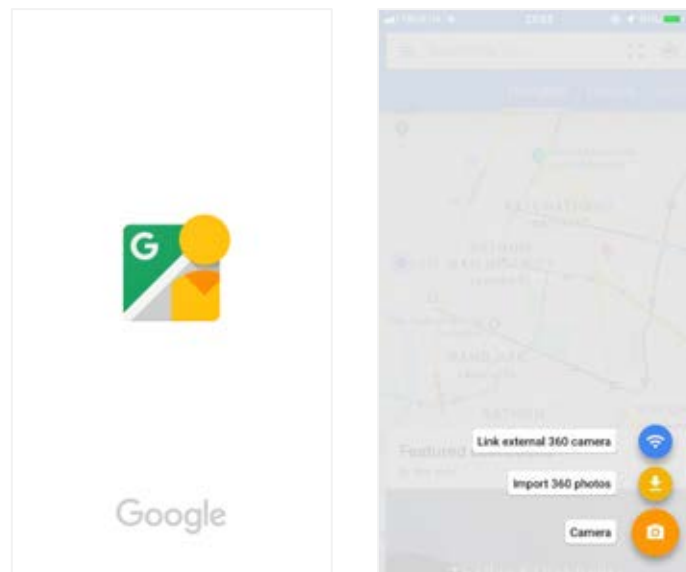
Figure 8 – Google Street View Application for 360 Camera Shooting

The researcher elected to simulate the Asian Culture and Tourism Exhibition in Beijing, China as an international event in which many potentials scenarios could be created. Figure 8 shows the process of 360 camera shooting.

After shooting, the researcher collected all 360 virtual photos of the scenarios from the Google Street View application as seen in figure 9. The pictures were saved to an album to develop the networking event simulation with the Storyhive Platform. Sign up with the Storyhive on its site is required to create the VR content and to revisit of production process as in figure 10.
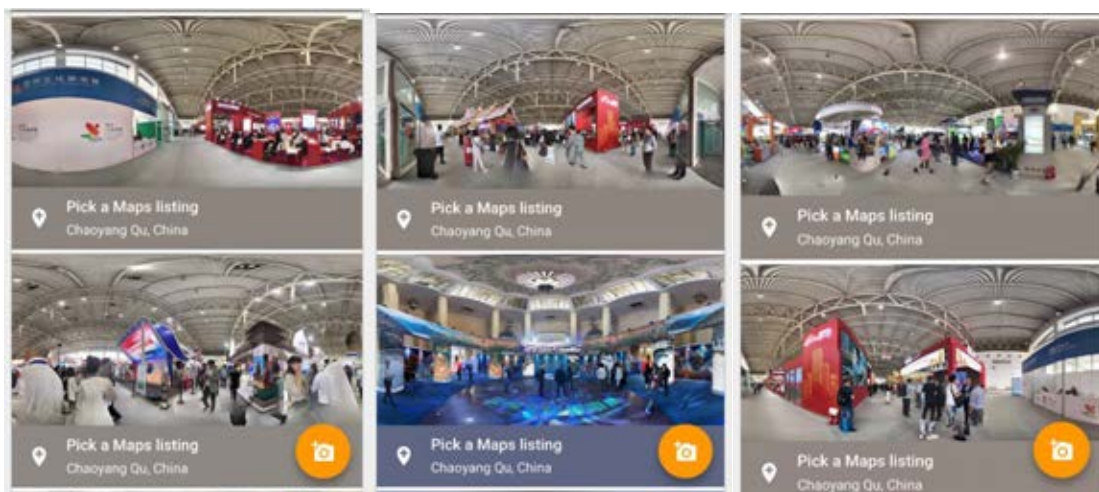
Figure 9 – Google Street View: Collecting 360 Virtual photos
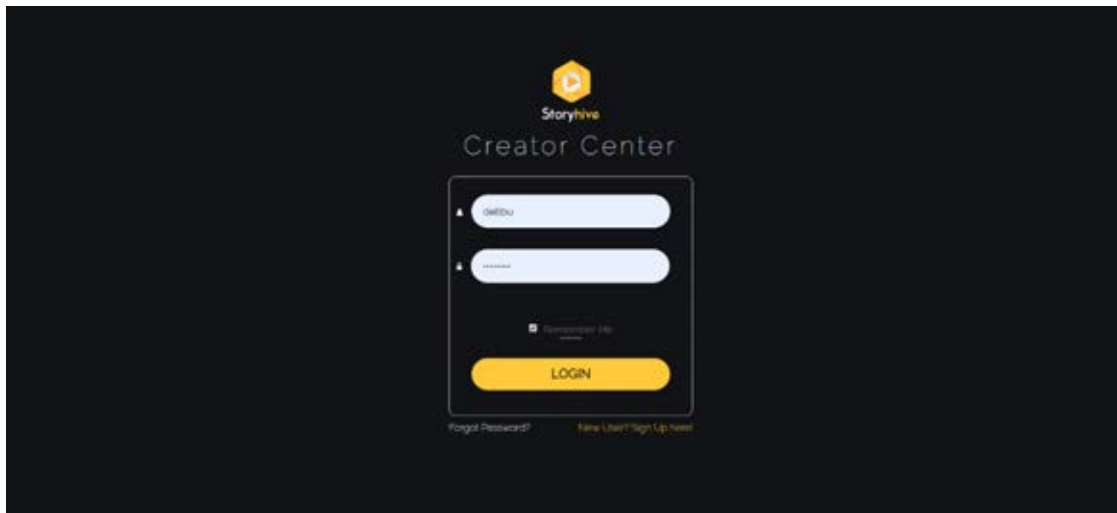
Figure 10 – Storyhive: Login Page

In figure 11, the researcher created a new project and uploaded all the 360 pictures to the Storyhive platform onto the Dashboard Page in order to recreate the networking event. This research prototype used the project name, Booth. To upload each scenario, one must choose the 360 picture and enter a screen name for each scenario selection. One continues to add screens until finished, and then selects the "Build your Story" button in Screen Creator Page as seen in figure 12. In this prototype, there are six screens added for four scenarios to show an immersive networking event. Additional media such as pictures, videos, and audio sounds can be via the "additional media" option.
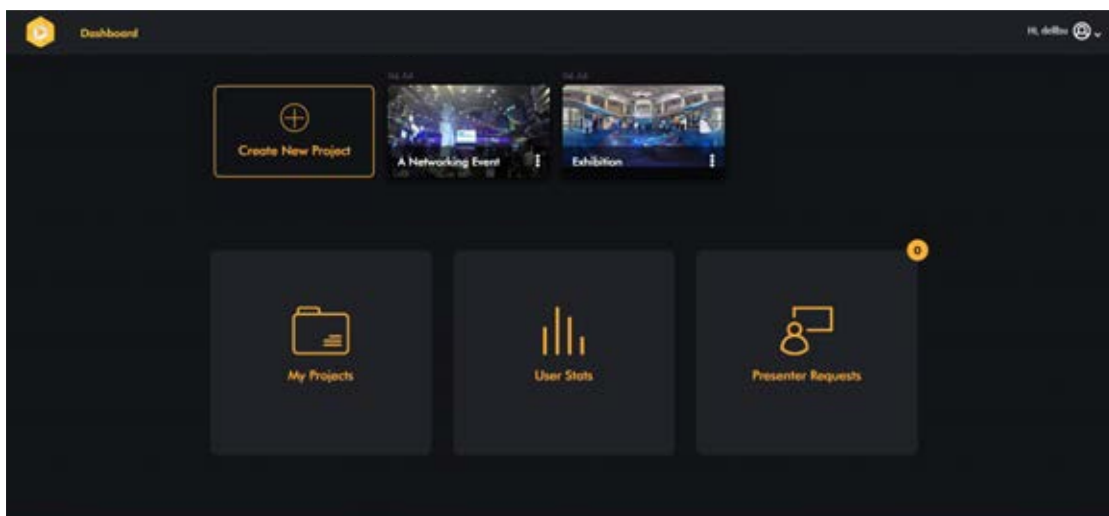
Figure 11 – Storyhive: Dashboard Page
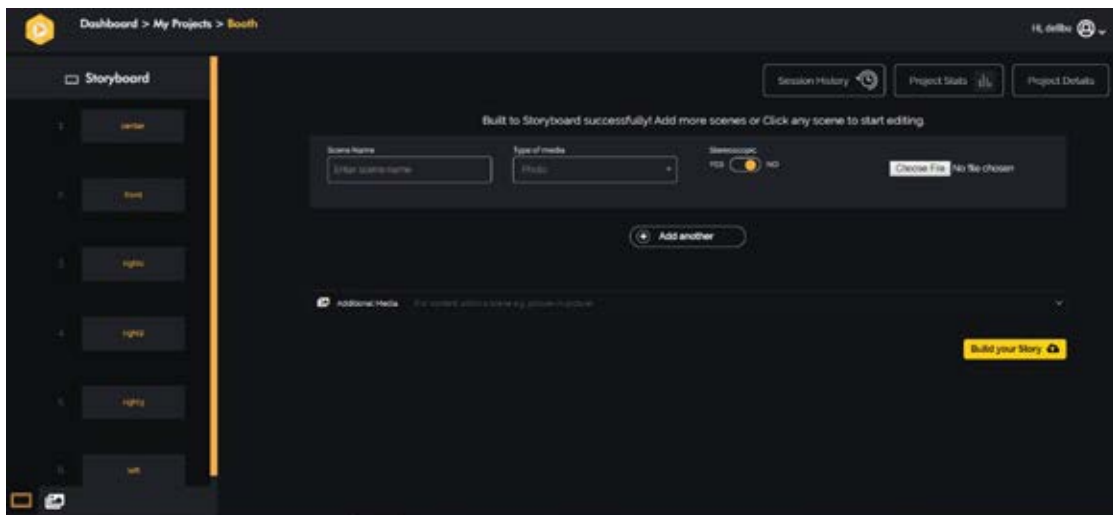
Figure 12 – Storyhive: Screen Creator Page

While developing content, one can add "markers" which allow interaction on the platform in each scene. The types of markers one can add to design interaction in the scenario are Text, Media, Assessment, Find Me, and Voice Recorder. When finish adding, one clicks save to upload the content to the platform as seen in figure 13. If there are voice recording files, they will be shown in the area of "Session History" as seen in following figure 14 .
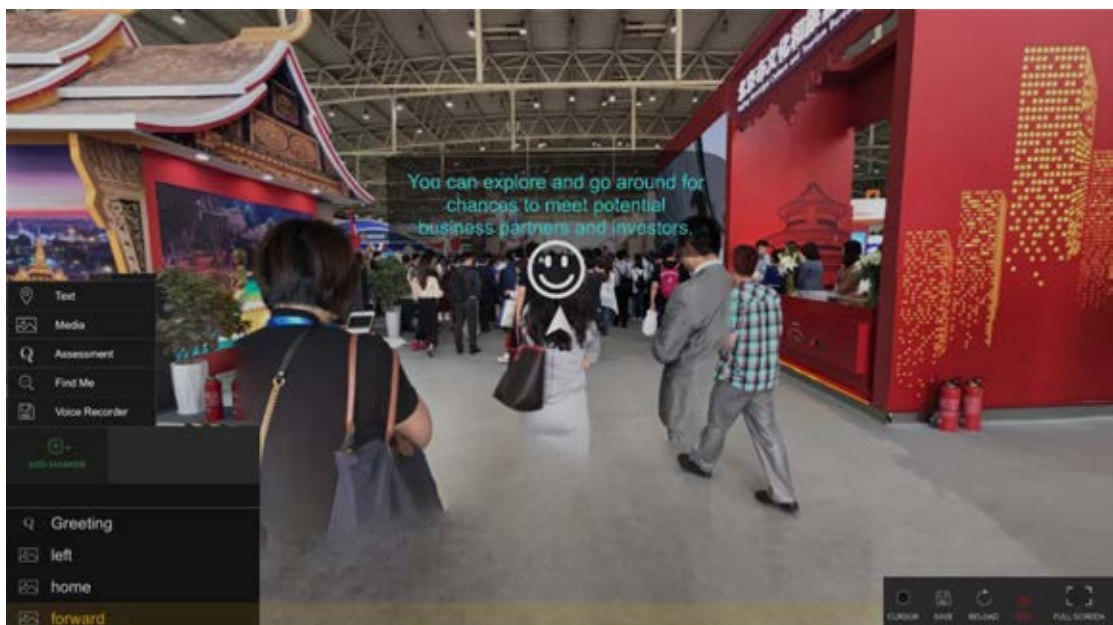
Figure 13 – Storyhive: Content Creator Page
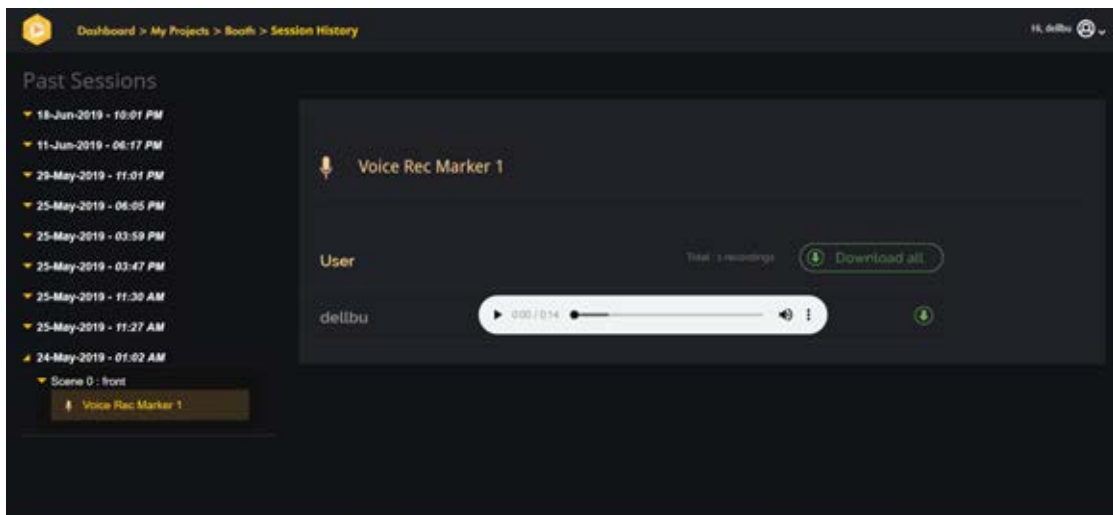
Figure 14 – Storyhive: Download Voice Record Page

Here is an example scenario developed in this prototype. This scene shows the "Go Left" situation in which the technopreneur meets, greets, and starts a conversation with a potential investor. Markers appear in the left scene. The content can be set to appear when a test subject looks at the markers, or the content can be set to always show in the scene. For example, when one looks and points the cursor to an "i" icon, the previously supplied information from what we filled will appear, and then disappear when the cursor is moved as seen in figure 15.
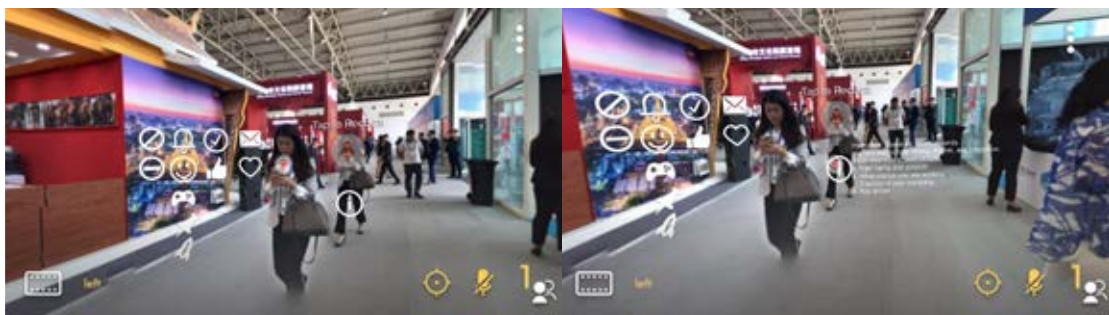
Figure 15 – Storyhive: A Sample of Developed Scenario

The finished prototype is performed on the Storyhive application, downloaded from the Apple App Store and Google Play. The captured screens in figure 16 show each interface how it will work.
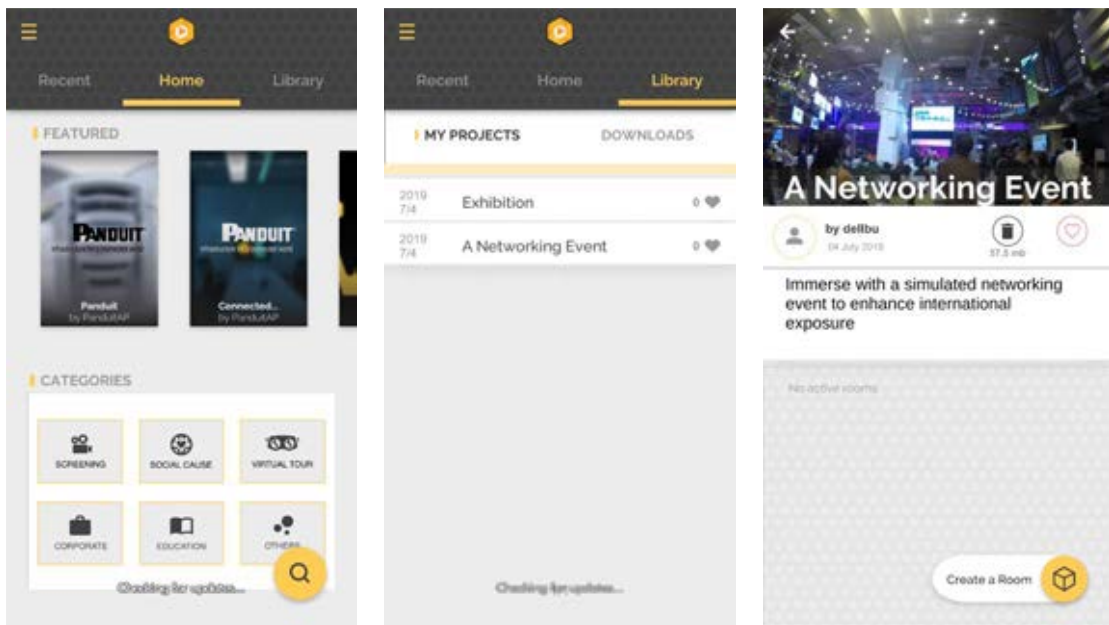
Figure 16 – Storyhive: Application Interface

After selecting "Create a Room", a user may select the created scenes. For this prototype, the user may move around using a cursor. As the VR headset used in this research project had no build-in touchpad, another device was required to monitor the user directions. Two types of screen can be viewed--the standard mobile screen, and a VR Mode used with a VR headset.
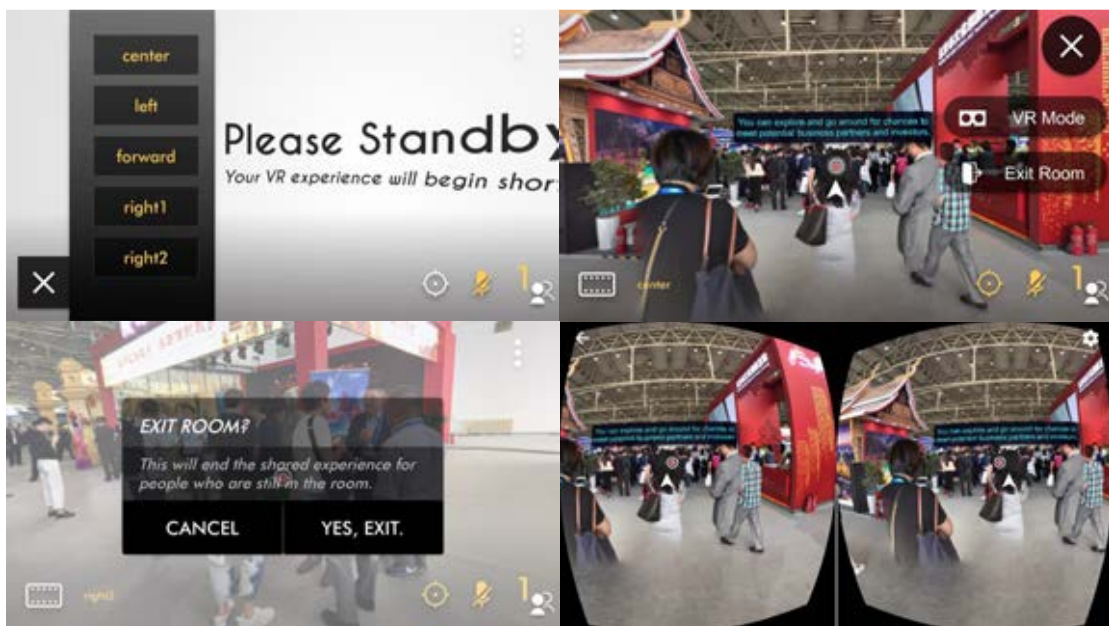
Figure 17 – Storyhive: Each Actions from the Application

4.5 Result of Phase 5: Validation Test of Prototype Solution

Before the validation test, the researcher prepared a QR code for Google form access, an iPhone each for the test subject and the controller, and a VR headset.

Figure 18 – Preparation for Prototype Test

The prototype was tested on 42 trial subjects. This exceeded the proposed target of 30 samplings because 12 of the tests had to be removed after reviewing the screening questions. Pictures of subjects during the prototype test are shown below.

Figure 19 – Storyhive: Some of the Subjects

Of the 42-test subject, 12 were removed via screening questions due to 10 already having international experience and 2 expressing no interest in going to a networking event. The collected data is shown in the following table.

Screening Questions	Number	Percentage (%)
Currently/want to be a technopreneur (tech startup founder)		
Yes	30	100.0
No	0	0
Have an international education		
Yes	0	0.0
No	30	100.0
Have international work experience		
Yes	0	0.0
No	30	100.0
Travel aboard more than 4 times a year		
Yes	0	0.0
No	30	100.0

Table 12 – Screening Results

The following table shows that two testers gave reasons for not going to a networking event as Cost factor and Not Interested.

Not interested	Number	Percentage (%)
The reason not going to a networking event		
Cost	1	50.0
Time	0	0.0
Not Interested	1	50.0

Table 13 – Result of The Reason Not Going to a Networking Event

Of the 30 test subjects, 18 (60%) had been to a networking event, but only seven of them (38.8%) had pitched to business partners or investors. Of those seven, five (71.4%) were rejected by potential partners/investors or had failed in the pitching stage. Although twelve of the test subjects had never gone to a networking event, all showed interest in attending one in the future.

Exposure to Networking Event and Pitching	Number	Percentage (%)
Had pitched to business partners or investors		
Yes	7	23.3
No	23	76.7
Had been rejected by partners/investors or failed in pitching stage		
Yes	5	16.7
No	25	83.3
Have a confidence problem in communication		
Yes	19	63.3
No	11	36.7
Have been to a networking event		
Yes	18	60.0
No	12	40.0
Interested in going to a networking event		
Yes	30	100.0
No	0	0

Table 14 – Exposure to Networking Event and Pitching Result

The demographic data shows most respondents were in the age range of 26-30 years old (50.0%), followed by 21-25 years old (33.0%) and 16-20 years old (13.0%).

Age Range	Number	Percentage (%)
Below 16 years old	0	0.0
16 – 20 years old	4	13.0
21 – 25 years old	10	33.0
26 – 30 years old	15	50.0
31 – 35 years old	0	0.0
36 – 40 years old	1	3.0
More than 40 years old	0	0.0

Table 15 – Age Range of Participants

The most frequent business field selected by participants was Business Service, followed FoodTech and TravelTech.

Industry	Number	Percentage (%)
AgTech	0	0.0
Business Service	6	20.0
E-commerce	4	13.0
EdTech	3	10.0
FinTech	0	0.0
FoodTech	5	17.0
HealthTech	2	7.0
Lifestyle & Entertainment	2	7.0
Transportation/Logistics	2	7.0
TravelTech	5	17.0
Others, Telecommunication	1	3.0

Table 16 – Domain of Business

A majority of the tested technopreneurs (76.7%) had never attended an international networking event or international conference while 40.0% had never gone to a local networking event or conference.

Frequency of going to networking event/conference per year	Number	Percentage (%)
Going to local networking event/conference per year		
10 times or more	0	0.0
5-10 times	0	0.0
3-5 times	2	6.7
1-2 times	16	53.3
Never	12	40.0
Going to international networking event/conference per year		
10 times or more	0	0

Frequency of going to networking event/conference per year	Number	Percentage (%)
5-10 times	0	0
3-5 times	1	3.3
1-2 times	6	20.0
Never	23	76.7

Table 17 – Frequency of going to networking event/conference per year

The test subjects expressed an increase in confidence after experiencing the VR simulation, indicated by the willingness to engage with potential partners or investors, and self-reported confidence levels. Whereas five participants indicated they would never engage with a new partner/investor at a networking event before experiencing the prototype test, all respondents showed at least some willingness to engage after the test. According to the survey responses, all users felt more confident after the prototype test. The data of before and after prototype test in separate table can be found in Appendix C.

Transitiveness	Before Prototype Test	After Prototype Test	Change (%)
You will walk to new partner/investor and talk to them in networking event			
5 -Always	0, 0.0%	8, 26.7%	
4- Often	2, 6.9%	12, 40.0%	
3- Sometimes	18, 60.0%	8, 26.7%	
2 – Occasionally	5, 16.7%	2, 6.7%	
Never	5, 16.7%	0, 0.0%	
$\overline{x}$	2.57	3.87	51%
S.D.	0.86	0.90	5%
Confidence level when you talk to target partner/investor			
5- Extremely confident	4, 13.3%	1, 3.3%	
4- Very confident	0, 0.0%	20, 66.7%	
3- Moderately confident	18, 60.0%	6, 20.0%	
2 - Slightly confident	8, 26.7%	3, 10.0%	
Not at all confident	0, 0.0%	0, 0.0%	

Transitiveness		Before Prototype Test	After Prototype Test	Change (%)
	$\overline{x}$	3.00	3.63	21%
	S.D.	0.91	0.72	-21%

Table 18 – Transitiveness of Confidence Level after Prototype

The feedback indicates that the prototype succeeded in providing an immersive environment, as 19 participants (63.4%) felt the experience was extremely or very immersive. Twenty-eight participants (93.3%) strongly agreed or agreed that using a VR simulated networking event could enhance international exposure. Finally, all participants would recommend the product to their friends or team.

Feedback		Number	Percentage (%)
Immersive level is the simulated networking event			
5- Extremely Immersive		2	6.7
4- Very Immersive		17	56.7
3- Moderately Immersive		9	30.0
2 - Slightly Immersive		2	6.7
Not Immersive		0	0.0
	$\overline{x}$	3.63	
	S.D.	0.72	
Agree that the VR simulated networking event will enhance international exposure			
5- Strongly Agree		16	53.3
4- Agree		12	40.0
3- Neither agree nor disagree		2	6.7
2 - Disagree		0	0.0
1 – Strongly Disagree		0	0.0
	$\overline{x}$	4.47	
	S.D.	0.63	

Feedback	Number	Percentage (%)
Agree if you keep practicing with the VR simulated every day, you would be able to communicate well with partners/investors		
5- Strongly Agree	11	36.7
4- Agree	19	63.3
3- Neither agree nor disagree	0	0.0
2 - Disagree	0	0.0
1 – Strongly Disagree	0	0.0
$\bar{x}$	4.37	
S.D.	0.49	
Will recommend the product to your friend/team		
Yes	30	100.0
No	0	0.0

Table 19 – Prototype Feedback

CHAPTER V

CONCLUSION

The research results in relation to the stated objectives may be summarized in the following findings:

Research Objectives	Findings
1. **To survey technology that can be used in immersive learning to enhance international exposure in Thai technopreneurs such as virtual reality, artificial intelligence, voice recognition, and emotion recognition.**	A survey of technology shows that the only practical immersive learning technology currently available consists of voice and emotion recognition and virtual reality. Virtual reality can be used to increase communication confidence levels by simulating networking events, acting as a buffer to real-world high-pressure situations. Voice recognition combined with virtual reality could provide a more interactive learning experience for users by allowing them to hear their own voice. The emotion recognition technology could be used to evaluate effectiveness of learning by detecting changes in confidence or other emotions.
2. **To observe and explore networking event scenarios, interviewing participants in order to recreate a realistic virtual network event for use in immersive learning.**	This study found that the most highly recommended scenario for recreation of a realistic virtual network event should be prompting subjects to deliver an "elevator pitch" to potential business partners or investors in the networking area with the time limited between 30 seconds and 3 minutes.
3. **To create a prototype of a virtual networking event and conduct a validation study**	The sample size of 30 valid test subjects showed that the prototype simulated network event increased willingness to engage with potential partners or investors, and also increased confidence levels. Twenty-eight participants (93.3%) either strongly agreed or agreed that the VR simulated networking event would enhance international exposure. Nineteen

Research Objectives	Findings
	(63.4%) felt the prototype was extremely or very immersive. All participants would recommend the product to their friends or team.

Table 20 – Key Findings Related to Research Objectives

5.1 Discussion

The new knowledge retrieved from this study is the potential startup activity types for new startup founders. For example, hackathon event, luncheon with investors, full table dining, approaching others in an event, joining exist conversation. For frequent event joiner could be easy, but the new ones could find it difficult to nicely fit in.

From an in-depth interview in the methodology, one interesting point is that most international investors are not interested to invest in Thai startups with no international exposure. The first reason is international investors' perspective about pure Thai technopreneurs is that most of them cannot keep their commitment to business activities. As a result, this could be a case study for Thailand's new generation that should consider obtaining international experiences so that they could secure international business opportunities. Secondly, the conversation in between could not be further developed because they lack local communication skills.

From the validation test's result, there is a conflict point at the confidence levels before and after the prototype test. The percentage of extremely confident tester after using the prototype has a noticeable decline from 13.3% to 3.3%. Assuming that the high percentage of 13.3% could present from the non-attended networking event and they could possibly think that it was easy, so have had high confidence level. However, after using the prototype they could see the simulated scenario that did not match with what they thought they would face. As a result, the proportion has a decrease. However, looking at weighted average feedback of both willingness to walk to business partners in the future and confidence level, the willingness average has still risen over 51% from 2.57 to 3.87. The confidence level average has also increased 21% from 3.00 to 3.63. Both of them have slightly changes in standard derivation 0.86 to 0.90 and 0.91 to 0.72 accordingly.

This product solution, immersive learning technology could apply 'Freemium' as a business model. The ability to help Thai technopreneurs to enhance international exposure could be supported by the Thai government. Because this product innovation has an objective to develop and support Thai startups the same vision with Thai startup supporter department. Therefore, government funding is required at the first stage to acquiring funding to develop the solution that can be provided for free. Moreover, crowdfunding like Kickstarter could also be an option to start the journey with. Afterward, a monthly subscription can be subscribed for more features added from basic scenarios and reactions. To build more partnership, this solution has the potential to cooperate with qualified English language schools like British Council or AUA Language Center to increase credibility for the solution. Moreover, in an international networking event, there are surely always "international" which means there are people from various countries. To add more accent of speakers to the solution could be more real in an international context such as Chinglish (Chinese English) and Singlish (Singaporean English).

5.2 Recommendation

As this research was limited by a small sample size, budget, and available technology, areas for future research include the following.

Conceptual Framework Area

- Explore in greater depth the concept and factors of "international exposure" and how to simulate it in order to increase startup business success.
- Technical language proficiency such as proper usage and vocabulary can be measured by test scores such as measuring communication effectiveness for persuasive skills in soliciting funds for a startup.
- Explore how immersive learning like this prototype could be used to improve global mindset or to measure "global mindset".
- Include more scenarios that can be a preparation for startups to be acknowledged and practiced before going to the reality engagement such as pitching on stage and talking to potential investors

Methodology Area

- Conduct in-depth interviews with foreigner business people and investors to determine if they have the same views as the Thai subjects of this study.

- Conduct more interviews with a wider range of young Thai entrepreneurs instead of non-randomly selected.

- Longer exposure through a more thorough suite of scenarios could more easily measure the effectiveness and potential of the prototype validation test.

Prototype Technology Area

- Explore technologies that can provide automatic interaction on a VR platform.

- Study ways to use Artificial Intelligence to improve immersive learning.

- Conduct experiments with face recognition technology to determine whether it can accurately capture emotions, attention level, or interest of potential partners or investors.

- Measure confidence might by using a Japanese product called Empath. Empath uses artificial intelligence to detect emotions from voice in real-time. Empath detects four emotions--joy, calmness, anger and sorrow—as well as detecting energy level in a category called "vigor," by analyzing multiple physical properties of the voice (Empath, 2018).

Prototype Content

- Include other dimensions of entrepreneurial development that increase their chances of success that were unaddressed by this research.

- Include more scenarios that can be a preparation for startups to be acknowledged and practiced before going to the reality engagement such as pitching on stage and talking to potential investors.

- To add more accent of speakers to the solution could be more real in an international context such as Chinglish (Chinese English) and Singlish (Singaporean English).

Appendix A

During the observations from technical visit and networking events, the researcher found some answers from the interviewees that are interestingly related to the study.

Group 1: A Technopreneur

1. Mr. Shinichi Ata, CEO, SoftBank Technology Corp. (Presentation of technology trends and company's plan plus Q&A session)

Question	Answer
1. **Presentation of technology trends. What are some technology trends in Asia related to technopreneurs?**	Thai entrepreneurial consciousness in Information Technology is high, even higher than Japanese.
2. **How does your company see the important of English language for employees?**	SoftBank rewards 1-million-yen scholarships to employees who score 900 points or higher on the TOEIC English test.

Group 2: Two Business Partners (Investor/Judge/Speaker)

1. Mr. Kawee Pokaratsiri, Senior BD Executive, True Incube

Question	Answer
1. **Is international exposure one of the factors that help technopreneurs to be professional or smart?**	Yes, because they will get to meet and experience so many people, culture, and situations that can be learnt and practiced from. For example, international exposure can help improve problem-solving skills
2. **If there were a VR simulation to allow Thai technopreneurs to practice talking with investors or partners, which situation would you suggest them to practice on? Do you think it will be able to help them in a real-world situation?**	Technopreneurs should practice introducing themselves and their business to investors or partners. It would help in a real-world situation, because it allows technopreneurs to practice with two-way communication.

2. Dr. Asama Kulvanitchaiyanunt, Co-founder of Data Driven Business by Coraline (Judge at Rising X Startup Runway Demo Day, a Korean startup competition)

Question	Answer
1. Was the result of this competition affected by English language skill level of the competitors?	English is the key. Since most of them could not communicate in English, we could not understand what their products were.

Appendix B

Group 1: Technopreneurs

1. Mr. Vasa S. Iamsuri, Co-founder & CEO, Fastwork

Question	Answer
1. **What are recommend methodologies and conversation when approach VC or new partners?**	The best way to get in touch with a VC is always for them to reach out to you – but that's a luxury most early companies don't have. Another way is to get one of their portfolio companies (companies that they've invested in) to refer you to them. And for any entrepreneur, that should be easy; reach out to the CEO (via LinkedIn, email, or any normal way you would reach someone), meet them and tell them about your company, get them interested/on your side, and ask if they can introduce you to their investor. Or if you already have investors, ask your investor to make the introduction. For the conversation part, while it varies for each type of investor (traditional, corporate, syndicate, angel), all will have different investment theses and aspect(s) that they value most, you should always go over your product, market, competitors and team (there are many pitch deck samples online that they can use and see which best suits describe their business).
2. **How do you prepare before walking to VC or new partners?**	Study them; find out who they are, what they did before (if they are ex-founders, ex-bankers, …), types of businesses they prefer (some only invest in B2B, some don't invest in hardware/IoT, …), their investment thesis (some only invest in regional businesses, some only country specific, …), typical cheque size (some don't invest more than $500k,

Question	Answer
	some only invest $2m+), and any other information that could help you impress them (for example, some like high margin businesses, some like to see strong/clear potential synergy with their parent company (mostly in CVC cases), …) Also, equally important (if not more) is to know your business really well, and prepare to answer typical/potential questions such as, for example, if you're a new player in the ecommerce space in Thailand; a potential/likely question would be how are you different from Lazada/Shopee?
3. What would you recommend to non-inter technopreneur to be smarter/more professional in terms of networking?	Local founders tend to be afraid to meet total strangers (especially international VCs) and only connect with those they have previously met in person (most of the time at events), but not all VCs attend events, and a business shouldn't depend on the slight chance of the founder meeting a VC at an event if the market opportunity is now – leave your comfort zone and don't be afraid to connect with the most suitable/preferable VC for your business.
4. What are the things Thai technopreneur currently lack of to success in terms of their characteristics, gestures, conversation, language?	As long as the entrepreneur is humble and polite, language should not be the barrier to success.
5. What are the key skills Thai technopreneur should have to success apart from products and markets?	Focus on the key value proposition (Investopedia), and talent acquisition; many local founders tend to think they need to be able to do it all themselves and end up spending (wasting) too much time trying to learn how to do it all – sometimes it's better to

Question	Answer
	delegate it to someone who already knows how to (do it better).
6. If there is a VR simulation for Thai technopreneurs to try and practice talking with investor/partner, which situation do you suggest them to practice on? and do you think it will be able to help them thru the reality?	Practice on getting rejected by VCs, and how to respond/maintain the relationship after that. And answering hard questions about your business (for example, when being compared to an international competitor/market leader)
	Yes, but only if done incredibly well; VR simulation may be able to help – though nothing beats real experience.

2. Ms. Methawee Thatsanasateankit, CEO, Dress the Dream

Question	Answer
1. What are some methodologies technopreneurs could use when approaching VC investors or new partners?	Technopreneurs should identify investor needs by practicing deep listening and empathetic skills. They should ask smart questions which help gain useful insight. Find the related topic between themselves and the VC to carry on the conversation.
2. What do you prepare before talking to a VC or new partners?	Practicing pitching at least 100 times. Prepare many types of pitch for different situations.
3. How do you use referrals when approaching new target partners?	Use referrals at the beginning of a conversation to show mutual connection. This will help potential partners feel more comfortable to start a conversation.

Group 2: Business Partners (Investor/Judge/Speaker)

1. Mr. Thanachat Tangsriwong, Chief Representative of Bangkok Office, CyberAgent
   Ventures

Question	Answer
1. **What is the recommend process to make an appointment to meet you? Do you prefer an appointment beforehand or coincidentally in the event?**	For public networking event, if he doesn't have any appointment after, he is open for any talk, share or elevator pitch for idea or partnership. No phone call if never know each other.
2. **In terms of characteristics, gesture, tone, language, what is the first thing you look for when talking to technopreneurs? and at which point you decide to continue the conversation?**	Smooth conversation starter by greeting and introducing yourself in natural ways such as "Are you Mr.A? I'm doing an XXX. Are you interested in this topic at the moment?" Use open-end questions not force the conversation. Pre-study whom you are talking to.
3. **How much do you value referral connection?**	Referred person is more favor/beneficial. However, he will ask back the person who referred every time before continue talking with the referred person to avoid conflict of interest or ruin a relationship. And he is valued when someone refer someone to him or vice versa because it must pass the analyze if there is beneficial to another person like a stamp with the referred person name.
4. **What are the things Thai technopreneur currently lack of to success in terms of their characteristics, gestures, language?**	Confident and Eager to approach or communicate to investors leads to more opportunities. International exposure creates confidence and eager to things when they need. So, Thai is needed to take that chances, don't be shy! But the content is still matter. Keep the manner, no cold call. Too much direct sale will lead to bad impression. Though, English language is not

Question	Answer
	that the killing factor, but definitely will create more opportunities.
5. **What are the key skills Thai technopreneur should have to success?**	Be confident. Change the mindset of the limitation you cannot do but try to do things you are afraid of in order to test what you should improve, or it might be good already but you just never try. Practicing will also help. Practice makes perfection.
6. **If there is a simulation for Thai technopreneurs to try talking with investor/partner, which situation do you suggest them to practice on? and do you think it will be able to help them thru the reality?**	Elevator pitch combined with all the good you have if only the goods he is not interested in, then not even tell the bads. Summarize and speak only the Strengths and Opportunities. Yes, virtual experience in networking event will help decreasing the factor of shyness because 1) as a trial, can practice the conversation thru the virtual world first, not much pressure like in the reality 2) as a buffer before meet the reality if they are afraid of talking to strangers. Testing the situation and practicing thru will definitely help.
7. **Suggestion for the solution**	It would be nice if there is an AI tool that can detect pattern of facial expressions of the one you talk to that they have anxiety, a lot of question marks, are not interested, and totally ignoring.

2. Mrs. Nichapat Ark, Thailand Coverage, Openspace Ventures

Question	Answer
1. **What is the recommended process to get to talk to you? Do you prefer an appointment beforehand or a chance encounter in the event?**	After the seminar and speaker session in conference or networking event, most speakers will normally spare some time for Q&A and networking. First and most importantly, build the connection at the starting of a conversation by sharing information you know about them. For example, "I listened to your speech

Question	Answer
	on the previous stage and I'm interested in the topic." Secondly, introduce yourself and your business, then ask for advice or support.
2. **What are the things Thai technopreneurs currently lack to succeed in terms of their characteristics?**	Communication skills is one of the most important skills that technopreneurs lack. This includes not only verbal, but physical, emotional, and interpersonal skills. Moreover, technopreneurs need to study beforehand about a person with whom they want to talk. For example, some investors don't do pre-seed or seed, but only Series A investments. Additionally, they need to develop a good pitch for introducing themselves and their business, and what they need in 2-3 minutes.
3. **If there were a VR simulation to allow Thai technopreneurs to practice talking with investors or partners, which situation would you suggest them to practice on? Do you think it will be able to help them in a real-world situation?**	They should practice the very first conversation of introducing oneself and one's business to be short and precise--approximately 2-3 minutes. It would definitely help by practicing, like a pilot flight simulation, for example. Most technopreneurs do not get to deeply practice communication skills compared to their skills with technical products and business.

3. Mr. Aitthisak Promthanapat, Investment Manager, NVEST Ventures

Question	Answer
1. **What are the things Thai technopreneurs currently lack to succeed in terms of their characteristics?**	Most Thai startups lack vision. They have unclear future plans even when they are in late stages like series A.
2. **What are the key skills Thai technopreneurs should have to**	They should learn how to grow their companies, such as through marketing and partnerships.

Question	Answer
succeed apart from their products or markets?	
3. **If there were a VR simulation to allow Thai technopreneurs to practice talking with investors or partners, which situation would you suggest them to practice on? Do you think it will be able to help them in a real-world situation?**	The should practice an intense presentation in a meeting room. Yes, a VR simulation would help. The simulation could add a mentor to adjust sentences and to ask common sets of questions to technopreneurs to practice on Q&A.

4. Mr. Warodom Khamphanchai, Ambassador, Bangkok A.I

Question	Answer
1. **What is the recommend process to make an appointment to meet you? Do you prefer an appointment beforehand or coincidentally in the event?**	Email or LinkedIn, prefer an appointment to be made beforehand.
2. **In terms of characteristics, gesture, tone, language, what is the first thing you look for when talking to technopreneurs? and at which point you decide to continue the conversation?**	All of these combined, not really focus on specific characteristics. The first thing to look for probably if we have the same passion and interests.
3. **How much do you value referral connection?**	Value referral very much.
4. **What are the key skills Thai technopreneur should have to success?**	Language, communication skill, and technology
5. **If there is a simulation for Thai technopreneurs to try talking with**	Pitching to investor might be very interesting like simulation in real scenario that the technoprenuer try

Question	Answer
investor/partner, which situation do you suggest them to practice on? and do you think it will be able to help them thru the reality?	to pitch to investor in shark-tank like style. It might probably help them to gain confidence when face with real situation.

5. Ms. Shannon Kalayanamitr, Shark, Shark Tank Thailand

Question	Answer
1. **What is the recommend process to make an appointment to meet you? Do you prefer an appointment beforehand or coincidentally in the event?**	No, not mind being greet in any event if only she is not very busy.
2. **What are the things Thai technopreneur currently lack of to success in terms of their characteristics, gestures, language?**	Regional/global mindset by practicing simulation or on hand training
3. **What are the key skills Thai technopreneur should have to success?**	Resilience. Be confident.
4. **If there is a simulation for Thai technopreneurs to try talking with investor/partner, which situation do you suggest them to practice on? and do you think it will be able to help them thru the reality?**	A simulation of an elevator pitch to introduce yourself and your business in networking events. Yes, she had did some simulation with her previous which could be a key developer.

6. Ms. Oranuch Lerdsuwankij, CEO & Co-founder, Techsauce

Question	Answer
1. **What is the recommend process to make an appointment to meet you?**	Meet in the event after stage or coincidentally is fine, but in the situation normally there will be many

Question	Answer
Do you prefer an appointment beforehand or coincidentally in the event?	persons that would also like to talk to the speakers. The context is then required to be focus and have call to action. The length should not be more than 1 minute. There are thousands of name cards in her office. Only some wow introduction (extensive corporate background or 10+ years domain expertise) will get her to remember if not referral connection.
2. **In terms of characteristics, gesture, tone, language, what is the first thing you look for when talking to technopreneurs? and at which point you decide to continue the conversation?**	Normal business conversation etiquette is recommended. Avoiding eye contacts is not recommended. Be nice but not too nice to become suspicious. Mutual interest and win/win benefit are the tickets to continue the conversation.
3. **How much do you value referral connection?**	Referral connection is very beneficial for her to be able to remember anyone. For example, Mr.A is an influencer to her. When Mr.A introduces Mr.B to her how good he is. She will most likely to remember and recognize Mr.B.
4. **What are the things Thai technopreneur currently lack of to success in terms of their characteristics, gestures, language?**	There is an international VC frankly spoke to her that he and his friends (other international VCs) would not invest in Thai startups that is founded by technopreneurs who have no international experience. Because non-inter Thai technopreneurs tend to have no commitment and resilient to be able to build and scale startup business.
5. **What are the key skills Thai technopreneur should have to success apart from ability of products/markets?**	When anyone would like to found their own startup, if they do not have international experience, they then need to have strong background in that specific area. Getting a domain expertise, such as having 15 years of extensive working experience in financial industry in a top-ranked securities company in Thailand

Question	Answer
6. **If there is a simulation for Thai technopreneurs to try talking with investor/partner, which situation do you suggest them to practice on? and do you think it will be able to help them thru the reality?**	1. Focus introduction of oneself and business 2. On stage pitching 3. Q&A session 4. Joining conversation when there are 3 persons already talking and you will be joining as the fourth person

7. Mr. Rawit Hanutsaha, CEO of Srichand and sasi cosmetics

Question	Answer
1. **What is the recommend process to make an appointment to meet you? Do you prefer an appointment beforehand or coincidentally in the event?**	He doesn't mind being approach in an event. Normally, the setting in an event is not suitable for long talk. Suggest introducing yourself and business short, polite and then exchange contact for further appointment, then drop an email. Suggest not to demand attention or pitch if the partner is busy or engaging in something.
2. **In terms of characteristics, gesture, tone, language, what is the first thing you look for when talking to technopreneurs? and at which point you decide to continue the conversation?**	He is trying to overlook on the first impression as long as it is not too rude. He gives it as benefit of the doubt and move on for the content.
3. **How much do you value referral connection?**	Referral connection is valued, especially from the person whom he values.
4. **What are the things Thai technopreneur currently lack of to success in terms of their characteristics, gestures, language?**	-

Question	Answer
5. **What are the key skills Thai technopreneur should have to success?**	Thai technopreneurs should have a vision of an international scheme in the first place, quoted from Mr. Patai Padungtin
6. **If there is a simulation for Thai technopreneurs to try talking with investor/partner, which situation do you suggest them to practice on? and do you think it will be able to help them thru the reality?**	1. Practice pitching 3-5 minutes 2. Q&A - Important Fact and Figure should be in mind.

8. Mr. Weera Chearanaipanit, Vice President: Head of SME Network, Kasikorn Bank SME

Question	Answer
1. **What is the recommended process to get to talk to you? Do you prefer an appointment beforehand or a chance encounter in the event?**	After the seminar and speaker session in a conference or networking event is the appropriate time to talk to speakers. There is no need to make an appointment, but one needs to be well-prepared for attracting the interest of the speaker. However, after the speaker session, there are often many people want to talk to the speakers. Speakers will not give too much time for each. Therefore, the first meeting should be just small talk of not more than 5 minutes to avoid using others' time and to give both opportunities to meet other people. The solution is to ask to exchange contact information. One should arrive at the event before the event starts. It is the preparation time for speaker and after that there will be some extra time to talk before the event. The conversation here should be just greeting or small talk. During the session, it is good to show interest and participate in the content. Then after the session, the speaker would be more comfortable and talkative.

Question	Answer
2. In terms of characteristics, gestures, tone, and language, what is the first thing you look for when talking to technopreneurs? At which point you decide to continue the conversation?	The first impression always counts. One should dress nicely and display a nice personality to receive a favorable first judgement from strangers. When networking, it is good to dress in the way that one wants to be remembered by others. For example, add a little gimmick with a bowtie or attractive but appropriate dress. For new startups/technopreneurs, it is good to use a screened t-shirt of company brand as a name card. Moreover, for a first conversation, be a good listener to let others know of one's interest. When there is opportunity, start with small talk on common topics such as those covered in the event or the event agenda. Follow that with more specific topics.
3. How much do you value referral connections?	The referral from others is very important. It helps increase the opportunity to meet someone or gain support. Moreover, when talking to a new person and another party joins, it is good to invite them into the conversation exchange introductions. It produces a grateful feeling and shows interest in other people.
4. What are the things Thai technopreneurs currently lack to succeed in terms of their characteristics, gestures, or language?	First, technopreneurs need to have an objective when attending networking events. Thai technopreneurs will go around and waste the time in the event for a half day. They should research ahead of time about key persons in the event for partnership and referral opportunities. For pitching, it is good to come practice at the event before the event starts. They need to be a good listener in any conversation. Technopreneurs should make a well-selected choice of words, avoiding the use of technical terms for general listeners, for example.

Question	Answer
5. **What are the key skills Thai technopreneurs should have to succeed apart from their abilities in their products or markets?**	They should have networking skills to find new partners for support or referral.
6. **If there were a VR simulation to allow Thai technopreneurs to practice talking with investors or partners, which situation would you suggest them to practice on? Do you think it will be able to help them in a real-world situation?**	The recommend situations are in conference areas or at startup booths. For a networking area in a conference, the recommended scene would be to walk up to someone you already know that is talking to an unknown person and try to blend in the conversation nicely.
7. **What do you prepare before talking to a VC or new partners?**	Prepare some work before going to networking events. Study ahead on events details, activities, and speakers' information in order to easily fine-tune when talking to others and especially the speakers. Other than conversation, prepare adequate name cards or Line id to promptly exchange contact.

Appendix C

Transitiveness	Number	Percentage (%)
Before Prototype Test		
You will walk to new partner/investor and talk to them in networking event		
5 -Always	0	0.0
4- Often	2	6.9
3- Sometimes	18	60.0
2 – Occasionally	5	16.7
Never	5	16.7
Confidence level when you talk to target partner/investor		
5- Extremely confident	4	13.3
4- Very confident	0	0.0
3- Moderately confident	18	60.0
2 - Slightly confident	8	26.7
Not at all confident	0	0.0
After Prototype Test		
For any next event, you will walk to new partner/investor and talk to them in networking event		
5 -Always	8	26.7
4- Often	12	40.0
3- Sometimes	8	26.7
2 - Occasionally	2	6.7
Never	0	0.0
For any next event, Confidence level when you talk to target partner/investor		
5- Extremely confident	1	3.3
4- Very confident	20	66.7
3- Moderately confident	6	20.0
2 - Slightly confident	3	10.0
Not Confidence	0	0.0

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      innovation. *California Management Review, 57*(2), 66-90. doi:10.1525/cmr.2015.57.2.66

VITA

NAME	Siripen Buranapatimakorn
DATE OF BIRTH	5 December 1992
PLACE OF BIRTH	Bangkok
INSTITUTIONS ATTENDED	BBA (Finance), Mahidol University International College
AWARD RECEIVED	Selected Paper Award from World Conference on Business and Management & Global Great Debate 2019entitled "Immersive Learning to Enhance International Exposure in Thai Technopreneurs: Improving the Skills for Success of Thai Technopreneurs by the Use of Immersive Learning to Simulate International Exposure", Malaysia, June 2019