International Journal of Learning, Teaching and Educational Research
Vol. 19, No. 2, pp. 163-187, February 2020
https://doi.org/10.26803/ijlter.19.2.10

Promoting Personalized Learning Skills: The Impact of Collaborative Learning (A Case Study on the General Directorate of Residency and Foreigners Affairs in Dubai)

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Abstract. This case study aimed at designing a collaborative learning approach and measuring its impact on developing personalized learning skills among the employee in the General Directorate of Residency and Foreigners Affairs in Dubai (GDRFAD). To achieve this purpose, the researcher adopted and applied two collaborative learning techniques: 1) Sequential Collaboration I (Purposeful) and, 2) Sequential Collaboration II (Round Horse). Besides, the research generated a personalized learning conceptual framework and knowledge test based on Bray & McClaskey's model (2015) to build a personalized learning agency through collaborative learning in a governmental organization. This model addresses seven integrative dimensions to build a learning agency, they are voice, choice, engagement, motivation, purpose, ownership and self-efficacy. This case study presents how this collaborative approach assists learners (trainees) to promote their personalized learning skills and build learners' agency in the GDRFAD. Personalized learning skills and competencies became an integral part of any learning organization in the 21st century. The study concluded that collaborative learning has the potential to revamp traditional learning and training approaches to build a culture of unique performance.

Keywords: Personalized Learning; Collaborative Learning; Blended Learning; Pedagogical Design; GDRFAD

Introduction

Personalized learning is a learner-driven environment that supports learning in the 21st century. Many studies showed that learners' achievement is likely to be successful when they can learn at their own pace with various methods of accessing the information, especially adults (Daines, Daines & Graham, 2006).

Personalized learning provides a unique experience for learners based on their needs instead of receiving traditional training through a "one-size-fits-all"

technique. It assists the individual learner to meet the required potential. The culture shift from a teacher-centered approach to a learner-driven environment has been identified in the theories of John Dewey, Lev Vygotsky, and Jean Piaget (Bray & McClaskey, 2015). Giving the learners freedom in learning to allow them to set their own goals and directing the learning journey. They will be more responsible about how, when, what and where to acquire new experiences based on their prior knowledge. The intent of personalized learning is not to tailor the curriculum for the learner. However, it helps each learner to identify the needed skills that he wants to develop (Bray & McClaskey, 2015).

According to Varlas (2011), there are five essential elements of personalized learning (PL) they are: 1) Fixable, the learner can learn anytime and anywhere without restricted bounders; 2) Teacher roles are redefined and expanded; 3) Guided by project-based and promote authentic learning opportunities; 4) Focus on student-Driven learning, and 5) Mastery-Based Pace. Thus, PL increases the chance of the learner to drive the learning and career path and progress based on the competency. It creates authentic learning with a meaningful experience that prepares the learner to be a life-long learning agent (Ali et al, 2015).

New developments in the science of learning emphasize the importance of helping people control, mediate, and regulate their learning. Therefore, the roles of teaching and learning expand beyond the traditional concepts of testing to help learners build their personalized values and illustrate their cognition to themselves, their peers, their teachers, and their macro and micro-community and network (Abdelaziz, 2015). The 21st century learning paradigm is a very personalized paradigm that has major shifts. These shifts apply to all educational levels, including K-12 and the higher education level. The most important shift in the teaching paradigm in the 21st century is the shift from direct teaching to indirect and dynamic or developmental (personal) teaching (Abdelaziz, 2014).

The Problem

The General Directorate of Residency and Foreigners Affairs Dubai (GDRFAD) has the responsibility to regulate and monitor the international travelers who enter and exit Dubai and to provide supervisory services to the foreigners living in Dubai. The GDRFAD has seven sectors, including the Airport Sector, the Sector of Higher Management, the Sector of Maritime Ports, the Sector of Nationality, the Sector of Entry and Residence Permits, the Sector of Followers of Violators and the Foreigners and the Sector of Human Resource ("GDRFAD," 2019).

GDRFAD has seven main values and thirteen strategic goals (GDRFAD, 2019). These core values and goals are reflecting the organizational training that every employee should be aware of and be able to transform them into professional practice with an outstanding performance level. Every new affiliated in the GDRFAD has to attend continuous training programs for professional development.

The training programs are arranged for employees to develop their skills and capabilities. These programs are managed by the Training & Performance Development Department to achieve the strategic objectives by providing this

support service to the employees of the organization. The approach used by GDRFAD for employees to learn is static, One-size-fits-all approach, which is ineffective for proficiency development. It provides all the employees to learn in the same way, which is not possible. Many researchers have researched this approach. The results show that it is not enough for learners to get ready for future tasks and skills (Bray & McClaskey, 2015; Chatti, Jarke, & Specht, 2010; Langa & Yost, 2007). However, this approach is not utilizing in the personalized learning environment. Therefore, this study suggests a new learning approach to be used in the organization as an opportunity to make their path for personal learning and align the objectives with the needs of the core business. Thus, the employees, as the learners, will have full control of their learning. After taking personalized learning training and developing skills, the employees may be able to make the structure of the responsibilities and then track their development. The employees can measure their progress towards realizing their goals and objectives.

The problem arises because of the current training approach of GDRFAD which is still very conventional and does not adopt the new trends of personalized training and coaching to build a culture of unique performance and learning organization. They are learning through a one-size-fits-all approach, which is not enough for the employees to learn in the changing environment. The employees need a personalized learning environment in which they can learn, and remain up to date. The one-size-fits-all approach is well-known but is not proved to be as efficient as personalized learning **(**Bray & McClaskey, 2015). Each year, the employee is required to choose two training programs based on the needs. This leads to a delay in development and the worse is using an approach that cannot benefits the learner.

This study may help the employees to adopt personalized learning to become more efficient in their workplace. They can plan and seek the needed knowledge and skills. The employees of GDRFAD consist of a diverse group of people with different talent levels, enabling them to collaborate would enhance many aspects of their personalities. To achieve the strategic goals and objectives of the organizations, the employees should be given voice to say about what type of learning approach they want to become experts in their fields. Moreover, the branch in charge must give the learners a choice to choose how they would like to learn, to increase their motivation, and engagement, and to create meaningful learning. The employees should become proactive and suggest solutions to the problem by their personalized learning abilities.

Thus, this study was conducted to promote personalized learning skills through a collaborative learning approach to change the existing culture of learning and training in GDRFAD. Design collaborative learning to promote personalized learning is another new challenge that the current study is trying to investigate and discover to support and update literature in this regard.

Purpose of the Study

The purpose of the study is to design a collaborative learning approach and measure its effectiveness and impact on promoting personalized learning skills among GDRFAD employees.

Research Objectives

This study is trying to achieve the following two objectives:

1. To design a collaborative learning approach to promote personalized learning skills.
2. To measure the impact of collaborative learning on promoting personalized learning skills of GDRFAD employees.

Research Questions

The research questions are:

1. What are the personalized learning skills required for GDRFAD employees?
2. What is the appropriate design of a collaborative learning approach to promote the personalized learning skills of GDRFAD employees?
3. What is the impact of collaboration on promoting personalized learning skills of GDRFAD employees?

Significance of the Study

The findings of the study will demonstrate the effectiveness of the collaborative learning approaches to promote personalized learning skills in GDRFAD. The results will convince the training and performance department to train the employees to develop personalized learning skills. This research will help them to uncover critical areas related to the training, development, and practice in the organization. Giving the reason, in this changing world of globalization and new technology, personalized, as well as collaborative learning, are both significant for the employees to deliver the best quality services.

Theoretical Background and Literature Review

Personalized Learning

Personalized learning is an approach of learning in which the learner can learn at his own pace and ability. The learner is not forced to learn in the same way as the other learners do. However, personalized learning allows the learner to learn based on their needs and wants. The most interesting thing is that personalized learning is a flexible learning environment that does not have boundaries or strict rules to learn. Further, it is a strategy of education style that focuses on adhering to the unique learning needs, culture, and individual interests. This type of learning is an alternative to the traditional style of teaching where all students are provided with the same kind of treatments. An example of personalized learning design is occurring when a school offers diverse learning experiences. Specifically, a school could offer internships related to a career that provides credit towards their graduation while also allowing students to explore a career of interest.

Personalization, as a learning approach, is one way to guarantee that all learners are achieving at their highest potential (Heacox, 2002; Bulger, 2016). It is a dynamic process for personal development. Personalized learning also reflects differentiated instruction. Differentiated instruction is found to be of the

most important attributes to build a collaborative online learning community (Tu & Corry, 2003; Zheng, 2018). To differentiate their instruction, online instructors should utilize varied approaches and strategies to fit with what their students need to learn, how they will learn it and how they can express their values of learning to increase their capabilities to be life-long learners. In doing so, instructors or trainers should enrich, enhance and empower learners through multi-learning objects, activities, spaces, and resources that support learners' needs, creativity and values.

Besides, personalized learning stimulates learners' creative abilities. Philip (2015) noted the importance of creative teaching variables in comparison to the variable of technology used in teaching, where creative teaching should be applied before selecting the technology associated with teaching. Personalized learning leads to the formation of learning organizations and insights into the practices of effective learning. Smith (2009) agreed with the previous idea that the characteristics of effective activities for e-training and intrinsic motivation are factors that lead to the success of the computerized creative training programs design, and that leads to improved performance in the field of e-training.

Benefits of Personalized Learning

The goal of personalized learning is to turn regular learners into expert learners who have the desire to learn and know how to learn by choosing fixable ways that suit their interests. By following this approach, learners would focus and work strategically toward their aims through; knowing how to learn best, develop individual learning plans, design strategies of learning that scaffold meeting goal, tracking progress while learning and altering the learning when realizing it is not effective (Bray, 2015).

Equipment learners with personalized learning skills have many positive aspects. For example, they can activate prior knowledge and assimilate new information. Personalized learning stimulates learners to develop further skills such as flexibility, digital literacy, leadership and management, creativity, collaboration, analytical skills, and effective communication skills (Hansen & Hansen, 2008).

According to Bray and McClaskey (2016), there are various advantages of personalized learning for learners and trainees. For instance, personalized learning makes them able to learn anytime and anywhere. The learner has unlimited access to the content. Since the learners can give their voice and choice, the content will be designed based on their interest which makes them motivated and engaged while they are learning. Moreover, personalized learning allows learners to become self-directed and self-regulated (Zimmerman, 2002). Hence, they can design their own goals.

Collaborative Learning

Collaborative learning is an educational strategy in which the groups of learners work together to solve a problem and find the solutions, to complete a project or a task, and to make any product or deliver any service. Collaborative learning encourages the learner to think critically and improve social interactions (Noh & Yusuf, 2018). Collaborative learning includes sharing of information, interaction with others, processing of the information, and problem-solving methods.

During times of collaboration, those working together should have clear guidance. Additionally, tasks should be manageable in scope, and each member of a collaborative team should have a specific role in the group. There exist several benefits of group collaboration. For instance, when several people work on a certain task, the workload can be divided, and individuals can specialize in each task. Not only does this decrease each person's total workload, but it allows the team to have much more specific information about that subsection (Maruping & Magni, 2015). Different team members can also contribute different ideas and build on one another's suggestions which an individual unlikely to come up with on his or her own (Michaelsen, 2008). Businesses report that their employees who work together as a group are more motivated, productive, and engaged in their work (Tapscott & Williams, 2011). Collaborative learning makes employees able to exchange their experiences and build upon each other perspectives. Hence, this creates a greater outcome, because collaboration is the best thing to bring innovation (Ali et al., 2015).

Collaborative learning is a learning situation in which two or more people learn together and share their ideas which is the actual collaboration (Cheng, 2017). It includes the collaboration of the skills of the people engaged in the collaborative learning task. Further, it enables the sharing of information, ideas, and sometimes monitoring one another's work (Zhang, et al., 2015). The collaborative learning environment is created based on the interaction between the group members to share their knowledge. The following main points characterize the collaborative learning according to (Abdelaziz, 2018):

- Collaborative learning is a learning situation.
- Collaborative learning is team-based learning.
- Two or more group members or learners interact with one another.
- Learning depends on cognition between the groups.
- Learning depends on the engagement of the group members in creating knowledge and solving any problem.
- The main role of collaborative learning is to share experiences and knowledge positively.
- Every group member has the responsibility to enhance the knowledge of other members and support in their learning and behavior.
- Active interaction is required in the collaborative learning environment.
- Brain writing is needed in collaboration, not just brainstorming.
- Collaboration can only be guided by the shared responsibility of the learners.

Collaborative Learning Design for Personalized Learning

Collaborative learning is the technique in which the learners discover methods to share information, knowledge, and communicate personal and professional experiences with others. Collaborative learning designs can be a simple collaboration, or computer-based, or eLearning collaboration that includes the collaboration of different people from different areas and in a different times. According to Abdelaziz (2018), collaborative learning design takes four independent approaches:

1) The sequential collaboration I (Purposeful).
2) The sequential collaboration II (Round horse).

3) Parallel collaborative I (Pick-think-pair-share).
4) We-mind (Pick-think-pair-share).

These collaborative learning approaches are discussed below:

1) The Sequential Collaboration I (Purposeful)

The above-mentioned collaborative learning approaches are designed for the learning of the group members and teams of learners. In the sequential collaboration I (purposeful) presented in figure 1 below, the main task is divided into the sub-tasks, and the load of the tasks is distributed among the learners. The outcome is collaborative learning based on sharing experiences, capitalize on each other skills through asking for information, evaluating peer ideas and monitoring the work (Chiu, 2008).

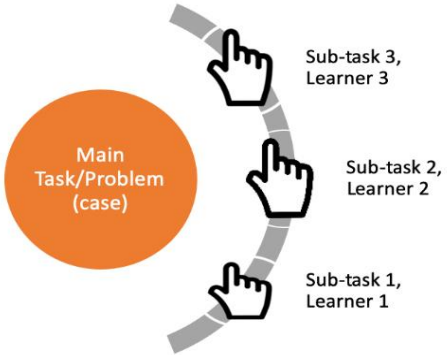

Figure 1: Sequential Collaborative I (Purposeful)

2) The Sequential Collaboration II (Round Horse)

The sequential collaboration II (round horse) technique presented in figure 2 below. In this type of collaboration, the first learner gives his input and passes it to the second learner. Then the second learner can add some useful information and improve the inputs, but he cannot change the input of the first leaner. After that, the second learner passes it to the third and so on until the whole cycle is completed. The load is reduced in this collaboration, and the outcome is presented by the first learner. In this collaborative approach, learners actively interact and share experiences. The participants depend on each other knowledge, skills and are accountable for each other's achievement (Mitnik, Recabarren, Nussbaum, & Soto, 2009). They seek understanding and elaborating to find meaning and solution to artifact a product. The trainer can design collaborative activities based on collaborative writing, group assignments, case studies, and debates.

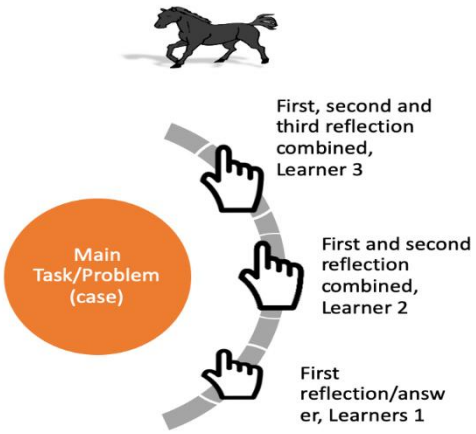

Figure 2: The Sequential Collaboration II (Round Horse)

In the workplace, collaboration is essential in teamwork in any organization. The group member works together to decide. Collaboration fosters communication among the team (Brake, 2007). Grouping employees together can build and expand skills as they are like the pool of talents. Even more, the employee can self-evaluate his knowledge and upgrade it. Since collaboration requires participating from different inputs the employees can learn faster. It increases the teaching and learning opportunities and assures flexibility among learners or trainees.

3) Parallel Collaborative I (Pick-Think-Pair-Share)

The parallel collaborative I (Pick-think-pair-share) is presented in figure 3 below. In this collaboration, the tasks are assigned randomly, and the load and challenges are distributed. in the PTPS approach, the outcome is collective since the responsibility is shared between partnerships.

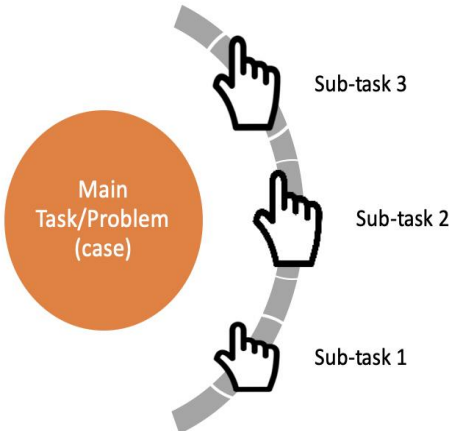

Figure 3: The Parallel Collaborative I (Pick-Think-Pair-Share)

4) We-Mind (Pick-Think-Pair-Share) II

The "We-mind (Pick-think-pair-share)" technique is presented in figure 4 below. In this collaboration technique, the tasks are distributed randomly, and the outcome is creative and connected, and the responsibility is shared.

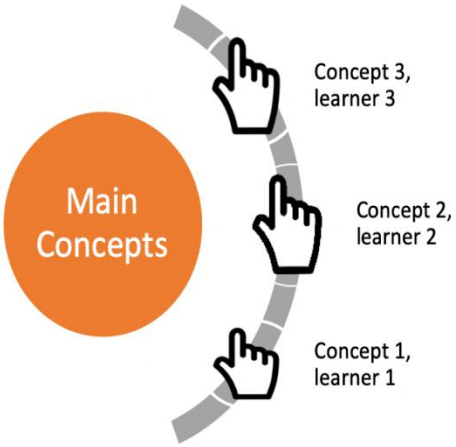

Figure 4:We-Mind (Pick-Think-Pair-Share)

Assessing Collaborative Learning

The purpose of assessment is to measure the knowledge and skills generated while students learning (Carfax, 2002). Assessment as learning, assessment for learning, and assessment in learning can be used in personalized learning environments (Bray & McClaskey, 2015). In the first type of assessment, the trainer allows the trainee to reflect on their learning and make amendments. For instance, in the collaborative learning approach, the learners can peer evaluate themselves and alter their behavior. Hence, the learner can reach a deeper understanding (Carless, Gordon & Liu, 2006).

In the second type of assessment, which is considered as a formative assessment, the trainer can track and monitor learners learning. For example, the trainer can use this type as an indicator of whether to move to the next phase or provide more details on a certain topic (Carless, Gordon & Liu, 2006). The last type of assessment used at the end of the unit or a course. It is used to determine whether the learners achieve the lesson outcomes or not based on collective certificates (Daugherty, 2010). In this study, designing a portfolio considered as a summative assessment, to examine the extent to which instructional goals of the personalized learning lesson have been achieved. A portfolio can be described as a tool to collect evidence and artifacts that represent the process and production of individual learning (Basken, 2008). It is a versatile tool that serves learners, trainers, job seekers, and employees. Besides, this tool can be used as an indicator of employee qualifications, abilities, and experiences.

Theories and Pedagogical Models that Support PL and Collaborative Learning

According to constructivism theory that depends on using the information already known to try to make sense of new information, learners create or construct information based on their perspectives. That is what makes learning different for each person even if he/she had been learning the same way (Marquis, 2017). The idea behind activating prior knowledge is to make learning easier and prepare learners to learn (Phillips, 1995). Besides, it enables using different methods to access information and to choose appropriate tools and resources that support the assigned task. Personalized learning turns

information into useable knowledge. In other words, it makes the information easy to be understood and expressed (Bray & McClaskey, 2015).

Vygotsky believed that in developmental theory the learner must learn more than a bunch of information and skills. The learners need a set of mental tools to extend the critical thinking abilities, which in return being able to solve problems and generate solutions (Kozulin, 2007). This enables the learners to own and direct their learning in a purposeful way (Bray & McClaskey, 2015). Besides, the interaction that happens in personalized learning within and between learners enables cognitive development.

According to the social interaction of Vygotsky's theories, which centers around making meaning: Social interaction has a critical role in cognitive development. In detail, the learner functions the cultural development twice, first during the interaction with another peer and later alone (Culatta, 2013). Further, the effective design of a particular task or concept that enables learners to collaborate to extract knowledge from each other is necessary for a personalized learning environment. In any community of learning, there are levels of learners. Each has his characteristics and background. Therefore, the More Knowledgeable Other theory (MKO) can be used. It refers to anyone who had a better understanding than the learner. It could be technology, peer, trainer, and coach (Bray & McClaskey, 2015). Moreover, the Zone of Proximal Development (ZPD) is another theory by Vygotsky that supports learners in a personalized environment. It is about the distance of what the learner can do alone and with guidance. By that, the learner can innovate through analyzing and conceptualizing old information to create new knowledge (Bray & McClaskey, 2015). Thus, how the learner makes meaning of their learning. As noted by John Dewey (1938), the development of curricula should be tailored based on learners' interests and this increases their motivational level in learning (Bray & McClaskey, 2015). In personalized learning designing a curriculum based on learners' needs and wants which create meaningful learning and relevance (Bray & McClaskey, 2015). Students as independent learners should exhibit the following qualities: voice, choice, engagement motivation, ownership, purpose, and self-efficacy which are personalized learning dimensions (Bray & McClaskey, 2015).

The most important dimension of personalized learning is engagement and motivation. The individuals when performing together with a higher level of entertainment the team will be (Lank, 2006). Working with different people develops debates that make the group view from multiple perspectives and extend critical thinking skills (Huxham & Vangen, 2013). To personalize learning, Hargreaves and his colleagues have suggested nine gateways (Pilley, 2016):

1. Integrating learner's voice
2. Inserting assessment for knowledge
3. Developing learning to learn policies
4. Completely using new technology
5. Suggesting a good choice of program pathways
6. Regularly assisting and guiding learners through active support structures
7. College and career readiness

8. Mentoring and coaching
9. The organization and design of the school

Personalized learning is an approach of learning in which the learner can learn at his own pace and ability. The learner is not forced to learn in the same way as the other learners do. However, personalized learning allows the learner to learn based on their needs and wants. In personalized learning, there are three stages. In stage one; trainers universally design instruction that encourages learners to share their voice and choice. In stage two; both instructors and learners co-design lessons, projects and assessments. In stage three, the learners drive their learning; the instructor is a partner in learning (Bray & McClaskey, 2015). Personalized learning is not about tailoring the content of the curriculum for the learners. It is about assisting everyone to identify and develop the needed skills to enhance their learning. Therefore, the agency and self-advocacy can be realized (Bray& McClaskey, 2015). The personalized learning is customized to strengths the needs of the learner, and the learner gets a learning plan which is based on his learning abilities and suits him best (Pane, 2015). This learning approach is adopted by the organizations to make their employees able to learn unique trends and set their own goals. Personalized learning helps the employee to learn differently and adopt new techniques unlike the past experiences of the employees. It keeps the employee more engaged than the other learning approaches. It is considered employee-driven, which means that the employee becomes able to set personal goals and track the progress of learning and development.

Personalized learning itself does not promote the skills and ability of the learners. However, integrating techniques that enable the learners to collaborate in these environments would generate additional skills. This is what the study is trying to discover.

Theoretical Framework

The figure below shows the framework that represents the seven dimension of personalized learning which has been adopted from (Bray & McClaskey, 2015).

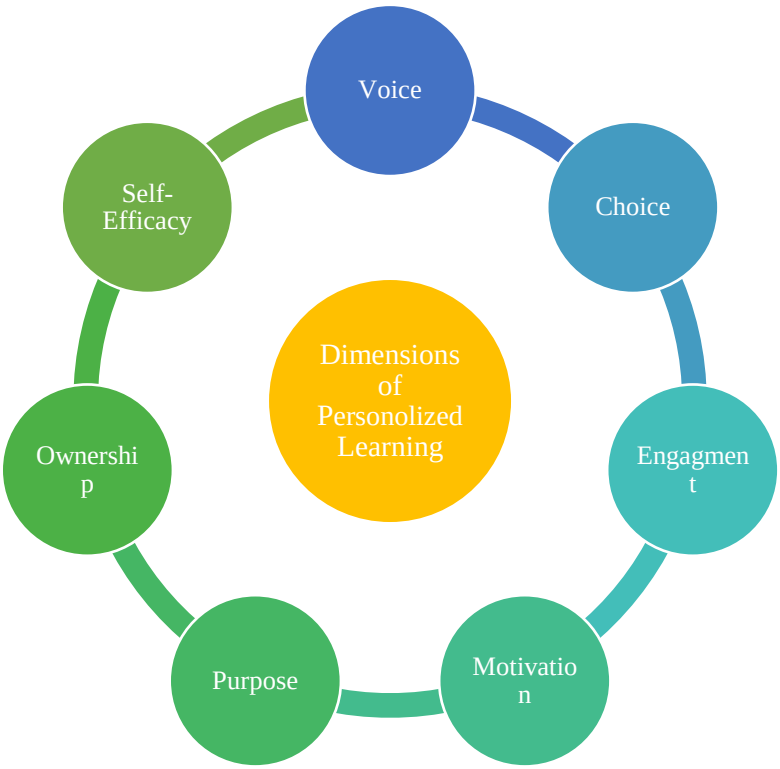

Figure 5: Seven Dimensions of Personalized Learning (Bray and McClaskey, 2015)

These seven dimensions were developed for the development of learner agency. It helps learners to become independent and self-directed learners. These dimensions include the major skills and processes that the learner acquires undertaken in the environment of personalized learning. It helps learners to move from teacher-centered to learner-centered, to learner-driven which is also known as the personalized learning environment (Murphy et al., 2014).

Research Design and Methodology

This section describes the research methods used in this study to collect the needed data and explains their appropriateness for the exploration of the three research questions. It encompasses the research design, target sample, and research procedure, data collection process, and analysis techniques used. This study was based on the following research questions:

1. What are the personalized learning skills required for GDRFAD employees?
2. What is the appropriate design of a collaborative learning approach to promote the personalized learning skills of GDRFAD employees?
3. What is the impact of collaboration on promoting personalized learning skills of GDRFAD employees?

Research Design

This research is a case study that depends on a quasi-experimental intervention supported by qualitative and qualitative data collection techniques. the case study consisted of two groups of the employees at GDRFAD who were on the

job in deferent sections during 2019. The two groups were trained in personalized learning for five days. The experimental group exposed to formal training with collaborative learning approaches. The control group learned the same material about personalized learning but with no application of the collaborative learning approaches. Moreover, the skills of seven dimensions of personalized learning are developed before conducting the training program about personalized learning. The training program was designed and developed based on both collaborative learning approaches for the experimental group. A pre-test and post-test conducted on a sample of GDRFAD employees to examine the difference in learners' scores. A research hypothesis is made to test whether the collaboration may or may not promote the personalized learning of the employees. Further, the personalized learning skills of the employees were tested by a portfolio creating assessment; they were asked to design a portfolio that describes personalized learning at the end of the training program. The portfolio follows a holistic grading rubric.

The Sample

In this study, the sampling technique used is a purposive sample in which the researcher focused on a subset of the population. The total number of participants in this study was 30 employees. They were divided into two groups, 15 employees for each group. The control group participants who were selected from the Training and Performance Development Department are (9) males and (6) females. While the experimental group consists of 15 employees (12 males and 3 females) who were selected from different sectors at the GDRFAD.

The group who exposed to the collaborative learning strategies was learners of innovation programs that consists of several training programs. To clarify more, it includes more than 10 training programs, of them: Future Accelerators, Idea Systems, Innovation Lab, Intellectual Property Rights, Knowledge Management, Change Management Models, etc. The goal of the innovation program is to qualify trainees to come up with the best solutions to the challenges faced by the GDRFAD. The duration of the training program was two months. The researcher has discussed with the authorized employees in GDRFA to integrate personalized learning within this training program. Both groups joined a training program about personalized learning. However, the experimental group exposed to the design of a collaborative learning approach to promote personalized learning skills and the control group had no application of the collaborative learning approach. The learners in both groups were asked to design a portfolio at the end of the training. However, the training for staff in the training department was self-paced.

Methods

The methods used in this study to collects data are questionnaires, pre-tests, post-test, and portfolios. Therefore, to gather information from the participants about their, attitude, knowledge and feeling about applying personalized learning in the GDRFAD instead of the "one-size-fits-all" approach. The main goal of applying the pre/posttest and the portfolio was to collect data from two different dimensions that may reflect the knowledge and competencies of participants. The reliability and validity of the research instruments were assured.

Models

In this research, a model of personalized learning was adopted from Barbara Bray and Cathleen McClaskey (2015), knows as the continuum of personalized learning or the dimensions of personalized learning. As they suggested to successfully implement personalized learning learners must move from being passive learners to self-directed where they acquire the skills needed to design a product. The dimensions of Barbara Bray and Cathleen McClaskey's model are: voice, choice, engagement, motivation, purpose, ownership and self-efficacy (2015). Further, the researcher developed the skills of these dimensions to move from the traditional settings of learning to a learner-driven environment. They were 28 skills developed based on the strategic goals and values of the organization.

The adopted techniques of collaborative learning (Abdelaziz, 2018) have been integrated with the dimensions of personalized learning. They were used as a trigger to promote personalized learning. The selected approaches are sequential collaboration type I (purposeful) and sequential collaboration type II (round horse). These two approaches are presented in detail in the literature review section above.

Research Procedures

Successful research largely depends on having a well-outlined research procedure that covers the different phases of the research. For this case study to be effective, different instruments and methods were used to collect the information needed for the design. Towards this end, the following research procedure was adopted:

Interview

Conducting the study on the GDRFAD employees took place in several stages. The current learning approach used in the training and performance development department has been reviewed analyzed, and compared to the personalized learning environment. A random sample of employees who were taking a training program has been interviewed and asked about their opinion of the "one-size-fits-all" learning method. Then, their opinion has been gathered and shared with the manager of the department to convince him to move to the new learning environment to prepare the employees to form a learner agency.

Focus Group

Then the focus group has been conducted to find out what are the needed skills that would prepare the employees to promote personalized learning skills. An adopted model of personalized learning of Barbara Bray and Kathleen McClaskey (2015) has been used. The researchers have listed skills that would enable the participants to master the seven dimensions of a personalized learning environment. For each dimension, four skills need to be mastered from the learner for a successful implementation of a new approach in teaching and learning. Moreover, expertise was involved in validating the importance level of the skills in each dimension. Then two groups of participants were selected to measure the impact of applying the collaborative learning approaches in promoting personalized learning skills. The researcher divided the participants

into two groups, experimental (collaborative learning), and control (traditional non-collaborative F2F training).

A training program about personalized learning paradigm was designed for the experimental group. A pre-test and post-test have been given for the two groups to measurer their knowledge level before and after conducting the training program. Finally, both groups were tested by a portfolio to measure their application of personalized learning skills as a summative-product oriented assessment.

Choosing the Best Collaborative Learning Approach

In this sub-section the main principles are of selecting the best collaborative learning approaches; According to Abdelaziz (2018), the six major principles of selecting and suing collaborative learning approaches are:

1. The knowledge of the content should be known, this knowledge can be factual, conceptual, holistic or integrated, metacognitive and procedural. The content knowledge will decide the type of collaborative learning strategy that should be chosen.
2. The level of interactivity and interaction between the employees will decide the collaboration technique.
3. The size of the group affects the decision of collaboration strategy selection.
4. The technological tools used by the group members, and how they can afford the use of these tools. Is there access to using technology tools? and the response of them will also decide the type of collaboration.
5. The type of participants and their characteristics.
6. The delivery mode of the session whether (physical – blended – Fully online)

Based on the above principles, two techniques were selected to encourage effective collaboration between the employees in the experimental group. They are sequential collaboration I (purposeful) and sequential collaboration II (Abdelaziz, 2018).

Data Collection

The data were gathered from the experts to get benefit from their knowledge and experience on the suggested personalized learning skills as well as to validate it and add credibility to the study. The collaborative learning strategies are selected based on the nature of the activities. The learner's knowledge was tested by using the pretest and posttest measurements. Therefore, the primary data were collected from the test of the employees and the secondary data is collected from the results of the portfolio that represent the impact of applying the collaborative learning strategies.

Data Analysis

The data were analyzed by checking the validity of the seven dimensions skills by sending it to experts and having their comments on it. The experts checked if the seven dimensions of personalized learning skills are important and critical or highly important or critical, and not important at all. The experts gave their

opinions on the validity of the developed personalized learning skills for this study.

Moreover, the pretest and posttest conducted by the employees of the GDRFAD were also analyzed through a one-way analysis of covariance (ANCOVA) to test between-group differences in the achievement test after excluding the effect of the pre-test.

The effectiveness of the selected collaborative learning approach was tested on the experimental group to promote personalized learning skills among the employees in the GDRFAD. Personalized learning skills of the employees were assessed by designing a portfolio. Based on the collected results a t-test conducted to test the difference between groups means performance on the portfolio.

Findings and Discussion

This chapter presents the results and findings related to the research questions of this study.

The answer to question # 1 that states: "What are the personalized learning skills required for GDRFAD employees?

To answer this question, the seven dimensions model of personalized learning design (Bray & McClaskey, 2015) was transformed into a list of skills addressing the voice, choice, engagement, motivation, ownership, purpose, and self-efficacy of learners. Each main dimension has a set of sub-skills that are/could be relevant to the GDRFAD employees. The personalized learning skills were validated by educators/senior trainers and e-learning experts as previously mentioned in the methodology section. As per the experts' recommendations, the final list is presented in the following table.

Table 1: *The Final List of Personalized Learning Skills*

Dimension	Skills
Voice	1. Have the chance to share opinions and be active participants
	2. Create a personal profile that describes how to learn best
	3. Collaborate and co-plans with others to design lessons, projects, and assessments
	4. Have the chance to identify problems and generate solutions
Choice	5. Select the appropriate type of technology for the learning tasks
	6. Access the information, engage with the content and express what has been understood
	7. Self-regulates learning based on passion and purpose
	8. Self-direct and adjust the learning based on what they want to do
Engagement	9. Engage in learning without waiting to be directed

Dimension	Skills
	10. Apply inquiry to discover and explore new ideas
	11. Learns from another learner and enjoy teaching others
	12. Set goals and track learning progress
Motivation	13. Intrinsically motivated to learn
	14. Having the desire to succeed
	15. Develop a growth of mindset of believing in the ability
	16. Self-evaluate his/her strengths and challenges or weaknesses
Ownership	17. Monitor their own progress
	18. Make a connection with prior learning
	19. Develops skills to work independently and collaboratively
	20. Collects evidence of learning to demonstrate a mastery
Purpose	21. Prepared for the future as a lifelong learner
	22. Able to make a difference in the workplace
	23. Finding solutions to unexpected personal and professional problems
	24. Build concepts, skills, and information about his/her unique power
Self-efficacy	25. Believes in the ability to develop skills to support learning
	26. Willing to take risks and embraces challenges to achieve any goal set
	27. View failures as a learning opportunity
	28. Able to make and adopt a transformative personal vision, mission and core believes

According to what is presented in table 1, the overall personalized learning skills are very important for the GDRFAD employees are 28 skills addressing the seven dimensions of the personalized learning model. This list of main skills and sub-skills is the key factor to build a culture or self-based learning and learning agency, should we consider them in re-skilling and upskilling the learning and career path in governmental and non-governmental organizations. They have the promise to transform the current training and coaching practice from teacher-driven to learners/trainees driven paradigm. The future smart training paradigm will give trainees a personal learning space to act, mentor, and self-organize their learning and professional development needs.

The answer to question # 2 that states: "What is the appropriate design of a collaborative learning approach to promote personalized learning skills among the GDRFAD employees?

The two collaborative learning techniques were selected based on the research requirements and sample characteristics, and some collaborative learning design

criteria. These two collaborative learning techniques are explained in the following.

1) Sequential Collaboration I (Purposeful)

The major step of sequential collaboration I (Purposeful) is dividing the main task into the sub-tasks. Then these tasks are assigned to each learner by the guidance of the teacher or the trainer. An important consideration in this technique is that the assigned sub-task is selected by each learner with an in-mind purpose. For instance, the group member classified upon their military rank, university degree level, competencies, and experience. In a collaborative environment, there were (3) groups and each one consists of (5) members. The tasks are well-structured and are described with full details. Therefore, the load of the main task is distributed among the learners. The outcome includes the efforts of all group members. They worked collaboratively towards an outcome. This collaborative learning strategy applied in the designing of personalized learning skills sessions. Thus, to enhance such skills through collaboration with peers or trainers. Accordingly, this is how the collaborative learning strategy is used for promoting personalized learning. In this way, the employee can exchange and share their knowledge. The employee can work with the group, but he can use personalized learning here when the task is assigned to him. Figure 1 above mentioned is stipulating the sequential collaboration type I technique.

2) Sequential Collaboration II (Round Horse)

This collaborative learning technique is different from the one discussed above. The major steps in this technique are that the main task is distributed to whole group members. The task is described in detail. The load of the main task is distributed amongst the group members. The first learner will write his inputs first and then send it to the second learner. The second learner has the right to read, add, and improve the input of the first learner. However, the second learner cannot delete anything from the input of the first learner. After that, the second learner will send it to the third learner, he can also improve the content, and add something that he thinks that it should be added in the inputs of both the first and second learner, but he cannot delete anything too. Thus, the whole circle of the group members is completed in this way. Lastly, the first learner will report about the outputs of the task.

Figure 2 above mentioned is stipulating the sequential collaboration type II technique. The sequential collaboration II (Round Horse) is a collaborative learning technique in which the learners can promote their personalized learning skills when working together for a given problem or task.

These two techniques of collaborative learning designs were selected to promote personalized learning skills. These strategies suit the nature of the activity assigned to the learners. These two techniques were also validated by a jury of experts in learning design and technologies. The results found that the two collaborative learning designs are suitable for promoting such personalized learning skills. Furthermore, employees can acquire new skills while doing any task in a collaborative environment. They can share their skills with other people to make the outcome of the task more effective and transformable.

The answer to question # 2 that states: "What is the impact of collaboration on promoting personalized learning skills among the GDRFAD employees?"

The following section presents the data analysis results of the 30 employees' tests score of pre-test/post-test and learning portfolio.

Pretest/ posttest

The employees of GDRFAD were exposed to PLS pre/posttest to measure their learning with and without the application of collaborative techniques. The data below show the difference in the results of learners in posttests of both groups. Univariate analysis of variance conducted to compare results in a collaborative and non-collaborative learning environment by using collaborative techniques.

The table below indicates the number of participants in the collaborative and non-collaborative learning conditions/groups and their mean score and standard deviation in the post-test of PLS.

Table 2: *Descriptive Statistics - PL - Post-test*

Descriptive Statistics: Dependent Variable: PLS - Post-test			
Groups	N	Mean	Std. Deviation
Collaboration (Experimental)	15	92.6667	5.85133
No-collaboration (Control)	15	82.8667	5.61715

Table 2 shows that learners/trainees performance in posttest in collaborative learning environment (M = 92.6667, SD = 5.85133). In contrast, in non-collaborative environment the results were (M = 82.8667, SD = 5.61715). These values do not include any adjustments made using a covariate in the analysis. Therefore, the data show how the effect of the collaborative techniques on learners' cognitive development is noticed as it was hypothesized to be greater than in non-collaborative environment conditions.

Besides, a one-way analysis of covariance (ANCOVA) was applied. It was conducted to test the difference between groups in the achievement test after excluding the effect of the pre-test. Table 3 informs whether the different interventions were statistically significantly different. Based on the results there is a statistically significant difference between adjusted means ($p < .0005$). Thus, the null hypothesis is rejected. As the results show both groups had improvement in their knowledge and skills in PL. However, the environment designed with the collaborative learning approach displays better results.

Table 3: *Tests of Between-Subjects Effects, One-way Analysis of Covariance*

Source	Type III Sum of Squares	df.	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	893.112[a]	2	446.556	16.114	.000	.544
Intercept	56755.226	1	56755.226	2047.955	.000	.987
PL_Pre-Test	172.812	1	172.812	6.236	.019	.188
Group	565.187	1	565.187	20.394	.000	.430
Error	748.254	27	27.713			
Total	232731.000	30				

Corrected Total	1641.367	29				
a. R Squared = .544 (Adjusted R Squared = .510)						

ePortfolio

The two groups were asked to design a portfolio that represents their implication of personalized learning skills (showcases). It used as a collection of concrete evidence that consists of videos, texts, sounds that demonstrate the learner's acquired knowledge and skills. Participants were reflecting on their experience of learning. The portfolio used as an assessment tool to translate their learning outcomes into authentic practices. As they navigated this process, the results show the differences between the outcomes of both groups' scores. Tables 4 and 5 below summarize the result of the t-test conducted on learners' scores in designing collaborative ePortfolio compared to the non-collaborative learning environment. In non-collaborative environment (M = 24.20, SD = 10.69). While with collaboration (M = 74.1333, SD = 11.78296). Therefore, the means are significantly different.

Table 4: *Descriptive statistics of groups' score in PL ePortfolio*

Groups	n	Mean	Std. Deviation	Std. Error Mean
Collaboration	15	74.13	11.78296	3.04235
No-collaboration	15	24.20	10.69179	2.76061

Table 5: *Independent samples test results of groups' score in PL ePortfolio*

Source		t-test for equality of means					
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Effect size
PL - Portfolio	Equal variances not assumed	12.16	27.74	.000	49.93333	4.10814	0.438842

As table 5 shows there was a highly significant difference in the means for collaborative PL ePortfolio group (*M* = 74.13, *SD* = 11.78) whereas in non-collaborative group Portfolio (*M* = 24.20, *SD* = 10.69); *t* (27.74) = 12.16, "p < .001". These results suggest that collaborative learning approaches affect learner's performance in applying personalized learning skills. Specifically, the results suggest that when applying the collaborative learning techniques among the learners it promotes personalized learning skills.

Discussion

As the statement explains collaboration is one of the greatest aspects in the workplace to improve productivity. Working together enables employees to be more effective compared to employees who prefer to work on their own. The value can be seen within the team members when they work together which gives them a meaningful reason to cope together along with getting mutual benefits for the organization. The learner in the collaborative environment has a great chance to rise personalized skills.

Participants can incorporate their voice and choice which increases the level of engagement. The collaborative learning environment challenges learners to articulate and receive feedback concerning their actions that may support them to transform it into another learning or training context for personal or professional purposes. Moreover, learners can generate new skills from a diverse background in the co-learning environment.

Since it's a military organization that follows a command-and-control style of management, which mainly seems less effective and less relevant. Leaders in the 21st-century workplace must change their behavior to activate the learner's agency. They must ask the employees how they might help them to achieve the goals instead of telling the staff what to do. As a result, this would create better products and services. The collaboration between employees will increase their personalized skills and they can use their personalized learning skills to make the project more effective.

The voice, choice, motivation, engagement, ownership, purpose and self-efficacy are considered to be the most important personalized learning skills. These skills can increase the learner's ability to do things without the direction of others and be independent in his learning and working. The motivation keeps the desire of learning within the employee (Maruping, et al., 2015). The employees can make their mission, vision, and goals that are aligned with the vision, mission, and goals of the GDRFAD. By doing this, they will be able to provide quality services and they will have an eagerness to learn and explore new ideas and challenges. Giving learners the choice in what they want to learn especially if something they are passionate about creates flow (Bray & McClaskey, 2016). The choice dimension in personalized learning forces trainer's role to be changed. Thus, encourages learners to own and drive their learning journey. Applying co-designed activity that includes voice and choice of learners in a collaborative learning environment promotes personalized learning skills. The interaction was positive for example, their voices were involved in the design of the training program and their opinions were taken into account where they wanted to be trained. Even, they have been given full freedom to choose how they would like to present their project. For example, during the training program of personalized learning, the first group decided to use WhatsApp as a tool to transfer knowledge, while the other group chooses to record a video and the last group creates a poster. They were motivated, and their level of engagement was high. It does not matter how would they learn; it is all about how they would apply what they have learned. However, the personalized learning environment alone is not enough to develop the skills of the employee (Twyman & Redding, 2015).

Conclusion

Making learning personal is evolving in many educational districts and institutions around the world. In such environments, the learners drive the learning while the trainer guides the process. The study was conducted to test whether collaborative learning approaches can promote personalized learning skills or not in the GDRFAD. The study found that collaborative learning designs can promote personalized learning skills. The learners can use their personalized learning skills to accelerate their capabilities in the workplace. This case study showed that collaborative learning techniques could be a catalyst in skills development. Moreover, collaborative learning techniques were used in designing a training program for personalized learning. The performance of a collaborative learning group scored higher than a non-collaborative environment in PL - post-test and authentic portfolio. Therefore, the relation between collaboration and learner achievement was moderated by the collaborative strategy. They show a high level of acceptance for applying personalized learning.

Two collaborative learning techniques were selected. They are sequential collaboration I (purposeful) and sequential collaboration II (Round Horse). The first technique was a little bit faster to accomplish an assigned task to the learners, while in the second technique the learners can elaborate on one topic to come up with the greater output. The learners classified as adult learners have already built experience and skills. Hence, the collaborative environment allows them to share their knowledge, ideas, perspectives, and experiences. In other words, the collaborative learning environment enables the employees to interact with each other; they can share ideas, information, and recent news. Even more, they can share their experiences and offering help by listening and solving their problem by suggesting the solution.

Finally, the results of this case study are limited to participants and employees who are working at GDRFAD or any similar organization. Due to the small sample size, other researchers may use the findings of this case study with caution. However, the four collaborative learning approaches presented and adopted in this study are useful to be adapted and applied in any learning or training context. Collaboration is the stuff of growth of human minds.

Recommendations and Future Actions

Despite the limited focus and resources of the current study, evidence has been collected to allow the formulation of collaborative learning approaches that promote personalized learning in a governmental organization. Personalized learning skills and competencies became an integral part of any learning organization in the 21st century. Toward this end, the following recommendations are proposed:

As per the findings of this case study, the following recommendations are suggested:

1. Shifting from the traditional system of teaching and learning and adapt the trendy models in education that centered around the learner based on the personalized learning framework presented in this reproach.

2. Personalized learning may help in preparing leaders who have the power to persuade their employees to accept and implement the change successfully by having a shared meaning of personalized learning and its benefits in building a culture of collaborative learning and collective mindset.
3. Further, building a coaching culture in any organization considers an investment. Coaching increases, the feeling of authenticity that in return makes them more excited to accomplish the projects.
4. Additionally, since the GDRFAD contains special needs employees, we suggest using the collaborative learning techniques in designing training programs and merge them with normal employees to allow sharing the knowledge and capitalize on each other experience.
5. Moreover, we recommend conducting further research to measure the impact of the four types of collaborative learning techniques presented in this study in developing additional future skills and personality of learners.
6. Finally, there is a need to assign experts to analyze the data and prepare training curricula and programs that suit the collaborative learning approaches in personalized training and development environments.

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