

COGNITIVE TECHNOLOGY IN TALENT OPERATIONS – REDEFINING LEARNING AT IBM JAPAN

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ABSTRACT

Corporations continue to seek innovative and effective ways to educate their workforce. Over the last 30 years, corporate training has been constantly evolving, moving away from pure classroom based, single event sessions to blended learning, with back up sessions to promote continuous learning. Today's best practices look to transform employees' thinking into more proactive learning which can lead to greater confidence and capability. This paper examines IBM Japan's implementation of the IBM Your Learning platform for utilizing cognitive technology (Artificial Intelligence) to create competitive advantage through superior learning acquisition and behavioral transformation.

KEYWORDS: *corporate training, culture transformation, IBM, innovation, learning, Japan.*

1. INTRODUCTION

IBM Japan looks to increase its employees' experience, with a desire for further learning opportunities. This helps to ensure workers remain up-to-date with best practices and develop and refresh their knowledge and skills. To achieve this, it is helpful to understand IBM Japan's mindset. In a sense, Japan combines two core cultural concepts which supports performance. These are, *omotenashi* (Harmon, 2018) and *kaizen* (Abdulmouti, 2018). *Omotenashi* means hospitality, and *kaizen* in business means continuous improvement. Together, these two cultural concepts push employees and companies to provide high quality products and services. An example of Japanese versus western mindset can be seen in language. For example, in English, people say, "Good luck" but in Japan, people say, "*Gambatte*". "Good luck" suggests that results are a matter of chance. Not getting a good result can be mitigated by bad luck. However, *Gambatte* means "Do your best". Therefore, it places stress and pressure on the individual such that not succeeding in tasks puts the fault directly in the individual's hands. This places pressure on employees to not fail, and to continuously improve.

Data from an IBM survey in 2017 revealed that top executives were unhappy with the state of corporate learning in their companies. This survey alongside projections of a downward trend in the Japanese economy due to depopulation, motivated the introduction of the IBM Your Learning platform to the Japanese market. The Your Learning platform was initially an internal answer to educational needs and IBM Japan was the initial phase to a national scale implementation for the Japanese market.

Japan is known for its high levels of technology in home electronics, manufacturing and medical equipment (Arnaldi, 2016). In addition, according to the United Nations (2017), Japanese enjoy an average life expectancy of 85.7 years, a relatively low unemployment rate of 2.8% (Ujikane, 2017),

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and an annual average salary estimated by OECD Data (2019) at \$40,000 (USD). However, Japan is facing depopulation with a mortality rate that exceeds that of their birth rate by 1000/day (Hong et al., 2018). And, 33.4% of Japan's total population has been reported to be aged over 65 (United Nations, 2017). These two factors have led to fears that Japan will be facing a significant labor shortage in the near future. The question of how to maximize the utilization and efficacy of a workforce which remains a companies' most important asset, seems to rely upon optimal ways to cultivate human talent. Conventional methods of adult learning have many barriers which obstruct deep learning acquisition and create demotivation and stress (Baharudin et al., 2013). The objective of this research is to show the results of IBM Japan's implementation of a learning platform which utilized Artificial Intelligence (AI) to support workers' learning by overcoming conventional learning barriers for adult learners. In addition, the research investigates resulting worker attitudes and behavior after continued exposure and alignment to the new learning system and corresponding culture transformation.

2. LITERATURE REVIEW

Trend indicates that Japanese companies are looking to move away from process oriented, administrative Human Resource Management (HRM) towards Talent Management (Kakinuma, 2015; Ishihara, 2016; Powell, 2016). Kakinuma (2015) indicates that the Talent Management theory in Japan and overseas is not clearly defined. Traditional Japanese HRM has resulted in Japanese companies placing heavy value on processes and attitudes more than performance. Poor performance can be ignored or mitigated when teams are perceived as "doing their best". Employees have often perceived themselves as followers not leaders and will wait to be directed than take initiative themselves. Promotions and salaries have often been age based rather than capability based and it is generally understood that new entrants are investments for the future, they do not add value immediately. Finally, employees have trusted that their companies will do them no harm and that they will have the stability of a job for life (Ishihara, 2016).

In figure 1, we can see some of the changes which move away from traditional Japanese HRM systems. For example, Japanese employees who wait to be led, Talent Management empowers employees to take responsibility and to take risks. Employees with higher capabilities and performance will see higher salaries and greater opportunities for promotion regardless of age or company seniority. Instead of batch training employees, companies take measures to cultivate employees who develop at different speeds. Under Talent Management, employees who consistently perform poorly in western countries are typically dismissed. However, because Japanese labor law is very strong it is much harder to dismiss workers based on work performance alone (Ishihara, 2016).

Characteristics of Traditional Japanese HRM	Transition towards Talent Management
Leadership belongs to the few.	Anyone can be a leader. Empower employees to take risks and seek opportunities.
Salaries and promotions based on employee's age.	Accept differentiation based on skills and capabilities.
Professional competence needs 10 years experience and training.	Expect people develop at different speeds. Young employees can be more competent than older ones.
Processes and attitude valued more highly than performance and results.	Performance valued more highly than attitude and processes.
My company "will do me no ill".	Employees may be dismissed for poor performance.

Figure 1. Characteristic shifts in traditional Japanese HRM to Talent Management.

Source: adapted from: Ishihara (2016)

For Japanese employees whose training leads to potential job development, it can lead to increased productivity (Kellie, 1999). Ramlall (2003) connects lack of training with lower employee retention. On the other hand, training can also contribute to increased worker stress through fatigue, sense of special responsibility and role conflict (Nekoranec & Kmosena, 2015). Michie (2002) further explains that stress can be created by overly critical, demanding or unsupportive managers as well as associated work overload and effects on personal life.

Monika (2013), identifies that adequately educating a skilled workforce is a necessity for companies in all advanced economies. By achieving the skills that meet employers' needs means that businesses have the capability to innovate and respond to changing market pressures (Tamkin et al., 2004; Kjellberg et al., 2014). This has however, led to the complexity and difficulty of continuously updating employees' skills (World Economic Forum, 2018). In 2017, an IBM survey of 3000 executives from Japanese companies identified that 68% of respondents felt unsatisfied with the state of corporate training, 73% expressed that they wanted personalized learning plans based on employees' fields of interests. And, 79% felt that the selection and training method for next generation leaders was insufficient. Glaveski (2019) reported that organizations spent \$359 billion globally on training in 2016. His study indicated that 75% of managers from a survey of 1500, reported that they lacked confidence in their companies' learning and development functions. Additionally, 70% of employees reported that they didn't have sufficient skills needed to do their jobs.

Conventional methods of training have included live classrooms, blended learning and self-directed study. The utilization of Information and Communication Technologies (ICT) are already prevalent in learning programs but the efficiency and efficacy of these are unclear.

Advantages of instructor led learning are human based interaction and peer learning. Strong and engaging instructors can encourage and motivate learners using group discussions and practice. People who rely on others and lack foundational understanding benefit from live learning (Kaur, 2013). According to Kaur, live classrooms have the benefit of face-to-face experiences and a study by Genpact (2017) determined that consumer respondents preferred human interaction than AI or machines. This was particularly the case for older generations (57% of respondents) than younger (33%). A study by Nitto et al. (2017) showed that Japanese people are relatively more accepting of robots in daily life. A survey of 1,390 Japanese people aged 16-69, identified that 70% of the respondents indicated that they were comfortable with robots and only 16% stated that they were uncomfortable. Even so, because the technologically experienced population is ageing, indicates that resistance to robot and AI interaction on a face to face level will likely decrease.

However, classroom-based education has the disadvantages of requiring learners to travel to learning sites. According to the OECD (2016), Japanese workers spend between 40~50 minutes per day travelling to work and travelling to training centers could lead to an increase in commute time. Studies have shown that commuting hours can induce mental stress and is detrimental to workers' health (Künn-Nelen, 2016). Morikawa (2018) suggests that Japanese employees feel more dissatisfaction for long commuting hours than for long working hours.

The means of providing education to employees has evolved to incorporate e-learning and digital technologies (Bezhovski & Poorani, 2016). Lessons are provided for the purpose of developing professional skills and helping learners to achieve learning objectives. Blended learning decreases mobility issues and opens the door to a vast collection on education materials. Blended learning incorporates both traditional classroom teaching and ICT supported learning (Dangwal & Lalima, 2017). It offers learners the opportunity to experience educational content with the best features of classroom learning and live instruction supported by media (Kaur, 2013). For Japanese, it has been suggested that a solution for work life balance issues could be overcome through more flexible work styles such as working from home (Bienek, 2014; Japan Institute for Labor, 2013). Therefore, studying from home through blended learning could be beneficial.

Corporate education has been continuing to evolve. Previously, training was often seen as a single standalone event and employees were expected to rely on instructional staff for dissemination of information and explanation of new techniques. Today's best practices look to transform employees' thinking into more proactive learning which can lead to greater confidence and capability, increased motivation, and a desire for further learning opportunities (Bindl & Parker, 2011).

Self-directed learning enables employees to choose content which they are interested in, and they can study at their own pace. However, it can be difficult for the learner to find relevant educational material and determine whether the material is accurate. Additionally, self-directed learners may be required to pay additional cost when accessing 3rd party sources.

Herman (2016) identifies two types of barriers for adult learning. These are; external or situational, and internal or dispositional. Internal barriers can include obstructive mindsets that hinder learning processes, or a lack of confidence in their own capabilities to learn. According to Dweck (2006), motivation has a strong impact on academic engagement and performance, such that learners with fixed mindsets are limited by what they perceive is achievable, whereas growth mindsets are open to learning as opportunities for self-development. Keating and Heslin (2015) suggests that effective management and leadership can help employees with fixed mindsets to overcome learning limitations by enabling them to see potential future development. Vijayan (2018) suggests that companies should create an environment which reduces work pressure problems in order to prevent loss in productivity and a decline in employee motivation. External barriers can include financial issues such as lack of money to pay fees, physical issues such as poor eyesight or hearing, and illnesses and fatigue related issues (Herman, 2016).

Figure 2 suggests that if external barriers cannot be overcome, learning through corporate training cannot be achieved. For example, people who cannot travel to the learning site due to mobility issues or people who have hearing difficulties who cannot understand the content. If internal barriers cannot be overcome, only limited learning can be obtained. For example, people who have low motivation will not pursue in depth learning acquisition. Therefore, learning solutions need to overcome both internal and external barriers to provide significant learning outcomes.

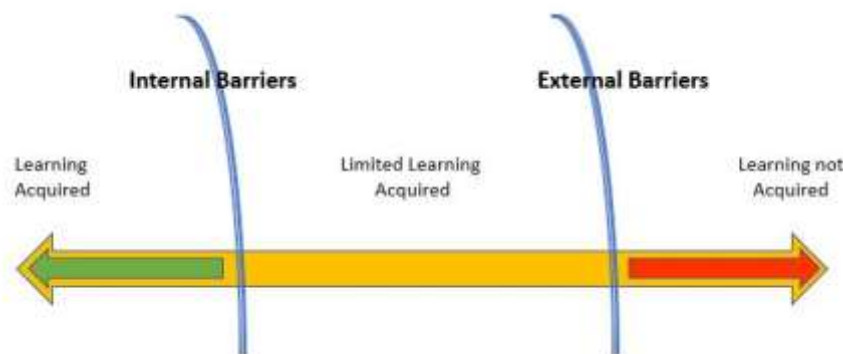


Figure 2. Learning Barrier Model.

Source: own interpretation based on Herman (2016)

3. RESEARCH OBJECTIVES

This research utilized the results of an IBM survey in 2017 of Japanese executives on how they perceived the current state of corporate learning and needs for change in the near future. The results helped to identify the research objectives. Consequently, the aim of this research study is to answer two research questions:

- 1) How does IBM Japan enhance learning experience for their employees?

- 2) How does the IBM Your Learning Platform overcome the barriers to learning for IBM Japanese employees?

4. RESEARCH METHODOLOGY

This research study involved multiple data collection methods, such as participant observations, surveys and interviews. Two members of the research team carried out participant observations of 136 talent and engagement consultants. The researchers spent time with these people in their workplace on a daily basis for over 12 months, as in-house, full time team members. They observed the consultants for the stages of the decision-making process, development and procedures for organization and cultural integration. By taking part in the daily office activities, rituals and interactions, the researchers were able to discover the subjects' true feelings regarding the Your Learning platform (DeWalt & DeWalt, 2011). This was both in the form of articulated expression and work behavior.

Observer bias was one of the main concerns in using participant observation. However, routine inclusion of reflexivity in the planning, conducting and reporting of the research could minimize bias (DeWalt & DeWalt, 2011). Being reflexive involved the researcher carefully examining their own bias, assumptions, pre-conceived ideas and impact that they might have on the observed and subsequently on the report.

Surveys were conducted involving sending self-completion questionnaires to 26,000 IBM Japan employees to find out their satisfaction level with the Your Learning Platform. The data generated would enable IBM to make decisions about the platform development and value proposition for end users (Gilbert, 2008).

Face-to face interviews were conducted on 36 managers and 5 executives at IBM Japan to examine their views about their employees' training needs. There were different forms of interviewing, including unstructured interviewing, semi-structured interviewing and structured interviewing (DeWalt & DeWalt, 2011). Unstructured interviewing involved a plan for the interview and brief interview guide on topics to be addressed as an aid for memory. The topics were presented in an open-ended way allowing the interviewees to express their views freely. Semi-structured interviews involved a list of questions and prompts so that all topics were covered in each interview in more or less the same way. Structured interviews involved a formal set of questions used in an open-ended way and were used to administer questionnaires on a face-to-face basis.

DeWalt and DeWalt (2011) suggests that the responses from different individuals in semi-structured interviews can be considered comparable is higher than in more unstructured interviews. This is because different individuals engaged in free-ranging conversations, even though the topics discussed are similar, it would be difficult to assess the extent to which the individuals are responding to the same ideas or questions. Therefore, semi-structured interviews could be more useful for comparing the views of the 36 managers and 5 executives on their employees training needs.

4.1 Defining the parameters of the Your Learning platform.

The IBM Your Learning platform is a digital solution which looks similar to Netflix. Instead of pushing movie content to the consumer, the AI predictive technology offers educational content based on the employee's search history and job profile. The platform connects to the client companies' mandatory course material, trusted partner sources, and the internet as a whole (IBM, 2017).

The platform utilizes over 40 trusted sources including, Coursera, Open University, MIT, Harvard University, GLOBIS University and many others. Learners can choose to use purely digital content or seek lectures from human coaches. Coaches are validated by the badges they earn from having completed courses on the Your Learning platform. Coaches' classes are also evaluated by the

learners who take their classes. Poor performing coaches will have low evaluation averages, and they are disconnected from the service. Essentially, Your Learning is blended learning with cognitive technology capabilities in the form of predictive logic and Watson technology (IBM, 2018).

The Your Learning platform has an open infrastructure and Application Programming Interfaces (API) which enable companies to customize the learning systems to meet their own individual needs. Through assistive technology, captioning video, sign language interpreters or screen readers which use text to speech synthesizers may be used to solve problems experienced by the hearing and sight impaired (IBM, 2004; IBM, 2006).

By integrating successful IT systems such as Docker Containers and IBM Cloud, can ensure stable and fast connectivity greatly reducing internet lag and ensuring a comfortable and frustration free experience. The learning platform runs 24 hours a day, 365 days a year. Automated monitoring connects to a dashboard which enables employers and managers to understand how motivated employees are, see what they are interested in learning about and how much knowledge they retain. They may also observe which employees are sharing their experiences by being valued coaches on the system. These factors could lead to higher end of year performance reviews which may be reflected in promotions and higher salaries. The IBM Your Learning platform was introduced to IBM Japan in 2018 and today, over 80% of IBM Japan's employees are using the Your Learning platform on a regular basis and have reported that they are happy with their learning experience.

5. RESEARCH FINDINGS

From the results of our data collection, IBM Japan employees stated that the Your Learning platform helps learners to overcome external barriers by being digital. Learning can occur from any smart device or computer that is connected to the internet. Additionally, the APIs enable learners to use 3rd party hardware and software solutions to overcome barriers such as audio or visual difficulties. Corporations take the financial burden of implementing the Your Learning system, so there are no additional costs attached.

For internal barriers, initial learning takes place because the AI pushes content to employees. Time-sensitive reminders (set by companies' HR) ensure employees are aware about mandatory training courses. Otherwise, employees can learn at their own pace and access the content that is most appealing to them. Employees stated that monitoring by management occurs, but is done in the background so employees do not feel "watched". They suggested that this leads to less stress. Access to human coaches and support teams were available, but also an AI driven Q&A chatbot. This was useful when they did not want their direct supervisors to know when they had not fully mastered mandatory course material.

Requests for content which was not available on the Your Learning platform was processed by trusted curators, who determined how additional content should be gathered. Through the badge system, learners could become coaches empowering learners to become leaders. It promoted confidence in their learning acquisition, and promoted the proactive passing on of information and experiences. This cycle, helped to promote a natural desire for proactive thinking and long-term sustainable learning. By enabling employees to overcome both external and internal barriers, meant that employees could gain significant learning acquisition.

Through the badge system, learners can become coaches empowering learners to become leaders. Confidence in their learning acquisition is promoted and proactive passing on of experiences and information is enabled. This cycle helps to promote a natural desire for proactive thinking and long-term sustainable learning. By enabling employees to overcome both external and internal barriers, suggests that employees can gain significant learning acquisition.

One of the significant negatives was that some employees in other countries used the coaching system as a networking tool. Their intention was to meet and build connections with IBM Japan employees.

6. CONCLUSION

In this article, we tried to show how Japanese companies' efforts are transitioning away from the conventional Japanese corporate mindset. During which, a new attitude towards corporate learning has emerged. One such effort was IBM Japan's implementation of the Your Learning digital platform in 2018 which used cognitive technology to push meaningful learning content to employees, and interact with learners 24 hours a day.

We utilized three research methods; survey, interview and participant observation. Surveys rationalized the desire by top executives for a change in corporate education and conclusions from our participant observation showed that learners at IBM are accessing content every day and the number of monitored hours are increasing. Also, individuals are changing their way of thinking, becoming more confident in the way they offer suggestions in meetings. And, people are more willing to learn from each other and became coaches themselves.

Limitations of analysing the benefits of this platform on one Japanese company indicates that we cannot confirm whether the replication of the result will be the same in any other Japanese company. In addition, we cannot confirm whether cultural impact from overseas influences has had a positive or negative effect on the learning experience. Therefore, although, the learning experience seems to have had a positive effect on the employees in this company in Japan, it would be useful to conduct further research by doing a comparative study between a similar company in a different country. For example; IBM Romania compared to IBM Japan. It would be interesting to determine whether cultural mindset plays a significant role on the learning outcomes.

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