

EFFECTIVENESS OF REFLECTION ON PRACTICE IN THE PERFORMANCE OF ACTIVITIES OF DAILY LIVING

Deepa Rajan¹ Parthiban Pichandi^{2*}

¹ [Physiotherapist, Sri Ramachandra Faculty of Physiotherapy, Chennai, India]

² [Lecturer, Sri Ramachandra Faculty of Physiotherapy, Chennai, India]

*Correspondence Author: P.Parthiban, Email: parthibanpichandi@sriramachandra.edu.in

ABSTRACT

Background: Reflection on practice provides time to reflect on a performance experience; this reflection serves to promote individual learning. This study looked at whether reflection on practice affects performance of the pegboard-based motor task, which simulates activities of daily living.

Aim: To evaluate the effectiveness of reflection on practice in enhancing the performance of a pegboard-based motor task simulating activities of daily living.

Materials and Methods: A total of 54 healthy participants were included in the study. Inclusion Criteria: Age: 50 -60 years, Both genders. Exclusion Criteria: Individuals with neurological conditions (Stroke, Parkinson disease, Traumatic brain injury), Individuals with Musculoskeletal conditions (Shoulder and hand pain), Individuals with Cognitive impairments. Participants have completed three trials of a pegboard task along with a two-hour offline reflection period, and finally completes a fourth pegboard task trial. Performance was measured as the time taken to complete the task and compared within the trials.

Results: The Result of the study shows no significant change in the performance of the pegboard activity on reflection after practice.

Conclusion: The study found no statistically significant improvement in pegboard task performance following reflection. However, participants showed increased self-awareness and better strategy use over repeated trials. Repetition played a key role in enhancing motor performance.

KEYWORDS: Reflection on practice, Peg board activities, Activities of Daily Living.

INTRODUCTION

Reflection on practice is defined as the process of analyzing one's actions after performing a task to gain deeper insight into what was done well, what could be improved, and how to apply that knowledge in future performance^[1]. The Reflective Practitioner introduced concepts such as reflection-on-action and the role of improvisation, which improves through practice. Reflective practice facilitates performance. This theory defines learning as the detection and correction of error^[2]. This concept, although commonly used in education and clinical decision-making, is relatively underutilized in practical motor learning contexts within physiotherapy.

Reflection is more than just recalling events; it is a metacognitive process involving self-assessment, evaluation, and future planning^[3]. By encouraging individuals to mentally revisit their actions, they can develop more effective strategies, correct errors, and improve coordination and efficiency without repeated physical practice. When applied to rehabilitation, reflection on practice has the potential to optimize task performance and foster greater engagement in learning. Overall, reflection appears to act as a bridge between motor experience and cognitive insight, making it a valuable component in performance-based rehabilitation strategies.

Activities of daily living (ADLs) are the routine tasks that individuals perform each day to maintain personal independence and quality of life^[4]. These include essential functions such as feeding, dressing, grooming, and basic household chores. As people age, the efficiency and coordination needed for these tasks may decline, making rehabilitation strategies essential to help maintain autonomy and functional ability. Physiotherapy plays a key role in promoting motor learning and retraining of functional skills necessary for ADL performance.

Pegboards are widely used in physiotherapy to facilitate motor learning through experience, interaction, and reflection. Understanding the relationship between practice, reflection, and motor learning could enhance rehabilitation strategies, making therapy more effective for patients with motor deficits. This study explores how structured reflection during pegboard training can enhance motor performance in healthy individuals.

Motor learning in physiotherapy has focused on physical repetition and feedback-driven improvement^[5]. However, emerging evidence suggests that cognitive strategies, particularly reflection on practice, may enhance motor performance by promoting conscious awareness of actions, decisions, and outcomes. The pegboard task, commonly used in neuro-rehabilitation and hand function assessments, is a simple, standardized tool that reflects fine motor coordination similar to tasks involved in ADLs. It provides a measurable and repeatable method for assessing improvements in motor function.

Using the pegboard as a model task, this study investigates whether reflection on practice can enhance performance even in the absence of additional physical training.

This study aimed to determine whether guided reflection improves task performance by comparing completion times across multiple trials. The hypothesis is that even a brief period of cognitive engagement through reflection can lead to measurable improvements in performance, supporting its inclusion as a non-invasive and cost-effective addition to physiotherapy strategies.

MATERIALS AND METHODS

This Observational study is conducted at Sri Ramachandra Hospital (Physiotherapy OPD) with a total of 54 healthy participants along with Institutional Ethical Committee approval (**CSP-III/25/FEB/17/94**). Participants are selected based on inclusion and exclusion criteria.

Inclusion Criteria:

- Age: 50 -60 years
- Both genders

Exclusion Criteria:

- Individuals with neurological conditions (Stroke, Parkinson disease, Traumatic brain injury)
- Individuals with Musculoskeletal conditions (Shoulder and hand pain)
- Individuals with Cognitive impairments

Procedure

Participant Preparation: Each participant was seated in an ergonomic chair at a table on which a standardized pegboard was placed. The task of placing pegs into holes as quickly and accurately as possible was clearly explained and demonstrated to ensure understanding.

Baseline Trials:

Participants are asked to complete three consecutive trials of the pegboard task. A one-minute rest was given between each trial to reduce fatigue. The time taken to complete each trial is recorded using a stopwatch. No feedback will be provided during this phase

Break Period:

After the initial three trials, participants will be instructed to take a two-hour break. During this time, they will be asked to refrain from engaging in any similar fine motor activities or tasks that might influence their performance

Reflection Component:

Participants are encouraged to reflect on their performance, including strategies used, errors noticed, and perceived improvements. This will be facilitated through a brief, semi-structured interview or guided self-reflection format (Checklist).

Post-Break Trial:

Following the break, participants are asked to perform the pegboard task once more. The time taken to complete this trial is recorded.

Data Analysis

The time taken for each trial was compared to assess improvement across the trials. The focus was on evaluating

- Performance progression across initial trials
- Change in performance after the two-hour break
- The impact of reflection on task execution post-break

Paired student 't' test is used to analyse time difference across trials.

RESULT

The results of the study show no significant change in pegboard performance following reflection after practice.

<i>Paired Samples T-Test</i>							
Measure 1			Measure 2		t	df	p
Pretest		-	Final		-1.802	53	0.077
*p > 0.05, no statistically significant change between trials							

DISCUSSION

Thirty-one female and twenty-three males were included in the study. Performance on the third trial improved significantly, which proves that repetition enhances task performance ^[6].

In the first trial, participants struggled with task familiarity, shape recognition, and often used only one hand, indicating minimal prior exposure. During the second trial, slight improvements emerged as participants began using both hands and adopted basic strategies, like picking up two pegs at once. Reflection appeared to prompt awareness of earlier mistakes, guiding minor behavioral changes ^[7]. By the third trial, performance had clearly improved, with better coordination, quicker completion times, and enhanced shape recognition.

The average time across the three trials, compared to the post-reflection trial, shows a significant improvement in pegboard performance. This shows self-reflection within the first three trials based on the simple task. Self-awareness of the physical activity and cognitive level awareness are well appreciated by the participants within the trials by self-reflection [3].

This progression suggests that repetition, coupled with reflection, facilitates motor learning and cognitive adaptation [5,8]. The behavioral observations strongly support the role of self-reflection in promoting skill acquisition. These subjective reports highlight that even a short period of reflection can enhance awareness and foster the development of strategies for improved task execution. Thus, reflection may be considered a valuable cognitive tool, especially when paired with repetitive practice, to improve performance in activities of daily living.

While reflection enhanced understanding and strategy, the primary contributor to improvement seemed to be repeated exposure [9]. Overall, reflection may serve better as a cognitive tool rather than a direct performance enhancer.

Limitation

One significant limitation is the lack of a non-reflective control group, making it unclear whether the observed improvements were due to reflection or simply the result of rest or repetition. Future experiments would need such a control group in order to unambiguously distinguish the effects of reflective practice from passive rest. The study relied heavily on subjective observation and participant feedback to interpret the effects of reflection. Without the use of a standardized or validated reflection assessment tool, the depth, consistency, and quality of reflective practice among participants could not be objectively measured. This limits the ability to establish a strong causal relationship between self-reflection and performance improvement.

Future Scope

Future studies should explore longer reflection intervals or combine it with guided feedback. The role of motivation and intrinsic learning styles should also be considered for broader applicability. Further research is needed to explore its long-term benefits in daily living activities.

CONCLUSION

The study found no statistically significant improvement in pegboard task performance following reflection. However, participants showed increased self-awareness and better strategy use over repeated trials. Repetition played a key role in enhancing motor performance.

REFERENCE

1. Schön DA. The reflective practitioner: How professionals think in action. Routledge; 2017 Mar 2. Boud, D., Keogh, R., & Walker, D. (1985). Reflection: Turning experience into learning. Routledge.
2. Boud D, Keogh R, Walker D. Reflection: Turning experience into learning. Routledge; 2013 Oct 8.
3. Mann K, Gordon J, MacLeod A. Reflection and reflective practice in health professions education: a systematic review. *Advances in health sciences education*. 2009 Oct;14:595-621.
4. Seidler RD, Bernard JA, Burutolu TB, Fling BW, Gordon MT, Gwin JT, Kwak Y, Lipps DB. Motor control and aging: links to age-related brain structural, functional, and biochemical effects. *Neuroscience & Biobehavioral Reviews*. 2010 Apr 1;34(5):721-33.
5. Wulf G, McNevin N, Shea CH. The automaticity of complex motor skill learning as a function of attentional focus. *The Quarterly Journal of Experimental Psychology Section A*. 2001 Nov;54(4):1143-54.
6. Mathiowetz V, Volland G, Kashman N, Weber K. Adult norms for the Box and Block Test of manual dexterity. *The American journal of occupational therapy*. 1985 Jun 1;39(6):386-91.
7. Sargeant JM, Mann KV, Van der Vleuten CP, Metsemakers JF. Reflection: a link between receiving and using assessment feedback. *Advances in health sciences education*. 2009 Aug; 14:399-410.
8. Subbulakshmi R, Rajarajeswari A, Sivakumar R. Influence of Cognition Training on the Motor Skills of Infants Born Preterm at One Year of Age. *Indian Journal of Public Health Research & Development*. 2020 Jun 25;11(6):764-8.
9. Anseel F, Lievens F, Schollaert E. Reflection as a strategy to enhance task performance after feedback. *Organizational behavior and human decision processes*. 2009 Sep 1;110(1):23-35.