Information Management and Business Review (ISSN 2220-3796)
Vol. 16, No. 3S(a), pp. 932-938, Oct 2024

Focus Group Interview: University-Industrial Collaboration

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Abstract: Business innovations can introduce novel and imaginative concepts, particularly within digitalization. Innovations have the potential to stimulate the advancement of enterprises, fostering market expansion, enhancing competitiveness, and optimizing profitability. Nevertheless, the implementation of innovation may be achievable in collaboration. Collaborations and interactions between academia and industrial entities may yield improved outcomes. Nevertheless, the presence of obstacles between academia and industries could harm the long-term viability of commercial innovation. The concerns and challenges faced by local institutions and enterprises in Malaysia are examined within the framework of a case study. Data was obtained from a random sample of Chief Executive Officers (CEOs) across several industries. A focus group was conducted with 15 representatives from Small and Medium Enterprise (SME) companies and one moderator to lead the discussion. The findings from the focus group have been transcribed and analyzed based on their sharing. The rationale for focusing on CEOs was their role as critical decision-makers responsible for driving corporate innovations. The collection of perspectives from academia and industries was facilitated through face-to-face interviews. The study provided suggestions for potential avenues of future investigation.

Keywords: *Business Innovation, University-Industrial Collaboration, Engagement, Business Partner, SME*

1. Introduction and Background

From the standpoint of business sophistication, more metrics are currently needed to assess the level of collaboration between universities and industries. The relationship between industry and academics is vital for enhancing and bolstering the contribution of business innovation. The observed trend of a progressive rise in patent applications from Malaysian universities, along with the increasing commercialization of research findings, indicates the expansion of the innovative ecosystem inside the country. However, colleges need help implementing policies limiting or restricting the total commercialization rate. Corporations commonly acquire a promising intellectual concept in an ideal inventive environment, engaging in large-scale production and ultimately reaping substantial financial gains. However, there is sometimes a disconnect between industry practitioners and Malaysian institutions, as academics frequently need to gain firsthand experience of the challenges faced by enterprises.

One of the primary catalysts for collaborations between industry and academia is generating commercial innovation, which is crucial for maintaining market competitiveness. Industries commonly perceive innovations as catalysts for developing innovative products and services. Organizations that include innovation can have several benefits, including enhanced growth, expanded market reach, increased competitiveness, and maximized profitability. The term "innovations" pertains to the diverse range of processes that individuals or industries use to generate novel ideas for products and procedures and revitalize existing products and operations from a new perspective. Innovations have the potential to catalyze and facilitate business growth and adaptation to the marketplace. Hence, an exploration was conducted into the concerns and challenges between Malaysian local institutions and industry.

2. Literature Review

Collaborations typically involve individuals or two parties in pursuit of a shared goal. Collaboration is necessary to acknowledge the objectives and roles of everyone involved. The core aim of academics is to acquire and disseminate groundbreaking fundamental research and education of independent scientists. In contrast, the primary goal of industries is to generate profit for shareholders, usually through innovation. Please articulate these distinctions equated with failures of collaboration between industry and academia.

Most Malaysian universities have established formal collaborations as part of core responsibilities with industries in curriculum development, teaching and learning, research and development, consultations, and suitable industrial placements for students. Academic and industry leaders generally have a mutual understanding of collaboration. The benefits typically include i) increased research and innovation through joint research projects, ii) delivery of innovative commercial products, iii) improvements in teaching and learning, iv) enrichment of students' knowledge and their ability to work, and v) provision of new funding to higher education institutions. Collaboration with industry is crucial for academics to establish scientific knowledge and obtain industry data. For academics, the benefits include i) career opportunities, ii) research funding, iii) awareness of industry trends, and iv) inspiration through discussions on applications. One potential area is when industrial doctoral students are generally identified as critical stakeholders who embody the circulation between i) practice and university and ii) between practice and research. University and industry boundaries continuously validate and test industrial-specific empirical results and models. Thus, increased research quality and dissemination of research results that strengthen organizational legitimacy could be reported (Demircioglu & Audretsch, 2019).

From the industries' perspectives, university-industry collaborations are essential, particularly in scientific-based research projects, to mitigate production problems (Kaymaz & Eryigit, 2011). When entering problem-based research, industries typically expect contributions and benefits from universities. For instance, the solution to the problem exists when one participates in research. In addition, the relationship with academia is to i) expand networks, ii) prompt the 'thinking of outside the box' principle, iii) generate training programs, iv) encourage new talents for hiring, and v) open access to specialized, world-leading resources. Contact establishment and knowledge exchange are just some advantages for both parties.

Furthermore, a solid commitment to sustaining project progress and outcomes is critical to successful partnerships (Rahm, Kirkland & Bozeman, 2013). Industrial employees typically set research agendas and review research progress and findings. The faith of the industrial partners in academic team knowledge and the desire to employ project outputs are conclusive criteria for the success of collaborations (Barbolla & Corredera, 2009). These elements influence industrial partner commitment. Therefore, it is acknowledged that industries have equal roles and that universities and companies complement one another.

3. Research Methodology

Focus Group Sample

The present study was conducted as a focus group exercise that involved business analysts, project managers, product and development officers, business engineers, and research and development officers from 15 small and medium-sized enterprises (SMEs). They were chosen because they were key individuals who were involved in leading research in various industries such as agriculture, graphic design, industrial design, marketing, and information technology. First, a group invitation was sent to initialize focus group discussions. Second, purposeful sampling was employed to ensure that the group comprised individuals representative of sample criteria and work profiles. Third, the sample criteria listed participants who experienced collaborations with academia. Fourth, the group's ages ranged from 35 to 50 years old. Fifth, the group comprised ten men (66.67 percent) and five women (33.33 percent). The group convened i) three business analysts, ii) three project managers, iii) three product and development officers, iv) three business managers, and v) three research and development officers at the group, department, and research institution levels. Table 1 shows the summary of the respondents' profiles.

Table 1: Respondents Profile

Representative	No of Frequency
Gender	
Female	10
Male	5
Position	
Business Analyst	
Project Manager	3
	3

Product and Development officers	3
Business managers	3
Research and development officers	3

The focus group discussions explored the challenges of industry and university collaborations. The group was first introduced to some basic concepts of industrial and university collaborations to ensure the goals were met. After that, the following questions were asked:

- What are your university collaboration aims and goals?
- What are the difficulties that you face during the collaboration?
- What are the conflicts or arguments that escalate?
- What are your expectations from public or private universities

Procedures and Technique of Analysis

The group was subdivided into groups of five participants who differed by industry. In groups, they responded to the questions for one hour, facilitated by a moderator. The focus group and sub-group discussions were carried out openly to encourage discussions and exchange of personal experiences, opinions, and views. The focus group discussions were recorded and transcribed into a textual account comprising the essential experiences and views. The transcribed interview document was returned to the group for comments and feedback. The emerging categories constructed a range of appropriate conceptual categories that saturated, filled, supported, and provided recurring evidence that adequately explained the data (Baker & Edwards, 2012). Member checks were carried out for accuracy before the transcribed interview document was sent for analysis. Subsequently, a thematic analysis was used to interpret the narrative and identify emerging data trends and patterns. The conceptual nature of this study emerged as a field of research interest. The primary investigator read the interview transcript; it was coded separately. Next, the primary investigator discussed coding to determine themes that emerged from the research and the triangulation between the respondents. The validity of the focus group sample represented a relatively broad selection of different industrial areas. The age distribution among the focus group discussion participants was even, and the participants' professions differed by position and expertise. Finally, the focus group discussion participants most likely represented a group of industries that nurtured an interest in university collaborations through their voluntary participation.

Research Ethics

Before the focus group discussions were conducted, all the participants were notified concerning i) voluntary involvement, ii) rights to withdraw without explanation, iii) confidentiality, and iv) how data were archived and destroyed. After receiving written and oral information about the project, all participants gave their oral informed consent. The information concerning participation was provided again at the beginning of the interviews. As researchers, no conflict of interest concerning the publication of data was reported.

4. Results

Findings from Focus Group

In the following section, the findings present the analysis of the challenges in industry-university collaborations. The findings were categorized into the following themes: i) What are your university collaboration aims and goals? ii) What are the difficulties that you faced during the collaboration? iii) What are the conflicts or arguments that escalate? Moreover, iv) What are your expectations from public or private universities?

A. What are your university collaboration aims and goals?

The first question was a general inquiry into the participants' projects with the universities. The participant spoke of the goals and interests that guided the collaboration, "I collaborate with the university to generate new and fresh ideas from young individuals or students that will benefit the businesses." Another participant agreed and said, "I think our potential customers in the market could tackle using new ideas from students or young individuals because they accommodate the current demands and business opportunities." Another participant also mentioned that the fresh ideas universities share are competitive advantages to tackle the competitive markets. One participant also mentioned, "I mostly prefer to work with the university because the

solutions as provided by the experts help me solve the current problem ."Another participant agreed and said, "The university has the experts we do not have, so with the collaboration, they fulfill our needs by sharing their knowledge and expertise." Another participant highlighted, "We look forward to collaborating with the university because the university has the facilities and equipment, such as a laboratory, for experiments and activities we do not have. "

The following themes emerged after an analysis concerning the recording and transcript was carried out: i) The principal objective of collaboration in response to new business ideas and industry evaluations, ii) controlling competitions, iii) modification of market demands, iv) development of new products, and v) solutions to existing company problems. Industry characteristics such as rapid technological change, product life cycles, and intense global competitiveness altered the competitive environments in which many firms currently and significantly operate (Wright, Clarysseb, Lockett & Knockaertd, 2008). The industry-related difficulties prompted the requests for collaboration to boost industrial innovation and economic competitiveness through information exchanges between the academia and commercial sectors. Thus, collaborations are often recognized as a possible technique to build organizational capacity for open innovations (Ankrah & Al- Tabbaa, 2015).

B. What are the difficulties that you face during the collaboration?

The second question concerns the difficulties of collaborating with the university. One of the participants said that the collaboration "cost in terms of time to fit with the industry requirement ."The participant explained that they had to align their schedule for availability to fit the university academic calendar. Another participant argued, "When we want students' ideas, we have to wait for the students' availability either before or after the examination." Furthermore, one participant highlighted that "the lecturer has to comply with the academic calendar because they have commitments such as classes and examinations. Due to the schedule, we must consider delaying our project and complying with the university requirement".

In addition, the participant mentioned, "There is a commitment, but not every university will give their commitment to concentrate on the project." Another participant also said, "I found that there is a lack of commitment from the university in the middle of the project because they have other commitments such as teaching and learning". A participant also agreed and said, "The dual roles played to realize the project successfully caused us to give extra time and tolerate the university."

Several topics emerged following the analysis of the recording and transcript discussions. The issues concerning the collaboration between industry and university were grouped into the following broad categories: i) time management, ii) commitment, and iii) communication. The temporal horizons of long-term industry-academia collaborations were analyzed (Runeson, Minor & Svener, 2014). The finding revealed that commitment and time management were often industrial rather than academic priorities. The tardiness and lack of commitment presented risks of tension and frustration on both sides of the collaboration. Although timeliness is vital for industry, it is less critical for academics when significant issues of industry-academia collaboration are raised (Gregory, Barroca, Taylor, Salah & Sharp, 2015). Finally, the findings emphasized the importance of designing research outcomes in various ways to ensure that the findings were relevant to miscellaneous stakeholders.

C. What are the conflicts or arguments that escalate?

The third question involved the responses of one participant: "I have a conflict with the cost of research required by the university." The participant explained that "the cost is high, and we cannot comply with the proposed cost. As a result, we have to reject the cost, which poses a conflict for us to collaborate with the university". Another participant agreed by saying, "We can provide the materials and suppliers with the lower price to the university to facilitate them to do research and development, but sometimes, the proposed materials are not seen fit by the university. They prefer to have their own or employ commonly used suppliers and materials".

In addition, another participant mentioned, "We are having a conflict of ideas with the university." He explained that "some universities lack experience in market fields although they have experience with theories and concepts ."Other participants agreed and said, "We sometimes have a conflict between meeting the project's

outcomes and the result which does not fit the industry's demands. Moreover, another participant mentioned, "Sometimes we argued about the proposed solution and design as requested by the university, which worked against the expectation and outcome of the project."

The abovementioned findings associated costs and ideas with the escalated arguments. Close collaborations between academia and industry may lead to possible conflicts (Gregory et al., 2015). The goals of businesses and universities differed considerably; However, industries were mainly profit-oriented, and the primary goals of the universities involved the production of knowledge to share usable and publicly accessible research results, particularly in the form of education. These differences in goals and funding sources may have led to ethical concerns.

Moreover, the industry found that both parties were involved in conflicts concerning the imbalance of expectations. Inequality is explained in terms of costs and benefits, which form the foundation of crucial issues. The SMEs found that the biases only benefited the university as opposed to SMEs. As expressed in the first discussion, the industry and university outcomes involved different outcomes and challenges to construct a mutual understanding. One common challenge, as highlighted by the industry, was delivering outcomes and accommodating industry expectations (Hillerbrand & Werker, 2019).

D. What are your expectations from public or private universities?

For the fourth question, the participants mentioned, "We expect that the objective of the project and timeline of the project will meet as we both agree." Another participant highlighted that "we expect to sustain the long-term collaboration with the university and have a good relationship with the university ."One of the participants also agreed that "the collaboration with the university has to be sustained and that the continuity of the project with the university may benefit both parties ."Furthermore, one of the participants added, "We expect the collaboration will benefit both parties to fulfill interest and achievement." One participant mentioned that he preferred to collaborate with the university as the collaboration returned benefits, fulfilled the lack of resources from the industry, and forged relationships with the university that could strengthen the future.

Based on the findings above, most industries expect a long-term collaboration with universities. They believed that collaboration could help skills development through education and training and the adoption of knowledge such as innovation technology transfer and entrepreneurship (Stevens & London, 2019). Collaborations typically facilitate the formation of knowledge with the support of experts and experienced individuals in the industry who can give the right direction to enthusiastic, intelligent students and train them as future experts (Sohimi, Affandi, Rasul, Yasin, Nordin & Adam, 2019). Furthermore, industries and institutions must highlight the emerging skill needs within industry requirements and incentives to industries that encourage training collaboration (Agostini, Nosella & Venturini, 2019). Finally, collaborations between firms could strengthen networks and help promote the capabilities necessary to translate market opportunities successfully and manage human capital (Roshani, Lehoux & Frayret, 2015).

The findings from the focus group generated the managerial implication and recommendation as the following discussion:

Mutual agreement between industry and academia

Agreement between industry and academia is critical to the effectiveness of collaboration. Thus, a systematic approach to achieving mutual understanding between industry and academia should be considered. The collaboration agreement is founded on the fact that all projects are unique. However, projects' aims, outcomes, and expectations must be investigated further to ensure that partnerships are effective and mutually agreeable. Examining the terms of agreements is critical to building the foundation for industry and academia for potential project collaboration opportunities. To manage efficient collaborative outcomes, universities might be better aware of the present state and long-term trends in research policies, market trends, financial management, human capital development, and day-to-day administration. The objectives of projects and research programs must be developed collectively to generate clear expectations regarding what and when projects could be completed. Finally, industries require university connections to stay abreast of new technological developments and maintain competitive measures against competitors.

Commitment to collaborations

Participation in collaborative projects comprises a contractual commitment and interpersonal relationship commitment among parties. Commitments in the context of relationships are likely to be a critical component of effective collaborative relationships, particularly for small business organizations with limited resources and a high degree of mutual reliance (Azman, Norzaini, Sirat, Morshidi, Pang, Vincent, Lai, Yew Meng, Govindasamy, Anantha Raman, Din, Wardatul Akmam, 2019). The importance of commitment could be seen in the context of complementary conditions that i) provide safety and security, ii) prompt the exchange of ideas, resources, and knowledge, iii) prevent opportunistic behavior, and iv) align performance goals between partners (Pinho, 2016). Moreover, commitments foster business relationships across universities, and parties are willing to invest time and resources to sustain long-term benefits due to the collaboration (Hammarfjord & Roxenhall, 2017). Moreover, commitments increase the likelihood of continuity and effective collaboration between industries and universities.

Knowledge transfer in collaboration

Collaborations typically involve knowledge transfer, one of the strategic critical drivers of innovation and economic progress. First, collaborations facilitate the commercialization of new scientific knowledge within businesses. Second, researchers benefit from interactions with industries as the interactions stimulate new routes for investigations and miscellaneous financing. Third, the transfer of knowledge is enabled to benefit organizational settings through teaching, interaction management, and data and technology sharing. Knowledge could transfer through explicit or tacit knowledge. Prototypes, formulas, or manuals could communicate the explicit knowledge. Often, such knowledge is shared via contractual agreements such as patents (Vries, Dolfsma & Gerkema, 2019). Thus, the success of knowledge transfer is contingent upon its ability to be appropriately applied to the settings. Transferred tacit knowledge requires interaction to cultivate competence and prompt more direct collaborations and interactional expertise (Canhoto, Quinton, Jackson & Dibb, 2016); academic engagements, rather than patenting or licensing, are the most effective methods of information transfer because academic engagements involve more significant personal interaction. Thus, successful knowledge transfer between industry and university might minimize the conflicts (Bernhard & Olsson, 2020).

5. Conclusion

The challenges that SMEs confronted when collaborating with universities were explored. A focus group discussion was conducted, and data was collected randomly from 15 SMEs. The findings showed that the objectives of collaboration from the industry's perspective were the i) circulation of new business ideas, ii) management of competition, and iii) adjustment of market demands, product development, and solutions to existing business issues. As expressed by the industries, common difficulties included i) time management, ii) commitment, and iii) communication. In addition, conflicts between university and industry collaboration typically escalate in the context of costs and ideas. Finally, the expectation of collaboration could contribute to more significant benefits and advantages for both parties. The findings suggested recommendations for future studies. The researchers will continue to investigate the issues raised in this finding.

Overall, this finding supported the Malaysian Education Blueprint 2015-2025 (Higher Education) because most academics and industry players might better consider collaborations that benefit both parties equally. Numerous benefits are captured, including i) enhanced teaching and learning, ii) more excellent student knowledge and employability, and iii) new revenue streams for academic institutions. Industry and academic collaborations are critical to catalyzing innovation and growth in technology. While the initiative often focuses on addressing solutions of near-term commercial values and academia focuses on building new knowledge through research and education to students, the combination of industries and universities could accelerate breakthroughs. Benefits from industries are gained in the context of human capital, product and service innovation, improved business processes, revenue generation, and industrial market support.

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