Remodelling Of Digital Problem-Solving Training Program

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Abstract: *The development of online learning for problem solving training is studied. As the pandemic hits us in 2020, there is a need to repurpose instructor-led training into digital format. A set of minimal training material were developed to enable the continuity of the training program. The minimal training material is not helping the training in achieving its objectives. In this research, the objectives are focusing on to identify participants' perceptions towards existing digital Problem-Solving training program, to analyse the existing digital Problem-Solving training program and to design an enhanced digital Problem-Solving training program. Two methods were used to collect data for this research. A Google form survey with trained employees in the emergency remote teaching program developed by the team, as well as a focus group discussion with the vendor and trainers to understand their perspectives on the training program. Results shown both learners and trainers highly suggested improving both training exercise and training duration. A learning framework design as Prime, Apply and Sustain for the training program has been developed using a combination of activities to drive behaviour.*

Keywords: Problem-solving training, Hybrid training, Virtual learning environment
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1. Introduction

Givaudan is a fragrance and flavor manufacturer that has been in business for over 250 years. It was founded in 1768 in Grasse, France, with the sole purpose of creating a fragrance that would help to offset the odors from the tanning process in the glove-making industry. Givaudan has grown to become one of the world's largest manufacturers of flavors and fragrances. There are three main divisions under the Givaudan umbrella. First, Taste & Wellbeing, a flavor's manufacturer that produces flavors ranging from our favorite drink to daily meals. Second, Fragrances & Beauty, which produces scents ranging from prestige perfume to laundry care. And third, Givaudan Business Solution (GBS), a shared service with a sole purpose to help Givaudan strive for excellency, innovation, and simplicity.

The study will focus on the third Givaudan division, which is GBS. As a Continuous Improvement (CI) in GBS, main objective is to assist the company in achieving the vision, mission, and strategy. The GBS 2025 strategy states, "Together, we deliver value to our clients through creative and efficient solutions and services." The 2025 GBS strategy includes six ambitions, two of which resonate with CI: "an outstanding experience for all employees" and "an engaged organization." This was also well translated into the CI House, where, under the capability building pillar, CI aimed to equip GBS Employees with skills that could be used not

only in their daily operations but also in their personal lives. One of the most widely conducted trainings is problem-solving training.

Problem solving training is a learning experience for one to learn a structured way in identifying out of bound issue and engaging in multi-stepped reasoning processes to find solutions (Bartley, 2018). According to (Sartika, 2018), problem solving is one of the most important skills one should have. It creates an ability to identify and find solutions in solving problems at hand. Hence will help in the business continuity and personal growth.

GBS APAC employs a total of 214 people as of December 31, 2021. Out of 214 employees, 83 employees (85.5%) have participated in Problem Solving training. Due to the Covid-19 pandemic, 66 employees (30%) were trained using the emergency remote teaching approach. Although the training continued in 2021 using the emergency remote teaching approach, the training's efficiency is on the decline. The average score for pre-covid training conducted in 2019 using the physical classroom training method is 90%, while the average score for 2021 is 78%, nearly 10% lower.

Moreover, CI must also spend an additional 13% of total working hours in a month (1 hour/day on average) conducting offline one-on-one coaching to employees who use the tools. This one-on-one session is to ensure that the tools are being used correctly and will also validate the exercise's results. The additional 1 hour per day is in addition to the 2% of CI working hours spent (3 hours/month) on official training. In total, the CI team devotes 15% of their working hours to training and one-on-one coaching.

As Givaudan adapts to new ways of working due to Covid-19 outbreak, there is a need to update and improve the Givaudan CI instructor-led training program, as well as repurpose it into a digital format. As found by research conducted by (Pratama, 2020), remote digital training format is an option for the community to mitigate the effects of outbreaks. According to (Khlaisang, 2019) learning can now take place anywhere and at any time, thanks to the advent of digital media.

Remote learning is now being used to deliver education and training all over the world. As the demand for remote learning increased, so did the availability of online meeting software, which provided a convenient way for students and teachers to meet their learning objectives. (Pratama, 2020) conducted research on the trend of using online meeting applications to meet their learning objectives. The qualitative approach results showed a significant increase in the use of these applications in the teaching and learning process.

As a result, GBS took the initiative to develop a basic set of training materials for virtual problem-solving training. Therefore, training efficiency and sustainability have decreased, which may or may not assist the company achieve its purpose and strategy 2025. (Adedoyin, 2020) research finding states, to guarantee the long-term sustainability of online learning that differs from emergency remote teaching, the challenges encountered must be thoroughly investigated and converted into possibilities. Due to abrupt shift from physical training to online training, there are still some participants and trainers are reluctant to adapt to the new ways of working. (Camargo, 2020) discussed on the online platform used for the online learning, duration, choice between recorded video and live interaction, and students and teacher's perception towards the online learning. It is concluded that online learning shift is feasible be it the platforms, class model, and lectures duration are discussed and analyze.

Overall, it is fair to state that the current online training program is failed to accomplish its goal of "equipping our personnel with abilities that can be applied in their everyday operations and personal lives." To ensure the long-term development and implementation of an online learning system, it is critical to identify aspects such as technological acceptability, social support, and task-technology (Mo, 2021).

The goal of this research is to better understand how to make the GBS Digital Problem-Solving Training Program more enjoyable overall. The research aims to improve the learning experience through gamification and cutting-edge tool. Employee participation in CI learning will therefore be encouraged, increasing CI knowledge and application as well as CI certification in GBS. This will help the company achieve its GBS 2025 objective.

The scope of this study is limited within GBS APAC employees. This study concentrates on the issues and causes affecting the existing virtual training program from the perspectives of learners and trainers. To understand the learners' perspectives, a quantitative survey has been distributed to a total of 50 employees, followed by an in-depth interview with the GBS Trainers and training vendor. Even though a lot of topics are discussed in the literature review. The digitalization of the problem-solving training program will be the exclusive focus of this study. Key actions to consider, according to research done by (Sweetman, 2021), are class schedule, and synchronous or asynchronous class will play an important role in determining the students' and teachers' interactions. Video and Audio function, as for video, the ability to see as many students as possible at the same time, and audio, ability to mute and unmute students to minimize distraction. Other features or functions worth explore are include screen sharing, virtual hand rising, breakout group for smaller group discussions, a chat box, and annotation.

Due to limited resources and time zone differences between the three Delivery Centers (DC) in GBS, this study only focusses on GBS APAC employees. The quantitative data analysis is only from the perspective of a GBS APAC learner. (Torres Martín, 2021) quantitative research suggests that before making a change, learners' and trainers' perspectives should be considered.

Another limitation of the research is the qualitative approach with vendors is restricted to the existing training vendors available in GBS. The findings are kept within the scope of GBS control and do not delve into other possibilities.

Last but not least, while there are numerous articles and journals available on developing an online learning program, few of them can be implemented in GBS due to a lack of resources, knowledge, and technological limitations. (Phungsuk, 2017) also discussed the motivations for people to learn in terms of the flexibility for students to learn at their own pace, the accessibility of up-to-date knowledge through online learning, and the reduction of the communication gap between students and teachers because of easier and more informal communication.

2. Methodology

The methodology section has been separated into three phases of the research. A quantitative method, in the form of a survey, will be used to gather learner's feedback on the existing problem-solving training (Emergency Remote Teaching Program). A total of 50 employees in GBS APAC has been selected. The results were analyzed to better understand their point of view. The data obtain was analyzed using Google Spreadsheet.

Next, a focus group interview conducted using a qualitative method. An in-depth interview with the current trainer's and training vendors conducted to gain input from the trainer's perspective. The goal of the focus group interview is to communicate Phase 1 results and seek trainers' opinions on the current online training program. Aside from that, to communicate to the Training vendor the insights from the existing online training program. This will aid in eliciting from the vendor a concept or proposal for developing and redesigning the existing training program. Trainer's feedback was then analyzed using Microsoft excel and vendor's proposal was reviewed.

In final phase, a new enhanced digital problem training program will be developed for pilot run and 23 employees in GBS APAC selected to take part. This to acquire information from the learners' perspective on the improve online training program. Data obtain was used to determine the final proposal of the digital problem-solving training program.

3. Results and Discussion

The research findings are thoroughly explored in this chapter. Learners' perception towards existing problem-solving training program, focus group interviews with GBS trainers and current GBS training vendors, as well as pilot test outcomes, are reported individually. The quantitative approach of surveying learners' perceptions of existing problem-solving training programs is used. To obtain input from the learners, a series of questionnaires has been distributed. Then followed by a focus group discussion with GBS Trainers and a training vendor known as Tier 1. Following that, a pilot test has been conducted, followed by a quantitative survey to collect learners' feedback on the expanded and freshly improved problem-solving training program.

3.1 Learners' perception towards existing Problem-solving training program.

A total of 66 employees attended the training, and 52 were chosen to participate in the survey. Using a sample size calculation with a 90% confidence interval and a 6% margin of error, 49 workers were suggested for the survey. There were 9 questions in all. The questionnaire was created on a scale of 1 to 5, with 1 representing the lowest score and 5 the greatest. The outcome is anticipated to offer the learners viewpoint on the current problem-solving training program. The areas for improvement will be determined using the average rating for each question.

The survey's average score is displayed in Table 1. According to the result, question 3 had the average highest score, 3.48. This demonstrated the learners' commitment to study and comprehend the notion of problem-solving. As the program's concepts are taught, such as recognizing an issue, utilizing a fishbone diagram to discover probable reasons, and using a 5 whys analysis to uncover the root cause. The tools given in the training program will not only help them solve the situation at hand but can also be utilized to improve their own performance, and hence the team's overall performance. This will then help with the annual performance review of their KPIs.

Table 1: Survey Average Score Summary

No	Questions	Average Score
1	Name	Not Applicable
2	Department	Not Applicable
3	This program was a good value for the time I spent to complete it	3.48
4	I found the program content relevant for my role	3.12
5	The program is well organized and helpful	2.56
6	I found the program is in balance of theoretical and practical	2.10
7	I anticipate applying the knowledge and/or capabilities I acquired in this program on the job	2.81
8	The facilitators are effective	3.38
9	What are your suggestions to improve the program experience?	Not Applicable

Question 6 has the lowest average score, 2.10, which is below the average score of 3. The lower score for question 6 is due to learners' inability to properly comprehend the concept during the training hours. The course lasts three hours and is delivered remotely. Learners must simultaneously study theory and practice. There are four practices in total: generating a solid problem statement, identifying cause using a fishbone diagram, uncovering underlying cause sing the 5whys technique, and producing an action plan. The learners have commented that the theoretical portion takes up too much of the training time, preventing them from properly using the time for practice during the training course.

Table 2 show the summary of suggestions by trainees to improve the training program. 22 responds equivalent to 42% of total responds commented that they are eager for further practice throughout the training session. While another 13 responds equivalent to 25% commented that there is an imbalance between theory and practical part in the training program. The training will be more effective if there is a perfect balance of theory and practice. As the trainers are there, additional questions and concerns may be raised and addressed immediately. Aside from that, learners said that they learned more about the tools during practice sessions than during theoretical sessions. This is because the practice session uses real-life examples. Learners can better relate to the exercise.

Aside from that, 4 responds equivalent to 8% of total responds commented that there should be an improvement on the training method and training duration. Learners commented that the training time is insufficient. Because the training period is just three hours long, about half of the time is spent on theory. Which may be learnt on your own time. The training may be utilized as a practical lesson to learn about the topics in depth without focusing on the theory.

Table 2: Summary of Suggestions

No	Feedbacks	Count Feedback Received
1	Separate practical session from the training session	22
2	Imbalance of Theory and Practical	13
3	No Comment	9
4	Insufficient Training Duration	4
5	Ineffective Training Method	4

3.2 Focus Group Discussion Result

This section will discuss in detail of the discussion with GBS Trainers and GBS Existing training vendor known as Tier 1. The focus group discussion included four GBS Trainers and five Tier 1 representatives. The project charter is presented to the vendor to begin the conversation. Then a series of discussions about our current situation and future goals. Tier 1 was given the findings of the 4.2 survey for them to better comprehend the situation. This will assist Tier 1 in better understanding the issue from the perspectives of both learners and trainers. The discussion has been divided into 3 phases, Consult, Design and Build. The purpose of the Consult Phase is for Tier 1 to better comprehend the issue from the perspective of GBS learners and trainers. During the Design Phase, Tier 1 will practically construct a plan for improving the problem-solving training program. Tier 1 will use the build phase to create a sample from the proposal for pilot testing.

Under Consult Phase, there are four GBS Trainer and five Tier 1 representatives. The goal of the consult phase is for Tier 1 to comprehend the present scenario and what GBS Trainers has developed for the problem-solving emergency remote training program. In addition, survey findings in section 3.1 were presented to Tier 1. The session was conducted remotely, using a PowerPoint presentation by GBS Trainers and a Jam board from Tier 1 to receive input from GBS Trainers.

There are a total of 3 questions asked by Tier 1. First is what works well from the standpoint of the trainer. The mix of theory and practice works well. Although it is not evident from the survey results in section 3.1. One of the lowest scores in the 3.1 survey question number 6 was that the combination of theory and practice in one session was insufficient for students to comprehend the problem-solving concept. In addition, the current training program benefits greatly from the topic's division into smaller units with activities in between.

Second, what doesn't work well. According to one of the comments, there is not an optimal balance between the theoretical and practical components of training programs. Even though the program's blend of theory and practice works well. However, delivering at a single sitting is impractical. Trainers are frequently unable to finish parts of the practices due to time constraints. This has had an influence on the learners' learning. In addition, the length of the training does not allow the instructors to make the most of the time available to teach the trainees.

Lastly, anything to be added to the current module. One recommendation from trainers is that there should be more practices for each subtopic. Trainers should have ample time to conduct practice sessions and debrief on each practice to help learners comprehend the topic better. This will allow learners to ask questions and trainers to deliver suitable and acceptable information. Apart from that, another comment states that theory examples should be taken from real-world situations in GBS and able to demonstrate how the problem-solving process worked. Next there is a concern on the trainers' facilitating abilities. The effectiveness of the training will be increased with more training to enhance the facilitation skills of the trainers.

Under Design Phase, Tier 1 presented a recommendation following a focus group discussion amongst GBS Trainers and Tier 1 representatives. The proposal from Tier 1 is to divide the theory and practical sessions into two halves called Prime and Apply course. The Prime part will cover the theoretical portion that will be developed in a Rise course using Articulate 360, an off-the-shelf system. The Prime course will be available to learners at their convenience in

terms of time and location. Prime courses require learners to complete the theoretical lesson in 30 minutes or less.

After finishing the theoretical course, the students will be expected to participate in the Apply course a practical session. GBS Trainers will physically lead the Apply course. The apply course will no longer discuss problem-solving theory, instead concentrating on the exercises and practices of the tools, such as the fishbone diagram and 5 whys analysis.

3.3 Pilot Test

Last is to conduct Pilot Test. There are a total of 23 employees have been chosen to participate in the testing. Feedback from the theoretical part's pilot testing has been gathered utilizing a set of questions on a Google Form. There are a total of nine quantitative questions, each with a response option ranging from 1 strongly disagree to 5 strongly agree. Table 3 depicts the result in a table form of the survey. With a score of 4.39, question 7 has the highest average score. Participants acknowledged that the learning program's theoretical component helped them better understand the concept of problem solving. The participants now have a better understanding of problem-solving concepts thanks to the separation of theory and practical sessions into two separate sessions.

Table 3: Focus group survey score summary

No	Questions	Average Score
1	How would you rate this self-taught course in overall	3.65
2	Was the level of depth appropriate?	2.87
3	How useful were the examples provided?	4.09
4	Were the concepts building on each other in a smooth flow?	3.52
5	How engaging were the exercises?	3.78
6	Did you find them challenging enough?	3.53
7	Did they help you better understand the concepts?	4.39
8	How likely are you to recommend the course to your peers?	4.09

3.4 Limitations of study

Considering that only GBS APAC Employees were used, the sample size is somewhat limited. Only 66 out of the 214 employees attended the emergency remote teaching problem solving training program. 50 out of 66 employees, or 92% of the workforce, participated in the initial survey to determine the gaps in the training program. In addition, only 23 employees or 35% of the total number of employees who attended the emergency remote teaching problem-solving program, participated in the pilot testing.

The study is based in GBS Kuala Lumpur, Malaysia. As a result, the research does not accurately reflect the training program's at GBS Budapest and GBS Buenos Aires.

There haven't been any prior studies that only look at the difficulties and components of problem-solving training in Malaysia. However, this is a crucial chance for the researcher to discover new gaps in the literature and specify the needs for additional study.

3.5 Recommendation

Future studies can use the quantitative research method to cover a larger sample size because the research foundation for this topic has already been established. Future studies may add focus on other GBS divisions since this research is limited to GBS Kuala Lumpur, Malaysia.

4. Conclusions

Many studies have revealed that a hybrid training environment is the ideal way to move training ahead. To improve and increase the effectiveness of training programs, both virtual and actual interaction is needed. The theory component of the problem-solving tools can be taught to the learners using the virtual portion of the training program at their convenience and on their own time. While in-person instruction will aid in educating learners more about the practical use of the problem-solving skills.

To increase the effectiveness of the problem-solving program, advantage can be taken of the virtual training technologies that are currently available on the market. While physical training will prevent learners from losing interest in the training program by avoiding human contact. Furthermore, the physical training will also help the learners to fully comprehend the problem-solving technique. This will make it easier for them to use the tool in their day-to-day jobs.

According to the findings of the study, both learners and trainers highly suggested improving both training exercise and training duration. With the separation of the theoretical and practical parts, both suggestions will be able to achieve the research goal of improving the overall learning experience through gamification and state of the art tool.

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