**Name of Assignment**: Practical Application of Systems Theory to Infant and Child Skill Acquisition and Performance Assignment

*Movement/Task analysis*

**Contributor(s)**: Patti Berg-Poppe, PT, PhD, NCS, Patti.Berg@usd.edu; Lana Svien, PT, PhD, L.Svien@usd.edu

University of South Dakota

**Course Information:**

Neuromuscular Physical Therapy I; 5 credits; 4th Term; Fall, Year II; follows courses in pathophysiology, neuroanatomy, and differential diagnosis. This course introduces both theory and practical applications of motor control and motor learning to neuromuscular movement disorders. It includes a unit on typical development.

**Learning Experience Description:**

Context: Placement in participating childcare centers occurs after students have completed: 1) a unit on typical gross and fine motor, cognitive, social and emotional development; 2) a unit specific to theories and application of motor control, including a systems perspective, and theories and application of motor learning concepts.

Purpose: To develop observation skills, apply principles of motor control, gain an understanding of motor milestones and typical development, and demonstrate clear writing skills.

Students are placed in a childcare environment to observe infants and children at various development stages. Students are asked to select a single child in each of 3 rooms and journal their observations with some guided lines of questioning (see below “Instructions to Students”). To demonstrate competence in applying a systems approach, students select a single child from the three and provide details specific to a single task that the child accomplished during the student’s observation. Several directed questions guide the student to develop a 3-5 page, double-spaced report of the observation experience.

Instructions for Students:

*Expectations (\*\*x\*\*% of final grade)*

You will be assigned a Wednesday morning time to observe for one hour each in an infant room, a mobile infant room, and a toddler at [\*\*insert information about childcare center here\*\*].

*The observation.*

Choose one child in each of the three areas to observe, and journal your observations. As you are journaling, ask yourself questions such as:

1. Where is this infant/child positioned on the developmental continuum?

2. What essential elements of control has the infant/child mastered?

3. What is limiting the infant/child from mastering the next developmental milestone?

Journal aspects of the infant’s/child’s movement strategies and contemplate how important concepts of motor development, such as cephalo 🡪 caudal or proximal 🡪 distal influence what the infant/child accomplishes or cannot accomplish. When the infant/child is not moving, ask yourself what internal forces are at work to help him/her maintain his/her stable posture. If the infant/child experiences sway or loss of balance, ask yourself what feedback or feedforward mechanisms are at play. Consider the sensory contributions to the infant’s/child’s motor acquisition. Consider the interaction between the individual, the task, and the environment. *Before you leave the area, make sure you know this infant’s/child’s date of birth so that you can share how old the infant/child is on your report.*

*The report.*

Select **one** infant/child from the three you specifically observed. From your notes, write an analysis about a **SINGLE task or motor activity** that this infant/child accomplished. In a well-written essay of between 3 and 5 pages (Calibri, 11-point font, 1 inch margins, double-spaced):

1. Describe in detail the skills and abilities that the infant/child possessed to accomplish the motor task
2. Examine qualities unique to the individual infant/child, and match these skills and qualities to the demands of the task. What are the challenges of the task? Are the infant’s/child’s skills a good match for the demands of the task?
3. Report observations about how the environment influences task accomplishment. What aspects of the environment impeded or facilitated the task accomplishment?
4. Discuss factors that may be inhibiting the infant/child from advancing to the next elevated level of same-task complexity.
	1. What role do individual level (motor, cognitive, and sensory) systems play?
	2. What role do an elevated level of task complexity or changes in environment play have in limiting the infant/child from accomplishing the task at this point in the infant’s/child’s development?

Please consider the rubric below when composing your submission. The instructor reserves the right to return inadequate submissions for resubmission. PLEASE DO NOT USE AN INFANT’S/ CHILD’S FULL NAME. A PSEUDONYM OR INITIALS SHOULD BE USED, INSTEAD.

Time for student to complete the activity:

1. preparation for activity outside of/before class: student spends approximately 1 hour in each of 3 childhood center rooms (i.e., 1 hour in an infant [1-12 months] room, 1 hour in a mobile infant [12-24 months] room, and 1 hour in a toddler [2-3 years] room) to observe infants and children at different developmental stages.
2. class time completion of the activity: none; this is used as an integrated clinical experience (ICE).

Readings/other preparatory materials:

Shumway-Cook A, Woollacott MH. Motor Control: Issues and Theories. In: *Motor Control: Translating Research into Clinical Practice.* 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2012:p. 12-16.

Learning Objectives:

1. analyze movement, task demands, and environmental facilitators and restraints via skilled observation.
2. accurately assess factors which contribute to motor development.
3. accurately apply the theory of dynamic systems and knowledge of the development of motor control to analyze the acquisition of motor skills.

Methods of evaluation of student learning:

Students submit a written report for instructor evaluation. A sample rubric is included at the end of this document. This rubric can easily be copied into an excel spreadsheet for formula calculations, copied, and shared with the student.

Practical Application of Systems Theory to Infant and Child Skill Acquisition and Performance Assignment RUBRIC

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Excellent Work****(90 < score < 100)** | **Quality Work****(80 < score < 90)** | **Baseline Work****(70 < score < 80)** | **Unacceptable Work****(score < 70)** | *Percent Score* | *% x .01* | *Weight* | *Subscore* |
| **Student analyzes a SINGLE task or activity**  | A single task is identified | Student is unclear about the **SINGLE task** that is analyzed  |  |  | x 5 |  |
| **Analysis of motor control assets the individual infant/child possesses to accomplish the task.** | Uses accurate terminology and descriptions and depicts motor control abilities with clearly understood language. Analysis is strong and comprehensive. | Demonstrates a good understanding of motor control abilities with good/fair description. Analysis is good but could be stronger. | Some misconceptions, miscommunications or inaccuracies regarding motor control skills or abilities but overall acceptable work. Clarity of motor skill description is at least fair.  | Discussion of motor control abilities are poor or lack contemplation.  |  |  | x 16 |  |
| **Analysis of task; match between the demands of the task and the individual possesses.**  | Clearly articulated and reflects an excellent analysis of task demands and the match between task and individual. | Good report describing task demands and match between task and individual but may show limited analysis. | Demonstrates fair understanding of task demands and match between individual and task but shows little analysis. | Description lacks analysis and obvious task demands are overlooked. Match between individual and task is not strong. |  |  | x 16 |  |
| **Analysis of environmental influence on task accomplishment.** | Clearly articulated and reflects an excellent analysis of environmental influences on task accomplishment. | Good report describing environmental influences on task accomplishment. | Demonstrates fair understanding of environmental influences on task accomplishment but shows little analysis. | Description lacks analysis and obvious environmental influences on task accomplishment are overlooked. |  |  | x 16 |  |
| **Analysis of factors inhibiting accomplishment of next, higher level of same-task complexity.** | Clearly stated, easily understood. Student shows reflection, contemplation, and deep processing of The interactions among individual, task, and environment (ITE) and related limiting factors. | Clearly stated and well contemplated. Analytical processing is evident and student has communicated important points regarding interaction of ITE and its effect on development. | Clearly stated but student has overlooked obvious and important information describing the interaction of ITE and the implications for developmental progression.  | Ideas are communicated in ambiguous and vague language not clearly understood. Interaction of ITE and implications for development are not evident. |  |  | x 16 |  |
| **Overall Organization** | Content is presented in an easily understood format. Format design shows forethought and an attention to readability through a well-planned organizational structure. | Content is presented in an easily understood format. Format design is generally consistent, and it is evident the student has considered the reader when organizing this response. | Content is not always consistently organized; however, information is presented with some amount of organizational planning. | Content is presented without a specific or consistent organizational plan. |  |  | x 11 |  |
| **Clarity** | Strong writing with clear ability to express ideas. Excellent mechanics. | Good writing with ideas evident through writing. Excellent mechanics with few exceptions. | Adequate writing that conveys meaning. Generally good mechanics. | Unclear expression of ideas. Poor mechanics. |  |  | x 10 |  |
| **Editing** | Submissions shows attention to details, including layout, language, spelling, and grammar. | Submissions shows attention to details, including layout, language, spelling, and grammar. | Submissions shows attention to details, including layout, language, spelling, and grammar. | Submissions shows little attention to details, including layout, language, spelling, and grammar. Numerous errors found in finished work. |  |  | x 5 |  |
| **Meets format specifications** | 11 pt Calibri font, double-spaced, 1 inch margins on all sides, specified header present on top of essay. | Any of the specified formatting requirements not met (see those at left) | X |  |  | x 5 |  |
| **General effort** | Effort is apparent | Questionable effort |  |  | x 5 |  |
| **TOTAL SUBSCORE POINTS = Overall Percentage** | **%** |