



The Perceived Efficacy and Goal Setting System (PEGS) : Validation and Application for the Children with Developmental Coordination Disorder in Hong Kong

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Background

- Children with Developmental Coordination Disorder (DCD) **lack the motor coordination** necessary to perform tasks that are considered to be appropriate for their age and intellectual ability, with the **absence of other neurological disorders** (American Psychiatric Association, 2000).
- A child with DCD may demonstrate significant difficulty with :-
 1. Self-care tasks.
 2. Academic tasks.
 3. Leisure activities.



Background

- Its prevalence has been estimated to be **6%** in the age range of **5-11 years** (American Psychiatric Association, 2000).
- Studies had shown that most of the DCD children were able to learned the **cognitive strategies** e.g. verbal self guidance (VSG).
- And to used them in **learning** a variety of **functional motor skills** that had been identified as difficult for them (i.e. throwing a ball, writing) (Martini, 1994; Wilcox, 1994).
- One of the **prerequisites** for the approach is that the child is require to **identify occupational goals** for himself / herself in order to get the **maximum benefit** from the training (Polatajko, Mandich, Missiuna, et. al. 2001).



Need for Self Perception Test

- Studies have shown that children's **active participation** in the process of **establishing goals** for therapy will lead to :-
 1. Increase in goal commitment.
 2. Improve in outcome of intervention.
 3. Improve in perceived competence.
 4. Foster the setting of new goals.
(Beery & West, 1993).

- In order to get the child involved, **self-perception test** is needed to help him/her in **identifying tasks** that :-
 1. Are difficult for him / her.
 2. He / she is motivated to improve.



Current Children Self-Perception Tests

- **Limitations** for young children :-
 1. Rely heavily on the child's ability to **read** and to **respond** in **writing**.
 2. Include items that **address other constructs** e.g. cognitive competence, social & maternal acceptance (Missiuna, Pollock, Law, et al, 2006).
 3. **Binomial scales** that limiting them to **discriminate across children**.
- The Perceived Efficacy and Goal Setting System (PEGS)(Missiuna, Pollock & Law, 2004) was developed with reference to the above drawback.
- The original PEGS was an **English** version that has not yet translated into Chinese.
- Its content was **not culturally adapted** for local application.



The Perceived Efficacy and Goal Setting System (PEGS)

- A **pictorial scale** validated as a method to assess :-
 1. Children with **disabilities** of **6-9** years old.
 2. On their **perception of own competence** in performing **daily activities**.
 3. To **identify goals** for therapy.

- Main Components :
 1. PEGS Cards
 2. Child Score Sheet
 3. Parent Questionnaire
 4. Teacher Questionnaire



The Perceived Efficacy and Goal Setting System (PEGS)

- The first 24 pairs of cards that depict children engaged in the following activities were used for this study :-
 1. Self-care (5)
 2. School/productivity (9)
 3. Leisure activities (10)
- Each pair of cards showed a child who was **more competent** in the activity and the other one was **less competent**.



The Perceived Efficacy and Goal Setting System (PEGS)

- The child was asked to **select the card** that was **more like** him or her.
- He / she was then asked if he or she was ‘**a lot**’ or ‘**a little**’ like that child.
- It was an **ordinal scale** with score from **1 to 4** for each item.
- Score of **1** represented the **least competent** and a score of **4** represented the **most competent** whilst 2 and 3 were in between.
- After the child reviewed the cards, therapist will work on **identifying child’s goals** for therapy in collaboration with the **parent** and **teacher**.
- The whole process took about **20 minutes** to complete.



Aims of Study

The aims of the project were to study the **validity** and **reliability** of the **Chinese version** of Perceived Efficacy and Goal Setting System (PEGS) for the **6-9 years** old children with **developmental coordination disorder** (DCD) and compare its **perceptual difference** with the **normal children** in Hong Kong.



Objectives of the Study

1. To **translate** the original PEGS into Chinese version.
2. To examine the **linguistic and content validity** of the Chinese PEGS.
3. To study the **discriminating ability** of the Chinese PEGS for the DCD and normal children in HK.
4. To evaluate the **internal consistency** and **test-retest** reliability of the Chinese PEGS.



Study Samples

- 2 groups of children were involved in the study :-
 1. The **DCD** group - Consisted of **26 children** of age 6 to 9 years diagnosed to have DCD in the Child Assessment Service.
 2. The **normal** group - Consisted of **26 mainstream primary children** of age 6 to 9 years in Hong Kong.

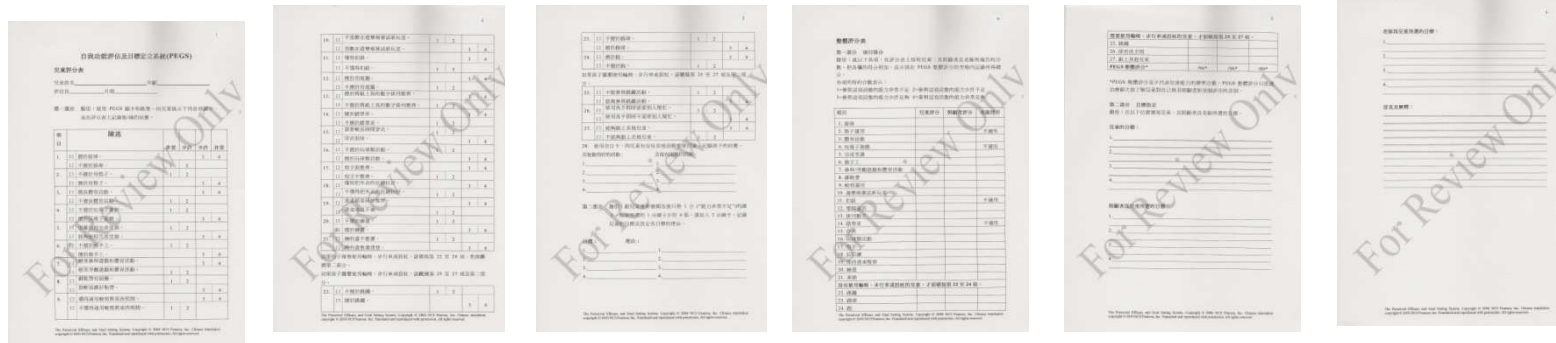


Translation

1. The **descriptive statements** of the complete set of sixty PEGS cards,
2. The **alternative wording suggestions** for PEGS cards in the manual were translated into **Cantonese**.

Translation

1. The Child Score Sheet



2. The Caregiver Questionnaire



were translated into Chinese.



Discriminating Ability of the Chinese PEGS

- There were **significant differences** in total mean PEGS scores (caregiver : **55.96** vs **79.31**, child : **65.96** vs **79.15**) and mean sub-categories scores between the **DCD** group and **normal** group for the children and caregivers.
- The results **matched** with the findings in **Canada** for the scale “ All About Me “, the predecessor of PEGS. (mean scores for child : **64.50** vs **85.29**)
- These findings suggest that the Chinese PEGS is a valid measure to **distinguish** between children **with** and **without** motor impairments.
- It was also found that the **differences** in **Caregivers** were **more significant** than the **children**.



Reliability of the Chinese PEGS

- Item 4 “playing video games” was found to have low item-total correlation from both the caregivers and children’s perspectives in the DCD group.
- That might imply that children with DCD were **not necessary** to have trouble with playing with video games.
- Clinically, we found some children with DCD were actually **good at** playing video games with the computer.
- Probably it might be due to the **motor demand** for playing video games was not advance enough to cause impairment for the DCD children.



Reliability of the Chinese PEGS

Internal consistency :

- Item 10 on “trying new playground activities”, we got negative item-total correlation for the children in the DCD group.
- That might be related to our DCD sample as we had 38.5% of the children functioned at disorder range in fine motor and at a milder problem range in gross motor.
- Another possible reason was that, part of the children with DCD liked trying new playground activities despite of their coordination problems.
- Further investigation was required in order to address to this question.



Reliability Study of the Chinese PEGS

Internal Consistency :

- When we looked at the corrected **item-total correlation** for each item, majority of the items were lied in the fair to moderate range in the **DCD** group and **caregivers** of the **normal** group.
- However, it was found that there were **almost half** of the items (42%) were of **low** corrected **total-item correlation** ($r = - 0.15 - 0.18$) for the **children** in the **normal** group.
- This showed that the Chinese PEGS was good for children with disabilities and might not be as good for the normal kids in Hong Kong.



Reliability Study of the Chinese PEGS

Internal Consistency :

- In the **DCD** group, **optimal** internal consistency were found in the Chinese PEGS for both **caregivers** ($r = 0.85$) and **children** ($r = 0.87$).
- The Cronbach's alpha reliability coefficient for the total measure in “ All About Me “ was 0.91, which again matched with the present findings.
- These suggested that the items were **good** at assessing different aspects of children's daily functions **without redundancy**.
- In the **normal** group, **acceptable** internal consistency were found for the **caregivers** ($r = 0.79$) and **children** ($r = 0.75$), but were **lower** as compared with the DCD group.
- The fact is the Chinese PEGS was designed for the **children with disabilities** such as DCD, developmental delay, physical impairment or attention deficit disorder and not for normal children.



Clinical Implication

- As the PEGS was being translated into Chinese, its validity and reliability were being established in this study, **clinical use** of it is **recommended**.
- It is **simple** and **quick** that takes about **20** minutes to complete.
- The **discriminating ability** of the test indicated that it is a **useful tool** in **distinguishing** children **with** and **without** disabilities.
- The **total PEGS scores** can be used as an **outcome measure** for intervention during our clinical practice.
- With the **diversity** of problems in children with DCD, the Chinese PEGS is also useful in **setting priority** for the **goals** for therapy.



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