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Enhancing Youth Engagement with IBM SkillsBuild Platform in Singapore: A User-Centered Analysis

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Abstract

With the rapid development of digital economy, digital literacy and professional skills have become essential for youth employment and career development. IBM Singapore, in collaboration with RMIT, launched the SkillsBuild platform to provide free high-quality digital and professional skill training for young people. However, the platform is facing the challenge of low youth engagement. This paper aims to explore effective strategies to improve youth participation in IBM SkillsBuild. Through PESTLE analysis, this study examines external business factors influencing youth engagement; identifies and analyzes key stakeholders using Mendelow's Power-Interest Grid; determines polytechnic students (17-21 years old) as the target user group based on potential user group analysis; constructs a user persona and empathy map through primary research (semi-structured interviews with three polytechnic students); and finally defines the core problem and proposes a "How Might We" question to guide subsequent solution development. The research findings indicate that the low engagement of youth in SkillsBuild is mainly due to insufficient platform visibility, lack of interactivity, and unclear connection between courses and career prospects. This study provides a theoretical and practical basis for IBM Singapore to optimize the SkillsBuild platform and enhance youth engagement, which also has reference significance for similar online learning platform operation.

Keywords

IBM SkillsBuild, Youth Engagement, Online Learning Platform, User-Centered Analysis, Singapore Polytechnic Students

1. Introduction

In the context of global digital transformation, the demand for digital skills among employers is increasing, and young people's mastery of digital and professional skills directly affects their employability and career development prospects (Kizilcec et al., 2017). To help young people adapt to

the changing job market, IBM Singapore launched the SkillsBuild platform, which provides free high-quality training materials covering digital skills and professional competencies. Despite the high quality of its content, the platform has not achieved the expected level of youth engagement, which limits its role in promoting youth employability.

This paper focuses on solving the problem of low youth engagement with IBM SkillsBuild in Singapore. The research process is structured as follows: first, it clarifies the specific challenges faced by IBM Singapore in promoting the SkillsBuild platform; second, it analyzes external business drivers using the PESTLE framework to identify opportunities and threats in the external environment; third, it identifies key stakeholders and their roles, and classifies them using the Power-Interest Grid to formulate targeted engagement strategies; fourth, it explores potential user groups of the platform and determines the core target user group based on their characteristics and needs; fifth, it conducts primary research through semi-structured interviews to collect user opinions and insights, and constructs a user persona and empathy map to deeply understand user needs, pain points and motivations; finally, it summarizes the core problems based on the above analysis and proposes a “How Might We” question to lay the foundation for subsequent solution design. This research adopts a user-centered approach, combining theoretical analysis with empirical research, to provide practical and operable suggestions for IBM Singapore to improve youth engagement with the SkillsBuild platform.

2. The Industry Partner Challenge

IBM Singapore’s collaboration with RMIT aims to enhance youth interaction with the SkillsBuild platform. As a free online learning application, SkillsBuild is designed to equip young learners with the skills required to find and retain jobs, covering a wide range of fields such as artificial intelligence, cybersecurity, and workplace readiness. However, the current level of youth participation in Singapore is significantly lower than expected, which is not due to the poor quality of the platform’s content, but to the lack of appeal of the platform itself to young people—young people do not perceive the platform as relevant, inspiring, or capable of effectively boosting their career prospects.

Singapore’s education environment is highly competitive, and the government has launched initiatives such as SkillsFuture to encourage young people to develop skills at an early stage, making young people highly aware of the importance of digital literacy (Ifenthaler & Schumacher, 2016). However, in the face of a variety of learning channels, most young people tend to choose interactive, gamified, or community-based learning methods rather than traditional online module learning. This makes SkillsBuild, which relies on functional advantages such as content quality, difficult to attract the attention of young people in the fierce market competition.

Therefore, the core challenge IBM Singapore needs to address is to design effective strategies to make the SkillsBuild platform an attractive, accessible, and rewarding learning experience for young people. Specifically, this includes three aspects: first, increasing the visibility of the platform to let more young people know about its existence and advantages; second, optimizing the learning experience to

encourage young people to use the platform beyond casual browsing and form regular learning habits; third, strengthening the connection between platform certifications and career opportunities to persuade young people to actively participate in certification exams. In addition, establishing partnerships with learning institutions, employers, and policymakers is crucial to making SkillsBuild a trusted channel for young people to enhance their employability and acquire future-oriented skills.

3. Analyzing External Business Factors

The PESTLE framework is adopted to analyze the external business environment factors that affect youth engagement with IBM SkillsBuild, so as to identify the opportunities and constraints faced by the platform. The specific analysis is as follows:

3.1 Political Factors

Singapore's government-driven skills development agenda provides important policy support for online learning platforms. Initiatives such as SkillsFuture and partnerships between polytechnics and the Institute of Technical Education (ITE) have created a favorable policy environment for platforms aligned with national skills development priorities. Platforms that can align with national priorities and integrate into existing formal education channels can not only gain greater access to young people but also enhance their credibility and expand their influence through policy 背书. For IBM SkillsBuild, aligning with Singapore's national skills strategy is an important opportunity to improve youth engagement.

3.2 Economic Factors

Young people in Singapore are facing two major employment challenges: skill-job mismatch and credential inflation. In this context, micro-credentials have become increasingly attractive to young people, but their appeal depends on the recognition of employers and the transparency of their return on investment (ROI) in internships and entry-level jobs (Kizilcec et al., 2017). If IBM SkillsBuild can obtain widespread recognition from employers and clearly demonstrate the value of its certifications in improving employability, it will significantly enhance its attractiveness to young people.

3.3 Social Factors

Generation Z (Gen Z), the main group of young users targeted by SkillsBuild, has distinct learning preferences: they prefer bite-sized, interactive, and community-based learning content, and are more inclined to accept gamified learning methods (Dicheva et al., 2015). According to self-determination theory, young people's learning motivation is significantly enhanced when their needs for autonomy, competence, and relatedness are met (Deci & Ryan, 2000). Therefore, the design of the SkillsBuild platform must conform to the learning habits and psychological needs of Gen Z to improve user engagement.

3.4 Technological Factors

The rapid popularization of artificial intelligence (AI) and cloud computing tools has raised higher requirements for online learning platforms. Young people expect platforms to provide adaptive and

personalized learning experiences, as well as a good user experience (UX) on mobile devices (Popenici & Kerr, 2017). In addition, scaffolding self-regulated learning through platform functions can effectively improve young people's learning persistence (Kizilcec et al., 2017). For SkillsBuild, integrating advanced technologies to optimize the platform's functionality and user experience is an important way to attract young users.

3.5 Legal Factors

Singapore's Personal Data Protection Act (PDPA) imposes strict restrictions on the tracking and targeting of user data. For online learning platforms targeting young people, transparent data consent mechanisms, minimal data collection, and privacy-aware analytics are basic requirements (Ifenthaler & Schumacher, 2016). IBM SkillsBuild must comply with relevant legal regulations to protect user privacy, which is not only a legal obligation but also an important way to gain the trust of young users and their guardians.

3.6 Environmental Factors

With the growing global attention to sustainability, green technology has become a hot field, and there are increasing employment opportunities in related industries. Integrating sustainability-related content into the SkillsBuild platform and developing learning pathways related to green technology can not only cater to the social trend of sustainable development but also meet young people's demand for learning emerging skills, thereby enhancing the platform's attractiveness.

4. Identifying and Analyzing Stakeholders

The problem of improving youth engagement with IBM SkillsBuild involves multiple stakeholders with different roles and interests. Identifying and analyzing these stakeholders is crucial to formulating effective engagement strategies. The key stakeholders and their roles are as follows:

- **IBM Singapore**: As the operator and service provider of the SkillsBuild platform, it is responsible for the development, update, and promotion of the platform, and its core goal is to improve youth engagement and realize the social value of the platform.
- **Youth Learners**: The direct beneficiaries of the platform, their participation and feedback determine the success of the platform. They are the core target of the platform's optimization and promotion.
- **Universities and Polytechnics**: As intermediaries, they can embed the SkillsBuild platform into courses or employment placement programs, helping to promote the platform to students on a large scale.
- **Government Bodies (e.g., SkillsFuture Singapore)**: Responsible for formulating skills development policies and providing funding support, their policy alignment and resource support are crucial to the promotion of the platform.
- **Employers**: Their recognition of SkillsBuild certifications directly affects young people's motivation to use the platform. If employers widely recognize the platform's certifications, it will

significantly enhance the platform's appeal.

- **Parents and Guardians**: As indirect influencers, especially for younger polytechnic students, their attitudes and suggestions will affect young people's choice of learning platforms.
- **Non-Governmental Organizations (NGOs) and Community Groups**: Help the platform reach disadvantaged youth groups, expanding the platform's coverage and social impact.

Using Mendelow's Power-Interest Grid (1991) to classify stakeholders, the following results are obtained: (1) High power and high interest: IBM Singapore and government agencies. They have the ability and motivation to promote the development and promotion of the platform, and need to be closely collaborated with. (2) High interest and low power: Young learners. They have a strong demand for the platform's services but lack the ability to influence the platform's design and promotion independently, so strategies need to be formulated to reflect their voices and meet their needs. (3) High power and moderate interest: Employers and educators. They have a certain influence on the platform's development and youth's participation, and the engagement strategy should focus on demonstrating how the SkillsBuild platform can help cultivate job-ready talents and provide an inbound recruitment channel for employers.

5. Identifying Potential User Groups and Target User Group

5.1 Potential User Groups

In Singapore, IBM SkillsBuild has three main potential youth user groups, each with distinct characteristics and needs:

- **Polytechnic Students (17-21 years old)**: They are in the transition period from education to employment, actively seeking internships and career preparation opportunities. They have a strong demand for practical skills and certifications that can enhance their employability.
- **University Undergraduates**: They usually have a solid academic foundation and are looking for industry certifications to supplement their academic achievements, enhancing their competitiveness in the job market.
- **Recent Graduates or Early-Career Job Seekers**: They have completed their education and are facing the pressure of employment. They need to improve their digital skills through online learning to make themselves more competitive in the job market.

5.2 Selected Target User Group

Based on the analysis of potential user groups, this study selects polytechnic students aged 17-21 as the core target user group. The reasons are as follows: First, polytechnic students are in a critical transitional phase between education and employment, and their demand for career preparation and internship opportunities is more urgent than that of university undergraduates and recent graduates. Second, as digital natives, they are more likely to accept online learning platforms and have a strong preference for interactive and gamified learning environments, which is conducive to the promotion and optimization of the SkillsBuild platform. Third, they have a strong motivation to obtain

certifications that can enhance their employability, which is consistent with the core positioning of the SkillsBuild platform. Therefore, IBM Singapore should focus on meeting the immediate needs of polytechnic students, such as internship preparation and career exploration, to improve their engagement with the platform.

6. User Research: Persona, Empathy Map and Primary Research Findings

6.1 User Persona

Based on the characteristics and needs of the target user group (polytechnic students aged 17-21), this study constructs a typical user persona to vividly reflect the user's goals, challenges, motivations, and technology use habits:

- **Basic Information**: Chen Biyu, 19 years old, a second-year polytechnic student in Singapore, majoring in a technical-related field.
- **Goals**: Obtain relevant certifications to stand out in internship and job applications; improve practical skills in AI, cybersecurity, and workplace readiness; explore potential career pathways in the technology field.
- **Challenges/Pain Points**: Overwhelmed by the large number of online learning platforms, making it difficult to choose the most suitable one; prefers interactive and bite-sized learning content rather than long lectures; is unsure which courses are valued by employers, leading to blind learning.
- **Motivations**: Desires to be career-ready and gain a competitive advantage in the job market; enjoys gamified learning methods (such as badges and leaderboards); seeks recognition and certifications that are linked to real job opportunities.
- **Technology Use Habits**: Frequently uses social media platforms such as Instagram and TikTok; has experience using online learning platforms but is not satisfied with the current learning experience; pays attention to AI computing-related trends and content.

Biyu is a typical representative of the target user group. She is actively preparing for internships and clearly recognizes the importance of digital skills, but is troubled by the confusion in choosing learning platforms and courses. Her needs and pain points are highly consistent with the results of subsequent primary research.

6.2 Primary Research: Semi-Structured Interviews

To deeply understand the attitudes, needs, and pain points of polytechnic students towards online learning platforms (especially IBM SkillsBuild), this study conducted semi-structured interviews with three polytechnic students in Singapore (including first-year, second-year, and third-year students, covering different majors such as IT, Business Studies, and Engineering). The interview focused on five core questions: current methods of learning new skills outside coursework, factors that promote regular use of online learning platforms, challenges faced in online learning, preferred platform features, and the influence of friends, teachers, and employers on learning choices. The interview transcripts are attached in the appendix.

6.3 Research Findings

Based on the analysis of interview records, the key findings are summarized as follows:

- **Emotional Perception**: Students are generally anxious about internship and career preparation, but at the same time, they are highly interested in emerging technologies such as AI and cybersecurity. This dual emotion drives them to actively seek online learning opportunities but also makes them more critical of the quality of learning platforms.
- **Core Needs**: Students have a strong demand for clear guidance on course selection, hoping that the platform can clearly indicate which courses are linked to internships or jobs, helping them save time and avoid blind learning.
- **Platform Visibility**: Most students are more familiar with online learning platforms such as Coursera and LinkedIn Learning, and have rarely heard of IBM SkillsBuild. The main reason is that these competing platforms have better advertising and are more closely aligned with school coursework, while SkillsBuild lacks effective promotion channels in educational institutions.
- **External Influences**: Lecturers often encourage students to obtain certifications, but few mention the IBM SkillsBuild platform; friends mainly share learning resources such as YouTube tutorials, and have little influence on the choice of formal online learning platforms; employers' recognition of certifications is an important factor affecting students' choice of platforms.
- **Challenges/Pain Points**: The main challenges faced by students in online learning include limited time due to heavy academic workload, lack of interest in long and non-interactive courses, and uncertainty about whether employers will recognize the platform's certifications.
- **Preferred Features**: Students prefer short and practical learning modules, gamified elements (such as badges and leaderboards), mobile-friendly platform design, and certifications that can add value to their resumes. They also value real-life cases and hands-on learning experiences.

These findings indicate that to improve youth engagement with IBM SkillsBuild, it is necessary to focus on three core aspects: enhancing platform visibility, optimizing the learning experience to meet the needs of interactive and bite-sized learning, and strengthening the connection between courses/certifications and career opportunities.

6.4 Empathy Map

Based on the user persona and interview findings, an empathy map is constructed to further understand the target user's thoughts, feelings, words, behaviors, pain points, and gains:

- **Thinks**: Worried about being fully prepared for internships and careers; confused about which digital skills (such as AI, cloud computing, and cybersecurity) are most valued by employers; believes that gamification and recognition mechanisms can effectively improve learning motivation.
- **Says**: "I need certifications that employers actually recognize."; "Long online courses are boring; I prefer short, interactive modules."; "I've heard of Coursera and LinkedIn Learning, but not IBM SkillsBuild."
- **Feels**: Anxious about competing with peers in the job market; curious about emerging

technologies but overwhelmed by too many learning options; frustrated when courses are too theoretical or time-consuming.

- **Does**: Uses YouTube, Coursera, or LinkedIn Learning for skill building; seeks advice from lecturers, career centers, and friends before choosing a learning platform; abandons courses if the content is too lengthy or not engaging.
- **Pains**: Low motivation to complete non-interactive courses; limited time due to heavy academic workload; unclear connection between online courses and actual job prospects; insufficient understanding of IBM SkillsBuild.
- **Gains**: Certifications and credentials that can strengthen resumes; flexible and mobile-friendly learning experiences; engaging and community-driven learning processes that make learning enjoyable; clear guidance on career-related courses.

7. Discovering and Defining the Problem

7.1 Core Problem Identification

Combining secondary data analysis (PESTLE analysis, stakeholder analysis) and primary research findings (interviews, user persona, empathy map), it can be concluded that there is a significant gap between the current state of IBM SkillsBuild and the needs of target users (polytechnic students in Singapore). The specific performance is as follows: on the one hand, polytechnic students are highly motivated by career readiness, have a strong demand for practical digital skills and recognized certifications, and prefer interactive and bite-sized learning methods; on the other hand, IBM SkillsBuild has the advantage of high-quality content, but it lacks visibility among target users, the learning experience is not in line with the preferences of young people, and the connection between courses/certifications and career opportunities is not clear. This gap leads to low youth engagement with the platform, making it difficult for the platform to play its due role in promoting youth employability.

The current state of the platform is that although it provides high-quality training content, it fails to attract the attention and active participation of target users due to insufficient promotion, inappropriate learning experience design, and unclear value transmission. The desired state is that IBM SkillsBuild becomes a visible, attractive, and valuable learning platform for polytechnic students in Singapore—one that can provide interactive and practical learning content, clear career guidance, and recognized certifications, helping students improve their employability and achieve a smooth transition from education to employment.

This gap not only poses a challenge to IBM Singapore but also provides an important opportunity for platform optimization. By redesigning the platform based on user needs, integrating gamification elements, strengthening promotion in educational institutions, and establishing partnerships with employers to enhance certification recognition, IBM SkillsBuild can significantly improve its attractiveness to young people, align with Singapore's national skills development strategy, and achieve

a win-win situation between social value and brand influence.

7.2 "How Might We" Question

Based on the core problem identified above, this study proposes the following "How Might We" question to guide subsequent solution design and platform optimization: *How might we create interesting, career-relevant, and community-based learning experiences to keep Singapore polytechnic students engaged in using IBM SkillsBuild and achieving certifications that improve their hireability?*

This question focuses on three core elements: "interesting" (meeting the target users' preference for interactive and gamified learning), "career-relevant" (strengthening the connection between courses/certifications and internships/jobs), and "community-based" (meeting the users' need for relatedness and enhancing learning persistence). It clearly points out the direction for solving the problem of low youth engagement and provides a framework for subsequent research and practice.

8. Conclusion

This paper conducts a comprehensive analysis of the problem of low youth engagement with IBM SkillsBuild in Singapore from a user-centered perspective. Through PESTLE analysis, it is found that political, economic, social, technological, legal, and environmental factors all have important impacts on youth engagement, providing both opportunities and constraints for the platform. Stakeholder analysis shows that IBM Singapore, government agencies, employers, educators, and young learners themselves are key stakeholders, and targeted engagement strategies need to be formulated based on their power and interest levels. By analyzing potential user groups, polytechnic students aged 17-21 are determined as the core target user group, and their needs, pain points, and motivations are deeply explored through primary research, user persona, and empathy map.

The research concludes that the core problem leading to low youth engagement with IBM SkillsBuild is the gap between the platform's current state and the target users' needs, mainly reflected in insufficient platform visibility, lack of interactive learning experience, and unclear connection between courses/certifications and career opportunities. The proposed "How Might We" question provides a clear direction for subsequent platform optimization and solution design.

This study has certain theoretical and practical significance. Theoretically, it enriches the research on user engagement of online learning platforms, especially in the context of digital transformation, and provides a reference for similar user-centered research. Practically, it provides specific and operable insights for IBM Singapore to improve youth engagement with the SkillsBuild platform, helping the platform better play its role in promoting youth employability and aligning with Singapore's national skills development strategy.

This study also has some limitations. Due to the limited sample size of primary research (only three interviews), the research findings may not fully represent the characteristics and needs of all polytechnic students in Singapore. In future research, a larger sample size can be used to conduct quantitative research (such as questionnaires) to verify the research findings and make the conclusions

more generalizable. In addition, future research can further explore specific solution strategies based on the "How Might We" question and test their effectiveness through practical application.

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Appendix: Interview Transcripts

Interview 1 – Student A (Male, 19, Polytechnic Year 2, IT Diploma)

Q1. How do you currently learn new skills outside your coursework?

Mostly YouTube tutorials and sometimes Coursera. I prefer short videos because I get bored with long modules.

Q2. What would make you use an online learning platform more regularly?

If it felt more engaging, like with points or badges. Also, if I could clearly see which courses connect to jobs or internships.

Q3. What challenges do you face when learning online?

Time is the biggest issue. I already have assignments, so if a course is too long or repetitive, I just stop halfway.

Q4. Which features appeal to you most?

Definitely gamification. Like leaderboards or certificates that I can put on my CV.

Q5. How do your friends, teachers, or employers influence your learning choices?

Teachers mention LinkedIn Learning sometimes, but I've never heard them talk about IBM SkillsBuild. Friends usually just share YouTube links.

Interview 2 – Student B (Female, 18, Polytechnic Year 1, Business Studies)

Q1. How do you currently learn new skills outside your coursework?

I use LinkedIn Learning because it's free through my school. I like that it shows trending courses.

Q2. What would make you use an online learning platform more regularly?

If it had clear guidance — like "Top 5 skills for business internships." That would save me time.

Q3. What challenges do you face when learning online?

Some platforms feel boring and too text-heavy. I lose interest if it doesn't feel interactive.

Q4. Which features appeal to you most?

Short, practical modules. Also, real-life examples or case studies. Certificates are good, but only if employers value them.

Q5. How do your friends, teachers, or employers influence your learning choices?

My lecturers encourage us to get certifications. Friends talk more about Coursera. I haven't heard much about IBM's platform.

Interview 3 – Student C (Male, 20, Polytechnic Year 3, Engineering Diploma)

Q1. How do you currently learn new skills outside your coursework?

I sometimes use Udemy or Coursera, but honestly, I rely on forums or friends.

Q2. What would make you use an online learning platform more regularly?

If I could clearly see how completing a course helps me in job interviews or projects.

Q3. What challenges do you face when learning online?

Too much theory. I prefer hands-on learning or quick lessons I can apply immediately.

Q4. Which features appeal to you most?

Mobile-friendly apps, gamified rewards, and recognition from companies.

Q5. How do your friends, teachers, or employers influence your learning choices?

Employers look for certifications. Teachers push SkillsFuture, but I don't see much marketing about IBM SkillsBuild.