

ENHANCING SOCIAL INTERACTION OF RESEARCH INCUBATOR IN
MALAYSIA THROUGH INTEGRATED SPACES

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DEDICATION

This thesis is dedicated to my family, my friends, my peers and whom I have establish connections with them all throughout this Master studies.

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ABSTRACT

Typical research facilities particularly research incubators in Malaysia are lacking in certain areas in which it limits social interactions between users. This can lead to segregation between communities where the researcher's community is isolated from their surrounding communities. This is seen through a building appraisal of the current research incubators within Malaysia. These research incubators seem to be lacking in terms of utilizing the surrounding context to promote the research & development for its end-users, particularly in terms of the social aspect. This is due to the problem of urban sprawl as the facilities and the people are far from each other which can be seen through using urban studies where the land uses is the cause of the incubators being separated from the community. The lack of interaction with the surrounding community itself can be the cause of a community of researchers becoming isolated when looking at the social aspect. In the architectural aspect, the research incubator buildings do not contribute to creating interaction between these communities as the activities at the street level are none existence with no proper public spaces that can be used to help with the sociability and also lacking in terms of its legibility as the building is easily forgettable. The study aims to find integrated spaces to enhance social interaction for research incubators in Malaysia by making comparisons between existing incubators. This is to understand the reasons for the lack of social interaction within existing research incubator programs by proposing an integrated program that can enhance the current building program. The methodology of the dissertation is a qualitative method of literature review and case studies. The case studies and literature review will help in summarising the spaces within an existing research incubator that can help improve the social interaction and highlight the spaces to have for an integrated building program. This led to a conclusion that having a more permeable ground level with accessible spaces due to good infrastructure, more common areas within the building itself, wider circulation spaces, and seating areas at the landscaping can help in the design of a research incubator with an integrated space to enhance social interaction. Finally, this research may benefit the future design of a new configuration of research incubators in Malaysia.

ABSTRAK

Fasiliti penyelidikan terutamanya inkubator penyelidikan di Malaysia mempunyai kekurangan pada aspek yang tertentu menyebabkan terhadapnya interaksi sosial pada pengguna. Ini mengakibatkan terjadinya situasi pengasingan antara komuniti sekeliling yang berbeza terutamanya komuniti penyelidik dengan komuniti sekeliling fasiliti tersebut. Keadaan ini lebih jelas dilihat melalui penilaian bangunan yang dilaksanakan terhadap bangunan-bangunan inkubator penyelidikan sedia ada di Malaysia. Bangunan tersebut diperhatikan mempunyai kekurangan dari segi memanfaatkan konteks sekeliling untuk mempromosikan aktiviti penyelidikan dan pembangunan oleh pengguna fasiliti mereka terutama dari segi aspek sosial. Hal ini berlaku kerana masalah jarak antara bandar menyebabkan fasiliti dan juga masyarakat berada jauh diantara satu sama lain yang dapat dilihat melalui kajian bandar dimana kajian ini menunjukkan bahawa hak penggunaan tanah yang mengakibatkan inkubator penyelidikan ini terasing dengan komuniti sekeliling. Kekurangan interaksi antara komuniti penyelidikan dengan komuniti sekeliling boleh menyebabkan pengasingan berlaku dimana komuniti penyelidik akan berada dalam keadaan terpencil dari aspek sosial. Dari segi aspek seni bina pula, bangunan inkubator penyelidikan tidak menyumbang dalam mempromosikan interaksi sosial diantara komuniti-komuniti berbeza ini kerana aktiviti di aras tanah atau aras jalan tidak wujud oleh sebab ruang awam di aras itu tidak membantu dalam sifat kemasyarakatan dan juga bangunan tersebut kekurangan dalam memberi impak berkekalan pada komuniti sekeliling. Disertasi ini bertujuan untuk mencari ruang bersepadu untuk meningkatkan interaksi sosial bagi inkubator penyelidikan di Malaysia dengan membuat perbandingan antara inkubator sedia ada untuk memahami sebab kurangnya interaksi sosial dalam program inkubator penyelidikan dengan mencadangkan program bersepadu yang boleh meningkatkan program bangunan semasa. Metodologi disertasi adalah kaedah kualitatif kajian literatur dan kajian kes. Kajian kes dan kajian literatur akan membantu dalam merumuskan ruang dalam inkubator penyelidikan sedia ada bagi membantu meningkatkan interaksi sosial dan menekankan ruang yang perlu dimiliki untuk program bangunan bersepadu. Ini membawa kepada kesimpulan bahawa mempunyai aras tanah yang lebih terbuka dengan ruang yang boleh diakses melalui infrastruktur yang baik, lebih banyak ruang awam di dalam bangunan, ruang peredaran yang lebih luas dan kawasan tempat duduk di landskap boleh membantu dalam reka bentuk inkubator penyelidikan dengan ruang bersepadu untuk meningkatkan interaksi sosial. Akhir sekali, penyelidikan ini boleh memberi manfaat kepada reka bentuk masa depan konfigurasi baru inkubator penyelidikan di Malaysia.

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LIST OF ABBREVIATIONS

DOSM	- Department of Statistics Malaysia
KK12	- Kolej Kediaman Raja Dr. Nazrin Shah
KPPI	- Kompleks Pengurusan Penyelidikan dan Inovasi, Universiti Malaya
MASTIC	- Malaysian Science and Technology Information Centre
MTDC	- Malaysian Technology Development Corporation
PASUM	- Pusat Asasi Sains Universiti Malaya
PJ	- Petaling Jaya
R&D	- Research and Development
SME	- Start-ups, Small and Medium Enterprises
SP	- Science Park
UM	- Universiti Malaya
UMCIE	- UM Centre of Innovation & Enterprise
UMX	- UMXcelerate, Kompleks Inkubator Inovasi, Universiti Malaya
UTM	- Universiti Teknologi Malaysia
UTM-ICC	- Universiti Teknologi Malaysia Innovation and Commercialisation Centre

CHAPTER 1

INTRODUCTION

1.1 Background Study

The meaning of “*incubator*” from the Cambridge Dictionary is that of an organization that helps people to start new companies, especially ones involved with advanced technologies. While, Oxford Dictionary defined it as a place, especially with support staff and equipment, made available at a low rent to new small businesses. The main takeaway from the definition is that an incubator is for Startups where proper aid or incentives are given in terms of financial support either with an affordable rent or in terms of providing equipment.

Research incubators are generally spaces for a group of researchers to gather and discuss a specific shared topic of interest. These spaces are accompanied with the support from the universities and research mentors by making the spaces affordable which is well suited for Start-ups due to their network and collaborations as described in the official portal for Malaysian Science and Technology Information Centre (MASTIC). Typical research facilities particularly research incubators in Malaysia are lacking in certain areas in which it limits social interactions between users. This lead to segregation between communities where the researcher's community is isolated from their surrounding communities.

This can be seen through observation of the case study on an existing research incubator that is the Universiti Teknologi Malaysia Innovation and Commercialisation Centre (UTM-ICC) located near Universiti Teknologi Malaysia (UTM) campus in Skudai, Johor shown in Figure 1.1. The appraisal is conducted to see how the building as a research incubator is lacking particularly for spaces that would benefit from social interaction such as spaces that can cater to static activities. The social interaction of a space can also be observed through the activities that happened within that space such

as the static activities which are the activities people will do when they are in stationery such as stopping, sitting, standing, waiting, watching and eating. The more of these activities are observed to happen the more social interactions that are happening (Syed Mahdzar, 2013).



Figure 1.1 The UTM-ICC Building, taken from Google Street, 2022

The case study has shown an overview of what is lacking in a research incubator which is one of the existing research incubators on the list of research incubators provided by MASTIC. Comparing a few of these research incubators can highlights the general problems and challenges within the program and design of research incubators within Malaysia. The thesis is a part of an effort in searching for collective and integrated spaces to enhance social interaction and encourage knowledge sharing by interacting with people from different backgrounds to have a broader perspective. The term ‘Integrated space’ is defined as a space which will have the most effectiveness towards enhancing social interactions among the group of researchers and the surrounding local community while combining the successful incubator spaces with spaces that benefits not just the community of researchers but also the surrounding local community. The comparisons of case studies involving existing incubators will be on the space plannings, layouts and façade designs in invoking the sense of community surrounding the area.

1.2 Problem Statement

Research incubators in Malaysia are not fully utilized in their current condition to promote social interaction between the communities that exist around the facilities. This will lead to the issues of segregation between the community of researchers towards its surrounding context in terms of utilizing the surrounding context to promote the research & development of its end-users, particularly in terms of the commercial aspect.

The reason social interaction within the design of the incubator spaces is to help with the physiological well-being of an individuals within the research community and that encourages a stronger social interactions among individuals in order to prevent suicidal thoughts (Askarizad & He, 2022) being the most extreme of the cases. However, social interaction can also create a more sustainable relationship between communities by creating a sense of community where it can connect the users of a space and promote the economy (Maliene et al., 2022).

1.3 Research Questions

Three important research questions will be highlighted here based on the problem statement:

- (1) What are the similarities of the programs for research incubators that are lacking in terms of social interaction in Malaysia?
- (2) Why social interaction between the community of researchers and the surrounding local community is important in a research incubator?
- (3) How the existing incubator spaces in Malaysia can improved in terms of design to encourage social interactions?

1.4 Research Aim

The research aims to find integrated spaces to enhance social interaction for research incubators in Malaysia by making comparisons between existing incubators to understand the reasons for the lack of social interaction within the research incubator programs.

1.4.1 Research Objectives

To elaborate more on the aim are these three objectives:

- (1) To identify the similarities of the programs for research incubators that are lacking in terms of social interaction in Malaysia.
- (2) To determine the importance of social interaction between the community of researchers and the surrounding local community.
- (3) To design the improvements that could be made for existing incubator spaces in terms of design to encourage social interactions.

1.5 Research Methodology

The main research method that will be used in the research is a qualitative research method using literature review and case studies. The aim of identify appropriate integrated spaces to enhance the social interaction within research incubators in Malaysia. Hence the existing research incubator buildings in Malaysia has to be examined, analyse and compared in order to identify its similarities and differences of the criteria chosen based on the literature review and building appraisals.

1.6 Research Significant

The significance of the research is to identify and make comparisons of the general programs, spaces and their uses of a research incubator through its building program in Malaysia in terms of its services and consideration for spaces to help with social interaction. The findings will help in understanding the spaces needed for researchers to experience social interaction between the community of researchers and the surrounding local community around the facilities.

1.7 Scope of Study

The scope of study for this research are put into place to have a realistic outcome towards the findings and help in structuring the methodology of the research in the form of selecting the case study and the method of executing it. Thus, these are the two main points that highlights the scope of the study;

- (1) The research will look into a common research incubator based on the criteria listed by MASTIC that is similar to UTM Innovation and Commercialisation Centre (UTM-ICC). In addition, other similar criteria in the form of operators are considered such as the buildings of Kompleks Inkubator Inovasi, Universiti Malaya (UMX) and Innovation Incubator Complex and Universiti Malaya (KPPI).
- (2) Findings of the case studies chosen for the comparison will be based on building appraisal. Secondary data are retrieved through desk research from online sources.

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