

**An-Najah National University
Faculty of Graduate Studies**

**The Dynamic Occupational Therapy Cognitive
Assessment for Children (DOTCA-CH): Pilot
study of inter-rater and test retest reliability**

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Dedication

For

**My family, who offered me unconditional love and support
throughout the course of this thesis**

Acknowledgement

It is with immense gratitude that I acknowledge the support and help of my Co-Supervisor Dr. Anne Carswell, whose encouragement, guidance, support kindness, and most of all, for her patience from the initial to the final level of thesis

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Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of the thesis.

الإقرار

أنا الموقعة أدناه مقدمة الرسالة التي تحمل العنوان:

The Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-CH): Pilot study of inter-rater and test retest reliability

اختبار العلاج الوظيفي الديناميكي لتقييم القدرات الذهنية للاطفال (DOTCA-CH):

دراسة تجريبية لمصادقية كل من درجة التوافق بين المقيمين و اعادة الاختبار

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص ، باستثناء ما تمت الإشارة إليه حيثما ورد ، وأن هذه الرسالة ككل ، أو أي جزء منها لم يقدم من قبل لنيل أية درجة علمية أو بحث علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى .

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher`s own work, and has not been submitted elsewhere for any other degree or qualification .

Student's name:

اسم الطالبة:

Signature:

التوقيع:

Date:

التاريخ:

List of Acronyms

DOTCA-CH	Dynamic Occupational Therapy Cognitive Assessment for Children
MOE	Ministry of Education
UNESCO	United Nations Educational, Scientific and Cultural Organization
NGOs	non-governmental organization
WB	West Bank
IEC	Inclusive Educational Counselor
LOTCA-Battery	Loewenstein Occupational Therapy Cognitive Assessment
ADLs	Activities of Daily Living
IADL	Instrumental Activities of Daily Living
AOTA	American Occupational Therapy Association
IDEA	Individuals with Disabilities Educational Improvement Act
OTs	Occupational Therapists
DCD	Developmental Cognitive Disabilities
PCBS	Palestinian Central Bureau of Statistics
OP	Orientation for place
OT	Orientation for time
SP1,2,3	Spatial perception 1,2,3.
MI	Motor Imitation
UO	Utilization of Objects
SA	Symbolic Actions
GF	Copy Geometric Form
TM	Reproduction of two Dimensional Model
PC	Pegboard construction
CB	Colored block design
PB	Plain Block Design
RB	Reproduction of a Puzzle
DC	Drawing a clock
CA	Categorization
RU	ROC unstructured
RS	ROC structured
PS1	Pictorial Sequence A
PS2	Pictorial Sequence B
GS	Geometrical Sequence
UNRWA	United Nation Relief and works Agency
CD	Cognitive Domain
IQ	Intelligence Quotient

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**The Dynamic Occupational Therapy Cognitive Assessment for
Children (DOTCA-CH) : Pilot study of inter-rater and test retest
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Abstract

Objective: to examine the Inter rater and test retest reliability of the Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-CH) for Palestinian children . Method (Study Design): Test retest and inter-rater reliability) . Setting : Jenin Governorate in Northern West Bank Study sample : convenience sample of typically developing Palestinian children of (6-12) : Study tool : Dynamic criterion –referenced assessment of cognitive abilities and learning potential for typically developing children (6-12) years of age (DOTCA-CH) the Dynamic Occupational Therapy Cognitive Assessment for Children will be administered to study sample .

In this study we will examine the test-retest reliability and inter-rater Reliability of the measure for typically developing Palestinian children Results from this study showed that 53% of scores are highly matched ,28% are moderately matched while 19% the scores are lowly matched in the test retest scores. Thirty one percent (31%)of the retest scores showed higher scores than test scores . Furthermore, 84% of scores are highly matched and 16% are moderately matched in inter-rater reliability . Benefits and limitations of this dynamic assessment are discussed, with

respect to Palestinian context Based on these results. Recommendations for further development of the assessment are also addressed. It is suggested that this assessment may provide a useful Assessment to occupational Therapy measures currently being used with Palestinian children.

Chapter One
Introduction
and Literature Review

Chapter One

Introduction and Literature Review

1.1 Introduction

Cognition is the ability to acquire and use information in order to adapt and adjust to environmental demands. (1) More specifically cognitive function is a central domain of the human occupational performance and includes orientation, perception, memory, praxis, solving problems, and other thinking operations (2) An understanding of child development is essential, allowing us to understand the cognitive, emotional, physical, social and educational growth that children go through from birth and into early adulthood. Some of the major theories of child development are known as grand theories; they attempt to describe every aspect of development, often using a stage approach. Others are known as mini-theories; they instead focus only on a fairly limited aspect of development, such as cognitive or social growth.

Theorist Jean Piaget (3) suggested that children think differently than adults and proposed a stage theory of cognitive development. He was the first to note that children play an active role in gaining knowledge of the world. According to his theory, children can be thought of as "little scientists" who actively construct their knowledge and understanding of the world.

Behavioral theories of child development focus on how environmental interaction influences behavior and are based upon theories

. These theories deal only with observable behaviors. Development is considered a reaction to rewards, punishments, stimuli and reinforcement. This theory differs considerably from other child development theories because it gives no consideration to internal thoughts or feelings. Instead, it focuses purely on how experience shapes who we are. Another psychologist named Lev Vygotsky (4) proposed a seminal learning theory that has gone on to become very influential, especially in the field of education. Like Piaget, Vygotsky(4) believed that children learn actively and through hands-on experiences. His socio cultural theory also suggested that parents, caregivers, peers and the culture at large were responsible for the development of higher order functions.(5) Cognitive impairments may be seen as a result of developmental or learning problems, brain injury or disease, psychiatric dysfunction, or sociocultural conditions .Cognitive impairments can result in significant activity limitations and participation restrictions in all aspects of the client's life, potentially compromising safety, health, and well-being.

Cognitive limitations can also diminish one's sense of competence, self-efficacy, and self-esteem, further compounding difficulties in adapting to the demands of everyday living. The influence of cognitive symptoms can be observed across all aspects of the domain of occupational therapy practice(6)

In clinical practice, the early screening of cognitive skills among preschool and primary school children may provide a more basic

understanding of their school performance and facilitate early intervention when needed to bolster their subsequent scholastic occupation and school participation (7)

The Palestinian Ministry of Education (MOE) adopted the global philosophy of inclusive education as a pilot project for three years in 1997, with technical and financial support from Diakonia/Nad, Radda Parden (Save the Children, Sweden) and UNESCO, to strengthen the capacity of district Education directorates to address special needs and to enhance the capacity for collaboration between the MOE and other institutional bodies involved in special education with a gradual expansion of schools assessed as having possibilities for success. The program now involves around 150 inclusive education schools in West Bank and Gaza Strip. "Inclusive education teams" are currently employed by the MOE and placed at the different Directorates(8)

Now a day The aim for Inclusive Education Counselors has been little bit modified, at the beginning of the project they concern in awareness and changing attitudes for teachers, parents, schools a adaptation, helping in providing with equipments and other educational materials, cooperation and coordination with different NGOs, Now when the project entered all the governmental schools which is about 1607 in West Bank, concerning in awareness and changing attitudes which was the most barrier, other roll has been given to the team to be as a supervisors and they were starting to do class visits to the teachers whom are working in private special educational

schools and teachers whom are working in resource rooms . The Strength points for inclusive teams was that Inclusive Education Counselors has been founded the Inclusion in Palestine since started in 1997 .Many changes has been achieved and many regulations has been founded by them though Inclusion, accepting SEN became easy, students themselves began to demands on their rights as setting in the Tawjihi exams and the modified regulation to their benefit specially for blind and deaf students, brills books for blind students, schools adaptation, their rights in employments, Special Education Needs students became on the major priority of the Ministry of Education .They have got a lot of training courses in the field of special education, the majority of them has at least 10 years experience . while The limitations that inclusive education Counselors, even they got many training course in the field of inclusive education Counselors in general, none of them get specialized in one kind of Special Education Needs students or got a higher degree in the field of special education .Their job description till this time is not clear either to be in the directorates or to be at schools . the name of part of them is teachers, others inclusive education Counselors, but still there is no clear description for the inclusion team work . The department of special education in the MOE consist of three employees only, the department director, an employee for private special institutions and the other for programming without any administrative employees in the department . The total number of inclusive education Counselors at this time only 30, with 3 special educational supervisors(WB), distributed in 16 directorates with about 1600 schools,

each directorate consists of 1 or 2 IEC, and between them they have to divide the total number of schools that they should visit and follow up, the range on school number between 21 -181 .According head of Special Education Institution in Palestinian Ministry of Education, The future for IEC is not clear, but in his opinion, if the Ministry think seriously to success in IEC In Palestine they have to recruit new employees to cover all governmental schools, and to upgrade the staff qualification and to hire experienced and special education teachers to be as a supervisors in the directorates of Palestinian ministry of higher education .the idea of having Occupational therapists working at Ministry of education begins Since 2005 when the resource rooms have been established in the governmental schools but until now Only 3 occupational therapist work at Palestinian Ministry of Education two in West Bank and one is Gaza, and the two in West Bank is only in Ramallah and Hebron Directorate (9).

The evidence supports the effectiveness of occupational therapy in the school setting on goal attainment and skill development in areas underlying and supporting school performance. Reframing the views and expectations of the student by the adults in the environment is another positive outcome. Collaborative consultation with parents and teachers appears to be an essential component in maximizing effectiveness of service delivery and satisfaction. These findings come from studies of school-based occupational therapy with students with a variety of underlying problems, including physical disabilities, developmental

coordination disorder, fine motor difficulties, developmental delays and learning disabilities(10)

In Palestinian territory there are few studies on cognitive and learning difficulties in children. as there are few occupational therapists and until recently there was no standardized assessment for cognitive abilities among children. Occupational therapy is a relatively new occupation in the Palestinian community and while there is a measure of cognitive ability like DOTCA-CH that has been standardized and tested in other countries (1)it has not been tested with children in a Palestinian community living in Palestinian territory Although DOTCA-CH have been tested in Bedouin children Living in Israel (11) .and another study Used the LOTCA Battery which is the origin of DOTCA-CH to measure cultural and socio-demographic effects on cognitive skills in two groups of children which were (101 Jewish Israeli children and 125 Muslim Palestinian children) in kindergarten through second grade. Palestinian context in west Bank and Gaza Differs from those living in 48 Green line IEC inside Israel.

Cermak et al.(12) claimed that when an assessment is standardized for use with a different cultural group, literal translation is not sufficient. Moreover, cross-cultural bias may exist even in countries that share a common language, highlighting the importance of cultural equivalence in testing (13). Besides because of political and cultural influences, Israeli and Palestinian educational programs are not equal. Cultural and ethnic

differences also exist between Israel and the adjacent Palestinian territories .(7) Determining the nature and extent of cognitive ability in children referred to occupational therapy allows for the tailoring of interventions to meet the needs of individual children. (1) .The pervious mentioned survey showed that the Highest Percentage of Disabilities is in Jenin Governorate which increase the need for reliable assessment to be used by Palestinian Occupational therapist and although there is a measure based upon a cognitive model for children, there have been no studies of its reliability among children who are Palestinian living in Palestinian territory. The concern over the psychometric properties of this measure is not just of interest to this researcher but is also important to clinicians, who apply outcome measures to obtain baseline information, assess progress and inform treatment planning .Clients and their families need to be confident that the improvement in functional performance detected by an outcome measure is a true change and not just due to random error (14).

Further understanding of the test –retest and inter- rater reliability of assessments critical in selecting tests used in occupational therapy clinical practice especially for children and occupational therapists in Palestinian territory.

This is particularly important when the assessment outcomes are used in monitoring the growth and recovery of children`s cognitive functioning.

1.2 Significance of the study

1. In the proposed study, the inter-rater and test –retest reliability is an essential first step to examine features of the instrument before using it in the testing of children in cultures different from the original developmental studies.
2. Cognitive evaluations are often based on Western measures of performance, Also, Jewish people, however, make up most of Israel's population and typically lead an urban, Western lifestyle, (7). As the (DOTCA-CH) developed in Israel.(11) Therefore there is a need for examine the test - retest and inter-rater reliability of the (DOTCA-CH)to be used on Palestinian children . As the purpose of reliability studies is to estimate the degree of error or the extent to which observed scores vary from true scores. (14)
3. Occupational therapists provide a unique contribution to the evaluation and rehabilitation of cognitive process skills because of their educational background, knowledge of occupation, training in activity analysis, and ability to analyze how cognitive symptoms are affected by changes in activity demands and context. The role of the occupational therapist in evaluating cognition is to provide clear, comprehensive information on the effect of cognitive impairments on activities of daily living (ADLs), instrumental activities of daily living (IADLs), education, work, play and leisure, and social participation..

4. The aim of occupational therapy intervention for people with cognitive impairments is to decrease activity limitations, enhance participation in everyday activities, and assist individuals to gain the abilities they need to take control over their lives and develop healthy and satisfying ways of living. Occupational therapy practitioners work in a variety of educational settings. These may include public schools, charter schools, private schools, alternative schools, vocational schools, and university settings). Public schools are the most common work setting for occupational therapy practitioners; more than 30% of all practitioners who are members of the American Occupational Therapy Association (AOTA) identify public school as their primary work setting (AOTA, 2003). According to the Bureau of Labor Statistics (2006), “employment growth [for occupational therapy practitioners] in schools will result from the expansion of the school-age population, the extension of services for disabled students, and an increasing prevalence of sensory disorders in children. Therapists will be needed to help children with disabilities prepare to enter special education programs.” It also is anticipated that the niche for occupational therapists working in other educational settings (e.g., colleges, universities, community colleges, and continuing education venues) will grow as these children become young adults and desire to continue their education.(6)
5. Occupational therapists have long been a part of public education for children with disabilities. As an education-related service, the primary

job of school-based occupational therapists is to enable students with disabilities to benefit from their specialized education including access to and participation in the general education curriculum (American Occupational Therapy Association [AOTA], 1999; Individuals with Disabilities Education Improvement Act of 2004 [IDEA]). Because federal law closely links occupational therapy with special education, any policy or practice reforms affecting special education necessarily impact the design and delivery of school-based occupational therapy.(15)

6. Few Palestinian occupational therapist not more than the number of one hand fingers, work in Governmental schools in Palestinian territory. And according to recent disability survey, mentioned earlier the need of OT for children with learning Disabilities is about 35.8%. (16) According to World Federation Of Occupational Therapists - Human Resources Project 2010, number of Occupational therapist per 10,000 head population in Palestine is 0.2, Jordan 0.5 and Israel 5 .Which shows the shortage of practicing OT in Palestinian territory as according to same source of this information, number of OTs who are registered of their national association ranges from 39612 in Japan to 3 in Turkey. while in Palestine is 70, Jordan 325 and Israel 850 . and Palestine report labor shortage in the following areas :Autism, older people, special Education and forensic psychiatry . (17)

1.3 Aims of the study

This study aims to examine the Inter-rater and test retest reliability of a relatively new assessment, the Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-Ch), developed in Israel, with respect to test items and language used in an Arabic speaking context. Furthermore, it is intended to investigate inter-rater and test-retest reliability as a means of enhancing current psychometric data on the assessment. and to help pediatric occupational therapist in finding a reliable assessment for cognitive abilities among Palestinian children in Palestinian community

1.4 Literature Review

1.4.1 DOTCA-CH Development

The Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-CH) was recently developed in Israel .The (DOTCA-CH) is a reliable and valid assessment that provides learning potential and can facilitate intervention for cognitive difficulties that manifest themselves in daily functions among school age children.(11) The previous study findings regarding the validity of the(DOTCA-CH) were strengthened by the findings of Yu (18). In her study, she compared the performance on the(DOTCA-CH) battery of 20 Taiwanese children (mean age 9 years, 5 months) who had been diagnosed with developmental cognitive disabilities (DCD) but no other learning difficulties to that of 20 gender and age-matched children without (DCD) who were typically developing. As

expected in Yu's study, of all the cognitive domains tested by the (DOTCA-CH), the children with DCD scored significantly lower than the typically developing children only on the Praxis domain. Thus, her findings support the validity of the Praxis subtests of the (DOTCA-CH) in evaluating the motor planning abilities of children. Moreover, Yu's study provided initial indications of the concurrent validity of the praxis domain of the (DOTCA-CH). Yu compared the (DOTCA-CH) Praxis scores of her study sample to scores obtained for them on two other well-known assessments used for children with (DCD).(18)a study conducted in Australia explores the suitability, inter-rater reliability and test-retest reliability in a context outside that in which it was developed with typically developing children between the ages(6-12)years. Results from this research suggest that inter-rater reliability for dichotomous items was higher than for more complex items scored according to an ordinal scale. Furthermore most of the items scored high to perfect test-retest reliability (1).

1.4.2 Measuring cognition

Conventional standardized cognitive tests are static in nature, examining the performance of the individual in the "here and now" for the purpose of identifying and quantifying cognitive deficits. However, such static tests fall short of the goal of cognitive testing as described by Thorndike (19), that ideally, "estimates of [intelligence]should be estimates of the ability to learn" In recent years there has been an increased

awareness of the potential ability of dynamic assessment techniques to provide professionals with the opportunity to estimate the individual's potential for learning, or receptiveness to instruction. Dynamic assessment is based on the Vigosky's (4)concept of the "zone of proximal development", which refers to the discrepancy between what a child can do independently and what he/she can do with the help and guidance of others . This concept is somewhat similar to that which was independently developed by Feuerstein and colleagues,(20) called the 'mediated learning experience'. In mediated learning, adults serve as catalysts for learning by modifying the child's internal arousal, as well as the specific task demands, to allow for improved cognitive performance .Joan Toglia (21) introduced the use of a structured, graded system of cues to the assessment of cognitive and perceptual deficits among adults with cognitive impairments (2). Following in the footsteps of earlier dynamic cognitive theorists, she believed that the examiner could learn much about underlying information processing strategies through the observation of a patient's responses to such cues. In this way, dynamic assessment becomes naturally linked to intervention, and can be used as a baseline for choosing and designing an intervention program. (2) This theory underpins the assessment of cognitive difficulties in children.

Dynamic assessment is a nontraditional approach to evaluation that uses cues, mediation, feedback, or alterations of activity demands during assessment to examine changes in performance. Unlike standardized assessments, the focus is not on the outcome of performance but on the

processes of learning and change. Dynamic assessment has also been referred to as assessment of learning potential or cerebral plasticity. Dynamic assessment investigates a person's ability to learn certain tasks and identifies the conditions that facilitate such learning. The objective is to discover what the person is capable of doing with assistance, or under favorable conditions to determine the full range of performance potential. Because dynamic assessment is interested in how performance can be facilitated, it is naturally linked to intervention. During an evaluation, the therapist intervenes to change, guide, or improve the person's performance by demonstrating strategies, providing cues, or modifying the activity (6). Dynamic assessment is based on Vygotsky's (4) zone of proximal development, which suggests that different people can have the same baseline score on a static test but may differ in the extent to which they can profit from instruction. Unaided performance on static measures tells us what has already been learned or accomplished, whereas the breadth of the zone of proximal development is thought to provide prospective indications of what can be learned. It has been suggested that the zone of proximal development be called the zone of rehabilitation potential and used as a guiding principal in rehabilitation .(21) This zone is hypothesized to reflect the clients' region of potential restoration of function or degree of cognitive plasticity. Dynamic assessment requires a different way of thinking about assessment and the abilities being measured. It is based on modern cognitive theories that view abilities and competence as changeable and sensitive to instruction. It assumes that abilities are not static but are in

transactional relationships with the world Learning and change are assumed to take place with experiences, including testing experiences and interactions with others. Dynamic assessment, therefore, represents a fundamental change from psychometric assumptions, in which performance is assumed to be stable and consistent.(21)

1. 4.3 Cognitive difficulties in children

Cognitively delayed children are at risk for poor mental and physical health throughout their lives.(22) Based on the results of the Population, Housing and Establishment Census-2007, the estimated number of children in the Palestinian Territory totaled to 1.9 million out of 4.05 million individuals (the total population in the Palestinian Territory) in the mid of 2010. The percentage of individuals under the age fifteen is still high which is about 41.3% of the total population.(23) According to Press conference report that released by Palestinian Central Bureau of Statistics and Ministry of Social Affairs, 2011 about Disability Survey, The prevalence of disability in the Palestinian Territory was about 7% with similar prevalence in each of the West Bank and Gaza Strip .While the prevalence of disability using the narrow definition was 2.7% in the Palestinian Territory distributed as 2.9% in the West Bank and 2.4% in Gaza Strip; while it was 2.9% for males and 2.5% for females in both West Bank and Gaza .The Disability Survey provided details on the prevalence of disability in the Palestinian Society through the wide definition that PCBS uses in its household surveys and census of 2007. The wide definition of disability

states that a person with disability suffers from some difficulty or a lot of difficulties or cannot at all. In addition, the Disability Survey measures disability in its narrow definition as recommended by the Washington Group for Disability Statistics: A person with disability suffers from a lot of difficulties or cannot at all. The prevalence of disability among children 0-17 years in the Palestinian Territory was 1.5%; 1.6% in the West Bank and 1.4% in the Gaza Strip; and 1.8% for males and 1.3% for females. And the survey showed that Highest Percentage of Disabilities in Jenin Governorate while the lowest in Jerusalem, and 4.1% of total persons in Jenin governorate have disability. The disability with highest prevalence is Mobility at 49% out of disabled persons in the Palestinian Territory; 49.5% in the West Bank compared to 47.2% in Gaza Strip. The disability of Learning comes second 24.7% ; 23.6% in the West Bank and 26.7% in Gaza Strip. Noting that each person may have more than one disability. Illness is the main cause of all disabilities that are covered in the survey. Illness was the main cause for 43.7% of Seeing disability compared to 29.1% for Hearing disability, 42.9% for Mobility disability, 28.7% for Remembering and Concentrating disability, 27.6% for Learning Disability in addition to 27.2% for Mental Health disability. While congenital causes was the main cause for Communication disability; 33.6%. Moreover 38.8% of persons with Communication disabilities require speech and language therapy compared to 32.6% are in need for speech aids, 20.5% require computers, 13.7% require communication boards and 12.5% require sign language translators. While for Remembering and Concentrating

Disabilities, 32.5% of persons with Remembering and Concentrating disabilities require medications, 20.4% require remembering aid (automated reminders), and 15.4% require communication aids such as Identification Card.

They also address the learning disabilities as the press showed that 39.9% of persons with learning disability require psychological support, 37.0% require specialized education program, 35.8% require occupational therapy, 31.1% require speech therapy and 28.5% are in need for physiotherapy.(16)

A study conducted by the National Health Statistics Center in the United States about functional difficulties among school-aged children: United States, 2001–2007 showed that approximately 18% of children aged 5–17 had basic action difficulty in one or more of the following functional domains: sensory, movement, cognitive, emotional or behavioral(24). The percentage of children with difficulty in specific domains varied: 3% had a sensory difficulty, 2% a movement difficulty, 9% a cognitive difficulty, and 10% an emotional or behavioral difficulty. From 2001 through 2007, the percentage of children aged 5–17 with basic action difficulty remained stable at about 18% (24) . Another study in United Kingdom in 2008, discussed the learning difficulties highlighting that evidence has shown that recent advances in genetics and neuroscience have led to important new insights into the heritable neural bases of many common learning difficulties. In particular, brains with learning difficulties are brains that are

less efficient in particular and measurable aspects of processing; other aspects of processing are frequently preserved. (1) Learning difficulties are biological in origin, but environments and genes interact, so that environments determine the impact of carrying certain genes, with co-action of genes and environments affecting the developmental trajectory. Early detection and intervention would alter developmental learning trajectories for these children with consequent benefits throughout the life course.(25) This is clear from two fundamental principles of learning: early capability makes later learning more efficient; and enhancing early capability at the outset of learning also increases the complexity of what can be learned. The common learning difficulties of childhood have relatively high prevalence rates, even when conservative criteria for identification are employed . Incidence rates range from 1% for autism to 5-10% for anti-social behavior and conduct disorder. Learning difficulties are inherited, with environmental experiences affecting both basic liability and developmental trajectories, and many learning difficulties reflect the low end of a continuum of ability (e.g. poor reading or number skills and/or distractibility). Because they reflect a developmental continuum, this means that there is no sharp dividing line between having a learning difficulty and not having one.(25)

For over 70 years findings on the relationship between Socioeconomic status and intellectual/academic competence has accumulated. McCall (26) presented evidence that the association between SES and cognitive performance begins in infancy. Numerous studies have

documented that poverty and low parental education are associated with lower levels of school achievement and IQ later in childhood (27). Kennedy and colleagues (28) reported results from a random sample of first- through sixth grade African American children selected to represent African Americans living in the southeastern United States. The mean IQ of the highest SES group was 25 points higher than the mean of the lowest SES group. There has been some debate regarding which aspects of SES most strongly connect to cognitive development. Mercy & Steelman (29) found that each SES measure used in the Health Examination Survey (family income, maternal education, paternal education) predicted intellectual attainment, with education being the best predictor. Maternal education was a stronger predictor than paternal education. This discrepancy may reflect differences in the ages of the children assessed. Mercy & Steelman (29) studied 6- to 11-year-olds . In his meta-analysis White (30) found that SES accounted for about 5% of the variance in academic achievement. Among the traditional measures of SES, family income accounted for the greatest amount of variance, but SES measures that combined two or more indicators accounted for more variance than single indicators. In a recent study DeGarmo and colleagues (31) found that each SES indicator (income, education, occupation) was associated with better parenting, which in turn affected school achievement via skill-building activities and school behavior. (31)

1.4.4 The Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-CH).

Occupational therapists frequently work with children who have cognitive difficulties (1) . In the OT literature a variety of cognitive models for treating adults with cognitive impairment exists. However, pediatric occupational therapists who are called upon to treat and facilitate the participation and performance of children with cognitive deficits in a wide variety of occupational domains but particularly in school, face the absence of cognitive models suitable for the treatment of children with cognitive deficits. In addition, the lack of cognitive assessments for children presents a limitation for occupational therapy work with children (1).The Dynamic Occupational Therapy Cognitive Assessment for children (DOTCA-CH), a criterion referenced assessment tool, was designed to fill this need. Currently, no other standardized occupational therapy assessment battery of children`s cognitive ability exists.(11). In contrast to a standardized assessment, a dynamic assessment relies on the assumption that ability and performance are not equal and that active interaction between clinician and child can elucidate the child`s zone of proximal development(ZPD). (ZPD). refers to the child`s learning potential or area between a task that can be performed independently and one that can be performed with assistance.(11).

The goals of the (DOTCA- CH) are to identify children strengths and limitations in the primary cognitive areas related to function, and short -

term memory performance. In addition, because of its unique design, it is administered as a dynamic assessment to enable the identification of children learning potential, and through the analysis of the test's mediation process, the thinking strategies of the child. The (DOTCA-CH) battery consists of 22 subtests in 5 cognitive domains: orientation, spatial perception, praxis, visuomotor construction, and thinking operations (2) (see table 2). The (DOTCA-CH) was designed to be administered in three test phases. Initially, the child undergoes testing of his/her cognitive status, which comprises a baseline, the static phase of the test battery. Following this, the examiner provides the child with structured cues as required, designed to elicit his/her maximum learning potential, comprising the dynamic phase of the test battery. In order to determine the child's learning potential and receptiveness to instruction, the final phase of the(DOTCA-CH) requires that the examiner readminister the test items and analyses whether the child's performance has improved since the initial testing phase.

The structured levels of mediation range from 1-general intervention, 2- general feedback, 3- specific feedback, 4- structured category or demonstration, 5- reduced amount. Higher number indicates more mediation; however each level indicates the type of mediation that is helpful for the child, leading to beginning of intervention when necessary. It is important to note however, that the design of the DOTCA-CH allows for it to be used without administering all three phases of the test battery(2).

Table (1): Subtests of the Dynamic Occupational Therapy Cognitive Assessment for children (DOTCA-Ch) (2) (1) (11)

Area	Subtest
I. Orientation: Awareness of self in relation to surroundings. Requires consistent and reliable integration of attention, perception and memory	1. Orientation for Place (OP) 2. Orientation to time (OT)
II. Spatial Perception :The active process of searching for Corresponding information, distinguishing the essential features of an object, comparing the features of an object, comparing the features with each other, creating appropriate hypotheses, and comparing these hypothesis with the original data	3.Directions on child's body (SP1) 4.Spatial relationships between the child and objects near space (SP2) 5. Spatial relations on a picture (SP3)
III. Praxis: the ability to plan and perform purposeful movement .	6. Motor imitation (MI) 7. Utilization of Objects (UO) 8. Symbolic actions (SA)
IV. Visuomotor Construction: consists of three activities – copying drawing, and building or assembling .	9. Copy Geometric forms (GF) 10. Reproduction of a two-dimensional model (TM) 11. Pegboard construction (PC) 12. Coloured block design (CB) 13. Plain block design (PB) 14. Reproduction of a puzzle (RP) 15. Drawing a clock (DC)
V. Thinking Operations: includes the ability to identify discrete features of objects, to appreciate them hierarchically, and to classify them	16. Categorization (CA) 17. ROC Unstructured (RU) 18. ROC Structured (RS) 19. Pictorial sequence A (PS1) 20. Pictorial sequence B (PS2) 21. Geometrical sequence (GS)

In a pilot study conducted in Australia which examined the test-retest and inter-rater reliability of (DOTCA-CH),the authors suggest that inter-rater reliability for dichotomous items was higher than for more complex items scored according to an ordinal scale. Furthermore most of the items

scored high to perfect test-retest reliability. It was suggested that this assessment may provide a useful adjunct to occupational measures currently being used with children (1). But the Australian experience and culture is not the experience and culture of Palestinian children, and it would be important to examine the test-retest and inter-rater reliability among Palestinian children.

Reliability Studies normally focus on two types of reliability: inter rater reliability or stability over time and occasions. And inter rater reliability or stability across different raters .(14) Intra tester reliability refers to the consistency of results obtained by one assessor across two or more assessments of the same group of participants. This is also referred to as test retest reliability. Inter tester reliability measures the degree of consistency in scores obtained across different raters on the same group of participants. test that is reliable or reproducible is fundamental to clinical research .Without reliability, the clinicians or researcher cannot have confidence in the data collected nor be able to draw any valid references from the data . (14) . It is important to conduct the reliability of the measure among Palestinian children and a study was undertaken to examine the test retest and inter-rater reliability.

Chapter Two

Methodology

Chapter Two

Methodology

2.1 Study Design

The proposed study design is quasi-experimental and will examine the test-retest, and inter-rater reliability of the Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-CH) , in a convenience sample of school children in North region of West Bank specifically in the Jenin Governorate .

2.2. Study population

A convenience sample of typically-developing Palestinian children between the ages of 6 and 12 years old, who are attending school in the Governorate and who are at the appropriate grade level for their age and have no diagnosis of a learning disorder and whose teachers confirm that they are not having learning difficulties in Schools. The sample size was 19 children from 6 schools (2 schools from Jenin city, 2 schools from Jenin Camp and 2 schools from a village called Jalcamouse (an elementary Boys /girls School at each), Consent was obtained from Palestinian Ministry of Education and UNRWA Education Directorate Prior entering the schools. Consent was also reached with the school Principals as well as the parents of the children prior to any assessment

In previous published pilot study on test retest reliability and inter-rater reliability of DOTCA-CH the study sample was 11 Australian children (1) which was considered sufficient for reliability studies . In

Israel, the inter-rater reliability of the(DOTCA-CH) , test was determined on a group of 20 children who were typically developing (11) . Based upon these two published papers,19 children from Jenin Governorate participated with approximately even numbers of boys and girls (see Table 1).

Table (2): Gender and ages of Participants

Years	Males	Females	Total
6-7.11	1	1	2
8-9.11	6	4	10
10-10.11	1	1	2
11-12	3	2	5
Total	11	8	19

2.3 Inclusion criteria

Palestinian typical School children aged 6 -12 years old .(Male, Female) in Jenin Governorate had not experienced any developmental difficulties, and had achieved age appropriate developmental milestones according to their family members(Mother, Father)

2.4 Exclusion criteria

Students who are not from Jenin Area .

Students whom their mother, teacher stated that they had developmental delay or learning disabilities

2.5 Tool

Tool used in this research project was be The Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-CH)

which is a criterion -referenced assessment tool designed to assess the cognitive performance of children ages 6.0-12.0 years.

The study tool (DOTCA-CH) battery lasts about an hour and a half to be administered .

2.6 Process

The (DOTCA-CH) was administered by one trained and certified occupational therapist that was familiar with the student population in Jenin Governorate.

Although there is an Arabic Version of (DOTCA-CH), it requires further modification. The Arabic-speaking assessor used the English version of (DOTCA-CH) when administering the test to the children and ask them the instructions in their own language and appropriate accents which is differ from area to area .

2.7 Questionnaire

A parental questionnaire was developed to confirm the typical progression of the child's development. The questions were administered through interviewing the parents of the child (mother or father or both). This opportunity was also taken to explain the assessment procedure, get the parent's consent to test the child and make an appointment for test. The questionnaire was adapted from (DOTCA-CH) Personal Data - Questionnaire for Parents including information about age, educational level and occupation of parents, student`s weight at birth, developmental

milestones of the child (age the child crawl, walk, talk). A pilot study testing the modified questionnaire was conducted on a small sample of parents who were not be part of the reliability study prior to using the questionnaire in the study. This was to insure the usefulness of the data.

2.8 Procedure

Once the parents provided their consent to have their child in the study, the parents and participating children were invited to be assessed in school settings on two separate occasions two –three weeks apart. On the first occasion (Initial test) I tested the child and also videotaped the test. These videotapes were sent to two other therapists trained in doing the test to score independently. Two to three weeks later I re-tested the children (without mediation). Therefore the data consisted of two sets of scores two to three weeks apart, and two sets of scores completed by two therapists who scored the videotapes independently.

At re-test both the child's initial performance and performance following mediation was recorded. The language of some of the test items was adjusted, as per a pilot test which indicates that certain words will be changed to make the test understandable to Palestinian children. with the consent of the (DOTCA-Ch) author(32) to more clearly convey the appropriate meaning in the Palestinian context. Prior to this study an Arabic translation of manual of the test were done but it needs modification in some parts.

Both initial and retest assessments was undertaken in a small assessment room in the school settings with the child seated at a table with the examiner seated directly opposite. Each assessment was unobtrusively videotaped. The child's parents were asked to observe their child for the duration of the assessment from inside the room but they were seated behind the child and were asked not to talk during the test. The same examiner assessed and re-assessed all children participating in this part of the test-retest study. The inter-rater part of the study was done by two additional raters trained in the use of the DOTCA-CH and who rated the videotaped assessments independently in accordance with the instructions provided in the(DOTCA-CH) pilot manual (research edition). (1)(2)

2.9 Data analysis

Inter-rater reliability was established by determining the level of agreement for scores obtained by the two independent raters for each test item on the initial assessments together with the rating given by the therapist who conducted the assessment. These initial assessments were be those undertaken without mediation. When assessing test-retest stability, only one rater scores was used to measure variance between participant's scores for test items on the two different occasions. All analyses was undertaken using SPSS (Version 11). (1)

2.10 Hypotheses types standards

Correlation coefficient test rules:

- 1- If p value is greater than 0.05 there is no correlation between test and retest or (two raters) for the domain
- 2- If p value is less than or equal 0.05 , there is correlation between test and retest or (two raters), and we can determine the degree of correlation by the correlation coefficient

if the correlation coefficient is at least 0.7 and greater we consider as highly correlated if the correlation coefficient is between 0.5 and 0.69 we consider as moderately correlated if the correlation coefficient is less than 0.5 we consider as low correlation

- 3- Paired means test is a test for a difference in means between test and retest or two raters, and it is applied for a domain.

Null hypotheses:-

There is no difference in means between test and retest or two raters

Paired means test rules:

- 1- If p value is greater than 0.05 there is no difference in means between test and retest or (two raters) for the domain
- 2- If p value is less than or equal 0.05 there difference in means between test and retest or (two raters).

Chapter Three

Results

Chapter Three

Results

3.1 Test –Retest Reliability

3.1.1 Orientation

Table (3): Means comparison, Paired correlations test, and paired means test for initial test and retest of Cognitive domain (CD) (Orientation) (N=19)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
Orientation	1.Orientation in Place (OP)	7.79	7.84	0.10	0.68	-0.37	0.72	There is no significant difference in means and test retest scores are low correlated. Therefore the scores are low matched.
	2. Orientation in Time (OT)	5.68	5.79	0.88	0.00	-0.44	0.67	There is no significant difference in means and scores are highly correlated. Therefore the Scores are highly matched.

Table 3 indicates Mean comparison, Paired correlations test, and paired means test for initial test and retest of Cognitive domain (Orientation) which shows that in OP there is no significant difference and test retest scores are lowly correlated while OT it is highly Correlated .

3.1.2 Spatial Perception

Table1 (4): Means comparison, Paired correlations test, and paired means test for initial test and retest of Cognitive domain (Spatial Perception)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
Spatial Perception	3. Directions on body (SP1)	3.79	3.79	0.44	0.06	0.00	1.00	There is no significant difference in means and scores are low correlated. Therefore the scores are low matched at all.
	4. Spatial Relations between Child and Objects in Near Space(SP2)	3.21	3.37	0.71	0.00	-0.83	0.42	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	5. Spatial Relations in a Picture. (SP3)	3.63	3.26	0.69	0.00	2.35	0.03	There is significant difference in means and scores are moderately correlated. retest scores are lower than test scores.

Table 4 indicates that, in total of three subtest of spatial perception there is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched, Although in SP1 There is no significant difference in means, the scores are low correlated. Therefore the scores are lowly matched a. In SP2 There is no significant difference in means and scores are highly correlated. Therefore the scores are highly

matched. While in SP3 There is significant difference in means and scores are moderately correlated. Retest scores are lower than test scores.

3.1.3 Praxis

Table (5): Means comparison, Paired correlations test, and paired means test for initial test and retest of Cognitive domain (CD) (Praxis)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
Praxis	6.Motor Imitation (MI)	9.53	11.84	0.72	0.00	-3.38	0.00	There is significant difference in means and scores are highly correlated. Retest scores are higher than test scores.
	7.Utilization of Objects (UO)	5.79	5.89	0.75	0.00	-0.33	0.74	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	8. Symbolic Actions (SA)	6.95	7.05	0.47	0.04	-0.26	0.80	There is no significant difference in means and scores are low correlated. Therefore the scores are lowly matched.

Table 5 shows that only in Symbolic Action the scores are lowly matched . Retest scores are higher than test scores in MI There is

significant difference in means and scores are highly correlated. In UO
There is no significant difference in means and scores are highly correlated.

3. 1.4 Visuomotor construction

Table (6): Means comparison, Paired correlations test, and paired means test for initial test and retest of Cognitive domain (CD) Visuomotor construction

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
Visuomotor Construction	9. Copy Geometric Forms/Be GF	3.37	3.32	0.82	0.00	0.57	0.58	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Copy Geometric Forms/Mm	2.89	3.83	0.66	0.00	-4.59	0.00	There is significant difference in means and scores are Moderately correlated. Retest scores are higher than test scores.
	Copy Geometric Forms/De	2.44	3.67	0.60	0.01	-5.17	0.00	There is significant difference in means and scores are Moderately correlated. Retest scores are higher than test scores.
	10. Reproduction of 2-D Model/Be 2-DM	1.16	1.42	0.90	0.00	-2.54	0.02	There is significant difference in means and scores are highly correlated. Retest scores are higher than test scores.
	Reproduction of 2-D Model/ Mm	1.22	2.16	0.40	0.09	-2.51	0.02	There is significant difference in means and scores are low correlated. Retest scores are higher than test scores.

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
	Reproduction of 2-D Model/De	1.41	3.35	0.32	0.21	-4.17	0.00	There is significant difference in means and scores are low correlated. Retest scores are higher than test scores.
	11. Pegboard Construction/Be PC	3.44	3.50	0.81	0.00	-0.27	0.79	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly
	Pegboard Construction/Mm	3.24	3.47	0.82	0.00	-1.07	0.30	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Pegboard Construction /De	3.53	3.94	0.85	0.00	-2.13	0.049	There is significant difference in means and scores are highly correlated. Retest scores are higher than test scores.
	12. Colored Block Design /Be CB	3.95	3.95	0.67	0.00	0.00	1.00	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.
	Colored Block Design/ Mm	3.68	3.89	0.73	0.00	-1.07	0.30	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Colored Block Design/De	3.35	3.71	0.67	0.00	-1.30	0.21	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
	13. Plain Block Design /Be PB	3.11	3.05	0.53	0.02	0.19	0.85	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.
	Plain Block Design/ Mm	2.89	3.32	0.54	0.02	-1.57	0.13	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.
	Plain Block Design/De	2.56	3.31	0.42	0.11	-1.96	0.07	There is no significant difference in means and scores are low correlated. Therefore the scores are low matched.
	14. Reproduction of Puzzle RP	3.11	2.94	0.74	0.00	0.72	0.48	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	15. Drawing a Clock DC	3.37	3.37	0.90	0.00	0.00	1.00	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

Table 6 indicates that some subtests are highly correlated (GF/bef., PC/bef., PC/mem., .CB/mem., RP,DC),some subtest are moderately correlated (GF/mem.GF/Del., CB,CB/ Del.,PB, PB/mem.,) .Other subtests have low correlation (PB/Del.RP/ Mem .RP/Del.,).

3.1.5 Thinking Operations

Table (7): Means comparison, Paired correlations test, and paired means test for initial test and retest of Cognitive domain (CD) Thinking operations

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
Thinking Operations	16. Categorization CA	3.53	3.74	0.75	0.00	-1.02	0.32	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	17. ROC Unstructured RU	2.26	3.18	0.53	0.02	-3.84	0.00	There is significant difference in means and scores are moderately correlated. Retest scores are higher than test scores.
	18. ROC Structured RS	3.32	3.92	0.54	0.02	-2.12	0.048	There is significant difference in means and scores are moderately correlated. Retest scores are higher than test scores.
	19. Pictorial Sequence A PS-A	4.33	4.42	0.98	0.00	-0.81	0.43	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	20. Pictorial Sequence B PS-B	4.22	4.34	0.97	0.00	-1.14	0.27	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	21. Geometrical Sequence A GS-A	4.42	4.55	0.95	0.00	-1.42	0.17	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Test Mean	Retest Mean	Correlation Coefficient	P	t	P	
	22. Geometrical Sequence B GS-B	3.53	3.87	0.93	0.00	-2.69	0.01	There is significant difference in means and scores are highly correlated. Retest scores are higher than test scores.

In thinking Operations subtests There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.(CA,PS-A.B.GS-A,B) and There is significant difference in means and scores are moderately correlated. Retest scores are higher than test scores.(RU,RS) .see table 7

Table (8): Summary of the test retest comparison

Subtest	Average scores matching of Test-Retest
Orientation for Time	Scores are highly matched.
Spatial Relations between Child and Objects in Near Space	Scores are highly matched.
Utilization of Objects	Scores are highly matched.
Motor Imitation	Scores are highly matched.
Copy Geometric Forms/Be	Scores are highly matched.
Pegboard Construction/Be	Scores are highly matched.
Pegboard Construction/Mm	Scores are highly matched.
Colored Block Design/Mm	Scores are highly matched.
Reproduction of Puzzle/Be	Scores are highly matched.
Drawing a Clock/Be	Scores are highly matched.
Categorization	Scores are highly matched.
Pictorial Sequence A	Scores are highly matched.
Pictorial Sequence B	Scores are highly matched.
Geometrical Sequence A	Scores are highly matched.
Reproduction of 2-D Model/Be	Scores are highly matched
Pegboard Construction/De	Scores are highly matched
Geometrical Sequence B	Scores are highly matched
Colored Block Design/Be	Scores are moderately matched.
Colored Block Design/De	Scores are moderately matched.
Plain Block Design/Be	Scores are moderately matched.
Plain Block Design/Mm	Scores are moderately matched.
Copy Geometric Forms/Mm	Scores are moderately matched
Copy Geometric Forms/De	Scores are moderately matched
ROC Unstructured	Scores are moderately matched
ROC Structured	Scores are moderately matched
Spatial Relations in a Picture.	Scores are moderately matched
Orientation for Place	Scores are low matched.
Directions on body	Scores are low matched
Plain Block Design/De	Scores are low matched.
Symbolic Actions	Scores are low matched
Reproduction of 2-D Model/Mm	Scores are low matched
Reproduction of 2-D Model/De	Scores are low matched

While in the following Subtest the retest scores are higher than test scores

Table (9): Differences between test scores and retest scores .

Subtest	Average scores matching of Test-Retest
Motor Imitation	Retest scores are higher than test scores.
Copy Geometric Forms/Mm	Retest scores are higher than test scores.
Copy Geometric Forms/De	Retest scores are higher than test scores.
Reproduction of 2-D Model/Be	Retest scores are higher than test scores.
Reproduction of 2-D Model/Mm	Retest scores are higher than test scores.
Reproduction of 2-D Model/De	Retest scores are higher than test scores.
Pegboard Construction/De	Retest scores are higher than test scores.
ROC Unstructured	Retest scores are higher than test scores.
ROC Structured	Retest scores are higher than test scores.
Geometrical Sequence B	Retest scores are higher than test scores.
Spatial Relations in a Picture.	Retest scores are lower than test scores

3.2 Inter-rater reliability

3.2.1 Orientation

Table (10): Means comparison, Paired correlations test, and paired means test for two raters of Cognitive domain (CD) (Orientation)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 mean	Rater 2 Mean	Correlation Coefficient	P	t	P	
Orientation	1.Orientation for Place (OP)	7.16	7.53	0.67	0.00	-1.93	0.07	The rater scores are moderately correlated, and there is no significant difference in means. Therefore the scores are moderately matched.
	2. Orientation for Time (OT)	4.89	5.58	0.85	0.00	-2.48	0.02	There is significant difference in means and scores are highly correlated.

Comparison between two raters shows that there is no significant difference in means and the rater scores are moderately correlated . The

second rater scores are on average higher than first rater scores especially in OT . See table 9

3.2.2 Spatial perception

Table (11): Means comparison, Paired correlations test, and paired means test for two raters of Cognitive domain (CD) (Spatial Perception)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 Mean	Rater 2 Mean	Correlation Coefficient	P	t	P	
Spatial Perception	3.Directions on body (SP1)	3.53	3.53	0.95	0.00	0.00	1.00	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Spatial Relations between Child and Objects in Near Space (SP2)	3.00	3.11	0.97	0.00	-1.46	0.16	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Spatial Relations in a Picture. (SP3)	3.37	3.42	0.90	0.00	-0.57	0.58	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

It is found that in spatial perception subtests there is no significant difference in means and rater scores are highly correlated. Therefore the raters are highly matched . see table 10

3.2.3 Praxis

Table (12): mean comparison, Paired correlations test, and paired means test for two raters of Cognitive domain (CD) (Praxis)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 Mean	Rater 2 Mean	Correlation Coefficient	P	t	P	
Praxis	6. Motor Imitation (MI)	10.37	10.32	0.73	0.00	0.08	0.94	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	7. Utilization of Objects (UO)	5.74	5.32	0.63	0.00	1.12	0.28	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.
	8. Symbolic Actions (SA)	4.58	5.37	0.77	0.00	-2.33	0.03	There is significant difference in means and scores are highly correlated.

There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched in MI, where as in UO there is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched. In SA There is significant difference in means and scores are highly correlated but Second rater scores are lower than the first rater scores. See table 11

3.2.4 Visuomotor construction

Table (13): mean comparison, correlation efficient of two raters of cognitive Domain (CD) (Visuomotor construction)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 Mean	Rater 2 Mean	Correlation Coefficient	P	t	P	
Visuomotor Construction	9.Copy Geometric Forms/ Be (GF)	3.68	3.47	0.87	0.00	2.19	0.04	There is significant difference in means and scores are highly correlated.
	Copy Geometric Forms/Mm	2.88	2.69	0.56	0.02	0.89	0.38	There is no significant difference in means and scores are moderately correlated.
	Copy Geometric Forms/ De	2.94	2.94	0.62	0.01	0.00	1.00	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.
	10.Reproduction of 2-D Model/ Be (2-DM)	1.39	1.22	0.80	0.00	1.37	0.19	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Reproduction of 2-D Model/Mm	1.39	1.28	0.94	0.00	1.46	0.16	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Reproduction of 2-D Model/ De	1.41	1.29	0.94	0.00	1.46	0.16	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	11. Pegboard Construction/Be (PC)	3.32	3.21	0.94	0.00	1.00	0.33	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 Mean	Rater 2 Mean	Correlation Coefficient	P	t	P	
	Pegboard Construction/Mm	3.37	3.05	0.93	0.00	2.88	0.01	There is significant difference in means and scores are highly correlated. Rater 2 scores are lower than the rater 1 scores.
	Pegboard Construction/De	3.44	3.31	0.94	0.00	1.00	0.33	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	12. Colored Block Design/Be (CB)	3.74	3.58	0.92	0.00	1.84	0.08	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Colored Block Design/Mm	3.37	3.32	0.89	0.00	0.44	0.67	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Colored Block Design/De	3.41	3.18	0.92	0.00	2.22	0.04	There is significant difference in means and scores are highly correlated. Rater 2 scores are lower than Rater 1 scores
	13. Plain Block Design/ Be (PB)	3.05	3.16	0.95	0.00	-1.46	0.16	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	Plain Block Design/Mm	2.95	3.00	0.87	0.00	-0.44	0.67	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 Mean	Rater 2 Mean	Correlation Coefficient	P	t	P	
	Plain Block Design/De	2.82	3.00	0.70	0.00	-1.00	0.33	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	14. Reproduction of Puzzle/Be (RP)	3.05	3.22	0.89	0.00	-1.72	0.10	There is significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	15. Drawing a Clock/Be (DC)	2.84	3.05	0.79	0.00	-1.29	0.22	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

Visuomotor construction Domain have 7 subtests 5 out of 7 (GF,2-DM, PC, CB,PB) have to be tested 3 times first is the initial test(before) second immediate memory (Mem)immediately after (before test)third delayed memory (Del)after 20 minutes of administering before for each item . the comparison shows that There is no significant difference in means and rates are highly correlated. Therefore the rates are highly matched in (2-DM/bef-Mem-Del., PC/Bef-Del., CB/Bef-Mem., PB Bef-Mem-Del., RP,DC. GF/Bef, PC Mem, OT) while it was moderately matched in (GF-Del.,Mem). see table 12.

3.2.5 Thinking Operations

Table (14) Means comparison, Paired correlations test, and paired means test for two raters of Cognitive Domain (CD) (Thinking Operation)

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 mean	Rater 2 mean	Correlation Coefficient	P	t	P	
Thinking Operations	16. Categorization (CA)	3.37	3.68	0.76	0.00	-1.46	0.16	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	17. ROC Unstructured (RU)	2.84	2.63	0.55	0.01	1.17	0.26	There is no significant difference in means and scores are moderately correlated. Therefore the scores are moderately matched.
	18. ROC Structured (RS)	3.16	3.33	0.91	0.00	-1.37	0.19	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	19. Pictorial Sequence A (PS-A)	4.21	4.17	0.81	0.00	0.37	0.72	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	20. Pictorial Sequence B (PS-B)	4.06	4.28	0.77	0.00	-1.29	0.22	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.

CD	Subtest	Means comparison		Paired Correlations Test		Paired Means test		Explanation
		Rater 1 mean	Rater 2 mean	Correlation Coefficient	P	t	P	
	21. Geometrical Sequence A (GS-A)	4.32	4.21	0.91	0.00	0.81	0.43	There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched.
	22. Geometrical Sequence B (GS-B)	3.58	3.53	0.99	0.00	1.00	0.33	There is no significant difference in means and scores are highly correlated.

The Results of subtests shows that There is no significant difference in means and scores are highly correlated. Therefore the scores are highly matched in all thinking operation subtests except for RU the scores are moderately matched .see table 13

Summary of Raters Comparisons

Table (15): Subtests classification according to scores matching of the two raters

Subtest	Scores matching of the two raters
Directions on body	Scores are highly matched.
Spatial Relations between Child and Objects in Near Space	Scores are highly matched.
Spatial Relations in a Picture.	Scores are highly matched.
Reproduction of 2-D Model/Be	Scores are highly matched.
Reproduction of 2-D Model/Mm	Scores are highly matched.
Reproduction of 2-D Model/De	Scores are highly matched.
Pegboard Construction/Be	Scores are highly matched.
Pegboard Construction/De	Scores are highly matched.
Colored Block Design/Be	Scores are highly matched.
Colored Block Design/Mm	Scores are highly matched.
Plain Block Design/Be	Scores are highly matched.
Plain Block Design/Mm	Scores are highly matched.
Plain Block Design/De	Scores are highly matched.
Reproduction of Puzzle/Be	Scores are highly matched.
Drawing a Clock/Be	Scores are highly matched.
Motor Imitation	Scores are highly matched.
Categorization	Scores are highly matched.
ROC Structured	Scores are highly matched.
Pictorial Sequence A	Score are highly matched.
Pictorial Sequence B	Scores are highly matched.
Geometrical Sequence A	Score are highly matched.
Geometrical Sequence B	Scores are highly matched.
Orientation for Time	Scores are highly matched.
Copy Geometric Forms/Be	Scores are highly matched
Pegboard Construction/Mm	Scores are highly matched
Colored Block Design/De	Scores are highly matched
Symbolic Actions	Scores are highly matched
Orientation for Place	Scores are moderately matched
Copy Geometric Forms/De	Scores are moderately matched..
Utilization of Objects	Scores are moderately matched..
ROC Unstructured	Scores are moderately matched..
Copy Geometric Forms/Mm	Scores are moderately matched

Chapter Four
Discussions, Conclusions and
Recommendations

Chapter Four

Discussions, Conclusions and Recommendations

4.1 Discussion

The reliability of an assessment refers to the stability and dependability of its scores across time (test–retest reliability) or examiners (inter-rater reliability) . An assessment of reliability ensures that consistent scores are obtained with each use and irrespective of the specific person administering the test. In this study of 19 children, in the Jenin Governorate of Palestine, the test retest scores showed that 53% of scores are highly matched ,28% are moderately matched while 19% the scores are lowly matched . Thirty one percent (31%)of the retest scores showed higher scores than test scores , while 3% of the retest scores showed lower scores than the test scores and 66% of test retest scores showed no significant differences in means.

Administering the test by newly occupational therapy professionals in Palestinian territory to Palestinian children with different language, culture, unique social, political situation and challenges which affect their daily life occupations was also a challenge ; Lack of trained OTs on DOTCA-CH Administration was also a challenge, all of which may have impacted on the administration and scoring of the assessment. There were also difficulties in arranging testing sessions in the schools where the children were attending which meant that there were six different testing environments for the children which may have affected the testing and retesting scores.

On other words, 19 children from Jenin Governorate participated with approximately even numbers of boys and girls . As in previous published pilot study on test retest reliability and inter-rater reliability of DOTCA-CH the study sample was 11 Australian children (1) which was considered sufficient for reliability studies . In Israel, the inter-rater reliability of the DOTCA-CH test was determined on a group of 20 children who were typically developing (10) .

In the current study it may have been that the video-recordings did not present the two independent raters with the same experience as a 'live' client might present to the first rater. .

Also the length of test administration time make it difficult for some children especially for the younger children to tolerate. It is also tiring for the therapist to administer the test, which takes up to an hour. For example, the visuomotor construction area has seven subtests which are tiring for the children, who become easily bored with the repetition. with immediate and delayed memory. Some children felt bored by repetition . The two independent raters who will watch the video and put the scores will be more focused than the first rater as they concentrate on child response and scoring criteria and will not pay attention simultaneously to video recording conditions and scoring criteria of the children responses to test Subtests as the first rater do . So the inter rater scores has better matching than the test retest scores .

While in previous study the issues, which appeared to cause most concern with the test administration related to scoring. First, some of the

difficulty in achieving acceptable levels of test retest and inter-rater agreement may in part lie with the interpretation of the scoring criteria .

In previous study, the difficulty in achieving acceptable levels of inter-rater agreement may in part lie with the interpretation of the scoring criteria., but also may be an artifact of the design of this study where ratings were undertaken from video recordings of test administration rather than in-vivo.(1)

The current study agreed with the study conducted in Australia about perceived Utility of(DOTCA-CH) in Australian OT practice that , the wide age range covered by the (DOTCA-CH) was felt to impact the performance of children from different age groups . This means that what can be done with 11-12 years old would be difficult for 6-7 years old child, some of the tasks were not appropriate for all age groups, being too complex for younger children, and too simple for older children To resolve this, participants in the previous study suggested that : (a) tasks should be graded according to age and ability; (b) more complex tasks (e.g. visual perception) be removed for younger children; and (c) different tasks be included for different age groups.(33)

Many tasks of the tests are un-familiar to Palestinian children. For example the first test which uses a nicely wrapped gift box with ribbon which is not, familiar in the Palestinian culture so therefore a Palestinian child may have difficulty imagining the action and then unwrapping the

gift. Once they have done that in the first test, they would have a much better idea in the second test

Because culture impacts upon the cognitive development and abilities of a child, it is likely that Israeli and Australian children would experience different sociocultural environments. One pilot study suggested the DOTCA-Ch may not be culturally appropriate in Australia and may require some modification of task items, verbal instructions (language) and norms to ensure cultural appropriateness (1).

Orientation to time is much universal and children could perform better in test and retest in returning to Raw Data I found that Orientation for place were matched in 16 children and does not matched with 3 children, after discussing the issue with the statistician he told me that it is statistically correct and it is not matched may be this is due to not matching within the subtest questions . In Plain block design/ delayed, it is not matched because in retest it is the sixth time that the child asked to do the plain block design as in the first test he did it 3 times (before . immediate and delayed memory and in retest he did it also 3 times and the last time is the delayed memory so the child have had more exposure to the test and he become familiar with it and he perform better in retest as the scores showed earlier.

For Subtests that have higher scores in retest (Motor Imitation, Copy geometric forms Memory /Delayed, Reproduction of 2-D model / before, memory and delayed . Pegboard construction / Delayed . ROC structured,

Roc Unstructured .Geometrical Sequence B .) For Praxis motor imitation subtest consist of Verbal Instructions i.e. Child is asked to perform J,K items in verbal instruction,what happens that the accent in village is different from town or the camp, so the child misunderstood the word (Rukbeh) in Arabic which means knee as (Raqaba) in Arabic which means neck . And the knee which is in Arabic (Rukbeh) some children from villages called it (Sabouneh) which is something familiar to be called in villages . so knee understood as neck . .

Based in the previously mentioned, children should be asked to name their body parts, not only that included in the test before administering the test to overcome accent barrier alteration of using words according to culture as in the previous item the whole word is different. to make sure that the child understand the language . To use an assessment cross-culturally, the instructions need to be translated with care and ‘blind-back reviews’ completed to demonstrate grammatical accuracy and comprehension The word choice may be explained by changes in the complexity of vocabulary through the translation process(33) The Arabic translation of DOTCA also need to be reviewed by Arab speaking therapist and who understand very well the English manual of (DOTCA-CH).

Most visuomotor construction subtest combined with memory whether delayed or immediate have better scores in retest as repetition of the same task more than 3 times make the task familiar to child in the retest

In inter-rater reliability about 84% of scores are highly matched and 16% are moderately matched . In previous study with respect to the

examination of the inter-rater reliability of the DOTCA–Ch, as reported previously, the scores obtained by two independent expert examiners on a group of 20 children were found to be high for all 5 test domains.(11) These results were similar to those of a pilot study in which high Kappa coefficients and percentage of agreement were found between rater scores in a small group of Australian children ($n = 11$) (1). This similarity indicates that, overall, the process of administering and rating the (DOTCA–CH) scores is clear and structured well enough so as to enable objective and reproducible results between examiners in the previous studies . (11)

Similar to previous study done by Ziviany et al (1), a moderate and poor inter-rater agreement was in subtest 9 (Copy of Geometric Forms), where it was felt that the scoring criteria were not adequate. Same happened with me and the 2 independent raters. However graphical representations of acceptable and non-acceptable performances are not given, thus increasing the likelihood of disagreements occurring in borderline cases. The children's recollection and subsequent reproduction of the shapes appeared to deteriorate. This may explain the progressive reduction of inter-rater agreement for copying shapes to memory scores. Therefore it is felt that future (DOTCA-CH) revisions would benefit from the inclusion of a pictorial description of the marking criteria of these items (i.e., copying and reproducing shape designs).

Symbolic Actions subtest, where three of the five test items resulted in low agreement. A tentative explanation for the Finger Bead task is that it

requires considerable bimanual coordination, and may indeed be too difficult, producing false negative results .may be due to the fact that the instructions are not specific enough for the child to be able to meet the scoring criteria. For instance, the instructions for the scissors task states:“imagine you have scissors in one hand”. Many of the children took advantage of the imaginary nature of the task and rather than pretending to hold a pair of scissors, their fingers became the scissor blades, in this example and the other subtests was the same as in subtest a, the child in using the knife to slice the bread he use his hand as a knife, and in subtest b he use his finger as screw driver . It happened with most children ,so they obtained lesser score than real score if it is taken into account that the instructions do not state, “hold a pair of scissors” the child may assume that such a response is acceptable. Thus, this highlights our observation of the incongruity between the instructions and the criteria since the criterion explicitly states that the child must demonstrate a correct scissor grasp to obtain full marks.

Unlike the previous study the inter rater reliability and test retest reliability was highly matched in Categorization subtest and no difficulty was shown in this subtest may be this due to that children in Palestinian kindergarten and first grades curricula learn the concept of categorization with a similar example (personal observation) Poor inter-rater reliability for the categorization subtest in the previous study (1), was explained as it could have been attributed to the style of scoring criteria. The subtest requires high level cognitive functioning ,such as problem solving abilities.

Such a method of thinking may result in more low inter-rater reliability for the categorization subtest could have been attributed to the style of scoring criteria. The subtest requires high level cognitive functioning such as problem solving abilities. Such a method of thinking may result in more than one correct solution to the question. The scoring criterion accommodates this and as a result appears to be not entirely objective. Here the examiner's judgment is called upon in order to score the item, which may suggest that more experience is needed in giving the test for scoring this area.

The strengths in the current study were the presence of trained occupational therapist as independent raters, and there was reasonable time between test and retest, use of the video, testing the children in their familiar place and school environment, cooperation of parents and schools principals.

Here as the weaknesses was being using a video tape for the two independent raters and sending the videos to both raters were difficult due to the size of files and some technical problems in video savings to other hard discs . and the time needed to interpret the scores for the raters

4.2 Conclusions

The main conclusions of this study were:

1. (DOTCA-CH) reliability was found to be 81% (high to moderate) of test retest reliability and 100% (high to moderate) of inter rater reliability .

2. Modification to wording and language of instructions and scoring criteria of test parts could be done to be more appropriate to Palestinian context .
3. Occupational therapist in Palestinian territory will certainly benefit from the development, of the (DOTCA-CH) as it is actually not used by Palestinian Occupational Therapist . And over the importance of this tool is the large amount of information about the cognitive abilities of children, and their potential for learning which can be obtained from the application test
4. The (DOTCA-CH) has the potential to provide occupational therapists in Palestine with a measure of cognitive function for children.
5. The dynamic aspect of the (DOTCA-CH) means that it can help identify the best ways for therapists to structure clinical interventions to the learning strengths of children.
6. Possible limitation of the study was shortage of well trained Palestinian Occupational Therapist in using (DOTCA-CH). Besides Nature of (DOTCA-CH) test took long time to administer and raters work and social commitment prevents them from being on time so the scoring took a long time.
7. One of the limitation was that I couldn't test the validity of the test, what I did that I noticed the children performance during the tests and make possible suggestions . what made it difficult is the Lack of

experienced Palestinian Occupational therapist in using (DOTCA-CH) and extremely difficult to reach the Palestinian OTs who live inside Israel and get used to use (DOTCA-CH) due to closure and prevention of Palestinian to enter Israel ,which makes it difficult for me to communicate with them .

4.3 Recommendations

1. First it must be emphasized that the current research has simply provided some pilot data and insight into the(DOTCA-CH) Reliability Outside of country of origin, Further research regarding suitability and validity of (DOTCA-CH) to Palestinian context is recommended .
2. Children consist about half of the Population in Palestine. They are the backbone of the future Palestinian society .It is extremely important to create new jobs for OTs in Palestinian Ministry of Education and higher education and Ministry of Health to enable the occupational therapy intervention challenged Palestinian children.
3. Further research on investigating the clinical utility of (DOTCA-CH) in Palestinian occupational therapy practice .
4. Test time and tasks should be broken down . It may be done in two sessions apart .may be following sequence of test as recommended in the manual or by doing the visuomotor construction with memory tests in one day and the rest of the test in the first day all the subtest tasks

for younger children, to obtain the real score of children and not to fall in false negative scores due to fatigue .

5. (DOTCA-CH) Should be learned for Occupational Therapy Students during their study .

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Appendices

Appendix (1): Questionnaire

Appendix (2): Inform Consent

Appendix (3): Copy of the Tool

Appendix (4): Scoring Sheet

Appendix (5): Raw Data

**Appendix (6): Formal Letters to Ministry of Education
and Higher Education, UNERWA**

Appendix (1): Questionnaire



جامعة النجاح الوطنية

كلية الدراسات العليا

برنامج ماجستير الصحة العامة

V001 رقم الاستمارة.....

V002 تاريخ تعبئة الاستمارة:اليوم ----- الشهر ----- السنة -----

الأهل الأعزاء، تهدف هذه الاستبانة إلى معرفة المعلومات الشخصية و مراحل تطور الطفل وهي مكملة لاختبار العلاج الوظيفي للقدرات الذهنية للأطفال.

أرجو من حضرتكم التكرم بقراءة فقرات الاستبانة والإجابة عليها بدقة، لما في ذلك من أهمية كبيرة في توفير بيانات تساهم في تفسير بعض العوامل التي تؤثر على القدرات الذهنية للأطفال، وسوف تستخدم نتائج هذه الدراسة فقط لتحقيق الهدف المذكور. المعلومات التي ستقدمونها ستعامل بسرية تامة، و لن تستخدم إلا لأغراض البحث العلمي.

A المعلومات الشخصية

الوالدة/العزیزة،الرجاء تعبئة الاستبيان، اشر/ي الى الاجابة الملائمة واعطاء تفاصيل في المكان المناسب.

أشكركم على التعاون

الهاتف بالبيت: _____ الهاتف النقال: _____

العنوان الكامل: _____

اسم الفاحص (المعالج):-----

B. معلومات عن الولد

V003 اسم الطفل: _____

V004 تاريخ الميلاد: _____ اليوم ----- الشهر ----- السنة -----

V005 وزن الطفل عند الولادة _____ كغم

اشر من فضلك بدائرة على الاجابة الصحيحة بكل عامود, فيما يتعلق بالمعلومات التالية

V012	V011	V010	V009	V008	V007	V006
هل كانت هناك مشاكل بالنظر أو بالسمع في الماضي او اليوم؟	هل ولد قبل جيله (خديج)	عولج بالماضي/اليوم	اليدين المسيطرة	نوع الصف	الصف	الجنس
1. بالنظر بالماضي/اليوم 2. بالسمع بالماضي/اليوم	1. لا 2. نعم	1. بالعلاج الوظيفي بالماضي/اليوم 2. بالعلاج الطبيعي بالماضي/اليوم 3. بالعلاج بالنطق بالماضي/اليوم 4. تعليم صحي بالماضي/اليوم 5. طب نفسي بالماضي/اليوم 6. رياضة تطويرية بالماضي/اليوم	1. يمين 2. يسار 3. كلتا اليدين	1. عادي 2. صف تطوري 3. صف مدمج 4. تعليم خاص	1. أول 2. ثاني 3. ثالث 4. رابع 5. خامس 6. سادس	1. ولد 2. بنت

اداء الولد: هل توجد الان او كانت في الماضي مشاكل مختلفة من بين المشاكل التالية المفصلة في الجدول(في حال وجود مشاكل باكثر من مجال واحد, الرجاء الاشارة الى كل المجالات):

V018 صعوبات بالتركيز	V017 صعوبات بالحساب	V016 صعوبات بالكتابة	V015 صعوبات بالقراءة	V014 صعوبات بالحركة	V013 صعوبات بالانتظام
1. لا 2. نعم					
V018_1 اذا نعم:	V017_1 اذا نعم:	V016_1 اذا نعم:	V015_1 اذا نعم:	V014_1 اذا نعم:	V013_1 اذا نعم:
1. بالماضي 2. اليوم 3. في الماضي واليوم ايضا					

V019 هل يوجد للولد تشخيص طبي - صحي ايا كان (CP,PDD,شلل نصفي, تخلف)؟

(1) نعم (2) لا

V020 تشخيص اخر؟

(1) نعم (2) لا

V020_1 في حال نعم, فصل من فضلك: _____

V021 عناصر تطويرية: هل كانت هناك مشاكل بالزحف؟

(1) نعم (2) لا

V021_1 متى زحف الولد، في أي عمر؟ _____

V022 هل كانت هناك مشاكل بالمشي او التوازن؟ _____

(1) نعم (2) لا

V022_1 متى مشى الولد؟ _____

V023 هل كانت هناك مشاكل باللغة؟

(1) نعم (2) لا

V024 صعوبات بفهم اللغة؟

(1) نعم (2) لا

V025 صعوبات بالتحدث؟ _____

(1) نعم (2) لا

V026 في أي عمر تكلم الولد؟

C. معلومات عن العائلة

الحالة عائلية: (الإشارة ب - x الى جانب الاجابة الصحيحة)

V027 الالاهل: 1. متزوجون _____ 2. منفصلون /مطلقون. _____

3. عائلة وحيدة الوالد _____ 4. ارمل / ارملة _____.

V028 مكان السكن: 1. مدينة _____ 2. قرية _____ 3. مخيم _____.

امامك جدول به اسئلة عن الاب والام كل على حدة,اجب من فضلك على كل الاسئلة من خلال احاطة الاجابة الصحيحة بدائرة,او بتفصيل كامل اذا كان هناك حاجة لذلك.

V034 هل يوجد لقب اكايمي	V033 عدد السنوات التي تعلمتها بعد المدرسة	V032 هل توجد شهادة انهاء ثانوية	V031 سنوات تعليم	V030 العمر	V029 مهنة	
لقب اول لا نعم لقب ثاني لا نعم لقب ثالث لا نعم		لا نعم	ابتدائي (بما فيه اعدادي) _____ ثانوي _____ اضافي _____			والـد المفحوص
لقب اول لا نعم لقب ثاني لا نعم لقب ثالث لا نعم		لا نعم	ابتدائي (بما فيه اعدادي) _____ ثانوي _____ اضافي _____			والـدة المفحوص

أسئلة إضافية عن الأهل:

V036 نوع الصعوبات	V035 هل عانيت من صعوبات بالتعلم؟	
بالقراءة لا نعم	لا نعم	والد المفحوص
بالكتابة لا نعم		
بالحساب لا نعم		
بالتركيز لا نعم		
بالانتظام لا نعم		
بالحركة لا نعم		
بالقراءة لا نعم	لا نعم	والدة المفحوص
بالكتابة لا نعم		
بالحساب لا نعم		
بالتركيز لا نعم		
بالانتظام لا نعم		
بالحركة لا نعم		

D. معلومات عن الاخوة

V037 كم اخ واخت يوجد للمفحوص؟ _____

V038 هل المفحوص هو جزء من توأم؟ 1. لا 2. نعم

V039 هل يوجد ل احد الاخوة صعوبات بالتعلم؟ 1. لا 2. نعم

يتطرق الجدول التالي لكل واحد من الاخوة (اذا كان) وتتطرق الاسئلة للماضي واليوم.

V047	V046	V045	V044	V043	V042	V041	V040	
هل عولج باطار مختلف عما ذكر هنا	هل عولج بالماضي على يد طبيب نفسى	هل عولج بالماضي على يد معالجة بالنطق	هل عولج بالماضي على يد معالجة بالتشغيل او اخصائية العلاج الطبيعي	هل تلقى دروس مساعدة او تعليم تصحيحي	هل كانت هناك مشاكل نظر او سمع	هل كانت هناك مشاكل اصغاء وتركيز	هل كان بصف تطوري او بالتعليم الخاص	
لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	اخ أول
لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	اخ ثاني
لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	اخ ثالث
لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	اخ رابع
لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	لا نعم	اخ خامس

شكرا لتعاونكم

Appendix (2): Inform Consent



جامعة النجاح الوطنية

كلية الدراسات العليا

برنامج ماجستير الصحة العامة

الاهل الاعزاء ، ندعوكم للاشتراك بهذه الدراسة الهادفة الي فحص مائة اختبار العلاج الوظيفي الديناميكي لتقييم القدرات الذهنية للاطفال (DOTCA-CH): في دراسة تجريبية لفحص مصداقية الاختبار و ملائمة للتطبيق في مجتمعنا الفلسطيني . اشترك في هذه الدراسة ارادي و يمكنك الانسحاب متى اردت ذلك ، و نوعية الخدمات الصحية او امكانية مشاركتك في برامج و دراسات اخرى لن تتأثر باشتراكك او عدم اشراكك في هذه الدراسة. وصف الدراسة لاحقا سيعلمك بكل المخاطر او عدم الارتياح الممكن حدوثه اثناء الدراسة ، ويجب عليك مناقشة أي استفسار لديك مع جمانة دعبيس-المعدة لهذه الدراسة .

- كيف ستكون الدراسة؟

جمانة دعبيس ستدعوك مع طفلك لمقابلة وتقييم للقدرات الذهنية لطفلك باستخدام ال DOTCA- (CH) مرتين بفرق اسبوعين . مدة الفحص في كل مرة ساعة و نصف . سيتم تصوير الطفل خلال الفحص بكاميرا فيديو مثبتة في الغرفة التي سيتم الفحص فيها . و بعد الانتهاء من الفحص سيعطى تصوير الفيديو الى اخصائيتي علاج و وظيفي لتقييم قدرات الطفل . و من ثم سيتم المقارنة بين نتائج كل معالجة . و يمكنك مشاهدتي اثناء فحص طفلك عبر غرفة اخرى مجاورة لغرفة الفحص يفصلها زجاج من جهتك و مرآة من جهة غرفة الفحص.

- من يمكنه الاشتراك ؟

يمكن طفلك المشاركة في هذه الدراسة اذا كان عمرة بين 6-12 سنة ، و تطوره الجسدي و العقلي ملائم لجيله .

- المخاطر او الضيق الذي من الممكن حدوثه اثناء الدراسة .

لا يوجد مخاطر من الاشتراك في هذه الدراسة . من الممكن خلال التقييم و المقابلة ان تشعر بالتعب لطول فترة الفحص (ساعة و نصف كل مرة) اذا شعرت بذلك الرجاء اعلام جمانة دعبيس ولك الحق في عدم الاستمرار او ترتيب لقاء اخر في وقت يناسبك

- السرية التامة .

المعلومات التي ساحصل عليها ستبقى سرية من قبلي و قبل المشرفين على رسالتي بالاضافة الى الاخصائيتين المشتركتين بالدراسة .

تصوير الفيديو للطفل سيحفظ بسرية تامة و بخزانة مقفله في بيتي (جمانة دعبيس) . لمدة خمس سنوات بعد نشر الدراسة ثم سيتلف من قبلي .

يمكنكم الاتصال بي على جوال رقم 0599672878 او

E-mail: daibesjumana@yahoo.com

- التوقيع

لقد قرأت التوضيح بخصوص الدراسة . و اعطيت الفرصة لمناقشة اسالتي و استفساراتي و قد تمت الاجابة عليها جميعا . ومن هنا فانني اوافق على ان يشترك طفلي / طفلتي في هذه الدراسة . و كما ادرك ان اشتراكي في هذه الدراسة هو ارادي و لي الحق في الانسحاب من الدراسة متى اردت .

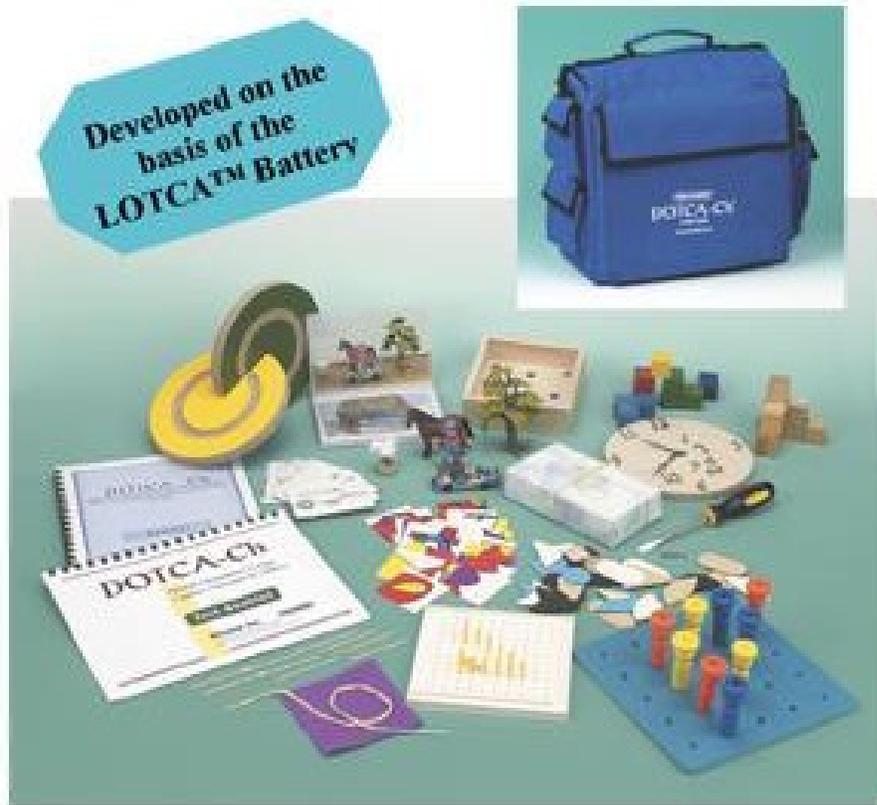
اسم ولي الامر -----

توقيع ولي الامر ----- التاريخ -----

انا اوافق علي ان يكون الفحص مصور بكاميرا فيديو .

توقيع ولي الامر ----- التاريخ -----

Appendix (3): Copy of the Tool



Appendix (4): Scoring Sheet

Scoring

DOTCA - Ch Dynamic Occupational Therapy Cognitive Assessment for Children Scoring Sheet

(circle the appropriate numbers)

Date: _____ Child id: _____ Tester Name: _____

Date of Birth: _____ Grade/class: _____

ORIENTATION											
		a		b		c		d		Total	
1.	Orientation for place	0	1	2	0	1	2	0	1	2	
2.	Orientation for time	0	1	2	0	1	2	0	1	2	

SPATIAL PERCEPTION												
3.	Directions on Child's Body (questions a-d)											
	Score Before/After Mediation					Mediation score						
	Before		After			General Intervention		General Feedback		Specific Feedback	Structured Category	
	a.	0	1	0	1	a.	1	2	3	4		
	b.	0	1	0	1	b.	1	2	3	4		
	c.	0	1	0	1	c.	1	2	3	4		
	d.	0	1	0	1	d.	1	2	3	4		
Total		Total										
4.	Spatial Relations between Child and Objects in Near Space (questions a-d)											
	Score Before/After Mediation					Mediation score						
	Before		After			General Intervention		General Feedback		Specific Feedback	Structured Category	
	a.	0	1	0	1	a.	1	2	3	4		
	b.	0	1	0	1	b.	1	2	3	4		
	c.	0	1	0	1	c.	1	2	3	4		
	d.	0	1	0	1	d.	1	2	3	4		
Total		Total										
5.	Spatial Relations on a Picture (questions a-d)											
	Score Before/After Mediation					Mediation score						
	Before		After			General Intervention		General Feedback		Specific Feedback	Structured Category	Reduced Amount
	a.	0	1	0	1	a.	1	2	3	4	5	
	b.	0	1	0	1	b.	1	2	3	4	5	
	c.	0	1	0	1	c.	1	2	3	4	5	
	d.	0	1	0	1	d.	1	2	3	4	5	
Total		Total										

Dynamic Occupational Therapy Cognitive Assessment for Children

PRAXIS												
6. Motor Imitation (questions a-l)												
Score Before/After Mediation							Mediation score					
Before			After					General Intervention	General Feedback	Specific Feedback	Structured Category	Reduced Amount
a.	0	1	2	0	1	2	a.	1	2	3	4	5
b.	0	1	2	0	1	2	b.	1	2	3	4	5
c.	0	1	2	0	1	2	c.	1	2	3	4	5
d.	0	1	2	0	1	2	d.	1	2	3	4	5
e.	0	1	2	0	1	2	e.	1	2	3	4	5
f.	0	1	2	0	1	2	f.	1	2	3	4	5
g.	0	1	2	0	1	2	g.	1	2	3	4	5
h.	0	1	2	0	1	2	h.	1	2	3	4	5
i.	0	1	2	0	1	2	i.	1	2	3	4	5
j.	0	1	2	0	1	2	j.	1	2	3	4	5
k.	0	1	2	0	1	2	k.	1	2	3	4	5
l.	0	1	2	0	1	2	l.	1	2	3	4	5
Total			Total									
7. Utilization of Objects (questions a-e)												
Score Before/After Mediation							Mediation score					
Before			After					General Intervention	General Feedback	Specific Feedback	Structured Category	Reduced Amount
			T*			T*						
a.	0	1	2	0	1	2	a.	1	2	3	4	5
b.	0	1	2	0	1	2	b.	1	2	3	4	5
c.	0	1	2	0	1	2	c.	1	2	3	4	5
d.	0	1	2	0	1	2	d.	1	2	3	4	5
e.	0	1	2	0	1	2	e.	1	2	3	4	5
Total			Total									
8. Symbolic Actions (questions a-e)												
Score Before/After Mediation							Mediation score					
Before			After					General Intervention	General Feedback	Specific Feedback	Structured Category	Reduced Amount
a.	0	1	2	0	1	2	a.	1	2	3	4	5
b.	0	1	2	0	1	2	b.	1	2	3	4	5
c.	0	1	2	0	1	2	c.	1	2	3	4	5
d.	0	1	2	0	1	2	d.	1	2	3	4	5
e.	0	1	2	0	1	2	e.	1	2	3	4	5
Total			Total									

* T= Time

Notes: _____

VISUOMOTOR CONSTRUCTION													
	Before/After Mediation							T*	Mediation score				
									General Intervention	General Feedback	Specific Feedback	Structured Category	Reduced Amount
9. Copy Geometric Forms	Before	1	2	3	4	5		a.	1	2	3	4	5
	Memory	1	2	3	4	5		b.	1	2	3	4	5
	After	1	2	3	4	5		c.	1	2	3	4	5
	Delayed	1	2	3	4	5		d.	1	2	3	4	5
									e.	1	2	3	4
10. Two - Dimensional Model	Before	1	2	3	4	5			1	2	3	4	5
	Memory	1	2	3	4	5							
	After	1	2	3	4	5							
	Delayed	1	2	3	4	5							
11. Pegboard Construction	Before	1	2	3	4	5			1	2	3	4	5
	Memory	1	2	3	4	5							
	After	1	2	3	4	5							
	Delayed	1	2	3	4	5							
12. Colored Block Design	Before	1	2	3	4	5			1	2	3	4	5
	Memory	1	2	3	4	5							
	After	1	2	3	4	5							
	Delayed	1	2	3	4	5							
13. Plain Block Design	Before	1	2	3	4	5			1	2	3	4	5
	Memory	1	2	3	4	5							
	After	1	2	3	4	5							
	Delayed	1	2	3	4	5							
14. Puzzle	Before	1	2	3	4	5			1	2	3	4	5
	After	1	2	3	4	5							
15. Clock Drawing	Before	1	2	3	4	5			1	2	3	4	5
	After	1	2	3	4	5							

* T=Time

Notes: _____

Dynamic Occupational Therapy Cognitive Assessment for Children

THINKING OPERATIONS												
		Before/After Mediation					T*	Mediation score				
								General Intervention	General Feedback	Specific Feedback	Structured Category	Reduced Amount
16. Categorization	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5						
17. ROC- Unstructured	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5						
18. ROC - Structured	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5						
19. Pictorial Sequence - A	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5						
20. Pictorial Sequence - B	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5						
21. Geometric Sequences A	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5		1	2	3	4	5
22. Geometric Sequences B	Before	1	2	3	4	5		1	2	3	4	5
	After	1	2	3	4	5		1	2	3	4	5

* T=Time

Important Note: Any total score that sums up to zero substitute the score to 1 for statistical reasons.

Notes: _____

General Assessment, notes and unusual performance: _____

DOTCA-Ch total area scores

Areas	First test – before	Mediation	Post test after
Orientation Score range 1-16		X	
Spatial Perception Score range 1-12			
Praxis Score range 1-44			
Visuomotor Construction Score range 7-35			
VC Memory immediate Score range 5-25		X	
VC Memory delayed Score range 5-25		X	
VC Time (in seconds sum over 7 subtests)		X	
Thinking Operations Score range 7-35			
TO Time (in seconds sum over 7 subtests)		X	

Note: sum up subtests scores in each area for a total area scores: before, mediation and after. X = no mediation exist in these parts.

Note: regarding mediation the sum score only means that higher the numbers overall more mediation was given in this area. It is more important to look at frequencies of level of mediation used and its meaning for planning treatment.

Appendix (5): Raw Data

Children Scores In Initial Test For Cognitive Domains and Subtests

Cognitive Domain	Subtest	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Orientation	Orientation for Place	8	8	8	8	8	8	6	8	8	8	8	8	8	8	7	7	8	8	8
	Orientation for Time	6	8	8	8	6	4	2	8	7	8	8	5	6	6	1	4	6	4	3
	Total	14	16	16	16	14	12	8	16	15	16	16	13	14	14	8	11	14	12	11
Spatial Perception	Directions on body	4	4	4	4	4	2	4	4	4	4	4	4	4	4	2	4	4	4	4
	Spatial Relations in Near Space	4	4	4	3	2	0	2	4	4	4	4	4	4	4	2	2	4	4	2
	Spatial Relations in a Picture.	4	4	4	4	2	4	4	3	4	4	4	4	4	4	2	4	4	4	2
	Total	12	12	12	11	8	6	10	11	12	12	12	12	12	12	6	10	12	12	8
Praxis	Motor Imitation	8	10	4	7	7	8	8	12	17	19	12	10	8	10	4	14	11	4	8
	Utilization of Objects	5	8	6	7	8	7	6	4	7	6	6	7	6	6	0	5	6	6	4
	Symbolic Actions	8	9	8	6	5	8	5	9	8	7	5	6	6	5	7	9	8	8	5
	Total	21	27	18	20	20	23	19	25	32	32	23	23	20	21	11	28	25	18	17
Visuomotor Construction	Copy Geometric /Be	4	4	3	4	3	3	4	3	4	4	4	3	3	4	2	3	3	4	2
	Copy Geometric /Me	4	4	2	3	4	3	2	3	5	3	4	2	2	3	2	2	2	3	1
	Copy Geometric /De	.	3	2	2	2	3	1	2	4	4	4	2	2	2	2	3	2	3	1
	Reproduction of 2-D /Be	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1
	Reproduction of 2-D /Me	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1
	Reproduction of 2-D /De	4	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1
	Pegboard Construction/Be	5	4	5	5	3	1	1	5	4	4	3	5	3	3	1	3	3	4	1
	Pegboard Construction/Me	5	.	5	5	3	1	1	3	4	4	3	5	2	3	1	3	3	4	1
	Pegboard Construction/De	5	4	5	5	3	1	1	5	5	4	3	5	3	3	1	3	5	4	1

	Colored Block Design//Be	4	4	4	5	4	4	4	4	5	4	2	5	4	3	3	4	4	5	3
	Colored Block Design/Me	4	4	4	3	4	4	4	4	5	4	2	5	4	2	3	4	4	4	2
	Colored Block Design/De	4	3	4	3	2	4	4	4	5	4	2	5	4	1	3	4	4	4	2
	Plain Block Design//Be	5	3	3	5	3	2	2	3	5	3	3	2	2	2	1	4	4	5	2
	Plain Block Design/Me	4	3	2	5	2	1	2	3	5	3	4	2	2	2	1	4	4	4	2
	Plain Block Design/De	5	2	2	1	1	1	2	3	5	3	3	4	2	2	1	4	4	5	2
	Reproduction of Puzzle /Be	1	3	3	5	3	3	2	2	5	5	4	5	2	3	1	5	5	3	1
	Drawing a Clock /Be	3	5	4	4	3	2	3	3	5	4	4	5	3	3	2	3	3	4	1
Thinking Operations	Categorization/Be	4	5	2	5	3	3	3	4	5	5	2	5	3	2	2	5	3	5	1
	ROC Unstructured /Be	3	3	1	3	1	2	1	2	3	2	2	3	4	3	1	3	1	3	2
	ROC Structured /Be	4	4	2	5	4	4	4	1	5	5	3	2	4	4	1	4	2	4	1
	Pictorial Sequence A/Be	5	5	5	5	5	4	2	5	5	5	.	5	5	5	2	5	5	4	1
	Pictorial Sequence B /Be	5	5	5	5	4	4	2	5	5	5	.	5	5	4	2	4	5	5	1
	Geometrical Sequence A /Be	5	5	5	5	3	5	5	5	5	5	5	5	2	5	3	5	5	5	1
	Geometrical Sequence B /Be	2	5	4	3	2	4	2	3	5	5	5	5	1	5	2	3	5	5	1
	Total	28	32	24	31	22	26	19	25	33	32	17	30	24	28	13	29	26	31	8

Children Scores In Retest For Cognitive Domains and Subtests

Cognitive Domain	Subtest	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Orientation	Orientation for Place	8	8	8	8	8	7	8	8	8	8	8	8	8	7	7	8	8	8	8
	Orientation for Time	4	8	6	8	6	5	3	8	6	8	8	6	6	6	1	6	6	6	3
	Total	12	16	14	16	14	12	11	16	14	16	16	14	14	13	8	14	14	14	11
Spatial Perception	Directions on body	4	4	4	4	4	4	4	4	4	4	4	4	4	2	2	4	4	4	4
	Spatial Relations in Near Space	4	4	4	4	2	2	2	4	4	4	4	4	4	2	2	2	4	4	4
	Spatial Relations in a Picture.	4	4	3	4	2	2	4	2	4	4	4	4	4	2	2	4	3	4	2
	Total	12	12	12	12	8	8	10	10	12	12	12	12	12	6	6	10	11	12	10
Praxis	Motor Imitation	12	12	13	7	14	6	10	16	21	17	12	13	10	8	7	16	12	10	9
	Utilization of Objects	6	6	6	7	6	7	6	3	8	9	9	8	6	6	1	4	5	6	3
	Symbolic Actions	9	7	9	7	8	8	5	10	9	8	5	8	5	6	6	7	3	9	5
	Total	27	25	28	21	28	21	21	29	28	34	26	29	21	20	14	27	20	25	17
Visuomotor Construction	Copy Geometric /Be	4	4	3	4	3	3	4	3	4	3	3	3	3	4	2	3	4	4	2
	Copy Geometric /Me	5	5	5	5	4	3	3	3	5	5	5	3	3	3	2	.	4	4	2
	Copy Geometric /De	5	5	4	5	4	3	2	3	5	4	5	4	4	2	2	4	5	4	1
	Reproduction of 2-D /Be	1	2	1	2	1	1	1	1	5	2	1	2	1	1	1	1	1	1	1
	Reproduction of 2-D /Me	5	2	5	5	1	1	1	1	5	5	1	2	1	1	1	1	1	1	1
	Reproduction of 2-D /De	5	5	.	5	5	4	1	5	5	.	5	2	1	1	1	5	5	1	1
	Pegboard Construction/Be	5	4	3	5	3	1	1	5	4	4	5	5	3	3	.	2	5	4	1
	Pegboard Construction/Me	5	5	4	5	3	1	1	5	4	4	5	5	2	3	.	2	5	4	1
	Pegboard Construction/De	5	5	5	5	4	3	1	5	.	5	5	5	2	3	.	4	5	4	1
	Colored Block Design//Be	4	5	5	5	4	4	4	5	5	4	4	5	4	2	1	4	4	5	1
	Colored Block Design/Me	5	5	5	4	4	4	4	4	5	4	4	5	4	2	1	4	4	5	1
Colored Block Design/De	4	2	5	5	4	5	4	.	.	5	4	5	4	1	1	4	4	5	1	

	Plain Block Design//Be	5	2	3	2	2	2	2	3	5	3	3	5	2	2	3	4	3	5	2
	Plain Block Design/Me	4	2	5	5	3	2	2	3	5	3	3	5	2	2	3	5	3	4	2
	Plain Block Design/De	5	2	5	4	3	3	2	.	.	5	.	5	2	2	3	4	1	5	2
	Reproduction of Puzzle /Be	1	3	2	3	3	3	3	3	5	2	4	.	2	3	2	5	5	3	1
	Drawing a Clock /Be	3	5	3	4	3	2	3	3	5	4	4	4	3	3	2	4	4	4	1
Thinking Operations	Categorization/Be	4	5	4	5	3	3	3	4	5	5	4	4	3	2	2	3	4	4	1
	ROC Unstructured /Be	3	4	3	3	3	2	1	2	5	5	3	4	4	3	2	3	1	3	2
	ROC Structured /Be	4	4	5	4	5	4	4	2	5	5	3	5	4	3	1	3	5	4	2
	Pictorial Sequence A/Be	5	5	5	4	5	4	2	5	5	5	5	5	5	5	2	5	5	4	2
	Pictorial Sequence B /Be 1	5	4	5	5	4	4	2	5	5	5	5	5	5	5	2	4	5	5	1
	Geometrical Sequence A /Be	5	5	5	5	4	5	5	5	5	5	5	5	3	5	3	5	5	5	1
	Geometrical Sequence B /Be	2	5	5	4	2	4	2	3	5	5	5	5	2	5	2	3	5	5	1
	Total	28	32	32	30	26	26	19	26	35	35	30	33	26	28	14	26	30	30	10

Children Scores Of Rater Shada For Cognitive Domains and Subtests

Cognitive Domain	Subtest	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Orientation	Orientation for Place	6	8	6	8	7	6	6	8	8	8	7	8	8	4	7	8	8	7	8	
	Orientation for Time	6	7	7	8	3	4	1	8	6	6	6	6	3	5	0	6	3	6	2	
	Total	12	15	13	16	10	10	7	16	14	14	13	14	11	9	7	14	11	13	10	
Spatial Perception	Directions on body	3	4	4	4	4	0	4	4	4	4	4	4	4	2	2	4	4	4	4	
	Spatial Relations in Near Space	4	4	4	2	2	0	1	4	4	4	4	4	4	2	2	2	4	4	2	
	Spatial Relations in a Picture.	4	4	4	4	2	2	3	4	4	4	4	4	4	2	2	4	3	4	2	
	Total	11	12	12	10	8	2	8	12	12	12	12	12	12	6	6	10	11	12	8	
Praxis	Motor Imitation	8	11	8	6	6	6	12	15	19	17	13	8	5	10	9	15	12	5	12	
	Utilization of Objects	3	8	4	5	7	6	9	6	6	6	6	6	3	6	3	6	7	9	3	
	Symbolic Actions	4	6	4	1	6	4	3	9	7	6	3	6	2	5	1	9	3	4	4	
	Total	15	25	16	12	19	16	24	30	32	29	22	20	10	21	13	30	22	18	19	
Visuomotor Construction	Copy Geometric /Be	4	5	4	4	4	3	4	4	4	4	4	3	3	4	3	4	3	4	2	
	Copy Geometric /Me	4	4	.	3	3	3	2	4	5	3	.	2	4	4	2	2	2	3	1	
	Copy Geometric /De	4	4	4	3	3	2	.	3	5	4	1	2	.	2	2	3	2	3	2	
	Reproduction of 2-D /Be	1	2	1	1	1	1	1	3	4	2	1	1	1	1	1	.	1	1	1	
	Reproduction of 2-D /Me	1	2	1	1	1	1	1	2	5	2	1	.	1	1	1	1	1	1	1	
	Reproduction of 2-D /De	1	2	1	1	1	1	1	2	5	2	1	1	.	1	1	1	1	1	1	
	Pegboard Construction/Be	5	4	3	5	1	1	2	5	4	4	4	5	3	3	2	3	3	4	2	
	Pegboard Construction/Me	5	4	4	5	2	1	2	4	4	4	4	5	3	3	2	3	3	4	2	
	Pegboard Construction/De	5	4	4	5	2	1	2	4	.	4	4	5	.	3	2	3	5	4	1	
	Colored Block Design//Be	4	2	4	4	3	4	4	4	5	4	2	5	3	4	3	4	4	4	5	3
	Colored Block Design/Me	4	2	3	4	2	4	4	4	5	3	2	5	3	3	2	4	4	4	2	
	Colored Block Design/De	3	2	3	4	2	4	4	4	5	3	2	5	.	2	2	5	4	4	2	

	Plain Block Design//Be	4	3	4	5	3	2	2	3	5	3	3	2	2	2	2	4	3	4	2
	Plain Block Design/Me	3	2	3	5	3	2	2	3	5	3	3	3	2	2	2	5	3	3	2
	Plain Block Design/De	3	2	3	2	3	2	2	3	5	3	3	4	.	2	2	3	3	3	2
	Reproduction of Puzzle /Be	2	3	3	4	3	3	3	2	4	5	3	5	2	3	1	4	4	3	1
	Drawing a Clock /Be	3	4	3	3	3	2	2	3	5	3	4	4	3	.	2	2	3	4	1
Thinking Operations	Categorization/Be	4	4	5	5	4	1	2	5	5	4	2	4	4	3	2	2	3	4	1
	ROC Unstructured /Be	4	3	3	3	2	3	2	2	4	3	4	3	3	4	2	3	1	3	2
	ROC Structured /Be	4	4	4	4	2	3	4	2	5	5	3	2	3	4	1	3	2	4	1
	Pictorial Sequence A/Be	5	5	4	4	4	3	2	5	5	5	4	5	4	5	2	5	5	4	4
	Pictorial Sequence B /Be 1	5	4	5	5	5	3	2	4	4	4	4	5	4	5	3	4	5	4	2
	Geometrical Sequence A /Be	5	5	5	5	5	4	4	5	5	5	5	5	1	4	3	5	5	5	1
	Geometrical Sequence B /Be	2	5	5	3	4	2	2	3	5	5	5	5	1	5	2	3	5	5	1
	Total	29	30	31	29	26	19	18	26	33	31	27	29	20	30	15	25	26	29	12

Children Scores Of Rater Reem For Cognitive Domains and Subtests

Cognitive Domain	Subtest	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Orientation	Orientation for Place	6	8	6	8	7	6	6	8	8	8	7	8	8	4	7	8	8	7	8	
	Orientation for Time	6	7	7	8	3	4	1	8	6	6	6	6	3	5	0	6	3	6	2	
	Total	12	15	13	16	10	10	7	16	14	14	13	14	11	9	7	14	11	13	10	
Spatial Perception	Directions on body	3	4	4	4	4	0	4	4	4	4	4	4	4	2	2	4	4	4	4	
	Spatial Relations in Near Space	4	4	4	2	2	0	1	4	4	4	4	4	4	2	2	2	4	4	2	
	Spatial Relations in a Picture.	4	4	4	4	2	2	3	4	4	4	4	4	4	2	2	4	3	4	2	
	Total	11	12	12	10	8	2	8	12	12	12	12	12	12	12	6	6	10	11	12	8
Praxis	Motor Imitation	8	11	8	6	6	6	12	15	19	17	13	8	5	10	9	15	12	5	12	
	Utilization of Objects	3	8	4	5	7	6	9	6	6	6	6	6	3	6	3	6	7	9	3	
	Symbolic Actions	4	6	4	1	6	4	3	9	7	6	3	6	2	5	1	9	3	4	4	
	Total	15	25	16	12	19	16	24	30	32	29	22	20	10	21	13	30	22	18	19	
Visuomotor Construction	Copy Geometric /Be	4	5	4	4	4	3	4	4	4	4	4	3	3	4	3	4	3	4	2	
	Copy Geometric /Me	4	4	.	3	3	3	2	4	5	3	.	2	4	4	2	2	2	3	1	
	Copy Geometric /De	4	4	4	3	3	2	.	3	5	4	1	2	.	2	2	3	2	3	2	
	Reproduction of 2-D /Be	1	2	1	1	1	1	1	3	4	2	1	1	1	1	1	.	1	1	1	
	Reproduction of 2-D /Me	1	2	1	1	1	1	1	2	5	2	1	.	1	1	1	1	1	1	1	
	Reproduction of 2-D /De	1	2	1	1	1	1	1	2	5	2	1	1	.	1	1	1	1	1	1	
	Pegboard Construction/Be	5	4	3	5	1	1	2	5	4	4	4	4	5	3	3	2	3	3	4	2
	Pegboard Construction/Me	5	4	4	5	2	1	2	4	4	4	4	4	5	3	3	2	3	3	4	2
	Pegboard Construction/De	5	4	4	5	2	1	2	4	.	4	4	4	5	.	3	2	3	5	4	1
	Colored Block Design//Be	4	2	4	4	3	4	4	4	4	5	4	2	5	3	4	3	4	4	5	3
	Colored Block Design/Me	4	2	3	4	2	4	4	4	4	5	3	2	5	3	3	2	4	4	4	2
	Colored Block Design/De	3	2	3	4	2	4	4	4	4	5	3	2	5	.	2	2	5	4	4	2

	Plain Block Design//Be	4	3	4	5	3	2	2	3	5	3	3	2	2	2	2	4	3	4	2	
	Plain Block Design/Me	3	2	3	5	3	2	2	3	5	3	3	3	2	2	2	5	3	3	2	
	Plain Block Design/De	3	2	3	2	3	2	2	3	5	3	3	4	.	2	2	3	3	3	2	
	Reproduction of Puzzle /Be	2	3	3	4	3	3	3	2	4	5	3	5	2	3	1	4	4	3	1	
	Drawing a Clock /Be	3	4	3	3	3	2	2	3	5	3	4	4	3	.	2	2	3	4	1	
Thinking Operations	Categorization/Be	4	4	5	5	4	1	2	5	5	4	2	4	4	3	2	2	3	4	1	
	ROC Unstructured /Be	4	3	3	3	2	3	2	2	4	3	4	3	3	4	2	3	1	3	2	
	ROC Structured /Be	4	4	4	4	2	3	4	2	5	5	3	2	3	4	1	3	2	4	1	
	Pictorial Sequence A/Be	5	5	4	4	4	3	2	5	5	5	4	5	4	5	2	5	5	4	4	
	Pictorial Sequence B /Be 1	5	4	5	5	5	3	2	4	4	4	4	4	5	4	5	3	4	5	4	2
	Geometrical Sequence A /Be	5	5	5	5	5	4	4	5	5	5	5	5	5	1	4	3	5	5	5	1
	Geometrical Sequence B /Be	2	5	5	3	4	2	2	3	5	5	5	5	5	1	5	2	3	5	5	1
	Total	29	30	31	29	26	19	18	26	33	31	27	29	20	30	15	25	26	29	12	

**Appendix (6): Formal Letters to Ministry of Education and
Higher Education, UNERWA**

**An-Najah
National University**
Faculty of Graduate Studies
Dean's Office



**جامعة
النجاح الوطنية**
كلية الدراسات العليا
مكتب العميد

التاريخ : 2010/10/28

حضرة السيد مدير عام التعليم العام المحترم
الإدارة العامة للتعليم العام
وزارة التربية والتعليم العالي
فاكس: 2983222 - 2 - 00972
رام الله

الموضوع : تسهيل مهمة الطالبة / جمانة صبحي دعبس رقم تسجيل (10753245)

تحية طيبة وبعد،

الطالبة جمانة صبحي دعبس / رقم تسجيل 10753245 تخصص ماجستير صحة عامة في كلية الدراسات
العليا، وهي بصدد إعداد الأطروحة الخاصة بها بعنوان:
(اختبار العلاج الوظيفي الديناميكي لفحص القدرات الذهنية للأطفال / دراسة تجريبية لفحص مصداقية الاختبار)

يرجى من حضرتكم تسهيل مهمتها في تطبيق المادة التدريسية وعمل اختبار على طلبة المرحلة الأساسية في
المدارس الحكومية الأساسية التابعة لمحافظة جنين لمتابعة المشروع البحث.

شاكرين لكم حسن تعاونكم.

مع وافر الاحترام،،،

عميد كلية الدراسات العليا

د. محمد أبو جعفر

فلسطين، نابلس، ص.ب 70707 هاتف: 2345115، 2345114، 2345113 (09) 972 * فاكسيل: 2342907 (09) 972

Nablus, P. O. Box (7) *Tel. 972 9 2345113, 2345114, 2345115 هاتف داخلي (5) 3200

* Facsimile 972 92342907 * www.najah.edu - email fgs@najah.edu

PALESTINIAN NATIONAL AUTHORITY
Ministry of Education & High Education
Directorate of Education - Jenin
Aba B. School



السلطة الوطنية الفلسطينية
وزارة التربية والتعليم العالي
مديرية التربية والتعليم جنين
مدرسة ابا ب. الأساسية المختلطة

الرقم : ع / ٣ / ٦٣٣٦

التاريخ 2010/12/01 م

الموافق : 1431/12/25 هـ

حضرة مدير/ة مدرسة المحترم/ة

تحية طيبة وبعد

الموضوع: تسهيل مهمة

الإشارة : كتاب معالي وزير التربية والتعليم العالي المحترم

رقم و ت/ 13041/31/30 بتاريخ 2010/11/22

أوافق على قيام الدارسة (جمانة صبحي عوض دعيبس) بإجراء دراستها الميدانية الموسومة بعنوان (اختبار العلاج الوظيفي الديناميكي لفحص القدرات الذهنية للأطفال / دراسة تجريبية لفحص مصداقية الاختبار) وذلك من خلال توزيع الاختبار المعد لهذه الغاية على طلبة المرحلة الأساسية في مدرستكم. راجياً تسهيل مهمتها على ألا يؤثر ذلك على سير العملية التعليمية.

مع الاحترام

مدير التربية والتعليم

سلام الطاهر



ع / ٣ / ٦٣٣٦

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جامعة النجاح الوطنية

كلية الدراسات العليا

اختبار العلاج الوظيفي الديناميكي لتقييم القدرات الذهنية للاطفال
(DOTCA – CH): دراسة تجريبية لمصادقية كل من درجة
التوافق بين المقيمين وإعادة الاختبار

إعداد

جمانة صبحي عوض دعبس

إشراف

د. أيمن حسين

د. آن كارسويل

قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير في الصحة العامة
بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

2012م

ب

اختبار العلاج الوظيفي الديناميكي لتقييم القدرات الذهنية للأطفال (DOTCA – CH): دراسة
تجريبية لمصادقية كل من درجة التوافق بين المقيمين وإعادة الاختبار

إعداد

جمانة صبحي عوض دعبس

إشراف

د. أيمن حسين

د. آن كارسويل

الملخص

الهدف: هو فحص درجة التوافق بين المقيمين وإعادة الاختبار لفحص العلاج الوظيفي الديناميكي لتقييم القدرات الذهنية للأطفال الفلسطينيين. **طريقة البحث (تصميم الدراسة):** فحص مدى مصداقية درجة التوافق بين المقيمين وعند إعادة الاختبار. **مكان الدراسة:** محافظة جنين في شمال الضفة الغربية. **عينة الدراسة:** عينة متاحة (سهلة الوصول إليها) من أطفال تطورهم طبيعي من عمر (6-12) سنة. **أداة الدراسة:** التقييم الديناميكي المعياري لتقييم القدرات الذهنية والقدرة على التعلم للأطفال طبيعياً التطور من عمر (6-12) سنة وهذا الاختبار (DOTCA – CH) سوف يطبق على عينة الدراسة.

في هذه الدراسة تم فحص مصداقية درجة التوافق بين المقيمين وإعادة الاختبار لاختبار العلاج الوظيفي للقدرات الذهنية للأطفال الفلسطينيين طبيعياً التطور من عمر (6-12) سنة.

نتائج الدراسة: تشير نتائج الدراسة أن هناك توافق مرتفع نسبة 53%، و متوسط بنسبة 28%، ومنخفض بنسبة 19% في علامات الاختبارات الفرعية عند إعادة الاختبار. وكما تظهر النتائج أن علامات الاختبارات الفرعية عند إعادة الاختبار أعلى من العلامات في الاختبار الأولى بنسبة 31%. ومن ناحية أخرى تظهر النتائج أن علامات الاختبارات الفرعية بين المقيمين كانت من توافق مرتفع بنسبة 84% إلى توافق متوسط بنسبة 16%. وكما نوقشت في هذه الدراسة كل من القيود والمساعدات لأداء هذا الاختبار في البيئة الفلسطينية. تشمل هذه الدراسة توصيات لمزيد من التطوير لهذا الاختبار، وكما اقترح أن هذا الاختبار قد يكون أداة تقييم مناسبة تستخدم من قبل أخصائيي العلاج الوظيفي لتقييم القدرات الذهنية للأطفال الفلسطينيين من عمر (6-12) سنة.

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