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IAMBEST
KMITL PRINCE OF CHUMPHON
29-31 MAY 2024

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The 5th International Conference
Management, Business Administration,
Social Sciences & Humanities **Vol.4**

May 29 - 31, 2024

Deevana Plaza Krabi Aonang, Krabi Province, Thailand
Organized by King Mongkut's Institute of Technology Ladkrabang,
Prince of Chumphon Campus, Chumphon Province, Thailand

Conference Proceedings The 5th

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Organized by:

King Mongkut's Institute of Technology Ladkrabang, Prince of Chumphon Campus and
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MESSAGE FROM THE EXECUTIVE VICE PRESIDENT KMITL, PRINCE OF CHUMPHON CAMPUS



The 5th International Conference on Informatics, Agriculture, Management, Business Administration, Engineering, Science and Technology (IAMBEST 2024) along with the 9th National Conference on Informatics, Agriculture, Management, Business Administration, Engineering, Science and Technology are the conference for academics, experts, and researchers in the eight fields. The conferences are hosted by the King Mongkut's Institute of Technology Ladkrabang (KMITL), Prince of Chumphon Campus during the 29th – 31th of May 2024. The aim of this conference is the exchange stage of idea, knowledge, and research between the researchers from various fields. The continue development of the research provides the exchange the knowledge, connection, collaboration, and integration each other's. All above make the development the community, society, and country.

As the chairman of the IAMBEST 2024, I sincerely thank all committee members for your time and determination of organizing this wonderful conference. I thank all attendees and guests for sharing your research and innovation. The success of this conference is from all of you. I wish exchanging of idea and sharing of knowledge from this conference will give you another step to advance your knowledge and technology and to benefit your communities and countries.

Best wish to all of you.

(Assoc. Prof. Dr. Kamronwit Thipmanee)
Executive Vice President,
KMITL, Prince of Chumphon Campus
Chairman of the Organizing Committee



Keynote Speaker

Topic: Driving Technology and Innovation
with Bio-Circular-Green Economy

Prof. Dr. Apanee Luengnaruemitchai

CHAIRPERSON, Energy, Chemicals and Biomaterials
Program Board from Program Management Unit
for Competitiveness (PMUC)



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Program
The 9th National Conference and The 5th International Conference 2024
on Informatics, Agriculture, Management, Business Administration,
Engineering, Sciences and Technology (IAMBEST 2024)
May 29–31, 2024
Deevana Plaza Krabi Aonang Hotel, Krabi Thailand
Organized by King Mongkut's Institute of Technology Ladkrabang,
Prince of Chumphon Campus

May 29, 2024		
13.00 – 17.30	Registration and Installation of poster and soft file presentation	Hornbill Ballroom 1&2
May 30, 2024		
08.00 – 08.50	Registration and Installation of poster and soft file presentation	Hornbill Ballroom 1&2
09.00 – 09.20	Open Ceremony	Hornbill Ballroom 1&2
	The 9 th National Conference and The 5 th International Conference 2024	
09.20 – 09.35	Coffee break	Foyer
09.35 – 10.10	Keynote Speaker	Hornbill Ballroom 2
	Topic: Driving Technology and Innovation with Bio-Circular-Green Economy	
	Prof. Dr. Apanee Luengnaruemitchai	
	CHAIRPERSON, Energy, Chemicals and Biomaterials Program Board from	
	Program Management Unit for Competitiveness (PMUC)	
10.15 – 12.00	Oral Presentation International	
	Session I: Social Science & Humanities, Management and Business Administration	Hornbill Ballroom 2
	Oral Presentation national	
	Session 1: Management and Business Administration	Broadbill Meeting Room
	Session 2: Engineering	Deevana Krabi Meeting room
	Poster Presentation national	
	Sciences, Agriculture, Technology, Business Administration, Engineering, Social Science & Humanities and Management	Foyer
10.30 – 12.00	Session: PMUC meet & consult by PMUC	Starling Lobby Lounge
12.00 -13.00	Lunch break	Kingfisher Restaurant

May 30, 2024

12.30 – 12.45	Installation soft file presentation	
13.00 – 14.30	Oral Presentation International Session II: Technology and Engineering	Hornbill Ballroom 2
	Poster Presentation International Session V: Sciences and Business Administration	Foyer
	Oral Presentation national Session 3: Engineering	Hornbill Ballroom 1
	Session 4: Sciences	Broadbill Meeting Room
	Sciences 5: Social Science & Humanities	Deevana Krabi Meeting room
13.00 - 14.00	Session: PMUC meet & consult by PMUC	Starling Lobby Lounge
14.30 – 14.45	Coffee break	Foyer
14.45 – 17.00	Oral Presentation International Session III: Informatics and Engineering	Hornbill Ballroom 2
	Session IV: Sciences and Agriculture	Broadbill Meeting Room
	Oral Presentation national Session 6: Informatics Technology and Engineering	Hornbill Ballroom 1
	Session 4: Agriculture	Deevana Krabi Meeting room
18.30 - 21.00	Dinner& Award Announcement	Hornbill Ballroom 1&2

May 31, 2024

09.00 – 10.30	Morning session Oral Presentation International Session I: Engineering	Hornbill Ballroom 2
	Oral Presentation national Session 1 Management and Business Administration	Broadbill Meeting Room
	Session 2 Engineering	Deevana Krabi Meeting room
	Poster Presentation national Informatics, Sciences, Agriculture, Business Administration	Foyer
	Management, Engineering, Sciences, Technology and Social Science & Humanities	
10.30 – 10.45	Coffee break	Foyer
10.45 – 11.30	Oral Presentation International Session 1 Technology and Engineering	Hornbill Ballroom 2
	Session 2 Agriculture and Sciences	Broadbill Meeting Room
	Poster Presentation International Sciences and Business administration	Foyer
	Oral Presentation national Session 1 Informatics, Technology and Engineering	Hornbill Ballroom 1
	Session 2 Sciences Agriculture and Social Science & Humanities	Deevana Krabi Meeting room

IAMBEST 2024 PROGRAM
May 30, 2024

Oral International Session I: Business Administration

Hornbill Ballroom 2

Management Social Sciences and Humanities

Chairperson	Asst. Prof. Dr.Ousanee Sawagvudcharee	KMITL Prince of Chumphon
Committee	Ms. Yenying Chongchit	KMITL Prince of Chumphon
	Dr.Punjapha Pitigraisorn	KMITL Prince of Chumphon
Time	Code	Topic
09.30 - 09.45	OB-38	The Impact of Brand Image and Marketing Strategy on Consumer Purchase Intention: Case of R Product <i>Lianxue Cao Rujikarn Sanont and Sinittra Suksawat</i>
09.45 - 10.00	OB-39	Influential Factors Of Digital Marketing Strategy On Purchase Intention Of Consumers: Case Study S Company <i>Chen Zhang Sinittra Suksawat and Rujikarn Sanont</i>
10.00 - 10.15	OB-40	Marketing Mix Factors Influencing the Ice Cream Purchasing Decision Process of Chinese Consumers in Jiujiang City <i>Shiyu Liu and Purinat Yamakanith</i>
11.00 - 11.15	OM-43	The Study of Transformational Leadership, Effective of Use and Work Atmosphere Affecting on Online Classroom of Lecturer in Rajamangala University of Technology Srivijaya <i>Ornanong Ampha Kannika Buathongrueang Nuchanat Tupkrut Apiwat Samathi and Saree Boonrat</i>
11.15 - 11.30	OSS-72	Restorative Designs for Compact Residential Units in Thailand <i>Nawakhun Sornubol and Apichoke Lekagul</i>
11.30 - 11.45	OB-24	Marketing strategies that influence the purchasing decision Process of Consumer: a case study The Mall Group Co., Ltd. <i>Supaporn Siriphueng</i>

IAMBEST 2024 PROGRAM

May 30, 2024

Poster International Session V: Sciences and Business administration

Chairperson	Asst. Prof. Dr. Chodsana Sriket Asst. Prof. Dr. Usa Sukkha Dr.Siwakon Sokjabok	KMITL Prince of Chumphon KMITL Prince of Chumphon KMITL Prince of Chumphon
Time	Code	Topic
13.00 - 13.10	PB-30	Enhancing Entrepreneurial Capability among Fruit Farmers: Insights from a Study of Entrepreneurial Elements and Styles in Chanthaburi Province, Thailand <i>Bhawat Chiamjinnawat</i>
13.10 - 13.20	PS-84	Efficiency of betel Leaf extract against <i>Escherichia coli</i> <i>Naree Phanchindawan Kavalee Lononglin and Kamonwan Chucheeep</i>
13.20 - 13.30	PS-25	Preparation of Amine-Functionalized Rice Husk Ash for Selective Adsorption Polyphenols from Green Tea <i>Poungmanee Phromchana Nadrada Maneesri Paphada Pathomnatikul Jinda Chuemue and Sakdinun Nuntang</i>
13.30 - 13.40	PS-34	Development of Probiotic Legume Beverages with their Potential Antioxidant and Antidiabetic Properties <i>Suree Nanasombat</i>
13.40 - 13.50	PS-57	Application of Recombinant Human scFv Antibody for Determination the Nodule Occupancy of Rhizobia from Dual Culture Inoculant <i>Chayanan Singtothong Kuntalee Rangnoi Pakpoom Boonchuen Kamonluck Teamtisong Jenjira Wongdee Teerana Greetatorn Pongpan Songwattana Pongdet Piromyou Monchai Manassila Nantakorn Boonkerd Neung Teaumroong Montarop Yamabhai and Panlada Tittabutr</i>
13.50 - 14.00	PS-59	Antibacterial Activities of Kombucha Derived from Oolong Tea, Butterfly Pea, Roselle, and Peppermint <i>Engkarat Kingkaew Jutamas Pracumtong and Duangjai Ochaikul</i>
14.00 -14.10	PS-62	Empirical Correlations Between Standard Penetration Test N Value and Shear Wave Velocity from Multichannel Analysis of Surface Wave for Earthfill Dam in Northern Thailand <i>Orawan Lunanta and Siriporn Chaisri</i>
14.10 -14.20	PS-75	Assessment of Antioxidant Activity, Total Flavonoid Content, and Total Phenolic Compounds from Sequential Exhaustive Extraction of <i>Wolffia globosa</i> Cultivated in a Controlled Greenhouse Environment <i>Pakjira Patchim Chutwadee Krisanapun Sukanya Mingyai Phuwanai Palakachen Arnatchai Maiuthed and Pattarawit Rukthong</i>
14.20 - 14.30	PS-87	Microwave Pretreatment Of Sugarcane Bagasse For Bioethanol Production By <i>Saccharomyces cerevisiae</i> TISTR 5088 and <i>Pichia stipitis</i> TISTR 5806 <i>Engkarat Kingkaew Onwanya Chaimanat Siripak Wongchachom and Duangjai Ochaikul</i>

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Oral Presentation

The Study of Transformational Leadership, Effective of Use and Work Atmosphere Affecting on Online Classroom of Lecturer in Rajamangala University of Technology Srivijaya

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Abstract. This research aims to study the technology acceptance of lecturers in Rajamangala University of Technology Srivijaya which there are three objectives 1) to study the influence of change leadership on acceptance of online class room usage of lecturer in Rajamangala University of Technology Srivijaya 2) to investigate the effectiveness impact on usage acceptance influencing online classroom adoption of lecturer in Rajamangala University of Technology Srivijaya 3) to examine the influence of work environment on acceptance of online classroom usage of lecturer in Rajamangala University of Technology Srivijaya. This research is quantitative research. The lecturer 235 persons and top management 24 persons of here are a sample group. Data were collected using an online questionnaire and statistically analyzed using percentage, mean, standard deviation and simple linear regression. The results of research conducted by lecturers at RUTS indicate that change leadership significantly influences the acceptance of online classroom usage. It was found that both transformational leadership exhibited by leaders and self-perceived transformational leadership have the highest satisfaction levels. The effective use of online classroom tools ranks second in terms of satisfaction levels, while the work atmosphere's impact on online classroom usage ranks lowest among all factors considered. On the other hand, the results of top management of RUTS the highest satisfaction levels of all factors is transformational leadership factors. The leadership status of organizational leaders in change management received the highest level of assessment. The change leadership status of lecturers, the effectiveness of online classroom usage, acceptance of online classroom usage in internet-based systems, and the work atmosphere were also assessed at a high level in turn. The factors were related to the accepted using on online classroom to a statistically significant degree ($p < 0.05$). The findings of this research can be utilized to formulate university policies and encourage the adoption of online classrooms at Rajamangala University of Technology Srivijaya during the pandemic and other crisis situations.

Index Terms— Atmosphere Affecting, Effectiveness, Technology Acceptance Model: TAM, Transformational Leadership

I. INTRODUCTION

The Learning Management System (LMS) is a system that supports teaching and learning for both instructors and students. Instructors can manage content anytime and anywhere, and students can access content at their convenience as well. It offers highly flexible learning with diverse content formats such as text, images, audio, video,

and other multimedia. Additionally, it includes assessment and evaluation tools for learners. Rajamangala University of Technology Srivijaya (RUTS) has implemented this system for teaching and learning purposes^[1] to enhance convenience and elevate the university to an innovative institution, technology has been integrated into the teaching and learning processes, aligning with the strategic direction of RUTS. Currently, all instructors have been utilizing the LMS as part of their teaching practices. However, the rapid and severe

outbreak of the Covid-19 virus in 2019 has accelerated this adoption.

The Coronavirus was first discovered in 1960, but its exact origins remain unclear. It is a virus capable of infecting both humans and animals. Currently, a total of 6 strains of this virus have been identified. The strain currently causing widespread global outbreaks is a novel strain, previously unseen, hence referred to as "novel coronavirus" or "Covid-19"^[2]. This illness causes respiratory symptoms similar to those of the common flu, such as cough, fever, and difficulty breathing, particularly in severe cases. Self-protection measures include frequent hand washing, avoiding touching the face, and maintaining a safe distance (1 meter or 3 feet) from individuals who are unwell. Given the severity of the outbreak and its impact on normal societal functions, social distancing measures are crucial at this time. Education is typically a group activity involving large numbers of people, thus maintaining distance between learners and instructors is essential to prevent the spread of Covid-19. Consequently, teaching formats have shifted entirely on online platforms.

The traditional LMS may not adequately respond to urgent situations, prompting the adoption of Google Classroom. The Google Classroom is available to all users of Google Apps for Education, offering a suite of tools for efficient work, including Gmail, Docs, and Drive. Classroom is designed to assist teachers in creating and storing assignments without paper waste, with time-saving features such as automatic distribution of Google Docs copies to each student. The system organizes Drive folders for each assignment and student, facilitating organization. Students can track their deadlines and begin work with a single click. Teachers can quickly see who has completed assignments and provide feedback and grading.

While the university has adopted Google Classroom to cater to the urgent need for online learning during the crisis, it still faces several limitations for both instructors and students. In online teaching, instructors must prioritize and ensure efficient access to the online classroom for students. However, students may face limitations, such as using a single mobile phone for learning, which may not have sufficient storage for certain programs. Additionally, each instructor may use different online teaching platforms, leading to students having to install multiple programs on a single device, causing it to lag or slow down. Moreover, issues such as unstable internet connection or lack of connectivity in remote areas further complicate the learning process.

In contrast, instructors typically have the necessary equipment for online teaching, yet may still struggle to efficiently manage online classes. Therefore, lecturers must seek online teaching platforms that cater to the needs of both themselves and their students, ensuring easy and efficient access to the virtual classroom for both parties. This may include platforms like Google Meet, Zoom Meeting, Cisco Webex Meeting, Microsoft Teams, and others, collectively referred to as online classrooms.

Research on crisis leadership is crucial due to the unpredictable nature, costs, durations, and intensities associated with crises. Leaders worldwide grapple with the

challenges posed by crises, highlighting the close relationship between leadership and crisis. Consequently, how leaders respond to crises becomes paramount. Crises, defined as unforeseen and uncertain events that jeopardize fundamental aspects of an organization, are inevitable in the workplace. Therefore, effectively managing crises has become a fundamental responsibility of 21st century business leaders. While numerous leadership styles exist, this paper concentrates on transformational and authentic leadership styles during crises. Despite extensive research on crisis and leadership, few studies or books explore the behaviors of transformational and authentic leaders in crisis scenarios. This study seeks to provide a theoretical analysis of how transformational and authentic leaders behave during crises, drawing insights from research on leadership styles and crisis management^[3].

The research of Covid-19 crisis management human resource cost-retrenchment: the role of transformational leadership and ethical climate revealed an overall positive effect of transformational leadership (TFL) that diminished the negative affect of human resource management (HRM) cost-retrenchment on employee satisfaction. Partial least square multi-group analysis (PLS-MGA) showed a significant positive role of other-focused crisis cost-retrenchment and ethical climate (EC) on employee outcomes, especially for hospitality organizations, whereas self-focused EC had a negative impact for non-hospitality firms^[4]. The Covid-19 is a new crisis challenges whole people around the world that stopped the world and every activities outside to prevent widespread of it, even the students and teachers in classrooms as well. Those crisis is very challenges teachers and leaders to keep learning curve of students in those time. Then, transformational leadership is the importance to bring out to lead themselves and others as well.

From the aforementioned reasons, this research has been initiated to investigate the factors of change leadership, usage effectiveness, and work environment that influence the acceptance of online classrooms usage among lecturers at RUTS. Researchers have identified four main issues regarding teaching through the online classroom system, namely: transformational leadership, effective of use and work atmosphere affecting and technology acceptance model of lecturers' RUTS was shown in Fig. 1 as below:

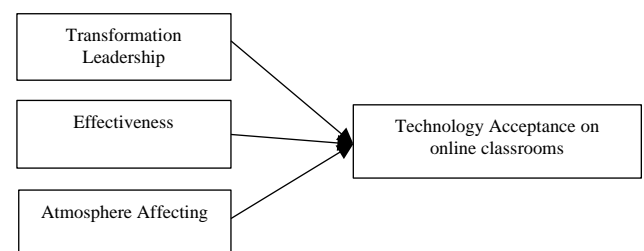


Fig. 1. Conceptual Framework of This Research

This research aims to study the technology acceptance of lecturer in RUTS which there are three objectives 1) to study the influence of change leadership on acceptance of online

class room usage of lecturer in RUTS 2) to investigate the influence of the effective of use on online classroom of lecturer in RUTS 3) to examine the influence of work atmosphere affecting on online classroom of lecturer in RUTS. The utilities of this research namely: 1) to identify factors influencing leaders' change readiness, the effectiveness of usage, and the work environment impacting the acceptance of online classroom usage among instructors at RUTS 2) to utilize for planning and implementing the work of instructors who need to utilize online classrooms 3) the administrators of RUTS can utilize the obtained data for policy planning and implementation.

II. METHODOLOGY

This research is a survey research utilizing a close-ended questionnaire, which is divided into 5 sections: Section 1-General information of the respondents, Section 2-Questionnaire on opinions regarding change leadership affecting the usage of online classrooms, Section 3- Questionnaire on opinions regarding the effectiveness of using online classrooms, Section 4-Questionnaire on opinions regarding the work environment of instructors using online classrooms, and Section 5-Questionnaire on opinions regarding the acceptance of using online classrooms.

The researchers tested the quality of the questionnaire developed for the study through two parts: Content validity and reliability. First, the content validity was examined by sending the questionnaire developed by the researchers to three experts to review the instrument, aiming to assess the accuracy and comprehensiveness of the content to be studied. The researchers analyzed the Item-Objective Congruence Index (IOC), which was found to be 0.86. Questions with an IOC value greater than 0.5 were selected for use^[5]. And reliability assessment, the researchers conducted a pilot test using the questionnaire developed, distributing 30 sets to a sample group in the Muang district of Trang province. This aimed to verify whether the questions effectively conveyed the intended meanings and were appropriate. Subsequently, the reliability of the questionnaire was tested using a pre-existing program. The reliability coefficient, Cronbach's Alpha, for the pilot test questionnaire with 30 sets was calculated to be 0.962, indicating high reliability as it exceeded 0.70^[5]. This demonstrates that the questionnaire is highly reliable and can be used for data collection in subsequent research endeavors. This questionnaire was endorsed Project no.WU-EC-EX-3-078-65 and approval no.WUEC-22-136-01 by Research Ethics Committee from Walailak University.

The sample group was separate in two group, lecturers 274 people and the administrators 30 people of RUTS where there are 15 faculties/Institute in 3 provinces, southern of Thailand; Songkhla, Trang and Nakhon Si Thammarat province^[6] as table I below:

TABLE I
SUMMARY OF THE STAFFING FRAMEWORK FOR
CIVIL SERVANTS IN ACADEMIC INSTITUTIONS
AND UNIVERSITY PERSONNEL (ACADEMIC
DISCIPLINE) FOR THE FISCAL YEARS 2015-2018,
RAJAMANGALA UNIVERSITY OF TECHNOLOGY
SRIVIJAYA

N o.	Province	Faculty	Numb er of Staff (peopl e)	Quota Samplin g (%)	Que stion nair e (set)
1	Songkhla	Faculty of Industrial Education and Technology	30	3.47	10
2		Faculty of business administration	65	7.51	21
3		Faculty of Engineering	102	11.79	32
4		Faculty of Liberal Arts	98	11.33	31
5		Faculty of Architecture	42	4.86	13
6		Rattaphum College	30	3.47	10
7	Trang Campus	Faculty of Science and Fisheries Technology	92	10.64	29
8		College of Hospitality and Tourism	32	3.70	10
9	Nakhon Si Thammarat Campus	Natural Resources and Environment Institute	1	0.12	0
10		Faculty of Agriculture	87	10.06	28
11		Faculty of Veterinary Medicine	35	4.05	11
12		Faculty of Science and Technology	108	12.49	34
13		Faculty of Agro-industry	24	2.77	8
14		College of Industrial Technology and Management	55	6.36	17
15		Faculty of Management Technology	64	7.40	20
		Total	865	100.00	274

The sample group was calculate by Yamane, T.'s formula ^[7], 95% confidence level with a margin of error of $\pm 5\%$ ^[8] that was selected by purposive sampling and quota sampling. Data collection was collect via online questionnaire as number of sample. While, the administrators 30 people was select from whole RUTS's administrators which The population group of university administrators at RUTS consists of 30 individuals, comprising 1 university president, 1 vice president for academic affairs, 14 deans or equivalent positions, and 14 vice deans for academic affairs or equivalent positions.

III. RESULTS AND DISCUSSION

The lecturers sample group permitted to provide data according to the questionnaire consists of 235 lecturers, accounting for 85.80%, while 39 lecturers, totaling 14.20%, declined to provide data this part was control by Research Ethics Committee which the researcher have to ask willing of respondents to answer the questionnaire first. This indicates a comprehensive questionnaire suitable for analysis, with 85.80% completeness, exceeding the minimum response rate threshold of 65% deemed acceptable^[9]. Therefore, the data can be processed with reliability. While the questionnaires not permitted amounted to 39 sets, constituting 14.20% of the total questionnaires, they must be excluded from the analysis to prevent data distortion.

The results has shown the highest respondents in each question; female 83.00% and male 17.00%, age 36-45 years old 61.70%, master degree 59.60% and worked age 1-5 years 34.00%. The favorite online classrooms were used Google meet 67.70%, Zoom 6.40%, Google Classroom 14.90%, Microsoft Teams 2.10% and others 8.90% such as Vroom, Learning Management System, and Facebook.

The results of the study of transformational leadership, effective of use and work atmosphere affecting on online classroom of lecturer in RUTS was found the highest satisfaction be transformational leadership of leader and themselves that composed of 11 dimensions; 1) the leadership requires a vision and mission for the organization, particularly in developing Information Systems (IS) to achieve the organization's objectives 2) the leaders must play a pivotal role in driving the organization forward in terms of Information Technology (IT) advancement 3) the leaders must have the ability to turn crises into opportunities, especially in adapting to current situations such as the rapid and severe outbreak of the Covid-19 pandemic during the initial wave 4) the leaders must act as advocates for Information Systems (IS) within the organization, fostering a shared vision for organizational development among personnel 5) the leaders must consistently inspire and motivate employees, especially when implementing new Information Systems (IS) within the organization 6) the leaders must foster a team-oriented approach among employees in Information Technology (IT), promoting collaboration and mutual support to enhance productivity and effectiveness 7) the leaders must encourage teamwork among employees in Information Technology (IT) to foster a positive work attitude 8) the leaders must instill a culture of continuous improvement in computer skills among employees for the benefit of the organization and to maintain a competitive edge 9) the leaders must prioritize the overall impact on the organization when implementing Information Systems (IS) to streamline operations and reduce workload burdens 10) the leaders must provide opportunities for employees to fully showcase their abilities and talents in Information Technology (IT) work and 11) the leaders promote and support continuous development of employees' skills in Information Technology (IT) on a regular basis.

The effective of use online classrooms was found the online classrooms' topics are processed and displayed

rapidly. They facilitate easy information retrieval and offer convenient access to data. Additionally, they provide swift access to assessment feedback at the highest level.

While, work atmosphere affecting dimension on online classrooms was shown the topic of instructor readiness for accepting changes in Information Technology (IT) is consistently high, with instructors being prepared to adapt to current situations, especially during the rapid and severe outbreak of the Covid-19 pandemic. Assessment feedback indicates the highest level of acceptance in all aspects.

When analyzing the influential factors affecting the acceptance of online classroom usage by lecturers at RUTS, across the three factors and five dimensions, it was found that the change leadership status of organizational leaders and instructors' change leadership status ranked highest. Subsequently, the effectiveness of online classroom usage, acceptance of online classroom usage via internet system, and working atmosphere were assessed at a high level, respectively.

The results of simple linear regression analysis was describes an effective of use on online classrooms is the highest lecturers accepted (Beta =.425, sig = .000), transformational leadership of leaders and themselves (Beta =.406, sig = .000) and work atmosphere affecting (Beta =.385, sig = .000) respectively as shown in table II:

TABLE II
THE SIMPLE LINEAR REGRESSION ANALYSIS

Independent Available	Result			t	Sig*
	B	S.E	Beta		
Constant (a)	-1.180	.307		-3.847	.000
Transformational Leadership	.406	.091	.237	4.471	.000
Effective of Use	.425	.063	.380	6.790	.000
Work Atmosphere Affecting	.385	.073	.306	5.283	.000

F=153.223 Sig= 0.000 R²=0.666 Adjust R²=0.661

*Statistical Significant 0.05

While, the leader group of RUTS permitted to provide data according to the questionnaire consists of 24 administrators from 30 administrators. The first part of questionnaire was control by Research Ethics Committee which the researcher have to ask willing of respondents to answer the questionnaire first accounting respondents for 100.00%.

The results has shown the highest respondents in each question; female 91.70% and male 8.30%, age 36-45 years old 41.70%, master degree 50.00% and worked age more than 16 years 50.00%. The favorite online classrooms were used Google meet 41.70%, Google Classroom 33.30%, and others 25% such as Vroom, Learning Management System, and Facebook but they didn't use Zoom and Microsoft Teams.

The results of the study of transformational leadership, effective of use and work atmosphere affecting on online classroom of lecturer in RUTS was found the highest satisfaction be transformational leadership of leader and themselves that composed of 11 dimensions likely the lecturers' answer.

The effective of use online classrooms was found the data obtained from the online classrooms is accurate, up-to-date, and current. The data is highly secure, processed, and displayed rapidly. Additionally, it is precise and reliable. The online classrooms can be continuously and appropriately utilized based on the hours allocated for teaching and learning. Assessment feedback indicates a high level of satisfaction.

While, work atmosphere affecting dimension on online classrooms was shown a diversity of opinions regarding instructor readiness to accept changes in Information Technology (IT) continuously and adapt to current teaching situations, especially during the rapid and severe outbreak of the Covid-19 pandemic. Assessment feedback indicates the highest level of readiness.

When analyzing the influential factors affecting the acceptance of online classroom usage by lecturers at RUTS, across the three factors and five dimensions, it was found that the change leadership status of organizational leaders ranked highest. And lecturers change leadership status, the effectiveness of online classroom usage, acceptance of online classroom usage via internet system and working atmosphere were assessed at a high level, respectively.

The results of simple linear regression analysis was describes transformational leadership, effective of use and work atmosphere affecting on online classroom of lecturer in RUTS don't support the hypothesis at the statistically significant level of 0.05 as shown in table III:

TABLE III
THE SIMPLE LINEAR REGRESSION ANALYSIS

Independent Available	Result			t	Sig*
	B	S.E	Beta		
Constant (a)	1.518	1.130		1.343	.194
Transformational Leadership	-.070	.285	-.065	-.247	.808
Effective of Use	.041	.287	.034	.143	.888
Work Atmosphere Affecting	.631	.336	.595	1.879	.075

F=3.243 Sig= 0.000 R²=0.327 Adjust R²=0.226

*Statistical Significant 0.05

IV. CONCLUSION

The conclusion of the study of transformational leadership, effective of use and work atmosphere affecting on online classroom in Rajamangala University of Technology Srivijaya was described in two groups of respondents in this research below:

The conclusion of lecturers 1) to study the influence of change leadership on acceptance of online class room usage of lecturer in RUTS that found transformational leadership of leaders and themselves have the highest satisfaction level which consistent Supaporn (2016) ^[10] found transformational leadership positive affecting on Google Application in intranet process acceptance in private company employees in Bangkok and metropolitan areas. Then, the study of change leadership status affecting the acceptance of online classroom usage among instructors at RUTS was approached

from two perspectives: the organizational leadership and the instructors themselves. The assessment feedback indicates the highest level of significance. This underscores the importance of both organizational leaders' change leadership status and instructors' change leadership status in adapting to the urgent shift from traditional classroom teaching to online teaching methods. In order to stimulate student interest in the new learning format, enhanced communication is essential, as the impact extends beyond just the online classroom system to encompass the internet systems and signals of both students and instructors. This underscores the necessity of addressing these aspects to effectively navigate the transition.

2) to investigate the effectiveness impact on usage acceptance influencing online classroom adoption of lecturer in RUTS have the second satisfaction level which consistent Supaporn (2016) ^[10] found effective of use positive affecting on Google Application in intranet process acceptance in private company employees in Bangkok and metropolitan areas.

Conclusion, The study on the effectiveness of online classroom usage affecting the acceptance among lecturers at RUTS reveals a high level of assessment feedback. This indicates the quality of teaching organized through various online classrooms. However, at times, the immediate communication aspect (Real Time) may not be fully supported due to the quality of online classrooms and internet signal systems, which are crucial for this mode of teaching. Moreover, to enhance the efficiency of online teaching, there is a need to significantly increase the acceptance and usage of online classrooms within the internet system. Efforts should be directed towards maximizing the effectiveness of online classroom usage, as indicated by the results of simple linear regression analysis of independent variables affecting dependent variables.

3) to examine the influence of work environment on acceptance of online classroom usage of lecturer in RUTS have the least satisfaction level which is consistent Nichada & Prasopchai (2023) ^[11] studied acceptance of service innovation affecting bank employees' work efficiency at Bangkok Bank, Pathum Thani Branch, Amidst the Covid-19 Pandemic which found ease of use being the highest mean, followed by perceived advantages and aspects supporting the internal environment, respectively. An analysis of data on the performance of Bangkok Bank, Pathum Thani branch personnel includes three following aspects: time, work quality and work quantity, from highest to lowest mean.

The study on the working atmosphere affecting the acceptance of online classroom usage among instructors at RUTS reveals a high level of assessment feedback. However, the lowest average score among the three aspects indicates that the working atmosphere varies among respondents. Furthermore, it suggests that teaching management can be carried out at any time. Hence, this factor received the lowest assessment score.

Finally, the lecturers in RUTS accepted to use technology to use online classrooms for their classroom in Covid-19 pandemic which is consistent Jetsadarat (2023) ^[12] revealed the undergraduate students, Phetchaburi Rajabhat University

has a positive effect on perceived ease of use and perceived usefulness of English Learning through e-Learning in Covid-19 Pandemic and accepted to learn English through e-Learning.

The top management conclusion can describe as below:

1) to study the influence of change leadership on acceptance of online class room usage of lecturer in RUTS, the results of the study of transformation leadership, effective of use and work atmosphere affecting on online classroom of top management in RUTS was found the highest satisfaction be transformation leadership of leader and themselves that composed of 11 dimensions likely the lecturers' answer. Consistently, the study of Haddon, Loughlin & McNally (2015) ^[13] revealed the qualitative findings highlight employees' expectations of leaders to take action quickly while simultaneously engaging in continuous communication with employees during financial crisis. None of the components of transformational leadership encapsulate this notion. Thus, the leadership is necessary when the crisis happens to lead team to goal. Moreover, the leader can moral and encourage their team to work as normal situation even they known everything is not normal.

2) to investigate the effectiveness impact on usage acceptance influencing online classroom adoption of lecturer in RUTS was found the data obtained from the online classrooms is accurate, up-to-date, and current. The data is highly secure, processed, and displayed rapidly. Additionally, it is precise and reliable. The online classrooms can be continuously and appropriately utilized based on the hours allocated for teaching and learning. Assessment feedback indicates a high level of satisfaction. Accordingly, the study of the unique effects of Covid-19 – A qualitative study of the factors that influence teachers' acceptance and usage of digital tools discovered The results indicate that, other than user motivation, three areas, namely “regulations and specifications,” “technological infrastructure,” and “heterogeneity of students and teachers,” affect the adoption of digital tools. The Covid-19 pandemic, which inevitably led teachers to embrace digital tools, positively influenced the perception and immediate usefulness of digital tools. We assert that no other variable would have been able to universally influence technology usage and acceptance to such an extent as to replicate the findings of our study and simultaneously highlight the uniqueness of the current situation and the necessity for examining its impact ^[14]. Summary, ease to use and usefulness can convince the users to use online classroom easier and accept to use online classroom.

3) to examine the influence of work environment on acceptance of online classroom usage of lecturer in RUTS was shown a diversity of opinions regarding instructor readiness to accept changes in Information Technology (IT) continuously and adapt to current teaching situations, especially during the rapid and severe outbreak of the Covid-19 pandemic. Assessment feedback indicates the highest level of readiness. Whereas, the study of Covid-19 and teaching: perception of school teachers on usage of online teaching tools shown the results that some school teachers found significant benefits of teaching through online mode.

However, other teachers did not feel confident and were more comfortable teaching through traditional methods. This paper outlines the challenges faced by teachers and suggestions for conducting virtual classes effectively in coming future ^[15]. Then, the work environment was accepted to use online channel to connect with their students but they believe face to face is very active than virtual classroom. But in this research didn't have the question to compare between online and face-to-face classroom environment.

Recommendation

Managerial implication

In this research, the researchers surveyed two sample groups, namely instructors and administrators of RUTS using the same questionnaire. Therefore, it was not possible to clearly separate the assessment results since instructors may have different perspectives from administrators regarding the usage of online teaching methods. While instructors may focus on instructional usage, administrators may prioritize the effectiveness and benefits of online classroom usage to inform future policy-making and management directions.

Theoretical implication

1) Based on the research findings, it was determined that the sample group consisting of administrators did not significantly influence the positive acceptance of online classroom usage within the internet system among the administrators at RUTS. Therefore, if there are multiple sample groups with differing perspectives on usage and application of the aforementioned work, separate questionnaires should be employed to obtain data aligned with objectives and to ascertain broader impacts within each sample group.

2) This research study took place during an extraordinary period where large gatherings of people were not feasible due to unforeseen circumstances, hindering various activities, including teaching and learning. Therefore, if genuine data measuring the effectiveness of online classroom usage within the internet system is desired for educational management purposes, it would be advisable to conduct research during normal circumstances.

3) This research study collected data from a specific group only. Therefore, if broader data for users of online classrooms is needed, it is possible to expand the sample group according to the objectives of future research studies.

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Marketing strategies that influence the purchasing decision Process of Consumer: case study The Mall Group Co., Ltd.

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Abstract. The researcher aims to The analyst points to think about promoting techniques that impact consumers is obtaining : a case ponder of commerce of The Mall Group Co., Ltd. When buyer behavior shifts to a modern standard Brands have to be create strategies and communication strategies that can make both intrigued, display esteem, draw in and communicate objectives. counting distinctive personalities steady with the behavior of the unused standard of buyers suitably This is often the key to victor. The data was collected from This think about was conducted employing a quantitative plan. The inquire about was conducted inside the shape of blended strategies investigate that included quantitative and subjective inquire about. The information was collected from a bunch of 1,000 buyers who bought items and administrations from The Mall Group Co., Ltd. They asked a few questions employing a frame. Insights is the ponder of data and numbers to get it designs and patterns. Typically, what individuals did some time recently to get it data. Counting rate (rate) to degree individual characteristics of respondents, cruel (cruel), and Standard deviation alludes to a measurable term that measures the variety or spread of a set of information from its average or mean esteem. (SD) is an shortened form for "standard deviation" and different relapse investigation could be a factual strategy utilized to ponder the relationship between a few factors. Takes after. Follows. Testing the relationship between promoting procedures and shopper acquiring choices. Coordinate offering commerce of The Mall Group Co., Ltd. 4 vital angles (Y₁) Buyers who purchase items and administrations in terms of publicizing variables (X₁) The P-value is 0. 001, which is lower than the limit of 0. 05 This implies that the deals staff's benefit level (X) is critical in foreseeing the result (Y) of a circumstance. Can be written as the regression analysis equation as follows:: $Y=181.516 + 1344(X_1) + 2.312(X_4)$

Index Terms— Marketing strategies, Influence, Purchasing decision process, Consumer, The Mall Group Co., Ltd.

I. INTRODUCTION

Showcasing methodologies play a vital part in impacting consumers' acquiring choices. Different components such as psychographic division, advancement, area, advanced promoting, and word of mouth have been recognized as noteworthy influencers. Psychographic division, advancement, and area have been found to collectively clarify a considerable parcel of the change in buy choices [1]. Also, variables like handle and faculty, cost, put, and item have been appeared to impact the decision-making prepare of buying items from distributing machines [2]. Computerized promoting stages, counting social media and portable showcasing, have a major affect on client buy choices, emphasizing the require for firms to use advanced procedures for brand acknowledgment and competitiveness [3]. Moreover, word of mouth and advancement have been recognized as factors essentially influencing acquiring choices, with a outstanding rate of impact on customer choices [4]. Factors such as item, cost, and conveyance channel have been appeared to altogether impact

the obtaining choices made from dispersing machines. Investigate has demonstrated that these variables play a vital part within the decision-making handle of buyers when buying items from dispersion channels like online stores or sowing machines. Ponders have highlighted the significance of understanding customer inclinations related to item conveyance components, as they straightforwardly affect buying decisions[5][6]. Furthermore, the utilize of manufactured neural systems and choice processors has been investigated to create informed item dissemination choices, such as deciding whether to supply shoppers with free tests based on client information and certainty scores[7]. Besides, wholesaler adjusting has been recognized as a prevailing figure impacting the choice of conveyance channels for items like zalacca, emphasizing the centrality of distributor-related factors in decision-making processes[8] Computerized promoting stages, counting social media and portable promoting, altogether impact customer buy choices, underscoring the need for companies to utilize progressed techniques for brand acknowledgment and competitiveness. Social media plays a significant part in forming shopper inclinations and

behaviors, giving get to endless data, surveys, and personalized intuitive . Furthermore, advanced promoting helps in brand building by spreading data, locks in with clients, and making brand dependability . Besides, social media substance, both created by companies and clients, impacts shopper acquiring behavior, highlighting the significance of understanding and leveraging social media for promoting purposes . The impact of social media promoting campaigns on client buy eagerly, particularly among smartphone-dependent people, could be a key region of think about that emphasizes the noteworthiness of computerized techniques in today's advertise . Word of mouth (WOM) plays a pivotal part in impacting acquiring choices, as prove by different ponders. Investigate demonstrates that WOM contains a critical affect on acquiring choices, with experimental investigations appearing a positive relationship between WOM and acquiring deliberate . Moreover, headways in computerized innovations have driven to the development of electronic word of mouth (eWOM), which assist increases the impact of buyer suppositions on buying behavior . Moreover, thinks about have affirmed that both conventional WOM and promoting essentially influence customers' buy behavior, highlighting the significance of these variables in forming buyer choices . In general, the combined affect of WOM and innovative advancements underscores their considerable impact on client choices within the commercial center

Understanding the consumer buying process at every stage

FIG I

THE STAGES OF THE CONSUMER BUYING PROCESS



1. Need recognition

A deal formally starts when a client realizes they have a require or a want. This acknowledgment can happen since of inner or outside jolts (basic supply shopping since you wish nourishment for supper vs. requesting takeout since you fair saw an Instagram advertisement for pizza). And the causes of these boosts can be utilitarian (acquiring a modern computer since the ancient one does not have sufficient preparing control for Zoom calls) or social (buying modern Zoom shirts to see great on your call). In any case, the comes about are the same. A need presently exists. At this arrange, building brand mindfulness is key. You need your target advertise to as of now know and

believe your commerce. Particularly in todays world where shoppers don't fair need to shop, they need to back businesses that reflect their claim values and convictions. So much so, that 82% of customers say they and maintain a strategic distance from employing a brand once more in case they misplaced believe.

2. Information search

Once customers are mindful they have a need, they are presently prepared to discover out how to fulfill it. And so their look starts, transcendently on look motors or social media. This is often where casual browsers are inspired to gotten to be buyers. In this arrange within the buyer buying prepare, its basic to optimize your brand or retail location for look motor optimization (SEO), so you appear up in look comes about. And given that 70% of customers utilize Instagram for item disclosure, you all need to center on your Instagram SEO too. How customers look and what data they all require is based on how much they as of now know, and what points of interest they discover from individual customers. Commerce nowadays is always-on and consumer-to-consumer orientated, where customers are your best salespeople. That is why most brands and retailers turn to user-generated substance (UGC), which is any substance (surveys, pictures, Q&As) made by unpaid people instead of a brand. Customer appraisals and audits get your brand seen and offer assistance usher people to your location through keyword-rich and pertinent substance. Look motors compensate locales that conversation within the same dialect as clients. So when your customers are actually the ones making the substance, your brand is more likely to pop up to begin with within the look. UGC is additionally a way to really construct believe (there that T word once more) with customers, as 79% of customers say online surveys have as much of an affect as suggestions from companions or family.

3. Alternative evaluation

At this point, customers are making a list and checking it twice. They are mindful of your brand, have been brought to your location, and are presently assessing whether to buy from you or a competitor. Its crunch time, and they need to create the leading choice. No laments. So what can you are doing to construct certainty merely have what they need? The reply once more is UGC. Appraisals, surveys, Q&As, and client photographs are what buyers are turning to begin with to create buying choices, and it motivates them at each step of the way to buy. 53% of buyers say UGC makes them more confident in buy choices, agreeing to our overview of over 7,000 worldwide customers. The require for realness is as it were getting more grounded. And this drift is anticipated to flip end of the of item show pages with substance and suppositions from genuine customers as of now supplanting proficient item data.

4. Purchase decision

The customer has examined your item surveys, looked over through the Q&A, and chosen you are the chosen one the merchant they all believe with their buy. They have arrived at your computerized rack. You are within the homestretch presently, right? Not so quick. You'll still lose a client at this significant organize of the shopper buying prepare. Here you ought to allude back to the need recognition and remind shoppers why they are buying the item within the to begin with put. Utilize visual UGC on checkout pages and social channels appearing products in activity and torment focuses being illuminated. And make this substance shoppable as well. Within the cutting edge e-commerce pipe, shortening the buying handle is the least demanding way to drive a deal. But ought to a client take off at this organize, send out e-mail updates or offer slight rebates to draw them back.

5. Completing the purchase

Concurring to a consider by Baynard Founded, about 70% of shopping carts within the e-commerce industry were surrendered some time recently checkout. This comes nearby an increment in investigation loss of motion . Choosing what to arrange for supper can feel as upsetting as exchanging careers. It is up to you to ease this push by making the buy choice as straightforward as conceivable for customers. Zones of opportunity for brands and retailers here incorporate: Make your social substance shoppable List add up to costs forthright so there are not any shocks Make an choice for visitor checkout to grant customers an elective to making a individual account Optimize your e-commerce location for speed and unwavering quality Exhibit positive tributes from audits on the checkout page to construct consolation Offer fast commerce administrations to spare customers the bother of in-store pickups.

6. Post-purchase evaluation

You've got optimized each organize up to this point, and the item has been obtained. The consumer buying handle is total. But there's still one more step. You presently have the interesting opportunity to turn the buyer into a rehash client by keeping them locked in together with your brand or store. After all, client maintenance is less demanding and cheaper than unused custom. Inquiring your clients for feedback on their buys or utilizing buyer experiences found in item audits is one of the leading ways to construct brand dependability. It appears you care almost their conclusions and the by and large involvement they had along with your trade , for illustration, collects UGC to empower future buyers in their buy choices. The brand reliably analyzes client input for ranges of change and has since seen a 2x increment in transformation rate.

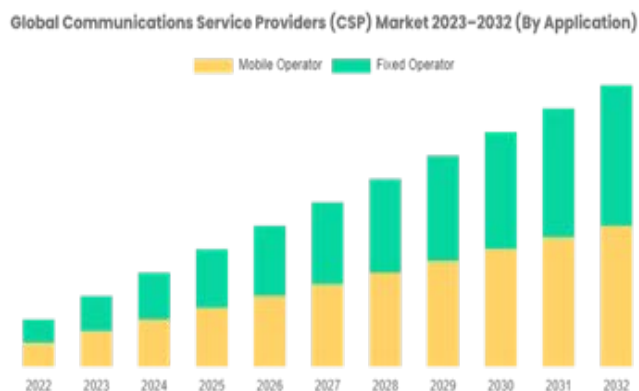
Customer disruption.

Client disturbance alludes to the critical changes in client behavior, inclinations, and desires brought almost by mechanical headways and showcase elements. The concept of troublesome innovations, such as those analyzed through the

innovation life cycle system , plays a vital part in forming client disturbance. Companies can deliberately react to these disturbances by executing all encompassing disturbance procedures that center on making inventive client encounters. Besides, the affect of disturbances caused by changing client necessities can be successfully overseen through agent-based recreation approaches in generation and stock frameworks . The advancing trade environment, driven by quick mechanical advancement, globalization, and computerized change , assist underscores the significance of understanding and adjusting to client disturbances to remain significant and competitive within the advertise. Client disturbance may be a predominant subject within the current trade scene, driven by computerized changes and all encompassing methodologies. The COVID-19 widespread has quickened digitalization, affecting businesses like fund and supply chain administration, requiring dexterous client engagement. Companies are encouraged to grasp consistent alter, offer personalized encounters, and enhance to meet advancing client desires. To flourish, Communication Benefit Suppliers (CSPs) must change into advanced companies, centering on improving client encounters over different touchpoints. Besides, the concept of all encompassing disturbance goes past innovation dispatches, emphasizing the creation of imaginative client encounters to pick up a competitive edge. In quintessence, understanding and adjusting to client disturbances through digitalization and inventive methodologies are vital for economical commerce development and client dependability. Communications Service Providers (CSP) Market Report 2023: Industry Overview, Size, Share, Trends & Forecast till 2032

FIG II

Communications Service Providers (CSP) Market Report 2023: Industry Overview, Size, Share, Trends & Forecast till 2032



Client Disturbance will ended up an critical driving constrain that causes retailers to adjust in arrange to manage with changes in client behavior. This implies that clients can get to shopping through numerous channels. At the same time, the advertising of retail business visionaries, particularly those in e-commerce Both in terms of costs, advancements and numerous other benefits, which alter the behavior of customers caused by such driving powers. This has caused numerous players within the retail showcase to come out and alter their promoting techniques in a huge way.

The Shopping center Bunch that has declared key rules for promoting in 2023 by driving the showcase through 7 critical techniques, sorted out as takes after

1.Customer Involvement: Make a extraordinary involvement for clients with a assortment of exercises.

2.Digitization: Gamification brings innovation and advanced to coordinates promoting. Both offline and online are consistent. To closely get to the wants of our fundamental client base, which are M Card clients, which have over 4.2 million individuals, and SCB M VISA clients, who have over 800,000 individuals.

3.Omni-Channel : O2O Omni Channel Retailers lead computerized change Gotten to be an partner in setting up a stage for dispersing items as much as conceivable. Total with all channels Both offline and online for most extreme client fulfillment. and makes a consistent shopping encounter.

4.Collaboration Joining powers with commerce accomplices who have the same client gather In doing campaigns and different exercises Counting extending the client base indeed more. Collaborating with brand accomplices Stores in both shopping centers and division stores Accomplish with budgetary educate to supply profitable extraordinary offers to clients.

5.Value Condition centers on giving esteem for cash with the most noteworthy benefits to clients. and accomplices.

6.Food / SME Showcasing strengthens administration in Nourishment Goal and organizes Nourishment Occasions that are exceptionally effective. It moreover underpins and advances the SME bunch, modern era business people. Open space for SME bunches to extend their conveyance channels.

7.CSR / Eco / Community The Shopping center Gather conducts trade nearby social obligation. The Shopping center Bunch is the primary green division store in Thailand. Pilot declaration of aim to be Thailand's to begin with plastic bag-free office store and grocery store. Beneath the extend "**The Shopping center Gather Go Green**" counting supporting social and community activities. Supporting communities to form a great quality of life Make economical careers and wage for individuals within the community.

II. METHODOLOGY

This think about was conducted employing a quantitative plan. The inquire about was conducted inside the shape of blended strategies investigate that included quantitative and subjective inquire about. The information was collected from a bunch of 1,000 buyers who bought items and administrations from The Mall Group Co., Ltd. They asked a few questions employing a frame. Insights is the ponder of data and numbers to get it designs and patterns. Typically what individuals did some time recently to get it data. Counting rate (rate) to degree individual characteristics of respondents, cruel (cruel), and Standard deviation alludes to a measurable term that measures the variety or spread of a set of information from its average or mean esteem. (SD) is an shortened form for "standard deviation" and can be written as the regression analysis equation.

III. RESULTS AND DISCUSSION

Testing the relationship between promoting procedures and shopper acquiring choices. Coordinate offering commerce of The Mall Group Co., Ltd. 4 vital angles (Y_1) Buyers who purchase items and administrations in terms of publicizing variables (X_1) have a The P-value is 0. 001, which is lower than the limit of 0. 05 This implies that the deals staff's benefit level (X) is critical in foreseeing the result (Y) of a circumstance. can be written as the regression analysis equation as follows: $Y=181. 516 + 1344 (X_1) + 2. 312(X_4)$

Model	Sum of Squares	df	Mean Square	F	P-val
Regression	27.806	1	27.806	33.464	.0
Residual	23.266	28	8.30		
Total	51.072	29			
Regression	35.248	2	176.24	30.071	.0
Residual	158.24	27	5.86		
Total	510.72	29			

Multiple R	0.738a
R Square	0.544
Adjusted R Square	0.528
Standard Error	28.826

IV. CONCLUSION

The relationship between promoting procedures and shopper acquiring choices. Coordinate offering commerce of The Mall Group Co., Ltd. 4 vital angles Buyers who purchase items and administrations in terms of publicizing variables , which is lower than the limit of 0. 05 This implies that the deals staff's benefit level is critical in foreseeing the result of a circumstance

ACKNOWLEDGMENT

1. Understanding brands and products to set a clear position when considering various aspects found that brand positioning to a large extent, the first is teamwork, the ability to achieve more marketing strategic achievements.

2. Reaching all channels where consumers are both offline and online. When considering each aspect, it was found that the influence of social participation had opinions at a high level on the influence of social participation. Add value to brands and products to build credibility. And able to step up to be the number one in the minds of the target group.

3.The results discovered This study was about the following relationship between marketing strategies: $Y = 181.516 + 1344 (X_1) + 2.312 (X_4)$

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The Impact of Brand Image and Marketing Strategy on Consumer Purchase Intention: Case of R Product

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Abstract: The purpose of this study is to explore the impact of brand image and marketing strategies on consumer purchase intention. The objectives of this study are :1.To analyze demographic of customer of R company. 2.To analyze brand image, marketing strategy and purchase intention.3.To investigate the influence of brand image and marketing strategy toward purchase intention.The focus of the research is on R Company's wig products, which have been globally renowned fashion brands for many years. This article collected 400 sample data through a questionnaire survey and used Cronbach's α verify the reliability and validity of the scale. This study used SPSS statistical analysis software for frequency analysis, descriptive statistics, and multiple regression analysis. The final results indicate that brand image has a significant impact on purchase intention, and when consumers perceive a good brand image, their purchase intention increases. The study also found that marketing strategies (price and promotion) have a significant impact on consumer purchase intention. This article provides preference data on consumer purchasing behavior, which helps R brand company better optimize marketing strategies and provides good reference for the marketing development of China's hair products industry from both theoretical and practical perspectives.

Index Terms—Brand Image, Consumer Purchasing Intention, Hair Products, Marketing Strategy

I. INTRODUCTION

From the 1980s to the early 21st century, most Chinese companies were OEM's of well-known foreign wig brands. With policy support, many small workshops have been exposed to a wider market and have begun to transition to brand merchants and suppliers in the mainstream North American market. As a globally renowned and largest listed wig company, R company is well-known to consumers for its fashionable hair products, selling well in over 40 countries in North America, Western Europe, Asia and Africa, as well as over 100 large and medium-sized cities in China. Its headquarters is located in China, with the world's largest and most advanced production base for hair products, as well as China's largest hair product research center.

Although China is the world's production and manufacturing center for hair products, according to a survey of Chinese customs export data, North America and Africa are the two largest export destinations for Chinese wigs and hair products, accounting for about 75% of China's total hair product exports. The overseas consumers of R brand are mainly black people. We know that consumers in different regions of the world have different needs for wigs. Europeans and Americans may consider wigs as decorative items, but due to hair quality and certain historical issues, Africans may purchase wigs as a necessity (Young, B., 2018). Although wigs have formed a mature industry chain in China. However, compared to the more mature wig markets in Europe, the United States, and Africa, the Chinese wig market is still in the cultivation stage, and consumers'

willingness to purchase is not too high. With the continuous development of the Asian economy and changes in attitudes, the consumption concept of hair products is gradually aligning with international standards. Wearing wigs has evolved into a behavior that leads fashion trends. More and more fashionable female consumers and practical demanders are willing to wear wigs, and the demand in the Chinese market is steadily increasing.

At present, research on the hair product industry is mostly concentrated in the fields of economics, materials science, etc., and there is relatively little research on brand visual image and brand marketing. Especially when wig companies want to truly enter the Chinese market, they will find that consumers have different needs and neutral attitudes towards wig products. It is obvious that they need more information to stimulate consumer cognition, so it is believed that the research direction of this article is feasible.

Consumer purchasing behavior is based on perceived correlation, and their evaluation is influenced by brand image, resulting in perception of the brand and ultimately influencing consumer purchase intention.(Cheng Zhendong&ShaoBingjia.,2022,p:77-93;HuBao ling&Yao Junwan.,2021).Purchase intention is the subjective inclination of consumers towards a product or brand, and is an important predictor of consumer behavior(Fishbein,M.,&Ajzen,I.,1977). This is a decision-making process that requires consumers to search or receive information.

Brand image is a variety of information or concepts, both of the brand's tangible entities (e.g., brand name, logo, symbols, colours, etc.) and intangible; both of the product's functional and soft aspects. An excellent brand image can improve consumers' perception and goodwill towards the brand, then it can attract more consumers to purchase(Wang et al,2014,p. 27-40;Zeng Yanling,2023,p.103-105).

Consumers have different needs for products related to hair products, and they will purchase products according to their own needs. Research has shown that consumer behavior and preferences are influenced by demographic characteristics, including significant differences in product cognition among consumers of different genders, ages, marital status, and family structures(Alharthey, B. K.,2019,p.62-71;Bhat, S. A., Islam, S. B., & Sheikh, A. H. ,2021,p.141-160).

So brands need to understand consumer purchasing

preferences and make corresponding marketing strategies to convey brand value to consumers.

Entering the wig market in China, wig brands need to implement corresponding strategies, including determining how to better showcase products to consumers in the target market, how to improve product quality, how to customize reasonable price ranges, what promotional models to adopt, and how to purchase channels.The development of marketing strategies aims to stimulate consumer purchasing behavior(Li,2023). This article is divided into four parts: product strategy, channel strategy, price strategy, and promotion strategy. Consumers can choose products that are suitable for themselves based on their marketing strategies, and businesses can also develop marketing strategies that are tailored to their purchasing behavior.

The purpose of this study is:(1) Analyse the demographic of customer of R company.(2) Analyse brand image, marketing strategy and purchase intention.(3) Investigate the influence of brand image and marketing strategy toward purchase intention.This study will better help wig companies to understand the needs of Chinese consumers and their preference of wig choices, and help companies to optimise their marketing strategies so as to increase customers' purchase intention. In addition, the results of this study can be used as a reference for companies to upgrade their brand image.

The following is the conceptual framework for this paper:

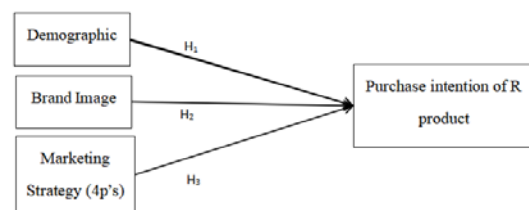


Fig. 1. Conceptual Frameworks

The independent variables in this study are demographics (X_1), brand image (X_2) and marketing strategy (X_3) and the dependent variable is purchase intention (Y_1).

H_1 : Demographic have influence on purchase intention.

H_2 : Brand image have influence on purchase intention.

H_3 :Marketing strategy have influence on purchase intention.

H_4 :Brand Image and Marketing strategy have influence on purchase intention.

II. METHDOLOGY

Population and sample

The samples in this study were calculated using the Taro Yamane formula (1973), with a confidence level of 95%. According to the 7th National Population Census of China in 2020, the permanent population of China is approximately 1.4 billion

$$n = \frac{N}{(1 + N(e^2))}$$

n=required sample size

N=number of people in the population

E=allowable error (%)

$$= \frac{1.4 \times 10^9}{3500001}$$

$$= 399.99$$

The final representative sample size was 400 questionnaires.

Instrument

This study uses a questionnaire survey as the research tool. The questionnaire consists of checklist questions and Likert scales, and is divided into the following five parts:

Part 1: Demographic information of respondents. This includes the gender, age, education level, city location, occupation, salary, etc. of the respondents.

Part 2: Measuring the basic situation of consumer behavior in purchasing R brand wigs.

Part 3: Consumer purchasing behavior towards R brand wigs. Conduct a questionnaire survey using the Likert scale. Measure consumer recognition of R brand products, prices, distribution channels, and promotions separately.

Part 4: Research on the Impact of Brand Image on the Decision Process of Consumers to Purchase R Brand Wigs. Divided into five dimensions: brand awareness, brand reputation, brand awareness, association, and loyalty.

Part 5: Research on the decision-making process of consumers purchasing R brand wigs.

In addition, this stage also includes the reliability and validity test of all factors in this study.

As shown in Table I, the Cronbach's α for all factors are greater than 0.9, which meets the criteria proposed by Cronbach(Cronbach, L.J.,1951). Therefore, the Cronbach's α of the questionnaire is within an acceptable level.

TABLE I RELIABILITY TEST

Factor	Cronbach's α
Product	0.876
Price	0.881
Place	0.922
Promotion	0.905
Brand Image	0.920
Purchase Intention	0.945

Data analysis

This study used SPSS statistical software to conduct statistical analysis on the sample data obtained from the questionnaire survey. The following analysis tools are mainly used:

(1)Reliability evaluation

Through Cronbach's α conduct reliability analysis using coefficients and explain α . The result of the coefficient is used to determine the reliability of the data.

(2)Descriptive statistical analysis

By analyzing statistics such as frequency, mean, and standard deviation of sample data, we can understand the central trend and distribution pattern of the sample data, and better study consumer purchasing preferences.

(3) Statistical model analysis

Using different statistical models to study the relationships between variables. This article used t-Test, multiple regression analysis, and ANOVA methods to conduct in-depth data analysis, and validated the research hypothesis through significance testing.

III. RESULTS AND DISCUSSION

Descriptive Analysis Of Demographic

From Figure 2, it can be seen that consumers are distributed in East China, accounting for 29.00%.Through Table II, we can see the basic information of the respondents. Gender data shows that 60.00% of the participants are female and 40.00% are male. The age range is mainly from 19 to 30 years old, accounting for 31.50%, followed by 31 to 40 years old, accounting for 29.75%. 48.75% of people have a bachelor's degree. According to income data, monthly income is mainly around 4000 and below (RMB) (53.50%). The proportion of daily changes in hair dyeing is the highest (35.77%).

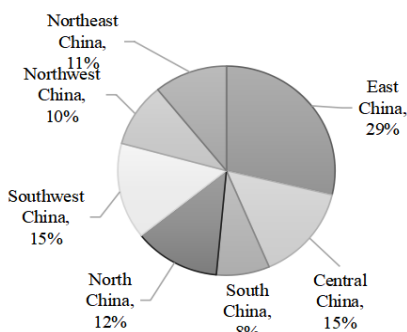


Fig. 2. Conceptual Frameworks

TABLE II DEMOGRAPHIC DATA

Variable	Category	N	Percentage
Gender	Male	160	40.00
	Female	240	60.00
Age	18 years old and below	65	16.25
	19-30 years old	126	31.50
	31-40 years old	119	29.75
	41-50 years old	60	15.00
	50 years old and over	30	7.50
Education level	Below high school level	47	11.75
	High school level	50	12.50
	Bachelor's degree	195	48.75
	Higher than bachelor's degree	108	27.00
Income (RMB)	4,000 and below	214	53.50
	4,001-7,000	119	29.75
	7,001-10,000	59	14.75
	10,001 and above	8	2.00
Hair Change	Hair transplantation	65	10.82
	Hair dyeing	215	35.77
	Perm	100	16.64
	Wearing wigs	17	2.83
	No changes	204	33.94

From Table III, we can see that 42.75% of consumers express a neutral attitude towards wig products. The majority of consumer demand is for cosplay and hair loss. Among them, consumers value product quality the most, accounting for 41.25%. Half head cover is the main type of wig that consumers purchase, and they are more inclined to purchase products from the brand's official channels. The vast majority of consumers believe that the price range for wig products should be 500 RMB or less, and 47.75% of consumers support product discount promotions.

Descriptive Analysis Of Purchase Behavior

TABLE III PURCHASE BEHAVIOR DATA

Variable	Category	N	Percentage
Opinion on wig	Like	116	29.00
	Not like	113	28.25
	Neutral	171	42.75
Purchase Reason	Hair loss	218	36.09
	Due illness	12	1.99
	Daily styling	80	13.25
	Career needs	36	5.96
Wig type	Cosplay	258	42.72
	Full head cover	23	5.75
	Half head cover	179	44.75
	Wig piece	122	30.50
Purchase Channel	Wig accessories	76	19.00
	Frequently visited barbershop	101	12.63
	Official website	179	22.38
	Exclusive stores	122	15.25
	Shopping Mall	109	13.63
	Recommended by streamers	79	9.88
	E-commerce platforms	105	13.13
	Recommended by friend	98	12.25
	Contact the factory	7	0.88

Acceptable Price (RMB)	Less100	102	25.50
	100-300	104	26.00
	300-500	109	27.25
	500-1,500	44	11.00
	1,500-2,500	18	4.50
	2,500-5,000	15	3.75
	Over5,000	8	2.00
Promotional Method	Discount promotion	191	47.75
	Full reduction	131	32.75
	Gift promotion	78	19.50
Buy Habit	Choose same brand	8	2.00
	Innovative package	20	5.00
	Lower price	81	20.25
	Quality	165	41.25
	No specific preference	126	31.50

Descriptive of Marketing Mix

It can be seen from Table IV that consumers generally

believe that the higher the diversity of wig products, the higher their acceptance of purchasing the product. Among them, 153 people fully agree with this view, accounting for 38.3% of the total population, with an average of 3.44 and a standard deviation of 1.566, because diversified products can meet the different needs and preferences of consumers. Consumers believe that the more cost-effective the product is, the more acceptable it is to buy the product, 128 people fully agree with this view, accounting for 32% of the total, with an average of 3.435 and a standard deviation of 1.315. This shows that consumers are more inclined to buy products with reasonable price and good performance, and they will consider the balance between the price and quality of products to obtain higher value. Consumers believe that whether products can be purchased online will affect their purchase intention, 32.5% of people fully agree that online purchases can be made, with an average of 3.448 and a standard deviation of 1.44. This shows that consumers have important considerations about the convenience of shopping channels. Consumers believe that VIP membership programs of products, such as membership cards, will affect their purchase behavior, 37.3% of people fully agree that a good membership system will affect their purchasing decisions, with an average of 3.425 and a standard deviation of 1.398.

TABLE IV MARKETING MIX DATA

		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	\bar{x}	SD
Product influence Purchase Decision	Q1. There are many types.	19.8	12.5	10	19.5	38.3	3.44	1.566
	Q2. R have popularity.	22.5	16.8	1.3	16.8	42.8	3.41	1.670
	Q3. Good after sales service.	22.8	11	7.3	30.5	28.5	3.31	1.541
	Q4. Good quality and comfortable.	19.3	17	5.3	24.3	34.3	3.37	1.556
Price influence Purchase Decision	Q5. It is cost-effective.	4.5	28.5	18	17	32	3.44	1.315
	Q6. Single selling price is reasonable.	12.8	29.3	4.3	14.3	39.5	3.39	1.544
	Q7. Cheaper than other brand.	21	9.8	19	26.3	24	3.23	1.454
	Q8. Its have many price range.	17.8	23.5	5.3	20.8	32.8	3.27	1.547
Place influence Purchase Decision	Q9. R have offline specialty stores in shopping centers.	21.8	7.8	10.8	34.5	25.3	3.34	1.481
	Q10. R can purchase online.	13.3	18.8	10.5	25	32.5	3.45	1.440

	Q11. it can buy on many social media.	21	11.3	8	36.5	23.3	3.30	1.471
	Q12. Can visit factory and purchase.	16.8	19.3	5	25.3	33.8	3.4	1.520
Promotion influence	Q13.It have a special promotion .	13	22.5	15.3	20.3	29	3.30	1.423
Purchase Decision	Q14. Have advertisements for famous actors.	25.5	11.3	5.5	32	25.8	3.21	1.563
	Q15.Buy it have free care for a year.	18.8	24.3	2.8	22.8	31.5	3.24	1.558
	Q16.It have member cards.	6.3	29.3	17.5	9.8	37..3	3.43	1.398

According to Table V and Table VI, the analysis shows that consumers believe that the R brand has a certain level of popularity, which will affect their purchasing decisions. 21.3% of people fully agree, with an average value of 3.02 and a standard deviation of 1.45 23.3% of people fully agree with R brand's leading position in the wig industry, with an average value of 3.16 and a standard deviation of 1.44, indicating that the majority of consumers believe that R brand is the market leader in the wig industry, which means that consumers are interested in the quality and innovation of the brand. This leadership mindset can have a positive impact on consumer purchasing decisions. 25.5% of people fully agree and recommend to those around them, with an

average value of 3.4 and a standard deviation of 1.37. A higher willingness to recommend reflects high consumer satisfaction with R brand products or services, which also means they believe that a good brand reputation will have a significant impact on purchase intention. Consumers generally believe that they will repeat purchasing R products, with 31% completely agreeing, with an average of 3.74 and a standard deviation of 1.26. This indicates a high level of satisfaction and trust in the brand, which may lead to consumers being willing to repeat purchasing R products. These may include reasons such as product quality, good shopping experience, brand reputation, and word-of-mouth.

Descriptive of Brand Image Data

TABLE V BRAND IMAGE DATA

Brand Image influence Purchase Decision	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	\bar{x}	SD
Q1.Believe R brand has a certain level of popularity.	22	16.3	20.8	19.8	21.3	3.02	1.45
Q2.Believe R brand has a good reputation.	25	19.8	18	23.8	13.5	2.81	1.39
Q3.Believe R brand has leading position in wig industry.	16.8	22.8	11.3	26	23.3	3.16	1.44
Q4.Believe R brand is trustworthy brand.	20.8	13.5	23.3	31.5	11	2.99	1.31
Q5.Can quickly associate R brand.	25.3	10.8	23	29.8	11.3	2.91	1.36
Q6.Very willing to recommend.	14.3	13	16.8	30.5	25.5	3.40	1.37

Descriptive of Decision Making Data

TABLE VI DECISION MAKING DATA

Decision-making	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	\bar{x}	SD
Q17. You choose wig, decide to buy R brand wig.	13	13.3	12.3	31.5	30	3.52	1.38
Q18. You know R brand information from We Chat, websites,etc	8.5	13.3	15.8	34.3	28.3	3.61	1.26
Q19. When see advertisement about R brand, you will buy R brand.	7	15.3	14.3	33.3	30.3	3.65	1.25
Q20. Brand reputation will affect purchase decision.	10.5	7	19.8	40	22.8	3.58	1.21
Q21. You will come back to buy one product again and again.	10	8	11.5	39.5	31	3.74	1.26
Q22. After consume, would you recommend others to buy it.	5.8	17.8	13.3	24.3	39	3.73	1.30

Hypothesis test

H₁:Demographic have influence on purchase intention.

H₀:Gender no have influence on purchase intention.

H₁:Gender have influence on purchase intention.

TABLE VII T-TEST OF GENDER				
t-test analysis				
	Gender(Mean±SD)		t	P
	Male	Female		
Purchase Intention	3.78±0.889	3.54±0.954	2.502	0.013

According to table VII, uses independent sample t-test to investigate the influence of gender on consumer purchase intention. According to the data obtained, gender has significant difference on consumer purchase intention, $p=0.013 < 0.05$, so it is statistically significant.Rejection H₀ and support H₁.

At the same time, we can obtain the average purchase intention of men and women through t-test. The average purchase decision intention of men is 3.78, and the average purchase decision intention of women is 3.54, $t=2.502$. The conclusion is that the average purchase decision intention of men is significantly higher than that of women.

H₀:Demographic (Age Education Income)no have influence on purchase intention.

H₁:Demographic (Age Education Income)have influence on purchase intention.

TABLE VIII F-TEST OF AGE、 EDUCATION、 INCOME

F-test analysis			
		F	P
Purchase	Age	0.550	0.699
Intention	Education	0.686	0.561
	Income	2.691	0.046

According to table VIII, this paper uses ANOVA analysis to investigate the influence of age on consumer purchase intention. The results showed that $F = 0.55$, $P > 0.05$, and there was no statistically significant difference among samples of different ages, Rejection H_1 and support H_0 . ANOVA analysis was used to investigate the influence of educational background on consumer purchase intention. The results showed that $f = 0.686$, $P > 0.05$, and there was no statistically significant difference among samples of different educational backgrounds, Rejection H_1 and support H_0 . ANOVA analysis was used to investigate the impact of income on consumer purchase intention. The results showed that $f = 2.691$, $P < 0.05$, and there were statistically significant differences in samples from different income segments, Rejection H_0 and support H_1 .

H₂: Brand Image have influence on purchase intention.

TABLE IX R SQUARE

	R ²	t	F Change	Durbin- Watson
Brand Image	0.016	0.011	6.501	2.024
Marketing strategy	0.162	0.000	19.069	2.048
Brand Image and Marketing Mix	0.165	0.000	39.204	2.051

According to table IX, the influence of brand image on purchase intention accounts for 1.6%. There is a linear relationship between independent variables and dependent variables, but R^2 is small, indicating that the linear relationship is weak. The D-W is near the number 2, so it shows that the model has no autocorrelation, and there is no correlation between the sample data, so the model is better. The F test of the model shows that the model also passes the F test ($F = 6.501$, $p = 0.011 < 0.05$), which also shows that brand image have a significant impact on purchase intention. The influence of marketing strategy on purchase intention accounted for 16.2%, and there was a linear relationship between independent variables and dependent variables. The

D-W is near the number 2, so it shows that the model has no autocorrelation, and there is no correlation between the sample data, so the model is better. The F test of the model shows that the model also passes the F test ($F = 19.069$, $p = 0.000 < 0.05$), indicating that marketing strategy (product, price, place, promotion) have a significant impact on purchase intention.

Brand image and marketing mix accounted for 16.5% of the impact on purchase intention. There is a linear relationship between independent variables and dependent variables, and the D-W value is near the number 2. Therefore, there is no autocorrelation in the model, there is no correlation between sample data, and the model is good. The F test of the model shows that the model also passed the F test ($F = 39.204$, $P = 0.000 < 0.05$), which also shows that brand image and marketing mix have a significant impact on purchase intention.

TABLE X REGRESSION MODEL OF BRAND IMAGER

	B	t	P(Sig.)	VIF
(Constant)	3.074	13.654	0.000	
brandimage	0.184	2.55	0.011	1

a. Dependent Variable: Purchase Intention

According to table X, the regression coefficient value of brand image is 0.184 ($t = 2.55$, $p = 0.000 < 0.05$), which means that brand image will have a positive impact on consumer purchase intention.

According to the table above, model formula is:

Consumer purchase intention = $3.074 + 0.184 \times \text{brand image}$
(1)

H₃: Marketing strategy (product 、 price 、 place 、 promotion) have influence on purchase intention.

TABLE XI REGRESSION MODEL OF MARKET STRATEGY

	B	t	Sig.	VIF
(Constant)	2.368	15.391	0.000	
product	0.065	1.86	0.064	1.293
price	0.126	3.122	0.002	1.405
place	0.059	1.504	0.133	1.396
promotion	0.13	3.286	0.001	1.43

a. Dependent Variable:Purchase Intention

According to table XI, the regression coefficient value of product is 0.065 ($t=1.86$, $p=0.064 > 0.05$), which means that product has no significant effect on consumer purchase intention. The regression coefficient value of price is 0.126 ($t=3.122$, $p=0.002 < 0.05$), which means that price has a significant impact on consumer purchase intention. The regression coefficient of place is 0.059 ($t=1.504$, $p=0.133 > 0.05$), which means that place has no significant effect on consumer purchase intention. The regression coefficient of promotion is 0.13 ($t=3.286$, $p=0.001 < 0.05$), which means that promotion has a significant impact on consumer purchase intention.

Model formula is::

$$\text{Consumer Purchase Intention} = 2.368 + 0.126 * \text{price} + 0.13 * \text{Promotion} \quad (2)$$

H4: Brand Image and Marketing strategy have influence on purchase intention.

TABLE XII REGRESSION MODEL OF BRAND AND MARKET STRATEGY

	B	t	Sig.	VIF
(Constant)	1.989	8.134	0.000	
BrandImage	0.133	1.992	0.047	1.008
Marketingmix	0.371	8.412	0.000	1.008

a. Dependent Variable:Purchase Intention

The regression coefficient of the independent variable brand image was 0.133 ($t=1.992$, $p=0.047 < 0.05$), and the regression coefficient of the independent variable marketing strategy was 0.371 ($t=8.412$, $p=0.000 < 0.05$).

The model formula is:

$$\text{Consumer purchase intention} = 1.989 + 0.371 * \text{marketing strategy} + 0.133 * \text{brand image} \quad (3)$$

So suppose H_4 test is support. In other words, brand image and marketing strategy is significantly positively correlated with consumer purchase intention.

Summary of Hypothesis test results

TABLE XII SUMMARY HYPOTHESIS RESULTS

		Content	Support/Reject
H_1	Demographic	Gender	Support
		Age	Reject
		Education	Reject
		Income	Support
H_2	Brand Image	Brand Image have influence on purchase intention.	Support
H_3	Marketing strategy	Product	Reject
		Price	Support
		Place	Reject
		Promotion	Support
H_4	Brand Image and Marketing strategy	Brand Image and Marketing strategy have influence on purchase intention.	Support

IV. CONCLUSION AND DISCUSSION

Based on demographic data, we can derive the following analysis:

Wigs are a fashion item that prioritizes attracting female consumers in any country. Because women usually have a higher focus on appearance, they may purchase wigs to change their hairstyle and adapt to different occasions and fashion trends (Muhtar et al., 2017). Wigs can provide a variety of different hairstyle choices, helping female consumers achieve more diverse and fashionable appearances, satisfying their pursuit of beauty and personalization. Consumers aged between 19 and 30 account for 31.5%, which is an important age group representing young people who place more emphasis on fashionable, innovative, and personalized products.

Based on the analysis of Brand Image, we can conclude the following analysis:

This study found that brand image does indeed increase consumer purchase intention. From the analysis in this article, we can find that when consumers perceive a good brand image, the average shopping willingness of consumers will increase. Once a positive image is established, the company can use these added values to promote its other products.

Based on the analysis of the marketing mix, we can draw the following analysis:

This study found a significant positive relationship between price and promotion in marketing mix and consumer purchase intention.

Consumers of different age groups are affected by promotional activities, and consumers of different income levels are also affected. As promotional expenses increase, customer loyalty also increases (Omotayo, O. et al.). The affordability, sensitivity, cost-effectiveness, and price of competing products of consumers can all affect their willingness to purchase (Mendez et al., 2015; Bose et al., 2016). In terms of marketing strategy, all researchers believe that promoting customer interest is the purpose of promotional activities. Promotional activities can stimulate consumer willingness to purchase, and the results indicate that consumers will consider whether there are promotional activities and price information before making a purchase

decision. The promotional status of products previously purchased by consumers can also affect brand selection. The difficulty and speed of obtaining products at the same time will encourage consumers to influence their purchasing decisions regarding the brand and product.

The significance of this study for practice is that by analyzing the relationship between brand image, marketing mix, and consumer purchasing intention, companies can better understand consumer needs and purchasing behavior, formulate effective marketing strategies, and enhance product market competitiveness and sales performance. This study explores consumer preferences for wigs, such as perceived quality and price, purchase reasons, and purchase channels. Companies can optimize their existing marketing strategies and increase customer purchase intention through consumer purchasing behavior. In addition, this study also validated brand image and purchase intention. For enterprises, in order to promote the upgrading of their brand image, they can refer to the consumer preferences for wig products surveyed and analyzed in this article when making decisions, which can help brands maximize and effectively utilize existing resources.

This study still has certain limitations.

(1) The data collected in the study are all from self-report by consumers, which may lead to some subjective bias in the results.

(2) The research is published online, and the collected data has a certain degree of randomness.

(3) This article focuses on the research of R brand in the Chinese market, while only focusing on R brand. It is one-sided for the use of other brand groups in the market. It is suggested that future research can expand the scope of research and conduct comparative studies.

This article uses three relational dimensions: brand image, marketing mix, and consumer purchase intention. Subsequent research can focus on the following main directions. (1) Qualitative data can be collected from regions with a high distribution of consumers, and the discussion of causal relationships among relevant variables can be strengthened. (2) The questionnaire used in this study can be further revised. The scale of marketing mix can be expanded according to different theories. (3) In the future, factors that affect purchase intention can be explored from different

dimensions such as customer satisfaction and customer loyalty. In addition, for more research, in the future, brand satisfaction and brand trust can be used as intermediaries to explore the factors that affect consumer loyalty.

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Influential Factors Of Digital Marketing Strategy On Purchase Intention Of Consumers: Case Study S Company

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ABSTRACT: The purpose of this paper is to detect the factors that influence digital marketing strategies on consumer purchase intention and to examine the impact of demographic characteristics on this issue. The research objectives of this paper are (1) To analyse the demographics of the customers of Company S. (2) To analyse the consumer behaviour of S-company customers. (3) To explore the impact of digital marketing mix on consumer purchase intention. This paper adopts the 6P's marketing mix, which are: product price, product type, product quality, product description, product delivery and promotion. Data from 400 samples were collected through an online questionnaire survey, and the questionnaire data were mainly analysed empirically in model relationship measurements, with descriptive analysis, regression analysis and analysis of variance (ANOVA) using SPSS statistical analysis software. The importance of this study is that it will enrich the research content of 6P theory on online marketing strategy in casual food industry. In addition, it can help Company S to highlight its strengths, improve corporate profitability, and provide empirical methods for the entire casual food industry. The results of the study show that product assortment, product quality and promotions in the digital marketing mix have a positive impact on consumers' purchase intention. In addition, the findings show that consumer intentions are also influenced by age, education and income.

Index Terms—Consumer behaviour, Demographics, Digital marketing strategy, Digital marketing mix, Purchase intention

I. INTRODUCTION

In today's rapid development of the Internet economy and social networks in the context of the times, the commodity economy is no longer the main battlefield of offline physical consumption, online consumer market has long been a must for enterprises to sell their products, as opposed to offline physical sales, online sales of a wider range of dissemination, dissemination of the lower cost, and therefore the Internet marketing strategy has gradually played an increasingly important role. For the study of today's network marketing strategy, S brand is a very worthy example, S brand from the establishment in 2012, only in the creation of the third year to reach the Tmall "snacks / nuts / speciality" category turnover of the first results, and will maintain this achievement for five years. S company can achieve today's

achievements, there is no doubt that it is successful, but in the Internet marketing strategy, the Internet marketing strategy has gradually played an increasingly important role. Undoubtedly successful, but after the gradual decline of the Internet dividend, from the point of view of operating income, its operating income in 2020 compared with 2019 decreased by 3.72%. Therefore, it is necessary and urgent for S Corporation to adjust its marketing strategy. With the further upgrading of the consumption structure of residents, the new retail industry has also achieved rapid development. Leisure food is gradually developing in the direction of "the fourth meal", and its role in the traditional dietary structure as a food source and supplement is gradually transforming into flavourful, nutritious, enjoyable, functional and entertaining food (Bi Jinfeng et al, 2020). How to accurately

grasp the needs of target customers, and even create demand, the advantages and strengths of their own products and precise dissemination to customers, is the enterprise product sales, and even the survival and development of the enterprise are urgently needed to solve the problem.

Purchase intention is the subjective probability of an individual engaging in certain behaviours, and purchase intention is a concept that extends from this. International scholars have analysed online purchase intention from various perspectives. Studies have shown that there are significant differences in consumers' perceptions of online purchase intention across gender, age, marital status and family structure (Bhat et al.2021). That is, demographic factors have an impact on consumer purchasing behaviour, and companies can adjust their marketing strategies according to this factor (Shahsavari et al.2019).

In terms of online marketing strategy, this paper will use the 6PS online marketing mix (Product Price, Product Variety, Product Quality, Product Description, Product Delivery, and Promotion) to analyse consumers' online purchase intentions and formulate online marketing strategies for Company S. As far as product price is concerned, price is the only variable in marketing strategy that can generate revenue, and price is directly related to the market acceptance of the product, as well as the profitability of the company, which is an important part of the marketing mix strategy. Therefore, companies must pay attention to the choice and use of price strategy (Song Lijun, 2010). Product variety is an important part of the marketing strategy, and firms are more likely to satisfy consumer demand by offering a variety of products (Haitao, 2022). Therefore, companies should pay close attention to their demand points through communication with consumers, and new product development concepts are more diversified and personalised (Li Xiaoshuang, 2017). In terms of product quality, product quality is the ability of a product to fulfil its function (Kotler & Keller, 2012). Scholars have suggested in past studies that product quality has a positive effect on consumer purchase interest (Sinurat, Heikal et al., 2021). About product description. Currently, e-commerce platforms usually use product detail pages to show the selling points of a product in detail. If product quality, fashion trends, price and other factors are put aside, it can be said that the design quality of

the product detail page directly determines the conversion rate of product buying and selling to a large extent (Pan Pei, 2017). In terms of product delivery, courier stations not only always provide users with a long time shop pickup service, but also complete the courier service that requires door-to-door delivery (Zhou Aiping, 2018). In terms of promotion, different promotion methods, which bring higher perceived value to consumers, can significantly increase their purchase intention (Dai Guoliang, 2019).

So the objectives of this study as follows:

- 1.To analyze demographic of customer of S company.
- 2.To analyze consumer behavior of customer of S company.
- 3.Exploring the Impact of Digital Marketing Mix on Consumer Purchase Intentions.

The research independent variables in this paper are Demographic and Digital Marketing Mix (6P'S) . The dependent variable is Purchase intention of consumers: case study S' Company.

The research framework of this paper is as follows:

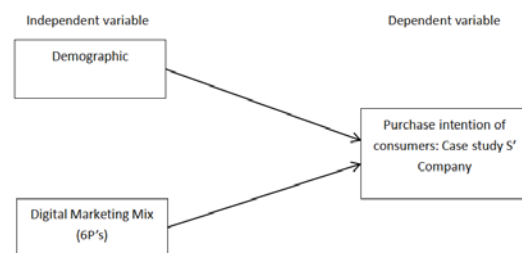


Fig.1 Research Framework

The research hypothesis is:

H₁ Demographic have influence on purchase intention.

H₂ Digital Marketing Mix have influence on purchase intention.

II. METHODOLOGY

In this paper, based on the results of the questionnaire survey, the following studies were conducted.

- (1) Overall and sampling techniques
- (2) Instrumentation
- (3) Validation and reliability test of the questionnaire
- (4) Data collection
- (5) Data analysis

2.1 Overall and sampling techniques

The sample for this study was calculated using Taro

Yamane's (Yamane, 1973) formula with a confidence level of 95 per cent. (The total population is 1,412 million according to the official data published by the Chinese Bureau of Statistics in 2022).

Taro Yamane's formula is as follows:

$$n = \frac{N}{(1 + N(e^2))}$$

Where:

n= required sample size

N= number of persons in the population

e= Allowable error (%)

Alternative numbers in the formula:

$$\begin{aligned} n &= \frac{1.412 \times 10^9}{(1 + (0.05^2) \times 1.412 \times 10^9)} \\ &= \frac{1.412 \times 10^9}{(1 + 0.0025 \times 1.412 \times 10^9)} \\ &= \frac{1.412 \times 10^9}{3530001} \\ &= 399.99 \end{aligned}$$

After calculating the sample size using Taro Yamane's formula, the sample size was 399.99. In order to obtain reliable data, the sample size was increased to 400.

2.2 Instrumentation

The questionnaire survey is about consumer satisfaction with the products of company s. Based on the 6P theory, the questionnaire questions were designed from six aspects: product variety, product price, product quality, promotion, product description and product delivery. The questionnaire can be divided into basic consumer information, purchasing behaviour, factors affecting consumer purchasing decision and purchasing decision process.

Among them, the first part is about basic consumer information, including consumers' age, gender, and education level.

The second part is about purchasing behaviour, which aims to measure the basic consumer purchasing behaviour towards S Company's products and consists of six questions. The third part is to investigate the impact on consumers' purchasing decisions, using Likert for the questionnaire. It is mainly set up in 6 aspects of closed-ended questions on product variety (Q12~Q15), product price (Q16~Q19), product quality (Q20~Q22), promotion (Q23~Q26), product description (Q27~Q30), and product delivery (Q31~Q35),

and based on the consumer's satisfaction with the products of Company S in these 6 aspects, it analyses the products of Company S problems in the current marketing strategy.

The fourth part of the study was to examine consumers' perceived risk of online shopping. Scoring was still done using a 5-point Likert scale and questionnaire, including questions Q36 to Q41.

2.3 Validation and reliability test of the questionnaire

The questionnaire was designed to ensure that each question and answer option was valid and served the purpose of the study. Consumers were pre-surveyed using 30 questionnaires formal questionnaires to fully reflect their purchase intention. The validity of the data was also ensured through validity analysis.

2.3.1 Reliability and validity test of Marketing mix

Table I TOAL RELIABILITY TEST OF DIGAL
MARKETING MIX SCALE

	Cronbach's Alpha
Product Variety	.911
Product Price	.878
Product Quality	.857
Promotion	.881
Product Description	.907
Product Delivery	.898

From the above table, it can be seen that Cronbach's Alpha are all greater than 0.9, which indicates that the dataset is highly reliable. Therefore, all the above variables fulfil the requirements and can be retained.

2.3.2 Reliability and validity test of Decision-making process

The reliability and validity of the decision-making process was tested on a statistical form consisting of six questions, based on the relevant questions in part 4 of the questionnaire.

Table II TOAL RELIABILITY TEST OF DECISION-
MAKING PROCESS SCALE

Cronbach's Alpha	N of Items
.915	6

From the above table, it can be seen that Cronbach's Alpha is greater than 0.9, which indicates that the dataset has a high

level of reliability. Therefore, all the above six variables fulfil the requirements and can be retained.

2.4 Data collection

In this study, questionnaires were randomly sent to respondents through online social media. Data collection took place in November 2023, and complete and valid questionnaire results were selected for further analysis.

2.5 Data Analysis

The study statistically analysed the sample data through SPSS statistical analysis software. The following analytical tools were mainly used:

(1) Reliability analysis:

Cronbach's alpha ranges from 0 to 1. When Cronbach's alpha is closer to 1, the reliability is higher; conversely, Cronbach's alpha is closer to 0. Theoretically, when Cronbach's alpha is greater than 0.9, the reliability of the scale is excellent; when Cronbach's alpha ranges from 0.8 to 0.9, it indicates that the scale's reliability is acceptable; when Cronbach's alpha is between 0.7 to 0.8, it indicates that the scale's design has some reference value; when Cronbach's α is below 0.7, it indicates that the question items of the scale are not well designed and need to be redesigned.

(2) Sample structure analysis:

Different statistical models were used to study the relationship between the variables. The data were analysed in depth using t-test, multiple regression analysis and ANOVA and the research hypotheses were tested by significance test.

(3) Descriptive statistical analysis.

Descriptive statistical analysis is to analyse the frequency, mean, standard deviation and other statistical data of the sample data, we can understand the central tendency and distribution pattern of the sample data, and better study the consumer's purchasing preference.

(4) A 5-point Likert scale was used to score the questionnaire. Rating Scale or Likert Scale. The five-point Likert scale is as follows.

Strongly Agree	5
Agree	4
Uncertain	3
Disagree	2
Strongly Disagree	1

(5) The data translation based on Best and Kahn (2006)

shows the results of the study variables and describes them through a descriptive writing model. The translation was based on Best and Kahr (2006) using $(5-1)/5=0.80$ as shown below.

Between 1.00-1.80 means respondent strongly disagreed with this statement

Between 1.81-2.60 means respondent disagreed with this statement

Between 2.61 -3.40 means respondent is neutral with the statement.

Between 3.41 -4.20 means respondent agreed with this statement.

Between 4.21 -5.00 means respondent strongly agreed with this statement

III. RESULTS AND DISCUSSION

This chapter uses statistical methods to evaluate and interpret the results of the study. The results of the study are as follows:

3.1 Demographic data

The purpose of this part of the study is to analyse the demographics of S's customers.

Table III DEMOGRAPHIC FREQUENCY TABLE

	Frequency	Percentage
Age		
Under 18 years old	19	4.75
18-25 years old	75	18.75
26-35 years old	158	39.50
36-45 years old	96	24.00
Above 45 years old	52	13.00
Gender		
Male	214	53.50
Female	186	46.50

CONTINUE Table III DEMOGRAPHIC
FREQUENCY TABLE

Education level		
Junior high school or below	17	4.25
High school	88	22.00
College	142	35.50
Undergraduate	144	36.00

Postgraduate and above	9	2.25
Monthly income		
4,000(RMB) and below	242	60.50
4,001-7,000 (RMB)	107	26.75
7,001-10,000 (RMB)	36	9.00
10,001 (RMB) and above	15	3.75

The results of the study showed that among the 400 respondents, a higher percentage of consumers were male. 39.5 % of the consumers were between the ages of 26 and 35. 36 % had a bachelor's degree. Most of them have a monthly income of around 4000(RMB).

3.2 Descriptive statistics of Purchasing Behaviour

The purpose of this correlation study is to analyse the consumer behaviour of S's customers.

Table IV FREQUENCY OF CONSUMER BEHAVIOUR

	Frequency	Percentage
Snack types		
Dried fruits and nuts	111	27.75
Cakes/pastries/crumbles	72	18.00
Candy	38	9.50
Chocolate	56	14.00
Dried fruit/honey money	17	4.25
Dried meat pastries	97	24.25
Other leisure food	9	2.25
Understood		
Yes	400	100.00
No	0	0.00
Reason for Purchase		
Good quality and taste	135	33.75
Unique and lovely packaging image	13	3.25

High brand awareness	10	2.50
Suitable price	152	38.00
Recommended by friends and relatives	90	22.50
7,001-10,000 (RMB)	36	9.00
10,001 (RMB) and above	15	3.75
Interval Time		
Every day	18	4.50
2-3 times per week	46	11.50
Once a week	72	18.00
Once a month	147	36.75
Other	117	29.25
Price Range		
Less than 100 RMB	168	42.00
100-300 RMB	139	34.75
300-500 RMB	68	17.00
500 RMB and above	25	6.25
Purchase Method		
Tao bao	153	38.25
Tik tok	54	13.50
JD (Jing Dong)	149	37.25
Other	44	11.00

By analysing the purchasing behaviour of consumers, we can get from 400 Chinese respondents that all consumers are aware of S Company's products, and consumers' favourite products are dried fruits and nuts, accounting for 27.75% of them. Consumers chose to buy S Company products most often because of their right price, accounting for 38% of them. Consumers most often buy them once a month, 36.75 per cent of them. Consumers usually spend less than \$100, 42 per cent of them. Most frequently through Taobao, 38.25 % of them.

3.3 Descriptive analysis of digital marketing mix

The purpose of this part of the study is to examine the impact of digital marketing mix on consumer purchase intention.

Table V DESCRIPTION OF THE DIDITAL MARKETING MARKETING MIX

	Strongly Disagree	Disagre e	Uncert ain	Agree	Strongly Agree	Mean	SD.
Product Variety							
Rich variety and rich flavor	10.8%	24.0%	6.5%	27.3%	31.5%	3.448	1.417
Overlapping with products from other brands	19.8%	14.5%	4.3%	36.8%	24.8%	3.323	1.481
Strong innovation in product flavor	11.3%	17.5%	17.3%	37.3%	16.8%	3.308	1.256
Product portfolio to meet demand	13.0%	21.0%	7.5%	20.8%	37.8%	3.493	1.487
Product Price							
Pricing is reasonable	16.8%	21.0%	5.3%	24.0%	33.0%	3.355	1.523
The pricing is very clear	12.0%	19.5%	12.3%	27.5%	28.7%	3.415	1.390
Cheaper than other brand products	13.8%	13.5%	19.5%	23.8%	29.5%	3.418	1.390
Price is multi-range	10.8%	16.0%	20.0%	26.5%	26.8%	3.425	1.322
Product Quality							
Good product quality, safety, and hygiene conditions	23.0%	14.5%	5.0%	11.3%	46.3%	3.433	1.687
You will buy because of the quality of S's products	16.5%	19.3%	9.5%	14.2%	40.5%	3.430	1.561
The product quality is superior to other brand products	23.8%	13.0%	7.0%	17.8%	38.5%	3.343	1.639
Promotion							
There are many online promotional advertisements	8.0%	31.3%	3.5%	12.3%	45.0%	3.550	1.503
The promotional activities are very attractive	15.5%	15.3%	12.5%	29.5%	27.3%	3.378	1.421
The advertising campaign is very creative	11.5%	23.0%	9.3%	21.5%	34.8%	3.450	1.448
Company S's have promation followed seasonal	12.5%	21.8%	3.8%	22.5%	39.5%	3.548	1.493
Product Description							
The product description displays the selling points of the product	15.3%	17.8%	9.8%	33.8%	23.5%	3.325	1.402
The product detail page explains the details of the product	13.5%	23.5%	7.5%	28.7%	26.8%	3.318	1.427
Learn about the product's after-sales service from the product description.	9.3%	30.0%	11.3%	18.3%	31.3%	3.323	1.415
chose to buy this product because of the description on the product details page	11.8%	19.3%	15.8%	32.3%	21.0%	3.315	1.315
Product Delivery							
Products delivered in undamaged packaging	20.5%	13.3%	8.0%	34.8%	23.5%	3.275	1.473
Products are offered with free shipping	7.8%	21.0%	10.3%	16.8%	44.3%	3.688	1.411
Products are delivered within a reasonable time	12.3%	19.3%	2.3%	32.5%	33.8%	3.563	1.430
Products are delivered door-to-door	11.5%	10.5%	20.3%	29.0%	28.7%	3.530	1.315

Consumers usually find that S's product portfolio also meets their purchasing needs. Our company's product portfolio meets procurement needs, with an average value of 3.493

and a standard deviation of 1.487. Among them, 151 people chose to fully agree, accounting for 37.8%. The prices of these products are in multiple ranges, with an average of

3.425 and a standard deviation of 1.322. Among them, 107 people chose to fully agree, which is 23.8%. 107 people chose to fully agree, which is 26.8%. The company's product quality is good, safe and hygienic. 185 people strongly agree, accounting for 46.3%, with an average value of 3.433 and a standard deviation of 1.687. There are many promotional advertisements online, of which 180 choose strongly agree, accounting for 45%, with an average value of 3.550 and a

standard deviation of 1.503. The product description displays the selling points of its product, with 135 people choosing to agree, accounting for 33.8% of them. The average value is 3.325, with a standard deviation of 1.402. S company's products are free of charge, with an average value of 3.688 and a standard deviation of 1.411. Among them, 177 people chose to fully agree, accounting for 44.3%

3.4 Descriptive analysis of the purchase intention

Table VI DESCRIPTION OF THE DECISION- MAKING PROCESS

Decision-making process for purchasing Brand S foods	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean	SD.
When you choose a snack, then you decide to buy an S brand snack.	39 (9.8)	76 (19.0)	79 (19.8)	109 (27.3)	97 (24.3)	3.373	1.299
You've learned about the S brand from wechat, websites and billboards	34 (8.5)	116 (29.0)	36 (9.0)	90 (22.5)	124 (31.0)	3.385	1.397
When you see an advertisement for an S brand, you will buy an S brand snack	58 (14.5)	58 (14.5)	43 (10.8)	159 (39.8)	82 (20.5)	3.373	1.345
S Company's brand image and reputation will influence your purchase decision	50 (12.5)	60 (15.0)	56 (14.0)	138 (34.5)	96 (24.0)	3.425	1.334
When you buy the S brand snacks, you will come back again and again	40 (10.0)	77 (19.3)	45 (11.3)	124 (31.0)	114 (28.5)	3.488	1.345
After spending money and liking it, would you recommend others to buy it?	59 (14.8)	37 (9.3)	74 (18.5)	157 (39.3)	73 (18.3)	3.370	1.293

According to Table VI, we can see that is when choosing a snack, decided to buy a snack of brand S, of which 109 people chose to identify with it, accounting for 27.3 per cent, followed by 97 people chose to fully identify with it, accounting for 24.3 per cent. The mean was 3.373 with a standard deviation of 1.299. have learnt about Brand S from WeChat, websites and billboards with a mean of 3.385 and a standard deviation of 1.397, of which 124 chose to fully identify with it, accounting for 31%. When seeing an advertisement of Brand S, one will buy a snack of Brand S with a mean of 3.373 and a standard deviation of 1.345. 159 of them chose to identify with it, accounting for 39.8%, followed by 82 people who chose to identify with it completely, accounting for 20.5%. S's brand image and reputation will affect the purchasing decision with a mean of 3.425 and a standard deviation of 1.334. 138 people chose to identify with it, accounting for 34.5%. agree with it, which is 34.5 per cent. Secondly, 96 people (24%) chose

to agree completely. When purchasing snacks from brand S, they will come back again and again with a mean of 3.488 and a standard deviation of 1.345. 124 of them chose to identify with it, or 31 per cent, followed by 114 who chose to identify with it completely, or 28.5 per cent. After spending money and liking it, they would recommend someone else to buy it, with a mean of 3.370 and a standard deviation of 1.293. 157 of them chose to identify with it, or 39.3 per cent. The next most popular choice was 74 people, or 18.5 per cent, who chose not sure. Seventy-three people chose to agree completely, or 18.3 per cent.

3.5 Hypothesis Test

H1 Demographic have influence on purchase intention.

Table VII T-TEST ANALYSIS OF GENDER

T-test analysis		
Consumer purchasing decision-making	t	P
	-0.311	0.756

H₀: There is no significant difference in consumers' purchase intention across gender.

H₁: There is a significant difference in the purchase intention of consumers of different genders.

From the above table, it can be seen that the effect of gender difference on consumer buying behaviour has been studied using independent sample t-test. From the above table it can be seen that: there is no significant effect ($p > 0.05$) of different gender samples on consumer buying behaviour and hence it is not statistically significant. This indicates acceptance of the original hypothesis (H₀) and rejection of the alternative hypothesis H₁ that there is no significant effect of different gender samples on consumer buying behaviour.

Table VIII F-TEST ANALYSIS OF DEMOGRAPHIC

F-test analysis			
		F	P
Decision	Age	2.46	0.045
-making	Education	2.463	0.045
	Income	2.727	0.044

H₀: There are no significant differences in consumer purchase intention based on Demographic (Age, Education, Income) .

H₁: There are significant differences in consumer purchase intention based on Demographic (Age, Education, Income) .

The f-test was used to investigate the effect of demographics on consumers' purchasing decisions. From the data obtained, there is a significant difference between age on consumers' purchase intention with $p = 0.045 < 0.05$ and therefore statistically significant. This indicates that the original hypothesis (H₀) is rejected in favour of the alternative hypothesis H₁ that there is a significant effect of sample age on consumer purchasing behaviour across samples. There is a significant difference between education on consumer purchase intention education, $p = 0.045 < 0.05$ and therefore statistically significant. This indicates that the original hypothesis (H₀) is rejected and supports the alternative hypothesis H₁ that there is a significant effect of different education of the sample on consumer buying behaviour. There is a significant difference between income on consumer purchase intention, $p = 0.045 < 0.05$ and therefore

statistically significant. This indicates that the original hypothesis (H₀) is rejected and supports the alternative hypothesis H₁ that different income of the sample has a significant effect on consumer buying behaviour.

3.6 Regression Analysis

H₂ Digital Marketing Mix (product delivery, product variety, product price, product quality, promotion, product description) have influence on purchase intention.

Table IX SUMMARY OF REGRESSION MODEL OF
DIGITAL MARKETING MIX AND CONSUMER
PURCHASE INTENTION

	R	R ²	Change Statistics			Durbin - Watson
			R ² Change	F Change	Sig.F Change	
1	.607 ^a	.368	.368	38.209	.000	2.042
a. Predictors: (Constant), product_delivery, product_variety, product_price, product_quality, promotion, product_description						
b. Dependent Variable: purchase intention						

The linear regression analysis with digital marketing mix as the independent variable and consumer purchase intention as the dependent variable shows that the correlation coefficient R is 0.607 and the coefficient of determination R² is 0.368, which indicates that the regression equation explains 36.8 per cent of the total variables and that there is a linear relationship between the independent variables and the dependent variable. The D-W value is 2.042, which indicates that there is no autocorrelation in the model, and that the correlation between the sample data and the model is better. The F-test of the model found that the model also passed the F-test with an F-value of 38.209 and a p-value of 0.000, which is less than 0.05, which also indicates that the digital marketing mix has a significant effect on consumer purchase intention.

TableX REGRESSION MATRIX OF DIGITAL
MARKETING MIX ON CONSUMER PURCHASE
INTENTION

Model	B	t	P(Sig.)	VIF
(Constant)	1.045	6.016	0.000	
product_ variety	0.120	2.767	0.006	1.475
product_ price	0.056	1.219	0.224	1.629
product_ quality	0.159	4.219	0.000	1.600
promoti on	0.206	4.690	0.000	1.633
product_ descripti on	0.076	1.571	0.117	1.681
product_ delivery	0.071	1.283	0.200	1.848

The regression coefficient of product variety is 0.120, t-value is 2.767, p-value is 0.006, which is less than 0.05, so product variety has a significant effect on consumers' purchase intention. The regression coefficient of product price is 0.056, t-value is 1.219, p-value is 0.224, which is greater than 0.05, so the product price has no significant effect on consumers' purchase intention. The regression coefficient of product quality is 0.159, t-value is 4.219, p-value is 0.006, which is less than 0.05, so product quality has a significant effect on consumers' purchase intention. The regression coefficient value of promotion is 0.206, t-value is 4. The regression coefficient value of product description is 0.076, t-value is 1.571, p-value is 0.117, which is greater than 0.05, so there is no significant effect of product description on consumers' purchase intention. The regression coefficient value of product delivery is 0.071, t-value is 1.283, p-value is 0.2, which is greater than 0.05, so product delivery has no significant effect on consumer purchase intention. The tolerance value of the independent variable digital marketing mix is less than 0.1 and VIF is less than 5, which means that there is no covariance between the variables.

Based on the above analysis, we have obtained the following regression equation:

$$\text{Purchase intent} = 1.045 + 0.12 \times \text{product variety}$$

$$\text{Purchase intent} = 1.045 + 0.159 \times \text{product quality}$$

$$\text{Purchase intent} = 1.045 + 0.206 \times \text{promotion}$$

Table XI SUMMARY OF TESTS OF RESEARCH
HYPOTHESES

		Content	Support/ Reject
H ₁	Demographic	Gender	Reject
		Age	Support
		Education	Support
		Income	Support
H ₂	Digital Marketing Mix	Product variety	Support
		Product price	Reject
		promotion	Support
		Product description	Reject
		Product delivery	Reject
		Product quality	Support

IV. CONCLUSION AND DISCUSSION

This paper examines the factors influencing consumers' purchase intention by digital marketing strategies, including demographics, digital marketing mix (product variety, product price, product quality, product description, product delivery, and promotion), using Chinese online consumers as a research object and Company S as an example. This can help companies develop effective strategies to attract consumers to shop.

In the measurement of model relationships, the data obtained from the questionnaire survey was mainly analysed empirically and the following conclusions were drawn from the descriptive analysis, regression analysis and analysis of variance (ANOVA) using SPSS statistical analysis software. Demographic data has a positive impact on purchase intention. Product variety, product quality and promotion in the digital marketing mix have a positive impact on consumer purchase intention. Offering a variety of products can satisfy the needs of different consumers and increase the likelihood of purchasing choices, thus increasing purchase intentions. This result is consistent with the previous findings presented by Haitao (2022) that offering a variety of products is more likely to satisfy consumers' needs. High-quality products increase consumer trust and satisfaction with the product, increase the intention to repurchase, and contribute to word-of-mouth communication, which in turn

promotes purchase intention. This result is in line with the findings of previous studies such as product quality has a positive impact on consumer purchase interest as suggested by Sinurat, Heikal, Simanjuntak, Siahaan & Nur Ilham (2021). Offering discounts and promotions can stimulate consumers' purchase interest and increase purchase intention, and promotion has an effect on consumers' purchase intention. This result is consistent with the results of previous studies such as Rusmiyati & Hartono (2022), Juhaeri (2020).

In this paper, we have analysed the impact of online promotions on consumers' purchase intention only from the perspectives of product type, product price, product quality, promotion, product description and product delivery in our study of the impact of online marketing mix on consumers' purchase intention. In this regard, in future research on the model of consumer purchase intention in the online marketing environment, other factors affecting purchase intention can be considered comprehensively, including consumer habits, herd mentality and social background. In addition, the combination of online marketing strategies is not only product variety, product price, product quality, promotion, product description, and product delivery, but other combinations of strategies can also affect the conceptual change of consumer psychology.

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Marketing Mix Factors Influencing the Ice Cream Purchasing Decision Process of Chinese Consumers in Jiujiang City

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Abstract. The objectives of this research article are to 1) study the demographic characteristics of Chinese consumers in Jiujiang, 2) compare the ice cream purchasing decision process of Chinese consumers in Jiujiang. Classified by demographic characteristics, 3) Analyze the market mix factors that influence the ice cream purchasing decision process of Chinese consumers in Jiujiang City, and 4) to analyze market mix factors influencing the preference of major Chinese ice cream brands among consumers in Jiujiang City. The sample group used in this research was 400 Chinese consumers with experience consuming ice cream in Jiujiang City. An online questionnaire was used as a tool to collect data by means of convenience sampling. Statistics used in the analysis include frequency, percentage, mean, and standard deviation. Testing hypotheses with t-test statistics, One-way ANOVA or F-test statistics, and using multiple regression statistics to find relationships between variables. The results of the hypothesis testing found that Chinese consumers in Jiujiang City with different genders, ages and average monthly incomes have different influences on their ice cream purchasing decisions at a statistical significance at the .05 level. In terms of the marketing mix factors, price and marketing promotion have an influence on the ice cream purchasing decision process at a statistical significance at the .05 level.

Keywords: Marketing Mix, Purchasing Decision Process, Consumer Behavior, Ice Cream

I. INTRODUCTION

Ice cream - a dessert that has gained unprecedented popularity since its birth in China 4,000 years ago. Although it was the first produced ice cream looked more like cloudy, frozen milk than today's soft cold cream. Back then, China was just beginning to milk farm animals. Milk is therefore classified as an expensive food. The elite would deposit milk in the snow to freeze it. After that, it began to develop frozen fruit juices to eat. By the 13th century, all kinds of frozen desserts were available for sale, and they were sold on streets and alleys throughout Beijing. In the 14th century, frozen milk and fruit juices also made their way to Italy and then to France. In celebration of the wedding ceremony between Catherine de Medici of Venice and future King Henry II of France in 1533, in addition to serving frozen desserts in various flavors, Semi-frozen desserts are also served. (made from sweetened condensed cream) which resembles today's ice cream after a Spanish doctor in Rome discovered a special technique that the temperature of the frozen ice cream ingredients will drop to freezing more quickly. In 1870, the image of Italian ice cream sellers became a familiar sight on the streets of London, the city became the capital of ice cream due to its enormous production. This is also the birthplace of ice cream soda or ice cream floats (Kroobannok, 2009). Currently, ice cream in the Chinese market has continuously upgraded in both quality and price,

with new brands regularly entering the market. In 2018, the number of ice cream brands sold online in the Chinese market was only 60 brands, but in 2019 it increased to 150 brands. In summer, ice cream is a popular product among Chinese consumers. Because it can quench your thirst and cool you down very well, with many colors, flavors, and styles to choose from. This makes ice cream popular among consumers, especially children and young people. It can be considered one of the top-selling dessert products in the Chinese market. In 2022, the value of the ice cream market in China totaled 167.2 billion yuan, an increase of 4.5 percent compared to the same period last year. And it is expected that in 2023 the value will increase to 175.9 billion yuan due to the improvement of consumption and income levels of Chinese consumers. As a result, the demand for ice cream consumption in China continues to increase (Kidkaa.com, 2023)

From the survey data it was found that 80 percent of Chinese consumers say they like low-sugar ice cream and low fat and sugar free. Because nowadays, most consumers are paying attention to their health. Therefore, it is popular to eat ice cream that has beneficial ingredients and provides good nutrition for the body. Among the new generation of consumers, they are most interested in the taste and price of ice cream, and it is expected that in the future ice cream with new and unusual flavors will create even more challenges in the market.



Fig.1 Ice cream market value in China
Source: Office of Commercial Affairs- kunming,
<https://www.iimedia.cn/c400/87625.html>

Although the ice cream market in China has continued to grow and is still in demand by consumers of all ages, if we analyze it more clearly, we will find that the ice cream market in China is divided into 3 groups: different brands Major Chinese brands and traditional ice cream brands provide consumers with a wide selection and strong competition that can meet different consumer needs, focusing on the development of ice cream with different flavors and styles. and new textures to attract consumers' interest and make purchasing decisions easier. However, due to the differences in the ice cream market, all 3 groups have different responses to the needs of Chinese consumers, this may result in different factors in choosing to buy ice cream and the decision-making process for purchasing ice cream.

This is because Chinese consumers' quality of life and consumption power are increasing. In particular, the demand for snack products has also increased. For example, the ice cream product market in China is expanding every year. It can be seen that in the market there are old brands of ice cream products that are starting to launch new types of ice cream products or collaborating with various licensed cartoons. In addition, tea shop business and restaurants also sell ice cream products. As a result, China's ice cream industry has become more diverse. Jiujiang City is another city that is growing rapidly with various industries, and the ice cream industry is one of the significant ones. It is easily accessible through many retail stores and via online platforms, these issues have transformed the ice cream consumption habits of the Chinese population by providing a convenient online shopping experience and attracting customers with a wide range of flavors and designs of ice cream. This has led to the emergence of "Good looking ice cream" which has garnered significant attention from online consumers, especially among the Gen-Z demographic in China. They are leading the trend of ice cream consumption on online platforms such as Xiaohongshu, Taobao Douyin, and others. This application is highly popular among Chinese users, with over 200 million users currently. [16] For this reason, researchers are interested in why a small city like Jiujiang has experienced economic growth, especially in the ice cream industry, and why are Chinese consumers in

Jiujiang interested in ice cream? Therefore, the researcher is interested in studying on Marketing Mix Factors influencing decision process of Chinese Consumers in Jiujiang City in order to determine what factors affect the decision to purchase ice cream of consumers in this city, which will be beneficial to ice cream business operators in developing and improving ice cream to continue to be in demand among consumers.

II. METHODOLOGY

Literature Review

Concepts and theories about purchasing behavior must explain the word decision. It means choosing to do something from among many alternatives. [3] Consumer behavior is driven by internal factors such as motivation and learning. Personality and attitude that manifests in the desire and awareness of the wide range of products available to choose from and the activities in which the consumer engages in relation to available information or information provided by the manufacturer and, finally, in the evaluation of these alternatives which refers to the decision-making process that creates satisfaction. [4] Consumer purchasing decisions refer to behavior and mental processes in selecting products or services. [5]

Concepts and theories regarding the marketing mix depend on the nature of the activities of the organization and the nature of the targeted market. It must be put together in such a way as to enable the organization to meet its customers' needs and wants. [6] The marketing mix concept works as a tool used by an organization to survive in a competitive environment. This concept is controlled by the organization and comprises four elements - product, price, place, and promotion. [7] Marketing is grouped under four pillars: Product, Price, Place, and Promotion, which describes a marketing mix as a controllable set of marketing tools that Companies use them to create desired responses in their target markets (a set of these tools is often referred to as the 4Ps of marketing, which includes Product, Price, Place, and Promotion). One of the marketing tools used is marketing mix. This is because marketing involves the activity of making decisions about the target consumer groups to be served. After receiving the target consumer group, the product is launched in the market by providing the right product, price, place, and promotion. [8]

Concepts and theories regarding the purchasing decision process refer to the process of purchasing a product that has more than one choice or more. Consumers consider the decision-making process to be both mental (feelings, thoughts) and physical actions that take place over time. These behaviors cause purchasing or buying behavior following others. The purchasing decision process is a sequence of steps that consumers use in deciding to buy products and services in 5 steps that consumers may not want. All steps must be followed when deciding to purchase a product or receive a service. Consumers may skip some steps or return to previous steps. decision process Start before buying and have effects after purchase. [9] The decision process is a basic psychological process that

reviews the important reasons for a consumer's actual purchase decision. It is the entire experience of learning, choosing, using, and even until you stop using the product. Consumers usually have a purchasing decision process that consists of 5 steps: awareness of the problem; Information search, evaluation, choice, purchasing decision and post-purchase behavior, where the purchase process begins before the actual purchase and will have consequences for a long time. For this reason, marketers must develop various activities and methods. that can reach consumers at every step of the decision-making process. [10]

However, consumers may not always complete the five steps of the purchasing decision process but may skip some steps due to circumstances and sources of internal and external influences that affect the consumer's decision-making process consisting of a sequence of activities. This includes perceived difficulties in finding information, evaluating, and selecting brands, selecting stores, and the purchasing and post-purchase process.

Methods

Population, Samples, and Data Collection

Target Population: In this study, the researcher studied only 982,777 consumers residing in Jiujiang who had experience purchasing ice cream. [11] The researcher determines the sample size. Using Taro Yamane's formula (Taro Yamane, 1967) to estimate the population proportion. The tolerance level is 5% and the confidence level is 95%.

$$\text{Formula } n = \frac{N}{1+Ne^2}$$

where n = sample size

N = number of populations used in research

e = sampling error (0.05)

Substitute the values according to the formula

$$n = \frac{982,777}{1 + 982,777 (0.05^2)}$$

$$n = \frac{982,777}{2,457.94}$$

$$n = 399.87 \approx 400 \text{ Samples}$$

From the calculation, the sample group used in the research was equal to 400 people in order to obtain a sample group with qualifications and characteristics that could be representative of the population that the researcher conducted this study. The researcher used convenience sampling to collect data from 400 samples of people who lived in Jiujiang City and had experience in consuming ice cream. The research, theories, literatures, and related documents have been studied and reviewed to create the research tools. This research was quantitative research using close-ended questions and rating scale. The online

questionnaire consists of 4 parts: 1) Demographic characteristics, 2) ice Cream Purchasing Behavior, 3) marketing mix factors influencing ice cream purchasing decision process, and 4) ice cream purchasing decision process support questionnaire in total of 35 questions. The Cronbach's alphas were .962 and for two parts of the questionnaire: Marketing mix factors influencing ice cream purchasing decision process, ice cream purchasing decision process. The overall reliability of the questionnaire was .934.

Data Analysis

The data was analyzed using descriptive statistic techniques, an independent t-test, simple regression analysis, and multiple regression analysis to test these following hypotheses:

The demographics of the 400 participants were as follows: It was found that the sample was more female than male. Females were 282 people, accounting for 70.5 percent and males were 118 people, accounting for 29.5 percent, the majority of the sample is between the ages of 21-30, with a total of 184 people, representing 46.0 percent, followed by those between the ages of 31-40, with 87 people, representing 21.8 percent, between the ages of 41-45 years. There were 86 people, representing 21.5 percent, aged 50 years and over, 39 people, representing 9.8 percent, and the sample who were less than or equal to 20 years old, there were 4 people, representing 1.0 percent, respectively, the majority of the sample group are married, numbering 291 people, accounting for 72.8 percent, followed by having single status, numbering 81 people, accounting for 20.3 percent, and having family status of widowed/divorced. 28 people, accounting for 7.0 percent, respectively, the majority of the sample had a bachelor's degree/college level education, numbering 324 people, accounting for 81.0 percent, followed by high school level, numbering 49 people, accounting for 12.3 percent, post-graduation level number 21 people, accounting for 5.3 percent, and 6 people below high school, accounting for 1.5 percent, respectively, and the majority of the sample had an average monthly income of more than 5,000 ¥, 203 people, accounting for 50.8 percent, followed by an average monthly income between 3,501 - 5,000 ¥, 164 people, accounting for 41.0 percent. The average monthly income was between 2,301 - 3,500 ¥, 29 people, accounting for 7.3 percent, and the average monthly income was less than or equal to 2,300 ¥, 4 people, accounting for 1.0 percent, respectively.

From the ice cream purchasing behavior, it was found that the majority of the sample bought popsicle style ice cream, 181 people, accounting for 45.3 percent, the ice cream flavor that the sample purchased most often was vanilla ice cream, 130 people, accounting for 32.5 percent, the types of ice cream that the sample group likes to have the same ratio, that is, foreign brand ice cream, 200 people, accounting for 50.0 percent, and major Chinese brand ice cream, 200 people, accounting for 50.0 percent, the foreign ice cream brand that the sample group likes the most is Nestle, 199 people,

accounting for 49.75 percent, the major Chinese ice cream brand that the sample liked the most was Yili, 191 people, accounting for 47.75 percent, the majority of the sample group bought ice cream from department stores, 200 people, accounting for 50.0 percent, the majority of the sample paid 20 ¥ and above per time to buy ice cream, accounting for 53.3 percent, and it was found that the majority of the sample group bought ice cream 3 times per month, 243 people, accounting for 60.8 percent.

From the marketing mix factors influencing ice cream purchasing decision process, it was found that the marketing mix factors that influence the ice cream purchasing decision process. Overall, the mean value was 3.88 and the standard deviation (SD) was 1.08, which is at a very influential level.

From the ice cream purchasing decision process, it was found that the purchasing decision process that affects the ice cream purchasing decision process has a mean of 4.25 and a standard deviation (SD) was 0.89, which is at the most influential level.

III. RESULTS AND DISCUSSION

Testing the hypothesis: The ice cream purchasing decisions classified by demographic characteristics

H1: Different demographic characteristics have different influences on the ice cream purchasing decision of consumers in Jiujiang city.

Table 1 Comparison of personal data classified by gender with different influences on ice cream purchasing decisions

Gender	n	\bar{x}	SD	t	Sig.
Male	118	3.91	0.72	8.759	0.000*
Female	282	4.40	0.41		

* $p\text{-value} \leq 0.05$

From table 1, Using t-test statistics to test the hypothesis at a significance level of 0.05, the test results found that the value Sig. = 0.000, which is less than 0.05, it was indicated that different genders had different influences on consumers' ice cream purchasing decisions at the statistical significance level of 0.05. Meanwhile, the average purchase decision of both males and females can be obtained through t-test. The average purchase decision of males is 3.91, while that of females is 4.40, with $t = 8.759$. The conclusion is that the average purchase decision of females is significantly higher than that of males.

Table 2 Comparison of personal information classified by age that influences different ice cream purchasing decisions

Age	n	\bar{x}	SD	F	Sig.
≤20 years old	4	2.333	0.236	43.541*	0.000
21-30 years old	184	4.030	0.587		
31-40 years old	87	4.362	0.313		
41-50 years old	86	4.533	0.366		
Above 50 years old	39	4.697	0.397		

* $p\text{-value} \leq 0.05$

From table 2, Using F-test statistics to test the hypothesis at a significance level of 0.05, the test results found that the value Sig. = 0.000, which is less than 0.05, this was indicated that different ages had different influences on consumers' decision to purchase ice cream products at the statistical significance level of 0.05.

Table 3 Comparison of personal information classified by monthly income that influences different ice cream purchasing decisions

Monthly Income	n	\bar{x}	SD	F	Sig.
≤ 2,300 ¥	4	2.3333	0.23570	81.651*	0.000
2,301-3500 ¥	29	3.3736	0.71361		
3,501-5,000 ¥	164	4.1809	0.46500		
More than 5,000 ¥	203	4.4860	0.38279		

* $p\text{-value} \leq 0.05$

From table 3, Using the F-test statistic to test the hypothesis at the significance level of 0.05, the test results found that the value Sig. = 0.000, which is less than 0.05, this was indicated that different average monthly incomes had different influences on consumers' decision to purchase ice cream products at the statistical significance level of 0.05. In terms of marital statuses and education levels had no different influences on consumers' decision to purchase ice cream products at the statistical significance level of 0.05., in terms marital status was found that different marital status had no significant influence on consumers' decision to purchase ice cream products at the 0.05 level.

Testing hypotheses regarding marketing mix factors influencing ice cream purchasing decisions

H2: Marketing mix factors influence the ice cream purchasing decision of Chinese consumers in Jiujiang City.

Table 4 Multiple regression analysis between marketing mix factors and consumers' decision to purchase ice cream

Coefficients								
Marketing Mix factors	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
(Constant)	3.901	0.346			11.262	0.000		
Product (X ₁)	0.076	0.049	0.079		1.561	0.119	0.970	1.030
Price (X ₂)	0.083	0.046	0.090		1.811	0.012*	0.993	1.007
Place (X ₃)	-0.003	0.043	-0.003		-0.061	0.951	0.972	1.029
Promotion (X ₄)	-0.078	0.043	-0.093		-1.826	0.028*	0.951	1.052
R	R ²	Adjusted R ²	SE (est.)		F	p-value	Durbin-Watson	
0.153	0.023	0.014	0.563		2.373	0.052	1.454	

* $p\text{-value} \leq 0.05$

From table 4, it was found that the marketing mix in terms of P-price (X₂) and P-promotion (X₄) can predict the ice cream purchasing decision process of Chinese consumers in

Jiujiang was 2.3 percent ($R^2 = 0.023$). The remaining 97.7 percent was due to the influence of other variables. The standard error of the forecast was 0.563 and the multiple correlation coefficient was 0.153, which the equation can be written in raw score format as follows.

Unstandardized: $Y^{\wedge} = 3.901 + 0.083 (X_2) - 0.078 (X_4)$
and can be written in standard score format as follows
Standardized: $Y^{\wedge} = 0.090 (X_2) - 0.093 (X_4)$

From the equation it can be explained that marketing mix factors P-price (X_2) and P-promotion (X_4) influence on the ice cream purchasing decision process of Chinese consumers in Jiujiang city with statistically significant at the .05 level.

H3: Marketing mix factors influence the preference of foreign ice cream brand and major Chinese ice cream brands

Table 5 Multiple regression analysis between preference for foreign ice cream brands and marketing mix factors

Coefficients							
Marketing Mix factors	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta		Tolerance	VIF	
(Constant)	3.289	0.565		5.823	0.000		
Product (X_1)	0.134	0.077	0.127	2.179	0.031*	0.936	1.068
Price (X_2)	0.142	0.065	0.155	1.747	0.082	0.976	1.024
Place (X_3)	-0.006	0.063	-0.007	-0.095	0.925	0.990	1.010
Promotion (X_4)	-0.037	0.063	-0.042	-0.589	0.557	0.956	1.047
R	R^2	Ad R^2	SE (est.)	F	P-value	Durbin-Watson	
0.195	0.038	0.018	0.587	1.926	0.108	1.550	

* $p\text{-value} \leq 0.05$

From table 5, it was found that the marketing mix interm of P-product (X_1) can predict preference for foreign ice cream brands of Chinese consumers in Jiujiang was 3.8 percent ($R^2 = 0.038$). The remaining 96.2 percent was due to the influence of other variables. The standard error of the forecast was 0.587 and the multiple correlation coefficient was 0.195, which the equation can be written in raw score format as follows.

Unstandardized $Y^{\wedge} = 3.289 + 0.134 (X_1)$
and can be written in standard score format as follows
Standardized $Y^{\wedge} = 0.127 (X_1)$

From the equation it can be explained that marketing mix factors P-products (X_1) has an influence the preferences of Chinese consumers in Jiujiang City towards foreign ice cream brands with statistical significance at the .05 level.

Table 6 Multiple regression analysis between preference for major Chinese ice cream brands and marketing mix factors

Coefficients							
Marketing Mix factors	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta		Tolerance	VIF	
(Constant)	4.394	0.446		9.861	0.000		
Product (X_1)	0.040	0.064	0.045	0.623	0.534	0.976	1.024
Price (X_2)	0.021	0.066	0.023	0.327	0.744	0.986	1.014
Place (X_3)	-0.003	0.060	-0.003	-0.045	0.964	0.950	1.053
Promotion (X_4)	0.117	0.061	0.141	1.921	0.043*	0.926	1.080
R	R^2	Ad R^2	SE (est.)	F	p-value	Durbin-Watson	
0.153	0.023	0.003	0.541	1.163	0.328	1.591	

* $p\text{-value} \leq 0.05$

From table 6, it was found that P-promotion (X_4) can predict the major Chinese ice cream brand of Chinese consumers in Jiujiang was 2.3 percent ($R^2 = 0.023$). The remaining 97.7 percent was due to the influence of other variables. The standard error of the forecast was 0.541 and the multiple correlation coefficient was 0.153, which the equation can be written in raw score format as follows.

Unstandardized $Y^{\wedge} = 4.394 + 0.117 (X_4)$
and can be written in standard score format as follows
Standardized $Y^{\wedge} = 0.141 (X_4)$

From the equation it can be explained that marketing mix factors P-promotion (X_4) influences Chinese consumers' preferences for major Chinese ice cream brands statistically with significant at the .05 level.

IV. CONCLUSION AND DISCUSSION

Research Objective 1: to compare the ice cream purchasing decision process of Chinese consumers in Jiujiang City classified by demographic characteristics. It was found that gender, age, and average monthly income of different sample groups had different influences on the decision to purchase ice cream. Statistically significant at .05, may be due to the factors such as gender, age and average monthly income that are different, influencing different needs and attitudes in purchasing ice cream production, causing interest, or purchasing ice cream that meets appropriate needs according to the characteristics of each person, which is consistent with the research that studied on the factors that influence the decision to purchase gelato ice cream. [12] It was found that there was significant difference in deciding to purchase ice cream among different age group, gender group and average monthly income, and the results of the post-comparison analysis of the average ice cream purchase decision of consumers of different ages and average monthly incomes found that the younger sample had less influence on the ice cream purchase decision than the older sample. Likewise, the sample with a lower average monthly income had less influence on the decision to purchase ice cream than the sample with a higher average monthly income.

Research Objective 2: to analyze market mix factors influencing the ice cream purchasing decision process of Chinese consumers in Jiujiang city. The results of the multiple regression analysis between the marketing mix factors and the ice cream purchasing decision process of Chinese consumers in Jiujiang can be explained that the P-price and P-promotion marketing mix factors have influence on the ice cream purchasing decision process of Chinese consumers in Jiujiang city is statistically significant at the .05 level. This may be due to the sample giving importance to price and various marketing promotions, giving the sample a choice in purchasing decisions that are appropriate and meet their own needs, which is consistent with the research that studied on the influence of marketing mix on Aice ice cream purchase decision in Balikpapan. [13] It was found that the product, with its quality and variety and the price, with and affordable pricing strategy significantly affects the purchasing decision for Aice ice cream in Balikpapan.

However, P-product and P-place marketing mix had no significant influence on the ice cream purchasing decisions of Chinese consumers in Jiujiang at a statistical significance of 0.05.

Research Objective 3: to analyze market mix factors influencing the preference of foreign ice cream brands among consumers in Jiujiang City. The results of the multiple regression analysis between the marketing mix factors and preference of foreign ice cream brands among consumers in Jiujiang City can be explained that the P-product marketing mix factor influence the preferences of foreign ice cream brands among Jiujiang consumers at a statistical significance at the .05 level. This may be because it is a foreign ice cream brand with a higher price than the sample group, so they give the most importance to the product and it is worth the money spent, which is consistent with the research that studied on courting consumer preference for ice cream through brand name: shouldn't product color matter?. [14] It was found that consumers of ice cream are influenced by both brand name and product color, and that product color moderates the effect of brand name on consumer preference for the brand. However, P-price, P-place, and P-promotion marketing mix had no significant influence the preferences of foreign ice cream brands among Jiujiang consumers at a statistical significance at the .05 level.

Research Objective 4: to analyze market mix factors influencing the preference of major Chinese ice cream brands among consumers in Jiujiang City. The results of the multiple regression analysis between the marketing mix factors and preference of major Chinese ice cream brands among consumers in Jiujiang City can explain that the P-promotion marketing mix factor influence the preferences of major Chinese ice cream brands among Jiujiang consumers at a statistical significance at the .05 level. This may be due to the fact that famous Chinese ice cream brands have to compete with foreign ice cream brands, so a variety of marketing promotions must be created to attract the attention of buyers, thus influencing the preferences of the sample

group, which is consistent with the research that studied on ice cream consumption preferences in Sullana, Peru. [15] It was found that the majority of consumers prefer ice cream from two well-known brands in Peru (D'onofrio or Yámboli) to other options because these brands are better promotion and positioned among the study population. For this reason, the D'Onofrio ice cream brand leads the Peruvian market. However, P-product, P-price, and P-place marketing mix had no significant influence the preferences of major Chinese ice cream brands among Jiujiang consumers at a statistical significance at the .05 level.

From the results of the research, it was found that consumers' gender, age, and average monthly income have different influences on their decision to purchase ice cream. Therefore, ice cream business operators should segment customers according to gender, age, and average monthly income in order to create appropriate target groups for the products and services that ice cream business operators offer. Then develop products and services that meet the needs and preferences of each customer group, such as creating flavors that meet the needs of the elderly group. or designing services that are appropriate for the shopping patterns of high-income consumers, which will help to understand the behavior of each customer group in detail. and can create effective marketing strategies and increase opportunities to generate income appropriately. In terms of marketing mix factors of price and promotion influence the ice cream purchasing decision process of Chinese consumers in Jiujiang City. Therefore, ice cream business operators should conduct market analysis to understand consumer satisfaction with prices and present the most appropriate prices, including creating marketing activities such as organizing promotional campaigns or special promotional activities during festivals or days. important Using social media platforms or applications to increase the reach and awareness of your product or service can entice consumers to purchase ice cream.

The results found that product marketing mix factor influence preferences for foreign ice cream brands among Chinese consumers in Jiujiang, therefore, ice cream business operators should create good quality and popular products and have effective communication and advertising, packaging design and product front design that interestingly, including the introduction of new products that appropriately meet the needs of consumers in Jiujiang City and also found that the promotion marketing mix factor influences the preferences of major Chinese ice cream brands among Chinese consumers in Jiujiang. Therefore, ice cream business operators should ensure brand reliability and good quality, create a memorable service experience for consumers, create an effective advertising structure, and clearly communicate the brand's qualities and values to create more desire and fondness for major Chinese ice cream brands in Jiujiang.

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Restorative Designs for Compact Residential Units in Thailand

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Abstract. Urbanisation and the recent pandemic have shifted how people live and work, increasing the demand for small residential units suitable for remote work and prolonged stays. With more time spent indoors, the significance of restorative environments in these spaces is evident, impacting productivity, reducing fatigue, and alleviating stress.

This study aims to identify effective restorative environment designs for compact residential units in Thailand. Six virtual models of restorative environments were developed by combining two forms and three styles. Eighty-nine participants, with lockdown or remote work experience assessed these environments using head-mounted virtual reality devices and a modified PRS questionnaire.

Results revealed that all virtual restorative designs received higher ratings than non-restorative ones. The combination of Rectilinear form with Minimal style and Curvilinear form with Natural style garnered the highest ratings. Surprisingly, nature analogues using curves and natural materials did not yield the expected results. This underscores the importance of integrating natural elements, individual preferences, and environmental coherence to enhance restorative qualities. Creating an effective restorative environment extends beyond incorporating nature-based elements.

These findings offer crucial insights for designing indoor spaces that boost well-being and productivity, especially in the context of remote work and extended stays in compact residential units in Thailand.

Keywords— Biophilic design; Restorative Environment; Residential design; Small residential units; Virtual reality

I. INTRODUCTION

1.1. Background

The rise in urbanization globally has led to an increased number of people residing in compact living spaces like apartments, flats, and dormitories. While urban living offers advantages, these compact units often lack natural light and open spaces, making long-term habitation challenging (Andargie et al., 2019).

The COVID-19 pandemic has brought about significant changes in how people live and work. With lockdowns imposed and businesses closed, many individuals have been forced to stay in their homes for prolonged periods, transitioning towards remote work, or working from home. Working from home shows many benefits, for instance, reducing commute times, increasing flexibility, and saving costs and energy (Routley, 2020). Even in the absence of the pandemic, work-from-home has been identified as an ongoing trend for the foreseeable future (Gilbert, 2023). Adapting to remote work and extended stays at home is crucial. However, this shift has also presented various challenges. The prolonged experience of working from home and living in small residential spaces, such as studio apartments, could lead to a range of negative consequences,

including feelings of isolation, confinement, boredom, low productivity, and high levels of stress (Brodeur et al., 2020).

There are various potential solutions to address the challenges of living and working in small residential units. One approach is to focus on space organization, which involves redecorating, rearranging, or adding new furniture (Leigh, 2020). This includes establishing distinct boundaries between work and leisure areas, such as using screens, curtains, or colours, which can help establish a sense of separation and provide privacy for individuals sharing a living space. Additionally, implementing appropriate lighting and HVAC (heating, ventilation, and air conditioning) systems can help address issues related to poor ventilation and lighting. However, implementing these changes may require additional costs and effort, which should be planned early in the design phase, and may not tackle the problems of low productivity, fatigue, and stress. The potential solution for these problems is to incorporate a restorative environment approach, a well-established practice that is known for helping restore attention, reduce fatigue, and alleviate stress.

This study aims to identify an effective restorative environment suitable for the interior space of a compact residential unit. It does so by exploring design elements and characteristics that have been studied in restorative-

environment research and subsequently integrated into architectural practices. This study primarily centres on the visual aspect of the interior environment, without altering the structure, layout, or size of the space. The objective is to investigate how different design features, combinations, and other factors within the context of the interior environment can contribute to creating a sense of restoration and improve the well-being of the occupants.

1.2. Restorative environment

The restorative environment is a concept that refers to an environment that permits and promotes the restoration of an individual's physical, mental, or emotional well-being by providing a place to rest, relax, and clear one's mind from mental fatigue and stressful situations (Hartig, 2004).

This concept gained significance through Kaplan's Attention Restoration Theory (ART) in 1989 and 1995, which posits that prolonged focus on demanding tasks depletes attention resources, leading to fatigue and reduced cognitive performance (Hartig, 2004). Exposure to restorative environments replenishes attention and cognitive function, reducing stress and fatigue, with four key components: Being-away, Extent, Fascination, and Compatibility (Kaplan & Kaplan, 1989). Being-away involves mental distancing from usual activities, while Extent involves feeling fully engaged and immersed in a different environment. Fascination refers to effortless attention-grabbing elements, and Compatibility relates to how well the environment aligns with a person's needs and preferences (Kaplan, 1995).

Kaplan (1995) concluded that the primary elements contributing to a restorative environment are often present in natural settings or linked to natural elements. Spending time in natural surroundings such as parks and forests can positively impact both mental and physical well-being. For example, Kaplan and Kaplan's (1989) study demonstrated that walking in nature can alleviate mental fatigue and enhance concentration. Similarly, just observing nature can have restorative benefits. Ulrich's (1984) research illustrated that patients with a view of nature tended to recover faster than those with views of a brick wall. Likewise, patients in hospital rooms with natural scenery outside their windows showed lower stress levels and blood pressure (Ulrich et al., 1991). Overall, numerous research studies consistently suggest that natural environments and views offer more substantial restorative effects compared to artificial and urban settings (Hartig et al., 1997).

Nature's benefits extend beyond physical environments; even digital representations like images or screens showcasing nature scenes can have restorative effects. Studies by Berto (2005) and Felsten (2009) demonstrated improved attention and perceived restoration when participants viewed nature scenes digitally. Incorporating indoor plants or natural elements in built environments also yields positive outcomes, such as enhanced attention, creativity, and emotional well-being, as evidenced by

research from Hähn et al. (2019), Nieuwenhuis et al. (2014), and Pérez-Urrestarazu et al. (2020).

With numerous advantages associated with integrating nature into built environments, the concept of Biophilic design has gained increasing popularity. This involves incorporating various organic elements of nature, such as indoor vegetation, nature views, natural light, and natural ventilation but also encompasses analogous natural elements, such as nature-inspired forms, curvilinear shapes, randomized patterns, including the use of natural materials like wood and stone. It is believed that implementing biophilic design can help enhance cognitive function, creativity, mood, and reduce stress (Browning et al., 2014; Kellert et al., 2008).

While many studies have highlighted the positive influence of nature on mental well-being, some have presented conflicting views. The discrepancy arises from negative feelings associated with certain natural environments, such as discomfort or fear, as noted by Cassarino et al. (2019) and Gatersleben & Andrews (2013). Interestingly, research by Polajnar Horvat & Ribeiro (2023) and Karmanov & Hamel (2008) suggests that well-designed urban elements can be equally effective in promoting rejuvenation, emphasizing the role of aesthetics and compatibility. This aligns with findings by Deng et al. (2020) and Berto et al. (2018), highlighting the importance of individual preferences in determining restorative environments.

Most studies on restorative environments have focused on outdoor settings, leaving a gap in understanding indoor contexts, especially within small residential spaces like studio apartments. Existing research in indoor environments has primarily explored specific elements like indoor plants, views, and layout in various settings such as offices, hospitals, classrooms, and working rooms (van den Bogerd et al., 2020; Gao & Zhang, 2020; Yin et al., 2019; Kim et al., 2018). These studies consistently suggest that nature-related elements contribute significantly to restorative effects indoors. However, the applicability of these findings to small residential units, which have unique constraints and characteristics, remains uncertain.

In conclusion, restorative environments are often associated with nature, as evidenced by numerous studies. This encompasses being in natural surroundings, viewing natural scenes, and integrating natural elements like indoor plants or nature-inspired designs. Individual preferences also play a crucial role in the restorative experience, along with aesthetically pleasing design. However, there are still unanswered questions regarding the significance of preference compared to other components, the effectiveness of mimicking nature, and the best approach for small residential units.

II. METHODOLOGY

2.1. Factors and attributes of restorative-environment design.

The study focuses on the visual aspects of interior environments in compact residential units, excluding changes to environments' layout, size, and external factors like views and natural light. Based on the literature review, topics selected for implementation include direct use of nature, nature-inspired elements, and preferred designs. These topics are categorized into forms and styles to create experimental restorative environment designs (Fig. 1).

Forms are fundamental elements of design, constructed from points, lines, planes, and volumes (Kandinsky, 1924). Forms can be divided into Rectilinear and Curvilinear based on their physical attributes (Fig. 2). Rectilinear forms have straight lines and sharp corners, associated with man-made shapes like rectangles and squares. Curvilinear forms, with curved lines and rounded corners, are inspired by nature and activate aesthetic perception in the brain (Coburn et al. 2019).

Styles refer to combinations of surfaces, colors, materials, and textures that define the mood of spaces. Selected styles in the study are Minimal, Natural, and Rustic (Fig. 2). The Minimal style is characterized by white tones and light woods, popular among young adults and incorporating fewer nature-inspired elements, potentially influencing their sense of restoration (Purcell et al., 2001). The Natural style features abundant vegetation and natural elements that resemble the direct use of nature, proven to create effective restorative environments (Huang et al., 2020; Pérez-Urrestarazu et al., 2020; Berto, 2005; Kaplan & Kaplan, 1989). The Rustic style showcases exposed natural materials and rough textures, offering an alternative portrayal of nature (Browning et al., 2014; Kellert et al., 2008).

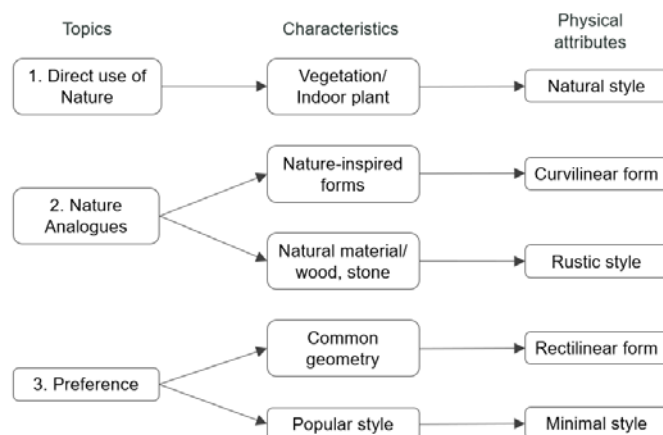


Fig. 1. Analysis diagram of selected restorative environment topics to the physical attributes of Forms and Styles

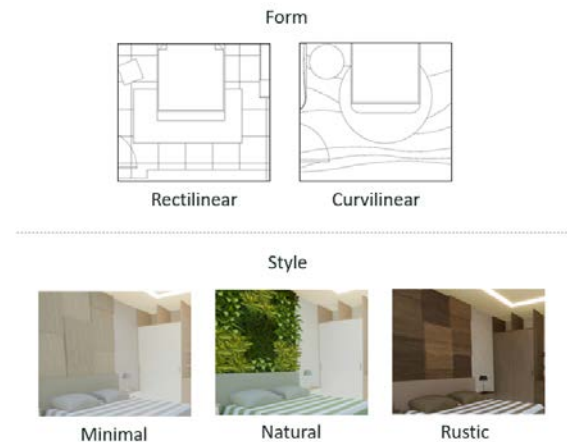


Fig. 2. Example pictures of Forms and Styles

2.2. Hypothesis

The hypotheses formulated from the literature review focus on the effectiveness of restorative environments, particularly regarding the use of natural elements and design styles. The first hypothesis suggests that all restorative environment designs would perform better than non-restorative ones based on consistent trends indicating the effectiveness of natural settings. The second hypothesis ranks designs with direct use of natural elements as most restorative, followed by nature-inspired features and designs with minimal nature elements. The expected order of restorative effects in the Style category is Natural style, Rustic style, and Minimal style, while in the Form category, Curvilinear form is expected to be more restorative than Rectilinear form.

3.3. Development of Simulated Restorative-Environment Designs.

The model environment representing compact residential units in Thailand was a studio-type room in a dormitory of Chiang Mai University, located at Hariphunchai Campus in Lamphun, Thailand. The chosen model was particularly suitable for the study, as it had previously served as a quarantine facility for Chiang Mai University students and staff, who stayed in the room for fifteen days during the pandemic. This meant that the model room already had a real-world context, which made the simulation more realistic for the expected participants. In addition, the model environment was of a standard size and layout (20 sqm.), similar to other studio-type rooms commonly found in Thailand.

The development of restorative environment designs comprised two main steps. The first step was creating the simulated baseline model (control model/ non-restorative environment) by re-arranging its interior planning, space, and furniture from the original plan, according to the principles of the space-organization approach (Leigh, 2020). The rationale behind this approach was to establish distinct working and relaxing spaces that would be well-suited for remote work and extended living (Fig. 3). The second step was to design the restorative environments, based on the

baseline model, by the combinations of the two forms (Rectilinear and Curvilinear) with the three styles (Minimal, Natural, and Rustic). This resulted in six potential restorative environment models, namely, Rectilinear form with Minimal style, Rectilinear form with Natural style, Rectilinear form with Rustic style, Curvilinear form with Minimal style, Curvilinear form with Natural style, and Curvilinear form with Rustic style (Fig. 4).



Fig. 3. Non-restorative environments (Baseline/Control model)



Fig. 4. Six contested restorative environment models generated from the combination of forms and styles.

The creation of the six restorative environment designs was based on existing research on restorative principles and underwent refinement through expert evaluation from architecture and restorative theory fields. The Rectilinear and Curvilinear forms were crafted to showcase clear differences in line, shape, and pattern while remaining functional. These differences were reflected in various elements like floor patterns, door designs, lighting, wall panels, furniture, and décor. Despite maintaining consistent shapes and structures, each style within these forms was distinguished by color schemes, textures, materials, and decorative elements. Attention to detail was crucial to ensure coherence and aesthetic appeal across all aspects of the designs.

The design criteria were established to maintain uniformity and fairness in evaluating the various environments. By standardizing the brightness levels and camera perspectives, as well as ensuring that the placements, dimensions, and quantities of decorative elements and

furniture were consistent across all designs. It was essential to create distinct differences in styles and forms among each model to facilitate clear differentiation between the designs. The experimental environment models were constructed using Archicad software and subsequently rendered in 360-degree visual view with 8k resolution quality for VR using Twinmotion software. The VR experience was facilitated through the use of the Meta Oculus Quest 2 head-mounted VR device.

2.3. Measurements

The choice of psychological response measurement for this study was based on several considerations, including the sample size, compatibility with VR technology, and limitations in accessing physiological tools. The measurement method involved using a questionnaire that was divided into two sections. The first section, administered before the experiment, gathered participant details and general information such as gender, age, occupation, education level, experiences related to quarantine and lockdown, familiarity with VR, and preferred interior decoration style. The second section of the questionnaire evaluated the experimental environments using the short - Perceived Restorativeness Scale (PRS) developed by Felsten (2009). This scale was selected due to its alignment with the experimental setup and its efficiency in terms of time and resources. The PRS included five rating scale questions, with the initial four questions focusing on aspects of Attention Restoration Theory (ART) like being away, extent, fascination, and compatibility. The fifth question assessed the overall perceived restorativeness of the environments. An additional rating scale question was included to capture participants' preferences for the restorative environments. Responses were recorded on a 7-point scale, ranging from 1 ("Not at all") to 7 ("Very much"). After each set of rating questions, participants were asked to provide comments on their experience with each environment. In total, there were seven sets of questions to rate the seven experimental environments, with each set containing six rating questions to assess different aspects of restoration and one comment question. The questionnaire was translated into Thai, and the accuracy of the translation was verified through back-translation by experts (Meethong & Lekagul, 2021). Pilot testing confirmed that participants comprehended and responded correctly to the questionnaire items.

2.4. Population and participants

The study targeted university students and working individuals living in cities, particularly those in small residential spaces without easy access to outdoor green spaces. Participants were recruited from Chiang Mai, Thailand, specifically those who had experienced periods of quarantine, remote work, or online study in their small living spaces for 7 to 14 days alone. Recruitment was done via social media and posters, resulting in 89 participants after exclusions and a pilot test (n=89), of whom 58 were female

and 31 were male. The sample size was comparable to previous studies that utilized a similar number of stimuli (Yin et al., 2020; Huang et al., 2020). The age range of the participants was 18-42 years ($M = 27$). Half of them were university students, while the other half were employed. Participants showed a preference for the following decoration styles: Minimalism/Modernism (33%), Rustic/Loft (19%), Natural/Biophilic (13%), and other styles (35%). The study protocol was reviewed and authorized by the Chiang Mai University Research Ethics Committee.

2.5. Data collection procedures

The restorative environment designs study took place in a controlled environment, ensuring comfort and stability to minimize distractions. The researchers set up the VR device, connected it to a computer, and ensured safety by establishing VR boundaries. Participants were individually invited to the room, given a comprehensive explanation of the study procedures and risks, and signed a consent form. They were seated in a rotating chair to explore 360-degree views of the virtual environments. Participants completed a preliminary questionnaire before donning the VR device, were assisted in wearing it, and spent a few minutes familiarizing themselves with it to avoid motion sickness. They were then instructed to imagine fatigue and mentally explored the virtual environments for 3-5 minutes. Recorded rating questions played while they were in the VR environment, and they provided vocal responses. The process was repeated for all seven virtual environment designs in random order sets to reduce bias. At the end, participants reviewed their answers, if desired. The study lasted around 20-30 minutes per participant, conducted in Thai, and gathered 623 environment responses.

III. RESULTS AND DISCUSSION

3.1 Perceived restorative score.

Models	Being away	Extent	Fascination	Compatibility	Restorative*	Preference
Baseline	3.17 (1.32)	3.85 (1.62)	2.66 (1.39)	3.38 (1.48)	3.34 (1.46) c	3.03 (1.46)
Rectilinear Minimal	5.25 (1.23)	5.60 (1.28)	5.45 (1.28)	5.75 (1.08)	5.73 (1.16) a	5.83 (1.30)
Curvilinear Minimal	5.18 (1.30)	5.45 (1.27)	5.31 (1.28)	5.52 (1.13)	5.43 (1.28) b	5.57 (1.16)
Rectilinear Natural	5.08 (1.25)	5.12 (1.33)	5.04 (1.34)	5.15 (1.29)	5.42 (1.28) b	5.27 (1.30)
Curvilinear Natural	5.40 (1.08)	5.52 (1.13)	5.35 (1.28)	5.39 (1.40)	5.66 (1.36) a	5.48 (1.29)
Rectilinear Rustic	5.01 (1.31)	5.19 (1.14)	5.07 (1.32)	5.15 (1.20)	5.25 (1.23) b	5.16 (1.41)
Curvilinear Rustic	4.96 (1.33)	5.09 (1.38)	5.03 (1.40)	4.92 (1.39)	5.06 (1.41) b	5.01 (1.46)

Table 1. Means (SDs) of six components on different environment models. Note: Different letters (a,b,c) in Restorative column (*) show significant differences between groups (a), (b), and (c) ($p < 0.05$)

According to Table 1, among all seven experimental environmental models, the baseline model (non-restorative environment) received the lowest scores out of all six restorative components. When comparing the six contested restorative environment models, the Rectilinear Minimal and Curvilinear Natural models consistently achieved the highest scores on most components. On the other hand, the Rustic

style models consistently received the lowest scores on most components, while the remaining models achieved scores of moderate levels in comparison.

The study focused on determining factors that have the most significant impact on restoration. Thus, the overall perceived restorativeness score was selected for analysis, with different letters indicating significant differences ($p < 0.05$) in scores. Three distinct environmental groups were identified: group (a), group (b), and group (c). Group (a) had the highest scores, including the Rectilinear Minimal and Curvilinear Natural environments, indicating the most effective restorative effects. Group (b) had moderate scores, and group (c) had the lowest scores, represented by the baseline non-restorative environment.

3.2 Discussion

Based on the results, all six restorative environment designs scored significantly higher in restoration compared to the non-restorative baseline model. This supported the hypothesis that restorative environments would perform better than non-restorative ones. The second hypothesis, emphasizing the direct use of nature for optimal restoration, was partially confirmed by the high ratings of the Curvilinear Natural setting. However, the ranking of styles based on expected restorative effects was not supported by the results. Surprisingly, the Rectilinear Minimal environment, with the least natural elements, received the top score, challenging the assumption that more natural features lead to better restoration (Huang et al., 2020; Pérez-Urrestarazu et al., 2020; Berto, 2005; Kaplan & Kaplan, 1989).

This discrepancy could potentially stem from a preference for Minimal style environments. Based on the participants' pre-study stated preferences for decoration styles, Minimal/Modernist emerged as the most favored style among participants, who are mostly young adults. This finding aligns with studies conducted by Purcell et al. (2001) and McSweeney et al. (2019), suggesting that individual preferences highly influence the ability to restore mental fatigue. These results suggest that preference and compatibility may play a substantial role in facilitating restoration, in contrast to other components of the Attention Restoration Theory (ART) model.

One reason that may have lowered the restorative scores of natural environments is the overuse of plants, as reported by some participants. This overuse could evoke negative feelings, which aligns with the findings of Cassarino et al. (2019) and Gatersleben & Andrews (2013). Similarly, this negative factor may have contributed to a decrease in the restorative ratings of environments with a Rustic style, which incorporated raw natural materials and textures as analogues of nature. As some participants also reported negative opinions about Rustic designs due to perceiving them as dark, old, or dirty. This implies that application of certain natural features may induce negative feelings.

The concept of coherence refers to the matching and consistency of elements within the environments, mentioned in the 'extent' component of the four key components of the Attention Restoration Theory (ART) (Kaplan, 1995), could

explain the contradictions to the hypothesis. which may explain why the Rectilinear Minimal and Curvilinear Natural designs received favourable ratings. As most Minimal styles are characterized by rectilinear shapes and straight lines, which create a sense of familiarity and harmony within the environment. Similarly, the Curvilinear Natural environment received a positive rating, as the unpredictability of nature elements aligns well with curvilinear lines, resulting in a coherent overall design. This is also supported by the high rating scores on the 'extent' component of both leading environments (Table 1). On the other hand, the same reasoning could apply to the lower score of the Curvilinear Minimal environment, Rectilinear Natural environment, and the Rustic style environments that obtained even lower ratings. This was attributed to the lack of coherence between these styles and forms, indicating that they did not complement each other aesthetically, leading to a strange feeling and a sense of being 'out of place'.

In conclusion, the results confirm that restorative environments can indeed contribute to restoration and relaxation in the context of small residential units in Thailand. According to the hypotheses and prior studies, emphasizing the direct use of nature elements demonstrates effective restoration. In addition, the environment with the fewest natural elements also received a top restorative rating. This discrepancy implies that within compact and intimate contexts, the significant impact of preference could yield an effective restoration on par with that achieved through natural environments. Preference and compatibility were revealed as pivotal factors in driving restoration. Negative perceptions of excessive vegetation or imitations of nature, as well as the lack of coherence between certain styles and forms, may contribute to reduced restorative ratings. Lastly, Coherence was crucial in creating a sense of harmony and engaging with the environment, resulting in more aesthetic or well-designed environments.

The study's limitations include the use of virtual environments instead of actual built spaces, potentially affecting the perception of realism. Participants were limited in their exploration of the environments and were not in prolonged stressful situations, possibly limiting their experience of restoration effects. The study also focused on a limited set of forms and styles, overlooking other architectural designs. It's uncertain how preferences and coherence in design influenced restoration, and the study relied solely on subjective assessments of a certain group of Thai young adults in Chiang Mai.

Future research could involve longitudinal studies with participants in prolonged stressful situations. This could include a wider range of architectural designs and styles, such as Thai style or Lanna style architecture, which could demonstrate restorative effects on Thai people. Along with the implementation of multiple assessment tools, such as skin conductance tools, employing advanced VR technology for a more immersive experience could be beneficial. Comparative studies exploring the impact of preference versus coherence on restoration, along with studying a wider range of population groups, could provide valuable insights into creating effective restorative environments.

IV. CONCLUSION

To identify restorative designs for compact residential units, this study investigated previous restorative environment research and design elements, resulting in the creation of restorative environments from combinations of forms and styles. Several conclusions can be drawn from this study. First, incorporating the well-studied restorative elements of direct use of nature, such as indoor plants and living walls, resulted in one of the top-rated restorative environments (Curvilinear form with Natural style). Second, environments that enjoyed widespread popularity and were aesthetically well-designed also received good ratings (Rectilinear form with Minimal style). Third, effective restorative environments must be designed coherently, with elements and environments that aesthetically match, creating a sense of coherence and extent, which easily leads to restoration. Fourth, it is essential to avoid using elements that appear old, dirty, dark, unmatched, or out of place, including overusing plants, as these could evoke negative feelings and incompatibility.

Based on the findings, recommendations for designing restorative environments in the context of small residential spaces include considering individual preferences and compatibility, coherence of elements, and overall aesthetics of environments. While applying direct use of nature is beneficial, it should be done moderately and with aesthetic considerations to avoid elements that provoke negative feelings. These suggestions emphasize that creating better restorative environments involves more than just incorporating natural-based elements.

The findings contribute to the current understanding of restorative environments and can be valuable for interior designers, architects, or developers in creating indoor spaces that promote well-being and productivity, especially in the context of remote work and extended stays in compact residential units in Thailand.

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Poster presentation

Enhancing Entrepreneurial Capability among Fruit Farmers: Insights from a Study of Entrepreneurial Elements and Styles in Chanthaburi Province, Thailand

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Abstract. Entrepreneurial capability is known as a crucial driver of sustainable economic growth, and it is required deep understanding within agribusiness sector as the foundation of Thailand economy. This study examined the entrepreneurial elements and entrepreneurial styles in a sample of 384 fruit farmers in Chanthaburi province. Data were collected through face-to-face interviews using a structured questionnaire and analyzed employing principal component analysis (PCA) and cluster analysis using the two-step clustering technique. The findings revealed that entrepreneurial elements among the fruit farmers were related to the entrepreneur, including rationality, originality, adaptability, and value focus, and to the enterprise, including intensification, accomplishment, internal focus, and external focus. Among these elements, the significant elements related to the entrepreneurial style included rationality, internal focus and originality, dividing the fruit farmers into four entrepreneurial styles: enthusiast, producer, laid-backer, and analyst. These findings have important implications for enhancing entrepreneurial capability among fruit farmers, as well as for relevant government and private organizations' policies and strategies to sustain the growth of Thailand fruit industry.

Index Terms—Agribusiness, Entrepreneurship, Entrepreneurial Elements, Entrepreneurial Styles, Fruit Farmers.

I. INTRODUCTION

Farm business has long played an important role in the development of the Thai economy and society. As the primary industry leading to the country's food security, it has been initially promoted to ensure sufficient production to support domestic consumption. Furthermore, agricultural products with high quality standards have also brought about export incomes over past decades. One of the important growth potentials of the farming industry is tropical fruit export, and Chanthaburi Province is considered to be the important source of fruit production in Thailand. It is also a province with a relatively high population income. Information from [1] reports that in 2022, at annual prices, Chanthaburi Province had a value of provincial products of 154,347 million baht, with the value of agricultural products reaching 87,570 million baht or 57.0 percent, while agricultural products of the whole kingdom is only 8.7 percent or 1,516,169 million baht out of a gross domestic product of 17,378,017 million baht. It is noted that Chanthaburi province's income depended mainly on fruit production, but it had an income per capita of 270,863 baht, which is the 12nd highest in the country, showing the potential of fruit farm business can generate high incomes for the people.

However, in terms of marketing, most fruit products must rely heavily on foreign markets. Data from [2] indicated that

during 2016-2019, the export volume of Thai durian increased from 404 thousand tons to 655 thousand tons, an increase of 62 percent, with the value increasing from 503 million US dollars to 1,465 million US dollars increased by 191 percent with a tendency to continually increase. The main market was the People's Republic of China which accounted for more than 70 percent of the total export value. Although the growth of the fruit industry had a substantial growth trend, it was concentrated only in one main market, which accounted for a large proportion of exports. This caused the fruit industry to have high market risks if there are changes in economic factors [3]. Therefore, in order to maintain a competitive advantage in the fruit industry, there must be reduced the risk by more penetrating the domestic market to increase diversification of marketing channels, value-added products and other alternative international markets [2]. In this regard, one important factor leads to sustainable success of fruit farm business operations is farmers' entrepreneurship capability in developing quality produce, obtaining the ability to respond to the market as well as having creative ideas in developing products in order to increase more value.

Entrepreneurship development is considered an important component for economic development for sustainable growth. Numerous international studies have confirmed the importance of entrepreneurial characteristics for the survival and growth of businesses and economies. In Thailand, there were still limited studies on this issue. Most of which focus on studying entrepreneurship in small and medium-sized

businesses. As for the issue, studies of being an agribusiness entrepreneur in the context of the Thai agricultural sector were hardly found. Thai farmers are generally small-scale producers facing problems in their capability to be entrepreneurs. This problem will affect the development of the agricultural sector, which is the upstream supply chain in agricultural industries. As an important source of Thai fruit production, Chanthaburi Province has a large number of professional fruit farmers, demonstrating good examples of small-scale farm business entrepreneurs. Therefore, this study aimed to analyze the elements of entrepreneurship among fruit farm business entrepreneurs and typologies of them based on their entrepreneurial styles which reflected their ability to carry out the fruit farm business, bringing about recommendations to support entrepreneurship development for the Thai fruit economy.

Research objectives:

- 1) to analyze entrepreneurial elements of fruit farmer in Chanthaburi Province, and
- 2) to classify entrepreneurial styles of fruit farmer in Chanthaburi Province.

II. LITERATURE REVIEW

Entrepreneurship

Entrepreneurship knowledge has been widely studied in various fields such as economics, management, sociology, and psychology, resulting in a diverse concept of entrepreneurship [4]. This diversity is influenced by factors like psychological, personal, and socioeconomic aspects, and is applied to business operations. Entrepreneurship is defined as activities that create value through the development of new products, processes, or markets [5]. Entrepreneurship involves two key elements: the entrepreneur and entrepreneurial activities, consistent with research on entrepreneurial orientation and entrepreneurial competence:

1. *Entrepreneurial orientation* is indicative of the quality of entrepreneurship that leads to business success in a dynamic business environment. As identified by [6] there are five dimensions of entrepreneurial orientation: 1) autonomy in management, 2) innovation creation, 3) proactive work, 4) competitive aggressiveness, and 5) risk-taking. Also [7] highlighted five essential entrepreneurial traits, aligning with [6]: 1) risk-taking, 2) need for achievement, 3) independence, 4) internal locus of control, and 5) tolerance for ambiguity. Entrepreneurial studies often focus on specific characteristics influencing entrepreneurs' motivation to innovate in products, processes, and markets. As observed by [8], entrepreneurs with creative ideas drive innovations in products and processes. Additionally, [9] explored the significance of innovation for entrepreneurship, emphasizing its role in enhancing entrepreneurs' competitiveness and fostering innovation. Developed countries prioritize enhancing entrepreneurship to cultivate knowledgeable, visionary, and determined entrepreneurs capable of facing

risks, excelling in technology, leadership, and networking.

2. *Entrepreneurial competence* encompasses a range of actions that demonstrate the ability to engage in diverse activities within business operations. Entrepreneurship is about actions rather than mere attitudes or intentions, reflecting the essence of entrepreneurial activities [10]. These activities include: 1) starting a venture, 2) opportunity discovery and marketing operations, 3) strategic management, and 4) value creation. According to [5], entrepreneurial activities serve as a metric for assessing an entrepreneur's abilities, which can be honed through training, knowledge acquisition, and experiential learning to develop skills in business operations.

Agribusiness entrepreneurship

Traditional agriculture primarily focuses on local livelihoods. Farmers and agricultural workers are often depicted as traditional and less evolved [11]. This perception extends to agricultural businesses and industries, which are commonly viewed as low-tech and solely focused on enhancing production rather than innovation [12]. However, the global agricultural sector has continuously adapted to keep pace with evolving trends and market dynamics, driven by rapid changes in agricultural and food markets worldwide. Consumers now have greater access to information and are increasingly concerned about food safety standards. The integration of advanced technology in communication and distribution systems, alongside a growing emphasis on sustainability, has further reshaped the industry [11], [12].

This transformation is not unique to any specific region, including Thailand. Over the past few decades, particularly following the economic crisis of 1997, the Thai agricultural sector has swiftly adjusted to the changing economic landscape. Shifts in consumer behavior have led to a heightened focus on production quality standards and the expansion of modern retail businesses, presenting new challenges in marketing agricultural products and food within Thailand [13].

The evolving landscape of agriculture and agribusiness necessitates a shift towards innovation and adaptability. Modern farmers must possess a diverse skill set that extends beyond traditional farming practices. Embracing entrepreneurship is crucial in this evolving environment [14], [15]. The key question that emerges is how individuals can effectively transition into entrepreneurs within the agricultural sector.

III. METHODOLOGY

Data Collection

This study was quantitative research, using the survey research method. The study population was 9,035 fruit farmers in Chanthaburi province who obtained the good agricultural practices certifications from the Department of Agriculture, Ministry of Agriculture and Cooperatives, and

the sample size was 384 farmers, calculated using Taro Yamane's formula. The survey data were collected through face-to-face interviews using a structured questionnaire.

Questionnaire Development

The questionnaire was constructed based on the literature review together with empirical information from the study area of Chanthaburi province. Accordingly, a preliminary study was conducted by holding in-depth interviews with two farmer leaders and two extension officers in order to understand the fruit farm context in Chanthaburi and entrepreneurship qualifications of farmers. The draft of questionnaire was assessed its content validity by three experts in the related field of agribusiness. The complete questionnaire comprised basic information of farmers and their fruit farm business and 24 items of variables to measure entrepreneurial orientation and competence on a five-point Likert-type scale. Before the main survey implemented, the questionnaire was pre-tested with 30 farmers, and reliability of the items was analyzed, measuring Cronbach's alphas ($> .70$) to ensure internal consistency. The result of Cronbach's alpha was equal to .808, representing good internal consistency.

Data Analysis

Data analysis firstly employed principal component analysis (PCA) to obtain a more concise number of underlying factors (or entrepreneurial elements) from a vast amount of entrepreneurship information (24 items of variables). In order to assess factorability of the sample data, Kaiser-Meyer-Olkin's measure of sample adequacy (KMO) should be greater than .70 and Bartlett's test of multivariate normality and the adequacy of high correlations between variables should be satisfied [16]. In this study, factorability of the data set was checked and met with KMO equal to .747 and the Bartlett's test indicated a significant value ($p < .05$).

Regarding the PCA, a small number of underlying factors which contain as much information in the original variables as possible was derived by using Kaiser's criterion with the eigenvalue greater than one and employing a varimax rotation to identify a simple structure for interpretability [17]. The result of the analysis indicated eight underlying factors with a total variance of 68.44%. Each factor was represented by a number of strongly-loaded variables with significant factor loadings greater than .30 because the sample size was more than 350 cases at 95% confident interval [18].

The underlying factors obtained provided factor scores as standardized scores which were used as factors in cluster analysis using the two-step clustering technique to find patterns in entrepreneurial styles. Initially, cluster analysis used all the underlying factors to determine the distance measures between the data, using the Log-likelihood criterion method and finding the number of clusters indicated by Akaike Information Criterion (AIC). The cluster quality were also analyzed and tested by removing and adding the factors one by one in order to find the structure of the important elements that can classify the clusters with the best results.

IV. RESULTS AND DISCUSSION

General information of the sample

The results of the survey data from the sample of 384 fruit producers in Chanthaburi Province found that the age of fruit producers ranged from 25 to 70 years with an average of 47.41 years. Most of them had completed their highest education at the high school level or vocational education accounted for 58.60 percent, with an average experience of 16.61 years in fruit farming. They had farm areas ranging in size from 2 - 250 rais, with an average of 19.80 rais, generating an average annual income of 1,508,827 baht. Each farmer grew fruit from 1 - 4 varieties, including durian, mangosteen, rambutan, longan, longkong, salak, and other tropical fruits. Most of them or 58.90 percent grew durian. In terms of being members of farmer groups, the majority of 70.30 percent were not members of any group, but the remaining of 29.70 percent were farmer-group members such as agricultural cooperatives, collaborative farmer groups, young smart farmer group, and community enterprises.

Entrepreneurial elements

The results indicated eight elements of entrepreneurship in the case of Chanthaburi fruit farmers. According to the PCA, the findings demonstrated eight underlying factors pointing out important entrepreneurial elements of the fruit farmers. Table 1 shows factor loadings of variables across the eight factors and other related results. The variables were grouped for the factors, ordered by size of factor loadings.

TABLE I
FACTOR LOADINGS OF VARIABLES ACROSS EIGHT COMPONENTS

Variables	Components								h ²
	1	2	3	4	5	6	7	8	
Input management	.898	.043	.087	.049	.007	.043	.096	.118	.844
Production management	.892	.048	.123	.055	-.017	.055	.073	.164	.852
Financial management	.724	.055	.182	.294	.189	-.136	.039	-.015	.702
Risk taking	-.018	.816	.124	.055	.078	.022	-.012	.148	.714
Flexibility	.164	.784	.125	-.080	.098	.107	.153	-.098	.717
Self-development	-.108	.749	.072	.165	.051	.013	-.047	.237	.666
Autonomy	.223	.670	.074	-.099	.022	.274	.166	-.212	.662
Analysis	.148	.111	.921	-.028	.062	.052	.082	.003	.896
Decision making	.180	.144	.885	-.040	.121	.051	.043	-.005	.857
Planning	.054	.092	.733	.133	.106	.075	.232	-.006	.637
Value creation	.058	-.040	.006	.825	-.034	.072	-.013	.046	.693
Leading	.194	.043	.032	.724	.111	-.027	.224	.048	.630
HR management	.508	.094	.057	.526	.133	-.037	.022	-.194	.604
Creative thinking	.076	.095	.169	.045	.902	.078	.064	.011	.869
Initiative thinking	.046	.113	.088	.065	.866	.202	.092	.036	.827
Competitive thinking	-.016	.248	.059	.121	.131	.801	.028	.048	.742
Pro-active thinking	-.081	-.033	.056	-.077	.074	.767	-.110	.046	.624
Sustainable thinking	.166	.414	.069	-.022	.122	.503	.221	-.130	.538
Organization management	.092	-.004	.197	.223	-.014	-.048	.763	.042	.683
Controlling	-.058	.162	.399	.242	.083	-.035	.597	.166	.638
Vision	.213	.170	-.014	-.263	.254	.077	.510	.066	.479
Communication	.110	.086	-.071	-.023	-.085	.072	.201	.707	.578
Networking	.236	.074	.179	.137	.330	-.130	-.029	.621	.624
Marketing management	.299	.111	.052	.314	.026	-.119	.060	.357	.349
Eigenvalues	2.828	2.687	2.556	1.961	1.904	1.704	1.500	1.285	
% of variance	11.8%	11.2%	10.6%	8.2%	7.9%	7.1%	6.3%	5.4%	

As shown in Table 1, factor loadings of variables with the components, the sum of squares of the factor loadings on all

components (communalities, h^2), the eigenvalues after varimax rotation, and percentage of variance indicates informative capability to the eight elements, ordered by percentage of variance. These results let to consideration of the contents of the individual variables that make up each element and interpretation to determine the appropriate name of each element. The results of interpreting the eight elements of entrepreneurship in the case of Chanthaburi fruit farmers are as follows:

1) *Internal focus* is an entrepreneurial element focusing on efficient management within the farm, e.g. appropriate input selection, compliance of good agricultural practices, production and financial recording and cost estimation.

2) *Adaptability* is the ability to face risks and uncertainties as well as to accept and learn from results in every situation, relying on independent self-sufficiency and trying to seek knowledge for self-development regularly.

3) *Rationality* is the ability to work appropriately to various situations by analyzing causes and methods for solving problems in a reasonable manner as well as planning and improving plans appropriately from changing situation information.

4) *Value focus* is giving importance to the idea in value creation by managing and supporting people to create quality work and to be able to work smoothly and efficiently

5) *Originality* is the ability to take the initiative to do new things by thinking outside the box, researching and developing various ideas to create useful works

6) *Intensification* is seeking opportunities for advancement, daring to face challenges and competition and always consider changing circumstances so that the farm can survive and grow sustainably.

7) *Accomplishment* is giving importance to success by setting long-term goals and allocating necessary resources for operations and control so that the goals can be achieved.

8) *External focus* is giving importance to management outside the farm, by using effective communication technology, creating networks for joint development with others, being aware of market opportunities and responding to market demands for the effectiveness of farm operations.

From results above, it was found that there are elements of fruit farming entrepreneurs in terms of entrepreneurial orientation that lead to success and entrepreneurial competence in operating the fruit farm, in order to achieve the goals. According the results, there are eight entrepreneurial elements, which can be classified as: elements related to the entrepreneur and elements related to the enterprise:

1. *Elements related to an entrepreneur* comprised of rationality, originality, adaptability, and value focus. According to [15], successful agricultural entrepreneurs must be able to think logically, be visionary, strategic, and decisive. Also, [14] mentioned that agricultural operators must use land resources efficiently, and they must be people who have the ability to think logically by analyzing, planning, and making decisions. Furthermore, [8] mentioned that the creative element is the factor that should be considered the most in being an entrepreneur because it is considered as intellectual capital and can be used in

operations that create value. Additionally, good entrepreneurs must be able to adapt under various situations and have the ability to deal with risks [6], [14] as well as being eager to learn, observe, and experiment to create new things [19].

2. *Elements related to the enterprise* consisted of intensification, accomplishment, internal focus, and external focus. Another important element of entrepreneurship is the ability to carry out work in order to lead the business to success by having a goal that leads to the business's survival and growth. This includes the ability to manage both inside and outside the business, which is consistent with the work of [14], [20], who stated that entrepreneurship is the ability to set goals, prepare financial resource and other resources for business operations and control to achieve goals. As stated by [21], entrepreneurs who have the ability to use competitive strategies well have the ability to manage both internal resources, such as finances and people, and external resources, such as access to various services and information from outside. Additionally, work by [22] indicates that agricultural entrepreneurship is related to market orientation by cooperating with buyers, having joint business activities, and communicating with outsiders.

Entrepreneurial styles

There were four entrepreneurial styles in the fruit farm operations of farmers in Chanthaburi Province. Based on the eight entrepreneurial elements described above, the results of cluster analysis which provided best cluster quality indicated three significant elements consisting of Rationality, Internal focus and Originality. These elements were the factors classifying the farmers into four clusters, demonstrating different entrepreneurial styles of them. The four clusters were explained by standardized scores of means and standard deviations on each significant entrepreneurial elements (Table 2).

TABLE II
THE FOUR CLUSTERS BASED ON THE SIGNIFICANT
ENTREPRENEURIAL ELEMENTS

Clusters	Count	Percent	Significant entrepreneurial elements					
			Rationality		Internal focus		Originality	
			Mean	S.D.	Mean	S.D.	Mean	S.D.
1	68	17.70	-.458	.877	-1.591	.623	-.273	1.073
2	172	44.80	-.315	.433	.196	.476	.647	.447
3	90	23.40	-.291	.546	.736	.811	-1.139	.756
4	54	14.10	2.066	.260	.150	.765	.181	.692
Total	384	100.00	.000	1.000	.000	1.000	.000	1.000

The interpretation of the results above could depict the four clusters as entrepreneurial styles of the fruit farmers namely “Laid-backer”, “Enthusiast”, “Producer” and “Analyst”. The descriptions of each styles based on the three significant elements are as follows (Figure 1):

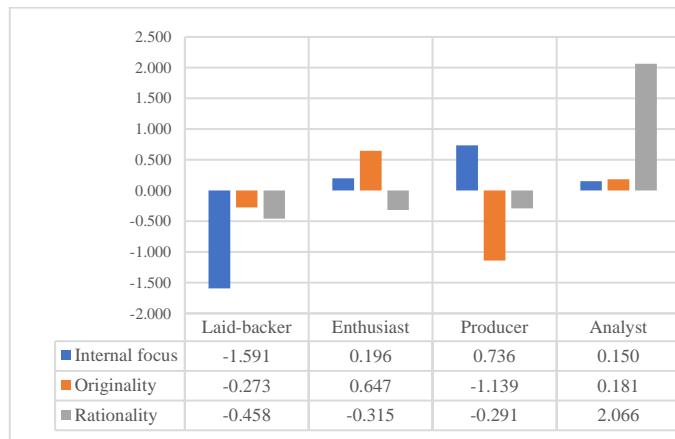


Fig. 1. Interpretation of clusters towards four entrepreneurial styles

1) *Laid-backer* is a type of farmers who have a simple lifestyle and operate their farm in a casual manner with the least stress in their internal management. They also have no emphasis on analytical thinking and rational planning and do not want to make any effort to initiate new things

2) *Enthusiast* is a type of farmers who are committed to creating new things for their farm business progress and kind of focusing on internal management as well. Conversely, they do not emphasize the use of skills in analytical thinking and rational planning.

3) *Producer* is a type of farmers who have good expertise in fruit farming, focusing on management within their farm, i.e. the management of production inputs, the good and efficient production process. However, they do not emphasize the use skills of analytical thinking, rational planning and creating new things apart from the expertise they have.

4) *Analyst* is a type of farmers who have analytical thinking to make rational decisions in various situations together with creative ideas to develop their own business and rather place importance to internal management with operational plans that suit the changing situation.

Different fruit farmers do not always have similar style in their farm operations. From the results of the cluster analysis, it was found that the elements of rationality, originality, and internal focus are important elements categorizing the fruit farmers to different entrepreneurial styles, which differ from other research conducted in different countries. This variation is due to farmers' way of life, types of agricultural production, and different contexts, as can be seen in the works of [23], [24] and [25], among others. The research results indicated that the largest cluster comprised Enthusiast (45%), followed by Producers (23%) and Laid-backer (17%). The smallest group was the Analyst (14%), showing that most farmers are eager to learn new things to develop their businesses, driven by the increasing prices of fruits, especially durian, due to rising international market demand over recent years [2]. Considering the characteristics of each cluster can lead to guidelines for developing entrepreneurship as follows.

1. Enthusiasts are the most innovative and seek new knowledge from various sources for self-development of

their businesses. They enjoy researching and experimenting to generate profits but may lack accurate and complete information and analysis. Therefore, the development of entrepreneurship among enthusiasts should focus on providing accurate and reliable information, developing information orientation skills, and sharing information and knowledge with stakeholders [26].

2. Producers tend to focus more on working in the farm than seeking external information and networks, lacking the idea of creating new activities as they are content with their current performance. To maintain competitiveness in the era of rapid technological change, producers should be open to internal management and external connections to obtain up-to-date business information [21].

3. Laid-backers prefer a slower pace, value internal focus and creative initiative, and are less reasonable than other groups. Developing the entrepreneurial ability of the laid-backers should emphasize learning through mentoring, observing, and experimenting to gradually create operations. Training and fostering an open atmosphere can help increase learning in this group [27].

4. Analysts focus on logical thinking and seek information for self-determination, being cautious about investing more in fruit farms. They tend to spread risks across various operational activities. Entrepreneurial development for the analysts should emphasize diversifying business activities for risk distribution, expanding various businesses to create incomes [14].

V. CONCLUSION

In summary, this study found that entrepreneurship of the fruit farmers was indicated by elements related to the entrepreneur comprised of rationality, originality, adaptability, and value focus, as well as elements related to the enterprise consisted of intensification, accomplishment, internal focus, and external focus. Specifically, the elements related to the entrepreneurial style include rationality, internal focus and originality: these significant elements divided the fruit farmers into four styles of entrepreneurship, namely enthusiast, producer, laid-backer, and analyst. These findings have important implications for entrepreneurial development among fruit farmers and other agribusiness entrepreneurs. Based on these results, fruit farm entrepreneurs can use the research results for their own development. By considering all the eight elements for self-improvement, they can evaluate their own strengths and weaknesses in related areas. This will enable them to develop their strengths and try to reduce their own limitations, thereby increasing their potential as agribusiness entrepreneurs and gaining a competitive advantage. Relevant government and private organizations, such as the Department of Agricultural Extension, Department of Business Development, Community Development Department, farmer groups, agricultural cooperatives, and associations of fruit traders and exporters, should collaborate to develop the entrepreneurial potential of fruit farmers,

assisting to strengthen the upstream production industry. Further research is needed to assess the characteristics of entrepreneurial styles and strategies leading to the competitive advantage. However, this study has made an important contribution to our understanding of entrepreneurial elements and entrepreneurial styles of fruit farmers in the Thai context.

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