FINE MOTOR DYSFUNCTION

Therapeutic Strategies in the Classroom

by Kristin Johnson Levine, M.S.Ed., O.T.R.

Illustrations drawn under contract by Cathie Lowmiller
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The author is not responsible for injuries arising out of use or misuse of these materials. This includes but is not limited to: failure to follow instructions; failure to heed any cautions noted in the Introduction or on activity sheets; choice of activities without the assistance of a qualified therapist; use of activities without therapist guidance. It is presumed that the occupational or physical therapist using these materials is aware of any physical limitations which might contraindicate use with individual children and has obtained the referral of a physician, if appropriate. The user should read the Introduction and Use of the Materials sections before distributing.
ABOUT THE AUTHOR

Kristin Johnson Levine received her degree in occupational therapy and master’s degree in educational psychology at Indiana University. During her experience since 1980 as a therapist in school systems, she has developed several successful programs that emphasize integrated programming of students and the role of the therapist as consultant. She currently maintains a private practice specializing in providing supervisory and consultation services to school systems in rural New Hampshire.
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Introduction
INTRODUCTION

Purpose
Every teacher has known the child who struggles with fine motor tasks—the second grader who erases until the paper tears because of inability to control the pencil to make legible letters; the kindergartner who cannot copy a square; the third grader who can’t tie shoes; or the fifth grader who is unable to use a ruler or keep up with classroom handwriting demands. Recently, the mainstreaming movement has added to the classroom the third grader with a developmental disability who is unable to write her name and the second grader with cerebral palsy who is in art class with his friends but can’t grasp a paintbrush. What do we do for these children?

Mainstreaming encourages the education of children with disabilities in “the least restrictive environment.” This usually means the environment in a “regular” classroom that provides educational and social experiences which previously were available only to nondisabled peers. Although new doors have been opened, the educational curricula and materials used in most classrooms were designed for children without disabilities. This problem raises new questions for teachers, parents, and therapists. How can programming and materials be adapted or modified to provide the optimal educational experience for each of these unique individuals?

The purpose of this manual is educational. It was created to assist therapists, special educators, teachers, and parents to understand and manage fine motor dysfunction in the classroom. The manual describes activities and compensatory strategies designed to improve the classroom performance of preschool and school-age children who have a variety of functional fine motor problems.

Contents and Organization
The information in this manual is divided into 15 chapters. Each addresses an area of dysfunction that commonly results in referral to a school-based occupational therapist. For each component area, the following are provided

1. A brief discussion of the dysfunctional component: how it normally develops; how children function with deficiencies in that particular area; and the kinds of activities and adaptations which will help to improve performance.

2. Activities designed to improve performance:
   - In the classroom or resource room.
   - On the playground or during gym class.
   - At home.
   - Extracurricular activities.

3. Strategies for bypassing the weak area.
See pages 583-593 for a list of books and articles which were used generally in compiling this manual. These publications contain helpful ideas for management of fine motor dysfunction of preschool and school-age children; in-depth rationale for the use of some of the activities presented here; and more activity suggestions. See pages 571-580 for information about the adaptive equipment discussed in the manual.

**Use of the Materials**

These materials are designed to be copied and given to those who work with the child throughout the day. Therapists can use the information sheets to help teachers and parents understand why a child is having difficulty. The activities and compensatory strategies are examples of ways to improve the child’s performance. They are meant to be adapted to the needs of the individual child.

Motor skill development requires a great deal of repetition. Suggestions for activities in several settings are made so that the child will practice the target skills throughout the day. Therapists should encourage teachers and parents to incorporate the prescribed kinds of activities into the child’s daily schedule; and assist them in devising specific activities which are appropriate, based upon the curriculum, educational program, availability of extracurricular activities, and the child’s interests.

These suggestions are intended to supplement an occupational or physical therapy program, if one is needed. They address activities that can be incorporated safely in an educational program. They do not include activities which are carried out through direct therapy, such as those often required by children with more severe tone and movement disorders. They are not intended to replace the services of an occupational or physical therapist; nor are they to be used as a “cookbook for therapy.”

Although many of the activities are beneficial for all developing children and can be incorporated into a regular classroom curriculum, the key to their successful use is in choosing the ones that will address an individual child’s needs. This choice should be made by a qualified therapist, based on needs identified through the evaluation process. When appropriate, techniques should be demonstrated and their use should be monitored by the consulting therapist.

**Assessment**

Children identified as having “weak fine motor skills" are too often provided with a generic set of classroom “fine motor activities” that fail to address the child’s particular skill needs. Many children who are experiencing difficulty with handwriting spend hours diligently working on mazes and tracing letters. For children with weak eye-hand coordination, this results in improvement; but for many children for whom handwriting is difficult due to language, perceptual, or motor control dysfunction, the time is wasted. Spending time on activities that do not result in progress can be damaging to a child’s self-esteem and can decrease the excitement about school and the learning process which is so
essential to success in later grades. The time could be spent more beneficially by performing activities that address specific dysfunctional skills or which address the content of the activity while bypassing the weak skills. However, the weak skills often are not identified.

Before teachers, parents, and children expend the time and energy required for the following activities, an evaluation should be performed by an occupational therapist to pinpoint the child's motor or perceptual-motor strengths and weaknesses. See pages 9-11 for a sample checklist of components that play a role in fine motor skill development.

**Philosophy**

Think back to your school years. Was there something that you did badly? Really badly? Most of us are familiar with how this feels and what it does to our self-esteem even though we are most likely within the range of average performance. Under the circumstances, we avoid the source of our humiliation and public embarrassment, we do not practice, we do not improve, and we feel terrible about ourselves. Now picture the child who is clearly and indisputably (to himself and others) below the average range for certain kinds of perceptual and/or motor skills. Imagine how that feels in a school setting where motor skills are emphasized for expression of knowledge, social interaction, and play.

Without understanding and help in dealing with motor difficulties, the child's weak skill areas often get weaker as the child avoids any activities that involve those areas. The child is embarrassed when these skills are required for classroom performance, and self-esteem and feelings about school and the learning process suffer.

The philosophy for this book is that the top priority for dealing with motor difficulties in school is to enable the child to participate in school activities with as much success as possible so that the child's self-image is one of competence, confidence, and engagement rather than difference, failure, and avoidance.

To accomplish this, an educational program ideally addresses three areas:

- Compensatory strategies to enable the child to achieve the educational "ends" by different means.

- Activities that encourage practice of the weaker skills, adapted to the child's own level of ability so that secondary deficits don't develop and the child can see progress in this area.

- Focus on development of the child's strong areas of ability.

**Approach**

The approach to management of fine motor dysfunction suggested here is task-specific. We ask ourselves, what task is the child having difficulty with, what part of the task is hard, and why? Although activities are arranged in sections according to skill areas that may be weak, these suggestions are not meant to focus the reader on deficits but on component skills which are necessary for
adequate performance of functional tasks. For many skill areas, practice of the component skill within the context of the functional task (or as close to it as possible) is most likely to result in improvement.

Many of the activities presented here do not attempt to remediate the overall “cause” of the problem, but instead improve performance in three ways:

- They provide opportunities for practice of the weak component so that the child’s avoidance doesn’t result in further weakness.

- They suggest ways to teach the functional skill which minimize the demand for the weak component and emphasize stronger modes of learning.

- They suggest ways to bypass the weak component altogether.

Imagine a child who has difficulty with the functional skill of visually recognizing correct or incorrect letter formations. The component of this skill that is interfering with the child’s handwriting performance is the child’s difficulty in using visual information for letter recognition. Suggestions—presented here in the section titled Visual Perception (in this case, the weak component skill)—include the following:

- Visual discrimination of spatial errors is practiced on the child’s own written work, with the adult helping the child to develop strategies for noticing and recognizing crucial elements of the correct letter form.

- Letter recognition skills are taught to the child in a manner that emphasizes touch, movement, and verbal cues for recognition.

- A variety of types of paper with tactile and color cues are suggested to make writing easier, and a strip of paper with letters on it is placed on the child’s desk to bypass the need for recalling fine details of how letters look.

Some component skills, such as strength of grip or pinch, often can be improved through activities focused specifically on the weak area, although not only within the context of the functional skill. In this case, suggestions include strengthening activities that can be incorporated throughout the day. These are practiced during activities other than the functional task that needs improvement, to increase the amount of repetition and likelihood of improving strength.

For example, a child is unable to open a milk carton (the functional task) due to weak pinch strength (the weak component). In this case, repeated practice of the component in the actual task context would be extremely boring and difficult (since this is a task which the child cannot do). Instead, a wide variety of pinch-strengthening activities are suggested for use at home and at school. These activities gradually build up strength to the degree necessary for successful performance of the functional task. Until strength increases so the child can open the carton, an adult can help by loosening it as it is handed to the child, so the child can open it successfully.
During any classroom fine motor activity, be sensitive to the possibility that the child may be self-conscious about performance. The child may rush through activities that are difficult, since they won't be done well no matter how much time is spent; or the child may act indifferent, although in fact caring a great deal. Focusing on the weak performance will make matters worse. During classroom writing activities, ignore messy work and disorganized arrangement of words or letters on the page. Focus instead on the content, legibility, and completion of written work. The activities presented here under Classroom and Individual Practice often can be taught in groups or incorporated into resource room or other individual work sessions, so that the target child is not singled out in front of the group.

Motor difficulties are not problems unless we treat them as such. The challenge for us is to help children to accept their unique patterns of strengths and weaknesses; to develop as fully as possible the motor skills which are useful for classroom activity; and to learn and demonstrate knowledge successfully despite relatively weak motor skills.
ASSESSMENT CHECKLIST

Description and Use

The following checklist contains motor, perceptual-motor, and cognitive components which should be evaluated because of their role in the development of fine motor skills in the classroom. Ideally, a child's parents, teachers, and occupational therapist will be involved in the evaluation process to ensure a valid and consistent picture of which skill areas should be targeted for remedial work, which strong areas should be encouraged and supported, and which areas might require compensatory strategies.

This checklist is presented as an example only. Following an in-depth evaluation (which may include standardized instruments, achievement tests, classroom work samples, and observations), it can be used to record areas that need intervention. Instruction sheet choices then can be based on the results.
### Areas That Can Interfere with Fine Motor Performance

This checklist is designed to be completed by an occupational therapist, based on results of standardized testing, classroom work samples, and clinical observations.

<table>
<thead>
<tr>
<th>Skill Component</th>
<th>Normal</th>
<th>Needs Intervention</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td><strong>Gross Motor</strong></td>
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<tr>
<td>Muscle tone</td>
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<td>Upper extremity range of motion</td>
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<td><strong>Posture</strong></td>
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<td>Standing</td>
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<td>Sitting</td>
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<td>During paper-pencil tasks</td>
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<td>During scissor tasks</td>
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<td>During chalkboard work</td>
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<td><strong>Trunk stability</strong></td>
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<td>Upright head positioning</td>
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<td><strong>Balance/Equilibrium</strong></td>
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<td>Cocontraction of finger joints</td>
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<td>Supination/Pronation of forearm</td>
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