Transfer of Learning Lab

Introduction

According to the text, one of the most intriguing questions about bilateral transfer is, "Does it matter whether one learns a skill using one limb before learning it with the other limb (asymmetric transfer)?

This question is important for several reasons. It will help professionals design a practice that provides optimal learning in a shorter period of time or trials. It will guide professionals in training a person in what limb should be practice first. Many of the bilateral transfer studies have focused on the question of whether the preference or non-preferred limb should be used for initial practice? There is some controversy in skill training and rehabilitation situations but most transfer studies have found that great amount of transfer occurs from the preferred to the non-preferred limb.

Another interesting question in training for transfer is in terms of time. Does the training effect with passage of time tends to decrease which allow for other mechanisms, such as forgetting or motivation to affect the outcome of asymmetric transfer training? Near transfer is training one to walk after a stroke as soon as possible. The time delay is very short which minimizes the effects of forgetting that could over time decrease the training effect. Far transfer is training one to walk after a stroke in a training environment then after 3-4 week of not training, they attempt to walk. In this example, the similarity of training in the clinical setting to transfer test (real life) is lost due to the long time delay.

Procedure

The subject will be seated in front of a mirror tracer task. The objective is to trace the star counter clockwise in reverse imagery starting at the bottom of the star with no errors. For every error committed add 1 second to their time. During the training phase, the subjects will be permitted to see their results of each practice trial but for the pre-test and near/far transfer tests they will not be provided visual or verbal knowledge of results.

You will need a partner to complete this lab. One member (experimental condition) will perform the pre-test while the other member records the results of each trial. The pretest will involve tracing the star once without visual or verbal knowledge of results while holding the stylist in their non-preferred hand (NP). This will be followed by 12 training trials using the preferred hand (P) with visual and verbal knowledge of results. After completing the training with the P hand, one will immediately perform the near transfer test consisting of 1 trial with the NP hand then wait for 10 minutes and complete the far transfer test consisting of another trial with the NP hand. Both the near and far transfer tests will have the subject perform the trials without any visual or verbal knowledge of results.

The other members (control condition) will perform the pre-test involving 1 trial with the NP hand without visual or verbal knowledge of results followed by 10 minute no practice
period. After the no practice period, the near transfer test involving 1 trial will be completed using the NP hand then wait another 10 minutes and complete the far transfer test consisting of 1 trials with the NP hand. *Both the near and far transfer tests will have the subject perform the trials without visual or verbal knowledge of results.*

The dependent measure will be the absolute error (AE) of the block of the trials of the pre-test, near, and far transfer tests. AE represents the magnitude of error in your performances.

**Data Collection:** You and your partner will need to score each pre-test, near, and far transfer test trial. You do not need to record the 12 practice trials during the training phase but keep track of the total number of practice trials using some type of a tally system. You do not need to include the sign (- or +) for each score. Report your scores in table 1

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Pretest</th>
<th>Near Transfer Test</th>
<th>Far Transfer Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred hand condition (experimental)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Preferred Hand condition (control)</td>
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</tbody>
</table>

The AE scores of interest to the researcher are for near and far transfer test results. If positive transfer is evident, then the AE of the preferred hand should be better than the non-preferred hand for the near and/or far transfer tests. Thus, practicing with the preferred hand transferred to the non-preferred task performance. If negative bilateral transfer is evident, then the AE of the preferred hand was worse than the non-preferred hand for the near and/or far transfer tests. Thus, practice with the preferred hand had a detrimental effect on the non-preferred task performance.

To quantify the amount of positive or negative transfer, researchers commonly calculate the percentage of transfer. The percentage of transfer formula for this experiment involving error scores where the lower the score indicates a better score. It is important to be aware that a negative percentage will results for all performances measures which a lower value indicates better performance, such as speed and error. Therefore, ignore the negative sign when using performances measures when a lower value indicates a better performance and record the percentage of transfer as positive value.

**Percentage of Transfer =**

\[
\text{Percentage of Transfer} = \left( \frac{\text{Experimental AE} - \text{Control AE}}{\text{Experimental Control AE}} \right) \times 100
\]

Calculate the percentage of transfer for the near and far transfer tests. The AE score for the preferred hand is the experiment condition (E) where as the AE score for the non-preferred hand is the control condition (C) in the above formula. Once you calculated your percentage of transfer, record the percentage in the table below.
Show your calculation of % of transfer in the space below:

Near:

Far:

<table>
<thead>
<tr>
<th>Percentage of Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Transfer Test</td>
</tr>
<tr>
<td>Far Transfer Test</td>
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</tbody>
</table>

**Graphing**

Develop a bar graph (column graph in excel) of the data in table 2. The X-axis is labeled, "Conditions" with Y-axis labeled, “AE”. Label the top of each bar. Entitle the graph; "Descriptive Statistical Results of the Pre-test, Near, and Far Bilateral Transfer Tests by AE." You will need to have a legend that identifies the training condition (preferred and non-preferred training conditions). Attach a copy of this graph to the back of this lab.

**Lab Questions**

1. Write a technical summary of the transfer results revealed in the bar graph. The summary should include descriptive and percentage of transfer statistics. You need to discuss the following differences: a) pre-test results to near transfer test, b) pre-test results to far transfer test, and c) near transfer test results to that of far transfer test results by conditions.

2. Use the transfer appropriate processing explanations found in the chapter, to explain why the transfer training effect occurred or did not occur in this study?