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Thinking LEAN: The relevance of Gemba-Kaizen and visual assessment in collection management

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Title: Thinking LEAN: The Relevance of Gemba-Kaizen and Visual Assessment in Collection Management

Abstract: The Gemba-Kaizen, a Japanese concept of continuous improvement, is a simple qualitative assessment tool using “visual management” to assess the root cause of the gap between the current state and the desired state and enable deliberations on countermeasures to close the perceived gap. In Singapore Management University, the Gemba assessment is applied to the value stream of the library’s print collection. Using a set of metrics, assessors went to the place of action, observed the collection, reported on problem areas, and followed up on suggestions to eliminate wastes. This is essentially the content of the Gemba-Kaizen LEAN method of assessment. We found the Gemba to be a sustainable tool to drive continuous assessments of the print collection, where visual management is used to observe and quickly determine problems at the source.

Keywords: Gemba, Kaizen, LEAN, process improvement, assessment, continuous improvement, qualitative methodology, collection assessment, visual management, collection management, analytics, data driven assessment.

Project focus: assessment methodologies, techniques, or practices; collections; assessment concepts and/or management

Results made or will make case for: improvements in services, improvements in collections, changes in library policy, how money or resources may be directed

Data needed: age of collection, usage of collection

Methodology: qualitative, mixed method

Project duration: less than 3 months

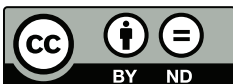
Tool(s) utilized: in-house metrics, rubric for assessment, and library staff

Cost estimate: \$100–\$500

Type of institution: university—public

Institution enrollment: 5,000–15,000

Highest level of education: doctoral



Chapter 6

Thinking LEAN

The Relevance of Gemba-Kaizen And Visual Assessment in Collection Management

Nazimah Ram Nath

Summary

The Singapore Management University (SMU) Libraries' have used the LEAN and Six Sigma methodologies in recent years to plan and push for continuous process improvement in their operations. In one assessment project, the Gemba-Kaizen principle from LEAN was adapted and applied to an initiative centered on assessing the library's Lifestyle print collection. This strategy became a prime agent for change, which resulted in some marked improvements in collection management activities within the SMU Libraries. This case study at SMU Libraries will describe key principles of Gemba-Kaizen and how it was found to be a sustainable tool to drive continuous assessment of the print collection, where visual management is mostly used to observe and determine problems at the source of the value stream. As an assessment tool, Gemba is one of the "low-hanging fruit," which is within reach, quick to plan for and to implement. It is a course of action that can be undertaken quickly and easily, as part of a wider range of changes or solutions to a problem. This study will also show that a simple, basic assessment tool like the Gemba can have impact and add value to services, while remaining painless to plan, execute, and implement.

Introduction

A review of library literature suggests that there has been a gradual shift in academic libraries, over the years, in how they evaluate their productivity and how they demonstrate value to their stakeholders. Heath mentioned the strides the library community has made in the past decade and discussed how assessment has gradually evolved from initially being “quantitative” before addressing the current climate, where libraries practice continuous assessment and engage various different methods and tools to assess the value of services provided to library user communities.¹ Kinman, in a five-year study, discussed how e-metrics can be incorporated into a broader assessment of a library’s success in meeting the needs of its users.² According to Taylor and Heath, the Association of Research Libraries (ARL) also made a similar observation when it released a survey report in which assessment was highlighted as an integral part of a strategic plan to monitor trends and change in library processes.³ Hiller, Kyrillidou, and Oakleaf had reflected on the diverse range of assessments taking place in libraries as well as changes in the types of assessment activities taking place in these institutions over time.⁴ These and other recent studies suggest that assessment in libraries has moved beyond being merely an indicator of productivity or simply being a measure of input and output.

In keeping with the general trend in academic libraries, Singapore Management University Libraries (SMU Libraries) have made assessment a critical component of its strategic plans. Over recent years, the SMU Libraries have been building and encouraging a culture of assessment and continuous improvement, where decisions and new initiatives were carried out based on data, statistics, and analysis. The library management felt that assessment helps the library demonstrate its value and its place within the university, especially when it involves new services and products. In addition, data-driven assessment and continuous process improvement initiatives allow the library to resolve issues as they arise.

This chapter will present a case study of one instance of data-driven, continuous improvement activity using LEAN principles, tools and techniques to assess the library’s print Lifestyle collection with a view to improve collection quality and end-user experience. This will be followed by the reasons for using the Gemba-Kaizen methodology and the purpose and structure of the Gemba Walk, these being the techniques adopted to carry out assessment of the collection. An analysis of assessment as a transformative process is then provided, and the chapter concludes with reflections on the sustainability of the Gemba as an assessment tool.

Background: SMU Libraries and the Culture of Assessment

The Singapore Management University (SMU) was established on January 2000 as a university specializing in business and management studies. SMU and the campus is

the academic home to the university's 8,000 undergraduate and postgraduate students⁵ and offers courses in business administration, accountancy, economics, information systems management, law, and the social sciences. The SMU Libraries consist of two locations; the Li Ka Shing Library at Stamford Road, which houses all print and audiovisual collections, except for the Law print collection, which resides at the Kwa Geok Choo Law Library situated at Armenian Street. Both libraries, as well as the various schools, make up the City Campus, with a collective collection size of 60,000 print resources and about 400,000 electronic resources. For the purpose of this chapter, references will be made to the Li Ka Shing Library, where the assessment took place.

The library is driven based on our mission and vision to provide high-quality resources, facilities, and customer-focused services that support multidisciplinary research and holistic education. It is supported by thirty-nine staff members, of whom twenty-three are professional librarians, and sixteen are para-professionals, technical and administrative staff. In 2013, the library embarked on an aggressive “continuous improvement” initiative, by training all staff members in the LEAN—Six Sigma Green Belt program. The intention behind the training was to promote a culture of assessment among staff members as well as to equip them with the necessary language, knowledge, and tools to champion a data-driven environment. The training and knowledge gained would enable them to use both qualitative and quantitative data to assess the current state of a value stream and, from there on, to drive improvement projects after identifying service gaps. Before the establishment of “culture of assessment” as a strategic goal of the library, most assessment projects in the library were spontaneous, the activities were short-term, and they were largely contained within silos of individual library working units. After the LEAN—Six Sigma Green Belt training, all library staff bought into the concept that assessment is everyone's responsibility and future assessment initiatives were planned with involvement and collaboration among members of different library working groups.

Ammos Lakos and Shelley Phipps defined a culture of assessment as an “organizational environment in which decisions are based on facts, research, and analysis, and where services are planned and delivered in ways that maximize positive outcomes and impacts for customers and stakeholders.”⁶ Continuous improvement via continuous assessment became a strategic direction and part of every library staff member's work goals in SMU Libraries, and the various departments in the library would regularly discuss areas of focus and processes that could benefit from an improvement.

In one of our brainstorming sessions, it was proposed that the library carry out an assessment of the Lifestyle collection at the Li Ka Shing Library to check for its relevance, value, and impact to stakeholders and to seek areas where improvements can be made using some of the LEAN tools.

Defining the Problem

To allow the reader to understand the problem presented in this case study, some context should be provided. The Lifestyle collection in the Li Ka Shing Library was

started in 2008 and consisted of unregulated mix of titles, without a policy to guide its growth. In 2013, the collections team in SMU Libraries drafted a policy paper, which provided guidelines on what should be included or excluded from the Lifestyle collection. The collection had to be vibrant, up-to-date, contemporary, and of value to end users. The Lifestyle collection serves as a recreational reading collection of popular works, supporting the university's holistic education approach. The collection acquires contemporary bestsellers, award-winning fiction titles, and other popular works, including self-help titles and travel guides, according to the guidelines and parameters set in the policy. As the Lifestyle collection occupied a prime location within the library spaces, it was important to the library management that the collection be visually appealing, invite browsing, have popular titles, meet user expectations, and be well used.

Usage data had been analyzed as a preliminary assessment of the popularity of titles in the collection. Checkout statistics however, had their limitations. While usage numbers inform assessors on the usability of a collection, they do not do as well in providing a context to understand the root cause of any problem that might exist, nor do they present additional data to facilitate improvements in required areas of that value stream. To make better judgements on how effective the current collection is in satisfying the purpose for which it is intended, a different type of assessment and analysis was needed, one that would measure the collection's quality as well as its utility. A LEAN assessment tool that enabled analysis beyond numerical data was considered ideal

The project team first decided on the goals of this assessment and outlined what we wanted to determine from the assessment of the Lifestyle collection. The goals were

- Assessment should be able to give an indication if the collection has up-to-date titles, is well used, does not have gaps, and concurs with the collection policy.
- The assessment should allow assessors to record shortfalls, issues, and concerns with the collection.
- The time needed for the assessment exercise should not exceed forty-five minutes.
- The tool used should be sufficiently flexible for assessors to record improvements and for the library project team to develop an action plan.

The project team also wanted the selected assessment methodology to be able to provide answers to the following questions:

- Do we have the right/relevant books?
- Is the space being used as it should?
- Are the books accessible?
- Is the display attractive to users?
- Is the collection aligned to the library's policy?
- What is the average age of the collection?
- Has regular weeding been done?
- Could we do better?

Besides the general use and non-use of the collection, the agenda behind the

assessment was to elicit information, among other things, on the duplication of titles, age and condition of the materials, breadth and depth of the coverage, and impact of the Lifestyle collection on the SMU user community.

Path to LEAN Assessment, Gemba, and Kaizen

In examining other industries for best practices, we came across varied assessment methodologies. Fault Trees, Fishbone Diagrams, and Swim Lane analysis, as well as a Plan-Do-Check-Act (PDCA) problem-solving cycle were commonly used methods that were reported in industry literature. After some discussion and considering the training we have had, the project team began to focus on LEAN manufacturing methodology, based on the Toyota Production System. The principles in LEAN manufacturing were increasingly being adopted in service organizations, which faced many of the same challenges as manufacturers. A common challenge was the need to improve service quality and the reduction of customer complaints. The LEAN philosophy promises dramatic changes in these areas within a short period of time. Before we delve deeper into the case study, a summary of the principles behind the LEAN Gemba-Kaizen philosophy may be useful to allow the reader to understand the reasons behind the choice of this tool for the assessment of the Lifestyle collection.

LEAN is a management philosophy focused on creating value when delivering a product or service to customers. In Womack and Jones's *LEAN Thinking*, five principles of the LEAN system were outlined:⁷

1. Defining value for each product/service
2. Eliminating all unnecessary steps in each value stream
3. Making value flow to the customer
4. Knowing that the customer pulls all activities, products, and services
5. Pursuing perfection continuously

Giovanni De Zan and colleagues summarized LEAN as an integrated sociotechnical system whose main objective was to eliminate waste by concurrently reducing or minimizing internal variability. The LEAN management method uses less effort, less space, a lower level of investments, and shorter time duration for new products development.⁸ In LEAN assessment, assessors study, explore, and learn the “as-is state” and identify the gaps that can take the service or product toward the ideal “to-be state.” To determine the diagnosis of the as-is state, assessors will focus on imperfections, problems, and inefficiencies of the process, collecting them and documenting them, usually by using rubrics or templates for evaluation. This will be carried out with assessors concretely moving through the value stream to diagnosis the main issues related to the productive process.

The team formed a consensus that the LEAN Gemba-Kaizen method would be most effective in meeting our assessment needs and decided to adopt the “Gemba Walk” as our specific assessment tool. A Gemba Walk is the Check component in the Plan-Do-Check-Act problem-solving model. It involves going to the place where the value stream resides and checking to make sure that standards are being followed, that

problems are getting corrected, that processes are working the way they were intended to, and if not, to find out why.⁹

Gemba and Kaizen are Japanese concepts that feature largely in LEAN management. In Japanese, *kaizen* means “continuous improvements” that entail relatively little expense.¹⁰ Kaizen focuses on improvements in quality, cost, and delivery, and, according to Imai, although improvements under kaizen are small and incremental, the kaizen process brings about dramatic results over time.¹¹ Kaizen also stresses cross-functional collaborations with various stakeholders.

Gemba, in Japanese, means “real place.”¹² Within a business environment, *Gemba* refers to the place where value is created. It is also the place where data can be found. Thus “going to the Gemba” is considered, in LEAN, to be a basic assessment methodology, involving a visit to the site of the value stream or the site of action and observing what goes on and asking questions until the root cause of the problem is determined. As iterated by Imai, “one of the most useful tools for finding the root cause in the Gemba is to keep asking ‘Why’ until the root cause is reached. This process is sometimes referred to as the ‘Five Whys’ because chances are, that asking ‘why’ five times will uncover the root cause.”¹³

The Lifestyle Collection and the Gemba Walk

Gemba relies heavily on visual assessment and is used in production and manufacturing processes to assess the root cause of the gap between the current state and the desired state and to subsequently deliberate on the most promising countermeasures to close the gap.

The Gemba assessment is applied to an area that is part of a larger value stream. A Gemba Walk enables a deep dive into respective value streams in order to understand what really happens day-to-day and to guide corrective actions.¹⁴ It’s like looking in from the outside, according to Nestle, and helps teams better understand the value of their services and gain a fresh perspective of their work.¹⁵

To start with, Gemba Walks must be done where the value is created or where it “resides.” Petruska notes that “by staying in one spot for a very long period of time observing, listening and training all your senses in one repetitive process, you develop a very deep understanding,”¹⁶ and this understanding will help toward the identification of value propositions and determination of products and services that would delight customers. Petruska describes these as “service delighters.”¹⁷ Gemba Walks encourage direct observation, engagement with stakeholders, and working on improvements. This visual assessment strategy is encouraged for the purpose of maximizing customer value, identifying and eliminating wastes in the process, solving problems along the way, and empowering stakeholders to make decisions. At SMU, we applied this assessment tool to the Lifestyle collection in a pioneering attempt to introduce a culture of continuous assessment to the library’s print collection.

The project team, which is comprised of four librarians and headed by the head of the Information Resources and Access department, started the project by selecting a group of stakeholders as assessors. In keeping with the spirit of LEAN and Gemba-

Kaizen, which encourage collaboration, the pilot collection assessment project included participation from technical service paraprofessionals, subject librarians, and collection specialists. A total of six assessors, with two assessors from each of the stated domains, formed the assessment team. One of the aims of the exercise was also to engage more members of the collections and technical services team in understanding LEAN concepts and increase their ability to be involved in improvement processes in their area of work. To guide the Gemba assessors, a set of metrics was selected as a reference point for assessment and a scoring rubric was created based on those metrics. A rubric is a scoring tool that lists the criteria for a piece of work, or “what counts”; it also articulates gradations of quality for each criterion, from excellent to poor.¹⁸ A scoring rubric enables assessors to score based on their expectations of quality around a task, service, or product in a consistent manner. Rubrics facilitate assessment and feedback and help assessors envision what can be done in terms of improvement. Both criteria and performance level descriptions are present in scoring rubrics, and they particularly work in instances where the evaluation criteria are especially subjective.¹⁹

Assessors were then given a scorecard based on the rubric, on which to score their assessment (see table 6.1). A review of LEAN principles, the SMU Libraries Collection policy, and the Lifestyle collection usage statistics were also shared with the assessors prior to their assessment exercise, as points of reference.

Table 6.1
The Lifestyle Collection Gemba Walk Scorecard

Criteria		Excellent (5)	Good (4)	Satisfactory (3)	Needs Improvement (4)	Poor- Needs an Overhaul (5)
Meets demand	Collection has the books I want to read Suggestions and user requests have been considered					
Appropriateness of titles	Collection meets criteria indicated in policy All relevant authors and titles are in the collection					
Shelving location	Books are shelved according to classification number indicated in catalogue There is no need for extensive shelf reading					

New titles	There is regular addition of new titles Latest bestsellers are on the shelves Award winning fiction titles are in the collection					
Circulation^a	Collection is well used					
Appearance	Books are in good condition Worn and torn books are not on the shelves Older titles have been weeded out Displays are attractive					
a. Based on usage statistics						

With this scorecard in hand, the assessors independently went to the Gemba, accompanied by a librarian from the project team. The role of the librarian was to provide the assessor with any contextual information or clarification that she might need as she raised questions as part of her assessment. The various assessors went to the place of action (the Lifestyle collection); they observed the collection; asked questions about the various acquisition, processing, and circulation workflows; and scored the collection as they observed. They then individually presented their assessment to the project team:

THE GEMBA WALK: FINDINGS AND OUTCOME

The qualitative assessment carried out of the Lifestyle collection found that the collection was up-to-date as befitting a collection for recreation reading. The assessors noted that recommended classics, award-winning titles, as well as contemporary best sellers had equal representation in the collection, to cater for the diverse reading interests of the user community. It was also noted that the size and the content of the collection closely adhered to the guidelines in the collection policy. The assessors also highlighted areas for improvement pertaining to the following:

1. Shelf labels

It was found that the shelves were not labeled according to the classification numbers on the spine labels of the books. This made it a little tiresome for users, as there was no visual prompt to act as a finding aid if they were looking for a specific title within a specific call number range. It was also suggested that categorizing the collection by sections like Fiction, Poetry, Hobbies, Self-Help, or “Our Most Popular” and labeling the shelves accordingly would help users and attract more browsing of the collection.

2. Call number labels

Spine labels on books need replacement as a few were faded and not easily readable, thus compromising on retrieval and access.

3. Increased shelf reading activity

As this was a highly circulated and browsed collection, books were not always shelved in the correct order by users after browsing. Increase in the frequency of shelf reading in this collection was recommended. Based on further evidence from search request results and user enquiries, it was established that books were not always where they should be.

4. Review processing standards

As the labels on the cover of books marking them for Lifestyle tended to peel off, making them look unsightly, there was a recommendation for the physical items processing team to review processing standards and improve the quality of the labels used to label the books and book jackets.

5. Special collection

Assessors put forward the suggestion of designating a special place in the Lifestyle collection for Singapore literature so as to encourage access, browsing, and reading of local literary works.

The project team analyzed the assessment and shared the findings with the line managers in charge of various library operations within the value stream for follow-up on rectification of problem areas and for consideration of implementing the suggestions for improvements. Countermeasures were implemented where feasible. One immediate follow-up activity was to increase shelf reading frequency to ensure that the books were always neat and arranged in sequence. Books with faded and damaged labels were repaired and labels replaced. Following the first Gemba Walk of the Lifestyle collection, we implemented a regular Gemba follow-up every quarter. Subsequent Gemba assessments have shown that the collection has improved in the areas indicated in the scorecard and that initial problem areas were rectified.

Discussion and Next Steps

The Gemba Walk is usually carried out by management executives to evaluate a process at the place of action, typically in a manufacturing industry setting. In SMU Libraries, however, the process was carried out by a mixed group of senior librarians, assistant librarians, and library para-professionals. The principle of the Gemba is that to understand the problem, one must go to the actual place where it is happening, get the facts, ask questions about the process, and experience the effects for oneself. Doing so will help process owners or managers to grasp the entire situation and not just one small subset or snapshot of it, and this will enable better and more informed decision-making.²⁰ Understanding what is happening, where it is happening, and why it is happening helps to generate countermeasures and corrective actions to eliminate the problems observed. Gemba also enables one to check if countermeasures are effective and to use the new information to generate new countermeasures, if existing ones were found to be ineffective. What Gemba does is to aid in continuous monitoring of the value stream and serves as a simple, yet powerful, methodology to drive continuous improvement.

When a report of the assessment was shared with the Information Access and Resources team, this being the library's technical services department, it was acknowledged that the Gemba as an assessment tool had helped the library to become aware of any existing abnormalities in the Lifestyle collection, to verify established standardized processes, to solve problems as they occurred, and to correct errors quickly. Going to the Gemba promoted a deep curiosity to what was going on and took away the assumption of what we *thought* was going on. This created a more efficient work environment, which directly contributed to a more effective service to end users.

The collections team found the Gemba Walk to be very useful in informing them of what needed to be fixed immediately and helped to implement continuous improvement in collections services. The collections team voted to roll out the Gemba Walk assessment methodology to other collections within the library. The project team also suggested that for assessment to be more effective and valuable, other end-user stakeholders, for example, students and academic staff, can also be invited to participate in the assessment, as stakeholders' assessment of the library collection is also important in gauging if their needs and expectations are being met.

Reflections

In our continuous improvement journey, we realized that assessment and assessment tools need not be complicated or overly sophisticated. Simple tools like the Gemba work well toward quality improvement efforts, as it is not complex, tedious, or time consuming. There is not much preliminary planning involved in implementing the Gemba, and it can be planned for and carried out quickly, within a short period of time, incurring little cost and utilizing less manpower. It is the Gemba's simplicity that gives it its repetitive value. The Gemba assessment can be done often, is easy to measure

and assess, and is sustainable, due to it not being resource-intensive. It is also flexible enough to be applied across other services within the library context. Doing the Gemba for the Lifestyle collection has helped the library understand the gaps in the collection and improve its processing standards. We have since used the Gemba to assess other physical collections in the library, like the Media collection, and put in measures to address the problem areas. Some of the measures included commissioning a weeding and relocation exercise so that the shelf space can be freed to include new and current resources. By using the Gemba, the library is able to work on continuous improvements in the management of our physical collection. The end result is a fresher, vibrant, and up-to-date library collection.

Conclusion

This case study has illustrated that LEAN principles, even when isolated to one process, can produce significant improvements in impact and quality. LEAN, Gemba, and Kaizen are philosophies that can create dramatic improvements in an organization through the application of the Go See and Ask Why principles. “Go See” refers to the ability for everyone involved in the work to see what actually happens, by visually observing the value stream. In this project, taking a step back enabled work teams to look at their processes differently and provided a better understanding of their customer needs. “Ask Why” is a technique to determine the root cause of a problem. By asking “why” repeatedly, LEAN enables service providers to come closer to providing customers with what they want.

As a change management tool, LEAN has far-reaching impact on both library staff and patrons. In SMU Libraries, we found that going to the Gemba helped those involved in the value stream to better understand their process interactions and learn to see what was not working while it was happening. Because the Gemba allows for as many process owners and stakeholders to be engaged as possible, it has the potential to tap all their experiences and creativity, which will generate more improvement ideas. Indirectly, it also helps to build stake in their improvements and pride in what they have done.²¹

For library patrons, the solution has come just in time. Since visual management is used to observe and determine problems at the source, this in turn drives continuous improvement in the process, and end users are receiving better, superior service and products, as early detection of issues and concerns means services can be continuously enhanced and problem areas eliminated.

Nestle writes, “When mining for productivity improvement, you may strike gold almost anywhere but you really must go to the Gemba to understand what is happening and why it is happening,”²² and because of that, as he appropriately puts it—Gemba Is Gold.²³

Notes

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