Impact of Structured Reflective Writing on Adult Learners' Knowledge, Skills and Attitude: A Case Study in a Manufacturing Organization

Lim Kean Jin

Faculty of Education, Open University Malaysia (OUM), Petaling Jaya 47301, Malaysia
Corresponding Author Email: limkeanjin@oum.edu.my

Abstract
This qualitative case study research was set out to study the impact of a structured reflective writing format named Professional Structured Reflective Writing Report on adult learners' knowledge, skills and attitudes when the format was embedded as a course assignment into a professional adult training. As past studies indicated that reflective writing was effectively and widely applied in education, medical and some professional fields, little was known about what impact this structured reflective writing had on adult learners in the context of manufacturing organization. With the adaptation of Gibbs' (1988) Reflective Cycle Model and Kirkpatrick's Level 2 "Learning" and Level 3 "Behavior" concept into this format, a specific case study was carried out at a manufacturing organization with a small group of participants. This research discovered that reflective writing as a course assignment was able to enhance adult learners' knowledge, skills and attitudes towards the training topic after attended a professional adult training. Therefore, this research recommended the use of Professional Structured Reflective Writing Report as one of the course assignments in future professional adult training courses.
Keywords: Course Reflection, Self-Assessment, Training Effectiveness, Professional Adult Training, Structured Reflective Writing, Reflective Writing, Manufacturing, Adult Learners

Introduction
This research was to examine how a Professional Structured Reflective Writing Report used as a course assignment affected a group of adult learners of a manufacturing company who took part in a professional adult training program. In this research, the research participants were given a course assignment to write a reflection on the professional adult training they had attended using a specially created reflective writing format called the Professional Structured Reflective Writing Report. This format incorporated the six steps of Gibbs' (1988) Reflective Cycle Model and Kirkpatrick's Level 2 "Learning" and Level 3 "Behavior" Evaluation Model. As part of the research objective, a professional adult training course was arranged to provide a specific work-related knowledge to a group of adult learners employed by the research organization, which was a manufacturing organization. The professional adult training in this research context was a training viewed to help the adult learners of this

organization become more professional in the workplace by giving them new skills, knowledge, and attitudes (Siaw et al., 2018, pp. 2-3).

However, the application of such Professional Structured Reflective Writing Report which incorporated the comprehensive reflective model such as Gibbs' (1988) Reflective Cycle Model and Kirkpatrick's Level 2 and Level 3 Evaluation model as the learning and assessment tool in the professional adult training course was relatively new and had never been studied in the manufacturing field. There was a lack of data on the effects of an untested structured reflective writing format called Professional Structured Reflective Writing Report on the knowledge, skills and attitudes of adult learners following their participation in a professional adult training when this structured reflective writing was used as a course assignment. On the other hand, the use of structured reflective writing as course assignment in other fields was not a new learning approach. For instance, some past studies found the use of structured reflective writing, embedded in Gibbs' (1988) reflective model, had been used extensively by both students and teaching staffs in higher education field, and in healthcare fields such as nursing, midwifery practice, and physical therapy professions (Huseb et al., 2015, as cited in Nurul Atira Khairul Anhar Holder et al., 2019, p. 125). A past study by Chang (2019, p. 104) demonstrated that in the context of adult education, course reflection aided students in reviewing their prior knowledge, delving further into the topic, and strengthening their understanding. Other previous study had shown that students used reflective writing to evaluate their own knowledge and skills (Ebrahimi et al., 2021). These learners were able to connect theory with practice, discover their strengths and shortcomings, and broaden their knowledge as a result (Miller, 2020, p. 19). Hence, this research's title gave a general idea of research goals, which included finding out how the Professional Structured Reflective Writing Report format impacted the adult learners' knowledge, skills and attitudes in the manufacturing organization by reflecting on what they had learnt in professional adult training.

Literature Review
This chapter addressed the objective of this qualitative research and research question concerning the impact of Professional Structured Reflective Writing Report on adult learners in the manufacturing sector by reviewing, analyzing, and synthesizing the results of earlier research and theories that were relevant to the research topic.

Importance of Professional Adult Training to Working Adults in the Manufacturing Field
The results of past studies in this area showed how important professional adult training was for the skills, employability, career progression, and continuous professional development of working adults. Professional training was viewed by working people as a kind of ongoing professional growth. According to Charungkaittikul and Henschke (2018), these working adults' continuous professional development through training served as a major catalyst for their personal, economic, social, and interpersonal growth. They saw continuing professional training as a foundation for their personal development as personal growth (Gladman, 2018) especially in the manufacturing sector, as companies prioritized personal development for workers who recognized their requirements to pursue dynamic developments in the manufacturing sector. Working individuals unquestionably gained the expertise, knowledge, and abilities necessary to boost their output and efficiency at work from professional adult education (Sahni, 2020, pp. 1227–1228). In addition to personal development, the other

objectives of continuing education and training for working adults were to meet labor market and workplace requirements as well as employer-required skills like communication, teamwork, dexterity, problem-solving, and technological skills (Fajaryati et al., 2020, p. 595). Training had been demonstrated to boost worker productivity since it addressed an individual's behavior, skill, and knowledge to attain a desired effective performance (Jalil et al., 2019, p. 41; Agboola et al., 2021, p. 61; Odehalshawabkeh & Alsawalhah, 2019, p. 85). This increased the competence of working adults by endowing them with competencies such as the core competencies pertaining to an organization's technical and professional know-how functional skills or job-specific skills, behavioral competencies related to individual performance, leadership competencies that addressed individual leadership potential, and professional competencies that addressed job skills needed for particular positions (Jahan, n.d.). However, the impact of structured reflective writing on adult learners in the manufacturing area was not highlighted in the earlier studies. These past studies did not go into detail about the extent of this beneficial effect on adult learners employed in the manufacturing sector, especially when it came to the usage of Professional Structured Reflective Writing as a course assignment in the professional adult training context. This prompted research to determine whether using an unproven Professional Structured Reflective Writing Report as a professional adult training course assignment may likewise improve adult learners' knowledge, skills and attitudes in the selected manufacturing organization.

Reflective Writing as a Learning Tool in Professional Adult Training in Manufacturing Field
Reflective writing had not been used as much in the professional adult education sector, though. Even though there was only little-known research on reflective practices in professional adult education, several training practices had included reflective writing as a learning technique in their curriculum. One such instance involved a group of adult learners taking a writing course who used reflective writing as a learning method. The learners' behaviour and knowledge improved, according to the results (Yaman, 2020). Various studies showed how reflective writing impacted the learners' learning ability and effectiveness positively. Undoubtedly, reflection-based learning had been a significant aspect of education (Chang, 2019, p. 95). Course reflection had long been regarded as a training strategy to assess students' comprehension of the subjects taught in the context of interprofessional education (Peeters & Sexton, 2019, p. 307). As a result, reflection was important to adult education because it allowed students to go over what they had learnt, go deeper into the material, and consolidate their understanding (Chang, 2019, p. 104). In order to develop a thorough comprehension of the material and sustain knowledge retention, this tool pushed students to think back on and write about what they had learnt (Nuckles et al., 2020, p. 1060). As a result, reflective writing had become a popular teaching tool in a variety of academic settings.

Structured Reflective Writing
In this research, a structured reflective format called Professional Structured Reflective Writing Report was established with the incorporation of Gibbs' (1988) Reflective Cycle Model and Kirkpatrick's Evaluation Model as the framework of structured reflective writing. The idea was to enable adult learners involved in this research to write more accurately and systematically based on the guided questions. This untested format was established to overcome some barriers to effective reflective writing. In fact, previous research had shown that reflective writing was challenging for many adult learners, including experienced writers,

due to a variety of problems that have made it challenging to include into course designs. First, there was no fixed structure for reflective writing; it might be free-form or adhere to a certain reflective format (Miller, 2020, p. 18). Not everyone was equally able to write their reflection in a free-form format without sufficient guidance on reflective writing because of a lack of experience and reflective writing knowledge (Donyaie & Afshar, 2019, p. 7283; Moradkhani & Shirazizadeh, 2017). The lack of a properly structured format for reflective writing and the lack of adequate guidance (Greenall & Sen, 2014, as cited in Miller, 2020, p. 20) had been the most common barriers to effective reflective writing. So, if learners were provided with proper guidance prior to beginning the reflection exercise, this problem could be handled (Fullana et al., 2016, p. 84). By offering instructions like guiding questions and descriptions as a framework for reflective writing, these obstacles to successful reflective writing can be overcome (TU Dublin Library Services, 2023). The writers might be guided by guided reflection questions to concentrate on the reflection without having to worry about overlooking anything crucial (Nurul Atira Khairul Anhar Holder et al., 2019). Conversely, students using unstructured reflective writing were unable to reflect as deeply as those using a well-established reflective framework based on a reflective model, such as Gibbs' (1988) Reflective Cycle model (Adeani et al., 2020, pp. 147–148). It had been demonstrated that using a structured reflective writing format helped student instructors in the field of education by providing them with appropriate guidelines for writing reflections (Kallarackal & Thomas, 2020). However, the impact of such structured reflective writing in professional adult training in manufacturing field was not known as there was no such study in the past.

Reflection Model for the Professional Structured Reflective Writing Report
Generally speaking, there were a lot of reflection models that essentially explained the frameworks or structures of reflection. With a few exceptions, these previously developed reflection models were essentially identical, varying only in the number of steps and degree of simplicity—from the basic to the profound. These reflective models broadly served to guide deeper reflective thinking. Of course, the principal advantages of these reflective models were that they provided some degree of structure to follow when writing a reflective, and they provided an invaluable starting point for authors who are new to reflective writing. As a result, there was no one right framework for reflection; rather, what counts was choosing a framework that was both user-friendly and appropriate for reflecting on educational experiences (Balaji Arumugam et al., 2017., p. 51). The Gibbs' (1988) Reflective Cycle model was therefore selected as the reflection model for the Professional Structured Reflective Writing Report in this qualitative case study because it was one of the most thorough models and had the advantage of having six stages of reflection that included clear reflective questions and helped model learners reflect on themselves (Ahmad Salahuddin Mohd Harithuddin, 2021, p. 26). The interconnectedness of the six stages allowed for the accumulation of contemplation leading to action (Balaji Arumugam et al., 2017, pp. 48–51). During the reflection process, this model allowed adult learners to clearly and thoroughly comprehend each activity that needed to be completed in each phase of the cycle. The learner completed the six phases of reflection after being given the assignment that required them to consider a learning experience following training. This reflection model was also widely utilized in professional, educational, healthcare and educational fields. For example, students in a variety of educational fields used the Gibbs' Reflective Cycle model as a framework for reflection, evaluating their thoughts and feelings as well as taking action when faced with similar circumstances (Ezezika & Johnston, 2022, p. 2).

Structured Reflective Writing as a Course Assignment, Learning Tool and Assessment Tool
The use of reflective writing as a course assignment and learning tool was not a new development in education, healthcare and some professional fields. In general, past studies found the use of structured reflective writing, embedded in Gibbs' (1988) reflective model, had been used extensively in education by both students and faculty in higher education, by teaching staff, and in healthcare settings such as nursing, midwifery practice, and physical therapy (Huseb et al., 2015, as cited in Nurul Atira Khairul Anhar Holder et al., 2019, p. 125). Previous research, particularly in the field of education, had demonstrated the effectiveness of reflective writing as a training exercise and course assignment. Research generally demonstrated that it helped students better understand the training material, help them reflect on what they had learnt, and helped them realize how the topics they had studied related to one another (Pretorius & Dunn, 2018, pp. 799–800; Chang, 2019, p. 106). Additionally, by reflecting on the knowledge they have acquired, one could improve their work habits (Becker & Renger, 2016, pp. 9–13). The learning effectiveness among students in healthcare field had been demonstrated to be enhanced by such structured reflective writing that followed Gibbs's (1988) six-step reflective cycle. For instance, in Australia, learners' capacity to write reflectively was improved when the format was added to an assessment activity for midwifery education (Sweet et al., 2019). Even nurses who wrote their reflections on their daily clinical nursing practices were able to witness improvement in their professionalism by reflecting on problems encountered during their nursing rotations and acting on the problem faced (Zhan et al., 2023). Gibbs' Reflective Cycle model was suitable for teachers to write their teaching reflection due to its comprehensive structured guidelines (Adeani et al., 2020; Heyer, 2015, as cited in Siti Noor Aneeis Hashim et al., 2023, p. 239). The application of this type of structured reflective writing, which was based on Gibbs' (1988) paradigm, also provided several benefits for both teachers and students. The Kirkpatrick Level 2 "Learning" and Level 3 "Behavior" were training effectiveness assessment tools that were normally included in the training course design to evaluate the achievement of learning objectives (Sahni, 2020). However, there was no research on the use of structured reflective writing, such as Professional Structured Reflective Writing Report, as a course assignment of professional adult training among adult learners in the manufacturing field, so there was no evidence of such a positive impact on learners' knowledge, skills and attitudes in this field. The gap identified in previous research indicated that it was necessary to ascertain the extent to which professional adult training in the manufacturing industry was impacted by structured reflective writing. The effects of Professional Structured Reflective Writing Report on adult learners' knowledge, skills and attitudes were unknown because this kind of application had never been examined in the manufacturing industry.

Research Objectives
The objective of this qualitative case study research was as follows:
- To ascertain how attending a professional adult training affected the knowledge, skills, and attitudes of adult learners by having them complete the training assignment using the Professional Structured Reflective Writing Report that was incorporated into the course.

Research Questions
Based on the research objective, the research question of this study was:
- To what extent are the changes of the adult learners' knowledge, skills and attitudes when the Professional Structured Reflective Writing Report is used as a course assignment in the

professional adult training carry out in a manufacturing organization?

Methodology
This chapter's goal was to outline the research methodology for a qualitative study that examined how a Professional Structured Reflective Writing Report affected a group of adult learners of a manufacturing organization in their ability to benefit from professional adult training.

Research Design
After considering the research topic, problem statement, and research objective, the full research design was put forth for this research. The following sections below explained why the design adopted for this research was a qualitative case study and the design of this research.

The qualitative research method was deemed suitable for exploring the event where little was explored or known, such as the topic of this research. For instance, in this research, the literature reviews in Chapter 2 of this research report had proven that structured reflective writing based on Gibb's (1988) Reflective Cycle Model framework was effective in enhancing knowledge, skills and attitudes of learners in educational and healthcare fields. However, there was still not much information about the effectiveness of such a structured reflective writing format in the adult professional training field, particularly in the aspects of adult learners' knowledge, skills and attitudes changes in the manufacturing sector. From the interpretivist point of view, the qualitative research method here was to aim to build the theory from the participants' reflection written texts after considering the research objectives.

As the purpose of this research was to obtain specific, contextual, and in-depth knowledge about the impact of Professional Structured Reflective Writing Report on adult professional training in the manufacturing field, a case study method was deemed appropriate as the design of this research. More specifically, the research scenarios included a group of adult learners who work for a manufacturing company in Johor, Malaysia. When the time and resources to conduct large-scale research were not available for this study, the case study helped the research stay focused and manageable by concentrating on the salient features, interpretations, and consequences of the structured reflective writing format on a particular group of adult learners.

Population and Sample
An initial sample size of twelve volunteers who were specifically chosen by the organization based on the purposeful selection criteria became the research participants during the first round of data collection since the optimal sample size for qualitative research was not universally agreed upon in theory (Luciani et al., 2019, p. 158; Carmichael & Cunningham, 2017, p. 61). They were also part of a larger group of trainees who attended the organized professional adult training. Since the quality of the data gathered for the study was valued more highly than its quantity, the initial sample of twelve willing research participants was carefully chosen to guarantee that they could credibly and reliably describe or explain the research questions in their reflective writing and interviews. Three parameters were

considered in this research to determine the appropriate sample size namely, limitation of research time, quality of research participants and data saturation.

Sampling Method
Since the case study method was used as the research method in this qualitative case study research, the purposeful sampling method was employed, where a group of participants that fit the boundary of the research's objective was deliberately sampled and selected for enabling relevant information of this study to be obtained. The purposeful sampling method was adopted for this qualitative case study research as the quality and richness of information was the key to answering the research questions. To guarantee that the research topic was sufficiently addressed, it was crucial that the appropriate participants were chosen. Therefore, it was intended to look exclusively for members of the research organization who had reflective writing experienced were seen to be the best to utilize as examples. The participants involved in this research were purposely selected among the adult learners who attended the professional adult training arranged by the organization based on one criterion such as prior experience in reflective writing.

Research Location
Primarily, the research site was intended to be a manufacturing organization based in Johor State, Malaysia, whose business was the manufacture of automotive air conditioning systems. This organization was selected based on the qualitative case study approach, where a single site was selected to investigate in depth the impact of using structured reflective writing as a training assignment on their staff (research participants) when participating in professional adult training. In addition, this organization was selected as the information source for the research question primarily because they had expertise using reflective writing.

Instrumentations Used
Since this was a qualitative case study, it was crucial to collect data from a variety of sources to provide more thorough information from the research participants and address the research objective. To address the research question related to the research topic, both research instruments below were used to triangulate the data gathering process. They were primarily intended to gather information about the effects that using the structured reflective writing format as a course assignment has on adult learners' knowledge, skills and attitudes in the context of adult professional education.

The Professional Structured Reflective Writing Report format in this qualitative case study research was designed based on the framework of Gibbs' (1988) Reflective Cycle Model six steps of 'Descriptive', 'Feeling', 'Evaluation', 'Analysis', 'Conclusion' and 'Acton' with affixed guided reflective questions (Markkanen et al., 2020, pp. 25 – 26) to serve as the guiding tool for learners to write their reflection effectively and deeply. The Kirkpatrick's Level 2 'Learning' and Level 3 'Behavior' Evaluation model was included in the format as well to form a complete Professional Structured Reflective Writing Report format. The 'Reflective guided questions (based on the Gibbs (1988) Reflective Cycle framework)' listed the guided questions that formed the format of the Professional Structured Reflective Writing Report. Since the goal of the Kirkpatrick Level 2 "Learning" and "Behavior"assessment was to determine how much the learners' knowledge, abilities, and attitudes had changed following the training, the "Feeling" and "Behavior" guided questions were created to make sure that learners could

accurately reflect how much the professional adult training had changed their knowledge, abilities, and attitudes.

Interviews were used as one method of collecting multi source information, and verbal data from the participants' perspectives was retrieved. Because of their versatility, interviews are one of the qualitative research methods that may provide detailed information about the research issue (Kadip Kaur Karam Singh & Jayanti S. Sothinathan, 2019, p. 109). The semi-structured interview was an appropriate method for gathering data because the study was exploratory in nature and the data was open-ended. It was necessary to make sure that the interview protocol's questions were pertinent to the research objective and research question of the study. The kinds and quantity of questions asked were considered to obtain a substantial amount of data that addressed the study objective.

Data Collection
The Professional Structured Reflective Writing Report and the Semi-Structured Interview Protocol were the two instruments used to collect the data in order to address the research question. These instruments had been tested during pilot study sessions and were standardized for the collection of data or information pertinent to the research question. Using two different data collection instruments, as mentioned above, reduced any possible biases or weaknesses that may exist due to the use of a single research instrument. The data collected was triangulated by comparing the results from written reflection texts (obtained from the Professional Structured Reflective Writing Report) with the interview transcripts (obtained from the Semi-Structured Interview Protocol) during the data analysis process to ensure reliability.

Data Analysis
The cornerstone of the qualitative case study research approach was the analysis of data, in which themes were constructed from the analyzed qualitative data to pose the research question using the thematic analysis approach. Following the concept of the phases of the thematic analysis by Lester et al. (2020, pp. 98 - 103), the following data analysis process steps were used for this qualitative research namely, (1) organizing, paraphrasing, and transcribed (for interview transcripts) collected data for analysis; (2) member checking; and (3) data encoding, categorization, and theming. In short, as with any qualitative research, data collection and data analysis occurred simultaneously. After the pilot study, the refined and revised Professional Structured Reflective Writing Report and Semi-structured Interview Protocol were used to triangulate the information or data collected from the research participants in order to answer the research question of this research topic. During the member checking process, the research participants were provided with written reflection texts, paraphrased reflection texts, interview transcripts, and paraphrased interview transcripts for the purpose of reviewing, discussing, validating, and elucidating the data that was gathered. After the initial member checking, the organized data was listed in memos linked to the data sources (link to participant ID) and their respective verified data, which were later used for coding purposes. After grouping the codes, categories that shared the codes were determined. The next step was doing a thematic analysis of the categories to identify pertinent themes that could address the study question. The member checking approach was reintroduced as part of the validation assurance during the thematic data

analysis, where each participant examined, confirmed, annotated, and validated the established codes, categories, and themes.

Findings
Once the data was collected, data analysis process began based on the thematic analysis approach to derive the findings.

Research Finding Pertaining to Research Question
The data indicated repeated discussions on question, of "What are the changes to the adult learners' knowledge, skills, and attitudes when the structured reflective writing format is used as a course assignment in the professional adult training carried out in a manufacturing organization?". The following themes (Table 1) indicated the findings, which were supported by collected data traceable to the respective categories and codes.

Table 1
Summary of Themes related to Research Question

Research question	Themes
RQ 1: What are the changes to the adult learners' knowledge, skills and attitudes when the structured reflective writing format is used as a course assignment in the professional adult training carry out in a manufacturing organization?	Knowledge and awareness elevated. Developed growth mindset and attitude. Action oriented attitude. Positive attitude towards works. Enhanced memory of lesson learnt. Skill improvement.

The findings are as follows:
- Theme 1: Knowledge and awareness elevated. The thematic analysis found the learners' knowledge and awareness about the training topic had improved, and they were able to relate the lesson learnt to their jobs at work. This was achieved they self-reflect what they learnt by comparing their level of knowledge and awareness before and after the training.
- Theme 2: Developed growth mindset and attitude. The thematic analysis found there was a change of attitude among learners about the training topic where positive and growth mindsets were witnessed. The use of Professional Structured Reflective Writing Report as a course assignment enabled the learners to see how their mindset had changed.
- Theme 3: Action oriented attitude. The thematic analysis found learners' awareness on what action to take and things to do after the training after knowing their own strengths and weaknesses through reflective writing using the Professional Structured Reflective Writing Report.
- Theme 4: Positive attitude towards works. The thematic analysis found learners developed the sense of knowing the importance of lessons learnt to their job performance and that led to their work performance improvement. The Professional Structured Reflective Writing Report assignment assisted the change of the learners' attitude through self-reflection.
- Theme 5: Enhanced memory of lesson learnt. The thematic analysis found learners were able to retain their memory on details of lessons learnt by recalling during self-reflection.
- Theme 6: Skill improvement. The thematic analysis found learners' skills improved after the training by reflective writing using the Professional Structured Reflective Writing Report.

Discussion

The following were the details of discussion on the finding pertaining to the research. The key to unlocking the research question came from the six themes that represented the findings of this research. The findings for the second research question indicated that reflective writing as a course assignment in professional adult training in the manufacturing organization was able to enhance learners' knowledge, skills and attitudes towards the training topic. The discussions for each theme were as follows:

- Theme 1: This research found that when adult learners used the Professional Structured Reflective Writing Report to write reflectively, they were able to think more deeply and actively, which improved their knowledge of the training topic. The ability of adult learners to learn through a variety of conscious intellectual tasks, such as reasoning, thinking, and remembering, was theoretically enhanced by organized reflective writing. Like what Chang (2019, pp. 95–104) found previously, reflective writing, like the use of Professional Structured Reflective Writing Report, allowed the adult learners in the professional adult training to record their knowledge about the training topic, solidify their understanding of the training topic, and organize and refine their ideas. As Adeani et al. (2020) noted in their earlier study, the current research indicated that adult learners' understanding of the training topic was deepened since they had assessed their learning and work completion during reflective thinking. Therefore, in order to enhance their comprehension and reinforce what they had learnt, adult learners were given the chance to reflect on what they had learnt and evaluate their level of understanding after completing the professional adult training course (Balaji Arumugam et al., 2017, p. 47).

- Theme 2 and 4: Change of attitude among learners about the training topic where positive and growth mindsets were witnessed. It was possible to determine how adult learners' behavior had changed as a result of the training they had received by using the Professional Structured Reflective Writing Report and reflective writing (Haley, 2019, p. 1171; Refugio et al., 2020, pp. 321 322). The study by Korstange (2016, pp. 21–22) was related to the research findings of this study, which showed that adult learners' learning had been positively impacted, and their perspective had grown after receiving professional adult training. In addition, the adult learners were able to relate the training topic to their day-to-day work through the structured reflective writing course assignment, which made learning enjoyable for them for the entire training program (Ezezika & Johnston, 2022, pp. 1 - 7).

- Theme 3: After the training, learners used the Professional Structured Reflective Writing Report to reflect on their own strengths and weaknesses, which helped them become more aware of what to do and what actions to take. The results of this research, which was carried out in a manufacturing setting, were consistent with a previous study by Zhan et al. (2023) that found that nurses who reflected on problems they faced during their nursing rotations and took the necessary steps to resolve them were able to see an increase in their professionalism. Additionally, the Professional Structured Reflective Report had been shown to assist adult learners in recognizing past gaps in their comprehension of the training topic after they have attended the professional adult training. This allowed them to take action to improve their awareness of the topic (Miller, 2020, p. 18).

- Theme 5: Learners were able to retain their memory on details of lessons learnt by recalling during self-reflection. According to this research, the Professional Structured Reflective Writing Report helped adult learners retain more of the knowledge they had learnt during the professional adult training. This was primarily because the reflective writing course

assignment helped them remember what they had learnt. This result was consistent with the study by Nuckles et al. (2020, p. 1060). By asking participants to think back on the material they had learnt in class and make plans for future development, the Professional Structured Reflective Writing Report assisted adult learners in reflecting on their learning processes and helping them remember the information more successfully (Taylor, 2023).

- Theme 6: Learners' skills were improved after the training. According to this research, the Professional Structured Reflective Writing Report course assignment helped adult learners understand how to apply the knowledge they had learnt in the workplace, which improved their performance at work (Becker & Renger, 2016, pp. 9–13). Thus, this research demonstrated that reflective writing promoted skill development and career advancement, like what Artioli et al. (2021) found in the earlier study. In other words, reflective writing was able to determine the extent of knowledge and skill acquisition as well as the application of knowledge in the workplace (Nik Nadian Nisa Nik Nazli et al., 2022, p. 1), and that grounded the theory that the Professional Structure Reflective Writing Report was an effective learning tool in professional adult training.

Conclusion

The research objectives were to ascertain how attending a professional adult training affected the knowledge, abilities, attitudes and work performance of adult learners by having them complete the training assignment using the Professional Structured Reflective Writing Report that was incorporated into the course. Through the qualitative case study that was conducted at a manufacturing organization, this research had grounded a theory that adult learners were able to improve their knowledge, skills, attitudes, and work performances from the training they attended because of reflective writing. This research recommended the use of Professional Structured Reflective Writing Report as one of the course assignments in future professional adult training courses. Incorporating structured reflective writing into a course assignment or task gave adult learners the chance to reflect more critically on the lesson they had learnt and to be explicit about how their knowledge was applied to their jobs at work. This qualitative case study's findings about the impacts of Professional Structured Reflective Writing Report on adult learners who participated in professional adult training had ramifications for several stakeholders, including employers and adult learners. First, employers were able to ascertain whether the participants had received the information required to improve their attitudes, skills, and knowledge as well as their capacity to apply that knowledge in the workplace. And as for adult learners, the use of Professional Structured Reflective Writing Report had assisted the improvement of adult learners' knowledge about the training topic and enabled them to be more aware of how the knowledge was applied at work as well as developed positive mindsets.

Theoretical and Contextual Significance

As this research had demonstrated, self-reflection helped adult learners learn more effectively. Students were able to write about their learning experiences in a more precise, detailed, and succinct way by using a structured reflective writing framework. They improved their knowledge, abilities, and attitudes, but the structured reflective writing also enabled them to evaluate how they performed at work following the training. The use of Professional Structured Reflective Writing Report had therefore assisted the improvement of adult learners' knowledge about the training topic and enabled them to be more aware of how the knowledge was applied at work. This research also found that the attitude, mindset, and skill of the adult learners after the professional adult training were positively developed.

Recommendations

Several suggestions were made for conducting future research. First, suggestions for further areas to explore and steps to overcome constraints.

Building Upon Findings of this Research

One unexpected discovery was made by this research. By going back and reviewing the lessons they had learnt during self-reflection, research participants' responses and data regarding the use of the Professional Structured Reflective Writing Report demonstrated that learners had improved their memory for the lessons they had learnt. Subsequent research endeavors may center on ascertaining the extent to which the Professional Structured Reflective Writing Report facilitates students' retention of the knowledge they have acquired

Addressing Limitations of This Research

First, future research should expand to other manufacturing sectors in Malaysia. Furthermore, studies in the future ought to examine several organizations over a longer time frame. In addition, rather than being restricted to a subset of work levels, future studies should include research participants from a range of organizational job categories, including top management and operational levels.

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