Conceptualizing the Design of Marketing Laboratory Within Industry 4.0: A Case Study of Bandung Vocational College

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ABSTRACT

The competitiveness of vocational colleges can be examined through student satisfaction towards their service quality. While a laboratory is necessary to promote active learning in vocational college, in some cases its quality does not always obtain the student's satisfaction at an acceptable level. For instance, the students showed unsatisfying responses towards the service quality of the marketing laboratory of Politeknik Negeri Bandung (POLBAN). As no significant improvements have been carried out, this fact can weaken POLBAN competitiveness indirectly, despite POLBAN sat at the top two of Indonesian vocational colleges by 2019. When the relevant studies about learning delivery within a lab setting are scant, this study aims to describe the design of a marketing laboratory that is relevant to today's job market, orienting to industry 4.0. To meet the aim, this study took the marketing lab of POLBAN as a case study. This study was carried out qualitatively by conducting interviews with six informants representing practice and academician fields. Based on the findings, there are two perspectives that should be bear in mind in designing a marketing lab today. Firstly, the department's perspectives towards the lab. For them, a lab is a tool to enable the department to meet its goal/learning outcomes. While setting the target learning outcomes, the department must always include the external's perspectives (i.e. the industries) since principally the department tries to generate work-ready graduates. Secondly, the student's perspectives towards the lab. The department must comprehend that a lab can enable the students to get exposure to the best practices of marketing which has been carefully selected by the department and relevant to the theory taught.

Keywords: vocational, marketing, laboratory, industry 4.0

1. INTRODUCTION

The big role of vocational education has been acknowledged worldwide for a long in boosting the nation's economic growth [1]. Due to its significant role, many countries encourage vocational education for their citizens, including Indonesia. As the Indonesian Ministry of Education and Culture established Rumah Vokasi by mid of July 2020, the interest of Indonesian governments to promote the program of link and match between the vocational school and industry is getting stronger and hopefully can promote the number of employees. When vocational education is in limelight, apparently the competition among educational institutions seems to get fiercer.

As a service provider, the competitiveness of a college can be seen from the level of its service quality received by its users, i.e. students [2]. As the privilege of vocational college lays in the practice aspects, the vocational must ensure their graduates are superior in their practical competencies. A way to support those practical competencies is that through active learning, one of which can be done in the laboratory. Furthermore, [3]) explained that the learning activities in the laboratory would enable achieving theory and practice knowledge simultaneously. Further, a student's skills in research, communication, and problem-solving tend to increase while learning within a laboratory setting [4]. According to this, the learning process in the laboratory becomes important for any college, especially a vocational college.

Though the existence of the laboratory is necessary for the learning process in vocational college, apparently in some cases, the quality of learning delivery in the lab does not always gain good acknowledgment from most students. For instance, based on [5] the marketing students showed unsatisfying responses towards the quality of the marketing laboratory in Politeknik Negeri Bandung (POLBAN). While POLBAN was recognized as the top two of Indonesian vocational colleges by 2019, those unsatisfying responses can potentially lead to weakening the competitiveness of POLBAN. For almost 20 years, its marketing lab has not undergone any significant changes which are actually

needed to keep relevant with the needs of today's job market, orienting to industry 4.0. Being less relevant to the external situation, those graduates' competencies will possibly be lower than others. For a longer time, POLBAN can suffer from its decreasing competitiveness based on the less relevant quality of its graduates with external situations. To be clear, the current setting of the marketing lab in POLBAN is muchly like the typical marketing labs in Indonesian colleges as described in [6].

Despite the importance of the lab role in building the graduate's quality, the researches on this topic are less to examine though. The existing studies in marketing education recently are about flipped classrooms in the era of digital [7], digital marketing in today's marketing curriculum [8], critical thinking in marketing education [9], etc. To the best knowledge of authors, there are no studies that examine the laboratory context within marketing education. Addressing this, this study aims to describe the relevant design of the marketing laboratory within the industry 4.0 context. This study will contribute to enriching the learning activities within the marketing education context.

2. LITERATURE REVIEW

The marketing concept has now developed from marketing 1.0 to marketing 4.0 [10], [11] whose development cannot be separated from the influence of the development of the industry 1.0 concept to industry 4.0. The term industry 1.0 - 4.0 comes from a need in the industrial sphere [12], where industry 1.0 is known as "the age of steam", a manufacturing process that relies on steam power. Industry 2.0 "the age of electricity" describes the use of power sources for support mass production at that time. Industry 3.0 "the information age" introduces electronic devices and information communication technology so that industrial activities can be more integrated. In industry 4.0 "the age of cyber-physical systems" is more characterized by automation technology [12]. Technological developments in an industrial context have also had an impact on the evolution of the marketing concept, from marketing 1.0 to marketing 4.0 [10]. In marketing 1.0, marketers sell products regardless of the needs and want of consumers, so it is better known as product centric marketing. In marketing 2.0, the marketing emphasis is on the consumer-centric, so that marketing research on the needs and wants of consumers is common. Marketing 3.0 is characterized by being human-centric, resulting in value formation for consumers to be the main focus. Marketing 4.0 began to develop since the industry developed to level 4.0. Cyber-physical systems in Industry 4.0 have made everything more connected, not only between consumers and producers but also between the two parties with the products or services offered [10], [11]. Thus, the development of marketing 4.0 cannot be separated from the influence of industrial development from 1.0 to 4.0.

Marketing 4.0 characteristics also have an effect on the flow of consumers in purchasing decisions, where in the past using the "four A" flow, now it has become "five A". The four A's consist of awareness, attitude, actions, and act again. Meanwhile, the five A's consist of awareness, appeal, ask, act, and advocate [11]. The ask and advocate stages arise due to digital technology that provides space for consumers to better express themselves in the purchase decision stage. In addressing the development of digital technology, marketing is a discipline that is more shaped by the development of existing technology than simply using technology to improve marketing performance [13], [14]. Based on this, it is only natural that marketing science needs to evolve continuously to adapt to technological developments used by consumers.

3. METHODOLOGY

To obtain a relevant design of marketing lab within the industry 4.0 context, the study needs to comprehend the perspectives of the academician, i.e. the provider of learning process, and the practitioner, i.e. the user of graduates. Addressing this, this study carried out a qualitative research method through interviews. This method is suitable to conduct since it allows the researcher to explore a relatively new topic and get in-depth knowledge from the perspectives of informants as the insights of study [15]. In other words, a qualitative research is an appropriate method to describe, interpret, and explaining a phenomenon [16].

To gain a clear viewpoint about a marketing career in 4.0, the informants must have at least ten years of working experience in their industry. The informants must represent a practice or academician field so that the triangulation can be established. Under the informant's permission, each interview was held through an online meeting platform within an interview duration of around 30-60 minutes. Those interviews were conducted from June-July 2020.

During the interviews, there are four main questions need to answer by the informants:

1. What roles does a marketing lab have? (for academician)
2. What do the tangible and intangible aspects matter in lab design? (for academician)
3. What competencies should a marketer have in marketing 4.0? (for academician and practitioner)
4. What is the ideal working environment for a marketer in marketing 4.0? (for the practitioner)

4. RESULTS AND DISCUSSION

This study interviewed six informants from academicians and practitioners (see Table 1). Of six informants, there are five themes generated.

4.1. Lab design

The answers of informants for the first and second questions have led the authors to have some inputs about designing a lab in the marketing field. Those inputs can be grouped into three points, namely: the function of marketing lab, the process of designing a marketing lab, and inputs matter in lab design.

Table 1 Profile of informants

Informant	Occupation	Industry	Length of experience (years)
A	Marketing researcher (practitioner)	Marketing research	12
B	Salesman supervisor (practitioner)	Automotive	12
C	Entrepreneur (practitioner)	Fashion	10
D	Lecturer (academician)	Education	27
E	Lecturer (academician)	Education	15
F	Manager (practitioner)	Consultant	14

Informant E argued that "…indeed the lab is ideally a place to meet between theory and practices…So the lab is a kind of hub for accuracy. And presenting business figures who can provide interesting insights ... So the role of the lab is to accurately identify who is out there with what they practice is relevant to the concepts we teach… There are various exposures, it doesn't have to be in the form of an internship. You can go through the lab, right? They can see how the real practice is from the concepts they learn ...". Based on this, a lab shows two functions for a student. Firstly, it is as a place to accurate the relevant best practices with the concepts taught in college. Hence, learning in a lab will enable the students to access the theory and practice simultaneously which aligns with [3]. Secondly, a lab can be a media for students getting exposure to the practices. Not only for the students, yet a lab also brings benefits for the department as the provider of the learning process as seen from informant D. She argued that "…So the lab is only a tool to achieve the goal". For a department, a lab is an infrastructure that assisting it to reach its goal, i.e. previously designed learning outcomes. Such an opinion was also found in informant A, "…. actually, it relies on the goals of the marketing department in POLBAN, what kind of graduate profile you want to aim at. Because of this goal, of course, it will affect the readiness of infrastructure which must be supported by the department certainly". Informant E added his opinion about a marketing lab, "Lab functions for learning and research. Very necessary, for example teaching advertising. In class only teaches, so a lab is needed for hands-on practice. Without the lab, it's only cognitive. For research, for example, doing experimental research which should be more powerful and requires a lab. We can do experimental marketing in the lab." According to it, a lab supports the practical skill of students during the learning process as corroborates [11]. He also argued that the existence of lab can encourage the students and lecturers to do an experimental research type which currently is less favorable to carry out.

The second point about the lab design theme is that prior to setting a lab, the department must conduct a need analysis of the lab. According to informant E, the department must determine its learning outcomes which further be realized into the designated curriculum. Once a curriculum is set, the department should ponder whether a lab is truly needed within the curriculum or not since not every subject is suitable to deliver within a lab setting.

The third point is that the department must take some issues into consideration in the early stage of designing a lab. Informant A argued the goals referred by a lab setting must in response to the external situation. Precisely, he stated that "So in the last 12 years, of course, the dynamics have changed. The student's condition as well, then the student's expectations with changes in the industry will certainly be very different". This notion is aligned with [17], [18] in which a university should be always relevant to the external situation, especially the needs of users of graduates. Not only to the external situation, to increase the student's engagement during learning in a lab, the department must also pay attention to the traits of the students itself [19]. It is agreed by informant D while telling that "…Therefore, it means that the curriculum must adjust to the enrolments applying for our department. If they are the millennial generations, it means they have better soft skill complexity than us. For instance, a better level of ICT literacy." Such a trait is also noticed by informant C and F during their experiences having employees from gen Y and Z at their workplaces. Another trait of young gens is confirmed by

informant A as well. He found that Y gens were critical, tended to work in collaboration, and like to engage in discussion. These traits are similar to [20], [21] identified in Millennial student in their study. However, informant A and F explained besides their positive traits as mentioned earlier, the young gens also had some drawbacks which are not favorable to conduct within the professional working situation. Those traits were arrogant due to act like know everything, weak endurance, and poor communication skill as well as emotional intelligence. These negative traits apparently corroborate with [21], [22] which are necessary to be well-addressed within the professional working context. The knowledge of young generation traits can be elaborated with the other inputs for lab design which are explained by informant D and E. Informant D stated that "…The lab needs to have traction. Auckland has a game lab, all games are in the lab. So that people enter there out of interest, reducing the lecture method with student center learning. Essentially the creativity in the lab to draw. Then also the environment must be different from the class". Regarding this, to increase the engagement from students of young gen, the department is better to devise the traction based on young gen interests, for instance, relates to their traits. On the other hand, informant E asserted that today a lab can be in form of the existing type (physical lab) and virtual type, depending on the subject nature taught.

4.2. Competencies

The questions about the relevant competencies in marketing 4.0 were posed to the informants since it serves as a reference for what subjects should be delivered in a lab setting. Related to the current situation, marketing 4.0, from the findings there are two types of competencies needed by the industries, namely hard skill and soft skills. Herein, hard skills mean the subjects matter to be mastered by a marketer while working in marketing fields. According to the practical informants, they agreed that the application of technology in marketing is intensely used today regardless of the types of marketing activities. Informant A narrated that "…there is already a technology, for example using Python for big data and all kinds ... With all their limitations, they can get insights more quickly ... Even in a matter of days ..." In marketing research, big data of consumer analysis can help a company to have more effective and efficient decision-making during their business activities [23]. Meanwhile, for informant B, technology really affects the way his sales team promoting the car products, even more under the COVID-19 era. He said that "…Now the Instagram business is the most used platform for car sales. The prospects emerge from the Instagram business. How do we link from Instagram that we have? From Facebook we have... Now we rarely go to exhibitions... Finding prospects is difficult. Old consumers don't have the money to buy a car... But new prospects, maybe the early millennial or Z generation do". While the potential consumers are changing to millennials who are often present online, thus the sales team must approach them online as well. Apparently, it is coherent with [24]

who demonstrated that a promotion media providing online experience is the most influenced and preferable way for potential customers to purchase automotive goods. Due to the great influence of technology in marketing, informant A claimed that it can replace salesman job in B2C to some extent. Adding to it, informant F believed that technology cannot replace human resources in marketing activities heavily needs a human touch, such as a salesman in B2B. This argument is coherent with [25] who said the interaction process between salesperson and consumers cannot be substituted by technology. A massive shift due to technology usage is also experienced by informant C. She has to change her earlier selling system using wholesaler/reseller towards the online marketplace because their consumers are more engaged in the online platforms. Such a change is also recognized by [26] regarding the effectiveness of the online marketplace in selling apparel goods. Addressing the fierce competition through online selling today, informant C posited that an entrepreneur must comprehend the research market and branding to optimally fulfilling the consumer needs and be distinct among other sellers. An interesting viewpoint about the high usage of technology in marketing comes from informant D. She recognized that the intersection of marketing and ICT expertise was getting wider and possibly be biased between both. Regarding this, Informant E asserted that it was critical for marketers to strongly comprehend the principles of marketing and possess a scientific mind. Thus, regardless of how disruptive technology affects marketing activities later, the marketers are already well-prepared to deal with it.

Despite the importance of mastering digital marketing, marketing research, and branding, informant F argued that acquiring good soft skills is a critical matter for surviving in today's marketing industry which highly relates to sudden changes. His opinion confirms [27] that about three quarters one's success comes from the quality of soft skills, not hard skills. Soft skills itself is perceived as the interpersonal quality of someone [27]. This study obtains necessary soft skills in a marketer based on the industry the informants working in. For informant A, in a marketing research agency, a marketer must be able to work solitary and have high endurance since there he will do several projects simultaneously and working under less supervision. For informant B, those marketers who are sociable, especially in social media, currently is the favorite ones in the automotive industry. Being sociable in social media can ease getting many followers which is a powerful way to spread a shareable content. Once it is applied in the promotion context, it can facilitate today's current consumer path (appeal → ask → advocate) [28]. In terms of entrepreneurship, informant C stated that it is necessary to be a long life learner since the business situation is vulnerable to changes over time. Thus, the marketer must have flexibility. According to informant E, in the future, the changes become more inevitable. In order to survive later, the marketer must have the scientific mindset which is seeing a matter objectively and systematically. For informant F, the soft skill needed is that creative, innovative, entrepreneurship, and leadership as well as

being able to have offline and online communication skills. All these soft skills are written in the list of most required soft skills in the marketing field in the 21st century [27], [29]. To conclude, informant F emphasizes that many industries, the user of graduates, really needs the work-ready graduates in terms of soft skills and hard skills.

4.3. Working environment

According to [30], many students commonly find a surprising realization during their transition from university to the workplace. They encounter the significant differences between what they have learned in university and the practices in the workplace. Recognizing the importance of preparing work-ready graduates for the users (i.e. the industries), this notion strengthens more the role of a lab as an exposure way for students towards the practices of marketing. To optimize the function of a marketing lab, this study decides to consider the current working environment for the young generation within the professional working context during the process of the lab design.

From informant A, the current generation can access ICT facilities easier in his company than the previous generation. His company set such rules since it can support the higher mobility of current employees. In addition, an open office style is also preferable now after the company hires some gen Y. Such a situation is also found in the company of informant F. According to him, his office has just recently provided a room whose setting is similar with the working space concept (e.g. the colorful pillow, a board to post the ideas during brainstorming, comfy ambiance, etc.) The reason it provides such a room is that it acts as a symbol of the company for accepting all about the young generation as part of the company, including their cultures, their traits, their ideas, etc. To boost the engagement of young gen towards the company, informant F also explained that the young gen gained large empowerment from the seniors to explore any ideas regarding their projects. Later, those ideas would be selected by the seniors in terms of their feasibility. The empowerment of the young gen is also seen in informant C. She let her Millennial employee optimize the online promotion of her products. This empowerment for young gen is actually proven as the right treatment for Chinese gen Y in the workplace according to [31].

Based on the previous explanations, to obtain a proper design of a marketing lab that is relevant to industry 4.0, there are two perspectives that should be kept in mind. Firstly, the perspective of the department as a lab provider. The department must understand a lab is a tool to facilitate it reaching its goal/designed learning outcomes. The learning outcomes itself must heavily consider the external 's perspectives (i.e. the industries) since they are the users of most graduates. Within industry 4.0, the development of technology has made the connectivity among things be the core notion. There are no single industries that are not affected by this technology disruption. In marketing, the connectivity greatly impacts the consumer's behavior that staying more in online. It changes the consumer path from

the four A's (aware, attitude, act, and act again) to the five A's (aware, appeal, ask, act, and advocate) [28]. From the interviews, the skill of digital literacy (e.g. digital marketing, big data, etc.) is the new skill necessary to be mastered by the marketers today. Hence, the digital literacy issue must be included within the current department learning outcomes to yield the work-ready graduates. The importance of digital literacy must be included in the marketing curriculum is also stated by [8]. On the other hand, the student's perspectives and characteristics must be taken into consideration as well during designing a lab. This approach can optimize the engagements of the current students who are the young generations (gen Y and gen Z) towards the learning activities in the lab [19]. For a student, a lab is a "hub" where theory meets practice. The department must accurate the relevant best practices with the theory that is taught to the students. A lab serves as a media of exposure towards the practices in marketing for the students. Due to its importance, the department must optimize its attempts to ensure the learning delivery to the students in the lab setting can be carried out as much as possible. Addressing current technology development, the marketing lab itself can be realized not only in physical form but also in virtual form while considering the suitability of the subjects delivered. The young generation (gen Y and Z) itself are also muchly perceived to be different from the previous generations in terms of their traits which yields some adjustments to the previous working environment. This approach is taken by the companies to increase the engagements of young generations towards their workplace. Realizing this, this study attempts to include the ideal working environment for the young generation to optimize the students' engagements towards the lab.

5. CONCLUSION

This study attempts to provide a design of a marketing lab that is relevant with the industry 4.0 by using Politeknik Negeri Bandung as the study case. From the interviews, there are two perspectives that should be bear in mind about lab design. Firstly, the department perspectives towards the lab. For them, a lab is a tool to enable the department to meet its goal/learning outcomes. Regarding the goals itself, the department must always include the external's perspectives (i.e. the industries) since principally the department tries to generate the work-ready graduates. Secondly, the student's perspectives towards the lab. The department must comprehend that a lab can enable the students to get exposure to the best practices of marketing which has been carefully selected by the department and relevant to the theory taught.

By referring to these findings, the authors suggest a relevant design of marketing lab for Politeknik Negeri Bandung by heavily considering the traits of users, i.e. the students from gen Y and gen Z. The department must be able to build the attractiveness of the marketing lab by using the students' point of views. Several instances to

pursue lab attractiveness are having a coworking space layout for a lab layout and any subject taught in a lab must be linked to developing the digital literacy skills (e.g. Google analytic, content creator, etc.). By offering

such attractiveness, the students are expected to be more engaged in the lab activities and can support the optimal learning process.
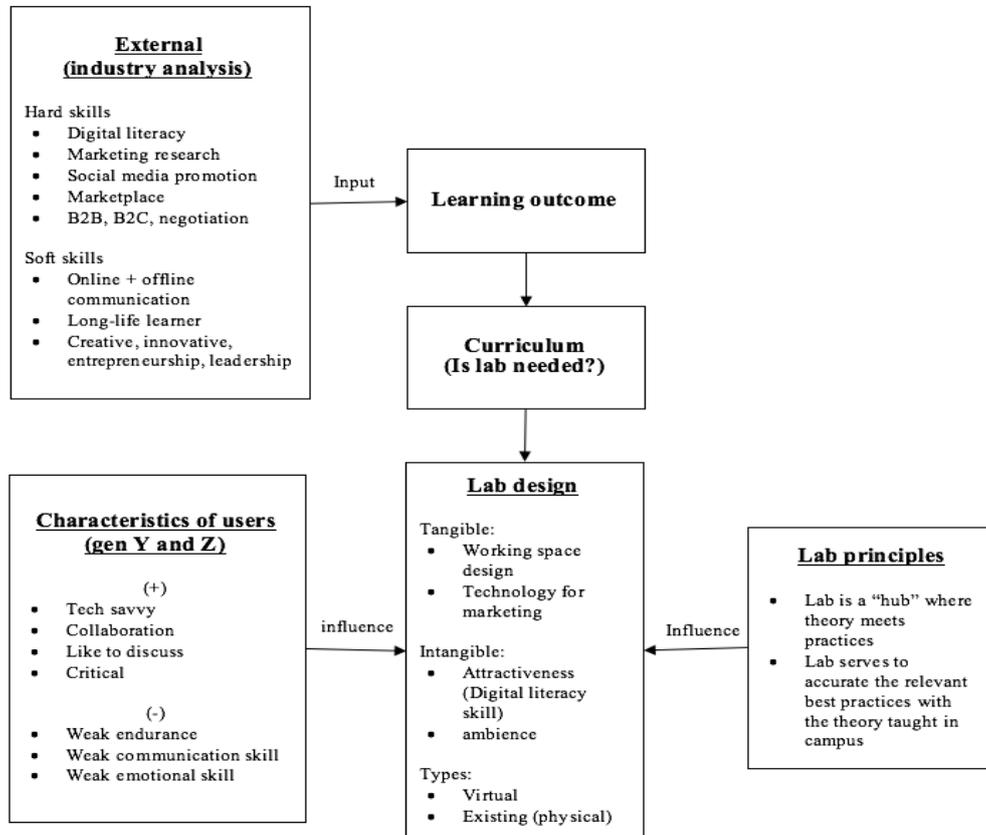

Figure 1. The proposed lab design of marketing in 4.0

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