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Yoga Asana Training Using Most to Least Prompt

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Article Info

Abstract

Yoga is a system of mental, spiritual and physical development, which can be utilized for individuals having intellectual disability. This paper explores the effectiveness of most to least prompting in teaching yoga asana to adults with severe intellectual disability. Two subjects with severe intellectual disability were purposefully selected. Single subject research using multiple baseline design across subject was utilized to evaluate the effectiveness. The results indicated that most to least prompting procedure was effective in teaching bhujanga asana to both subjects having severe intellectual disability. These learned skills were maintained with at least 92% accuracy over a month after terminating intervention.

1. Introduction

With the enactment of Right of Children to Free and Compulsory Education Act 2009, Right to Persons with Disabilities Act 2017 and NPE 2020 education of children with severe and high support needs. An emphasis of all these legislations are to focus on individuals with disabilities to function independently as possible within their community. A person with severe intellectual disability may have significant limitations in skills such as communication, self-care, social skills, safety and self-direction. Due to these limitations, individuals with such disability may be limited in activities required for vocation, recreation and physical fitness. Children and adults with severe intellectual disability have been found to have low level of health-related physical fitness (Hartman *et.al.* (2014) [6]. It is vital to increase activity levels of individuals with intellectual disability.

Regular performing of yoga asana helps increase balancing postures, improves loco-motor skills, psychomotor coordination, attention span and promotes overall health (Ramchandran, M. 2018) [11]. In literature, errorless teaching method effectiveness has been proved in sports and physical exercises (Yilmaz, *et. al.*, 2010, Zhang *et. al.* 2004). One of these errorless methods is most to least prompting. Byrd, J (2022) [1] explored effectiveness of most to least prompting in teaching brushing skills to three participants having intellectual disability. Multiple probe design across participants was used. Findings indicated that most to least prompting strategy showed improved mastery in tooth brushing activities in all subjects, however did not gain independence.

Kurt *et. al.* (2018) [7] in their study studied effectiveness of most to least prompting strategy in teaching dynamic stretching exercises to adults with intellectual disability. Participants in the study were four women with intellectual disability. Single subject multiple baseline research design was used in this study. The findings of this study showed that most to least prompting method was effective in teaching dynamic stretching exercises.

The purpose of this investigation was to determine the effectiveness of most to least prompting strategy in teaching yogasana to individuals with severe intellectual disability.

Objectives

The main objectives of the study are
- To find out the effect of most to least prompting on teaching yogasana to individuals having severe intellectual disability
- To find out the effect of most to least prompting procedures on maintenance and generalization of acquired skills after the training.

Operational Definitions of the key terms used

- Most to least prompting: In the present study, most to least prompting refers to beginning by providing modelling + verbal prompt, then to verbal prompt and at the end doing it independently.
- Yogasana: In the present study, yogasana refers to specific skill of bhujangasana, which was selected as target goal for training after their baseline assessment.
- Intellectual Disability: In the present study intellectual disability refers to individuals having an IQ of 34- 20 with deficits in adaptive behaviour.

Research Method
Subject
Two students with severe intellectual disability were selected as subjects in this study. Subjects ranged in age from 16 to 18 years (M = 17. Their IQ scores ranged from 32 to 34. All participants were student of a special school, Lucknow. In order to select subjects for the study following pre requisite skills were ensured:

- To follow verbal instructions
- To have necessary motor skills to be able to perform asana.
- Not being the participant in intervention with most to least prompting procedure earlier.

Settings
The teaching was conducted in a multipurpose hall room located at Chetna, Lucknow. There were two mirrors of 2.5 x 1.5 metre size on one side of the wall. Hall was fully ventilated and located at peaceful site. During intervention, subjects were asked to wear stretchy sports clothing. Subject will perform yoga on yoga mat spread on floor, with the instructor standing by the side of subject.
The study was conducted between 8.15AM to 10.30 AM. All sessions were conducted in a one to one basis. The investigator picked up and dropped the subject off the subjects to the classroom before and after instruction.

Materials
In the investigation, researcher utilized following materials:

- Yoga mat
- Blanket for extra padding under hips
- Cushion
- Water bottle
- Data record sheet
- Task analysis of bhujangasana

Dependent Variable
Yoga asana (Bhujangaasana) was the dependent variable.

Independent Variable
The independent variable for the study was to examine the effect of most to least prompting procedure in achieving the goals selected.

Research design
The design of the study was single-subject research design. A multiple baseline design across subjects was used to ascertain the effectiveness of most to least prompting procedure.

Procedure
The procedure for intervention was started with obtaining consent of the participants' parents. The researcher obtained signed consent from parents of both subject.
Data collection:

Baseline
During baseline sessions, subjects were asked to do bhujangasana without prompting. Data were collected on number of correct responses per probe session. When the subject responded correctly, it was marked with + sign in the data collection form and incorrect response were marked with – sign and no response was marked with NR.

Intervention
During intervention phase, most to least prompting method was carried out in three stages:

Stage 1
In this stage, modelling and verbal prompts were used together. At this stage researcher and the subject stood side by side and the attention of the subject was gathered by saying 'Are you ready to do bhujangasana? After researcher receives verbal or physical reaction from the subject that he is ready, researcher says "watch me carefully and do the same as I do now." Upon doing task correctly, subject will get verbal reinforce like well done.

Stage 2
Verbal prompt was provided for teaching. After researcher gave the verbal cue, waited for subject to react for 5 seconds for each step.

Stage 3
In this stage, researcher gather attention by saying to the subject, are you ready to do bhujangasana with me? And after either verbal or physical response from the participant indicating that he is ready, he says do the asana and gives the target stimulus of the skill

Data collection
Reliability
Inter observer reliability were collected during 20% of all intervention sessions. The inter observer reliability was found to be 93% (90%- 100%). Similarly, procedural reliability data was collected during 30% of all experimental sessions and it was 100%.

Social validity
In order to calculate social validity five-point Likert scale was used in this study. The respondents were three special educators, three parents and three experts having experience in teaching/research in special education. The scale and its corresponding point values were as follows: strongly agree (+2), agree (+1), undecided (0), disagree (-1), strongly disagree (-2).
Result indicated that all participants strongly agreed that the targeted task was appropriate and important for the subject. The study helped subject to learn bhujangasana and that it was likely to be used in the future for physical fitness. Results of the study will be useful to parents and special educators so

that they can design other tasks to enhance life skills.

Maintenance and generalization
Maintenance sessions were conducted two and four weeks after the end of intervention session and generalization session will be conducted in different locations of special school other than place where they got intervention.

Results
During baseline, sessions (1 to 3) subject 1 did not performed any of the item independently hence scored 0% success. Criterion was set at 80% success which was to be achieved by the 20th session. Details of subject's session to criteria are displayed in the table 1.

Table 1: Each participant through criterion and number of sessions

Subjects	Skills	Through criterion	Sessions
Subject 1	Bhujangasana	Modelling + verbal prompt Verbal prompt Independent Total	8 8 4 20
Subject 2	Bhujangasana	Modelling + verbal prompt Verbal prompt Independent Total	8 8 4 20

Subject 1
Performance during intervention using modelling and verbal prompt through 1 to 8 sessions showed that in subject 1 learnt to perform subtask of resting stomach on the mat with leg wide extended in 1st session with 20% success and learnt to placing hands under shoulder and palm down in 4th session with 40% success. Subject learnt to inhale while pressing palm and lifting chest off in 6th session with 60% success.
Similarly, performance using verbal prompting intervention subject continued to learn to lift gaze looking upwards in 12th session (80%) and hold the pose for 10-15 seconds in 14th session (100%).
Performance during third phase of intervention showed that subject 1 performed all subtasks of bhujagasana with 100% accuracy independently without any prompt. Thus,

performance of the subject showed that most to least prompting was effective on attaining set criteria of doing bhujangasana independently.

Subject 2
Subject baseline sessions performance indicated that he was unable to perform any of the subtask of bhujangasana. Performance during intervention using modelling and verbal prompt through 1 to 8 sessions showed that in subject 2 was able to perform subtask of resting stomach on the mat with leg wide extended in 1st session with (20%) success and learnt placing hands under shoulder and palm down (40%) in 4th session. In 5th session subject learnt the subtask of inhaling while pressing palm and lifting chest off (60%). In the 8th session subject learnt to lifting gaze & looking upward (80%).
Similarly, performance using verbal prompting intervention subject learnt to holding the pose for 10-15 seconds in 14th session and continued to perform with 100% accuracy.
Performance during third phase of intervention showed that subject 2 performed entire task of bhujangasan with 100% accuracy independently without any prompt. Thus, performance of the subject 2 showed that most to least prompting was effective on attaining set criteria of doing bhujangasana independently. Table 2 shows details of both participants' percentage of correct responses for baseline and intervention sessions.
The maintenance sessions were conducted two and four weeks after the end of intervention sessions in order to determine to what extent the subject retained their skills. Subject 1 could not retained cumulative 96% of the task and performed with 92% each trial, but subject 2 retained 96% success.
The generalization sessions were carried out one week after intervention sessions. It was conducted in different location other than classroom in the school with different materials through one-to-one instruction. Performance was assessed for the subject and these sessions were identical to intervention sessions. Generalization probe sessions of the subject revealed that mean of generalization probe score was 81%. & 86%.
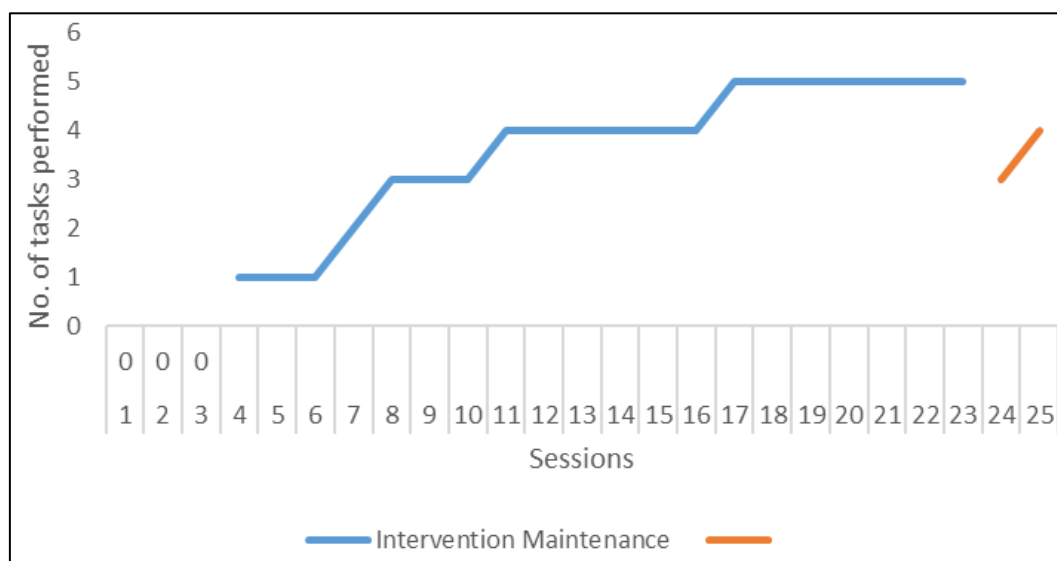

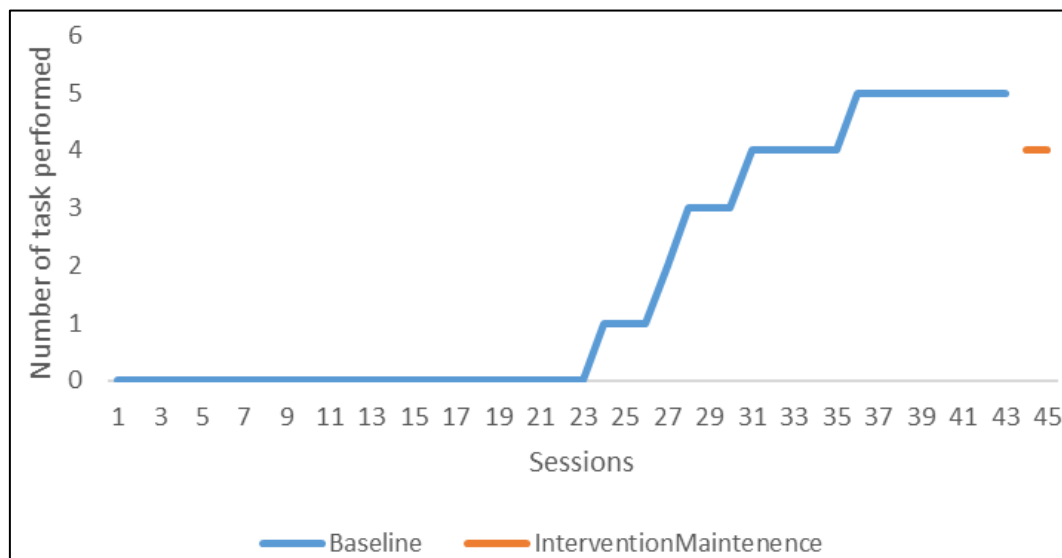**Fig 1:** Graph displaying performance of subject 1 in learning steps of bhujangasan

Fig 2: Graph displaying performance of subject 2 in learning steps of bhujangasan

Discussion
The purpose of this study was to determine the effectiveness of the most to least prompting procedure in teaching bhujangasan for adults with severe intellectual disability. The results indicated that yogasana can be effectively taught using most to least prompting procedure. The results are consistent with earlier similar findings of Kurt *et al* 2018, Yilmaz *et al* 2010. [12] Based on the results obtained from the study, studies similar to above can be undertaken to teach yoga in-group set up.

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