International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

The Portage Guide and Its Home Applications: A Descriptive Study of Its Efficacy in Improving the Five Developmental Domains for Children with Special Needs

Prof. Dr Manal Abouhmala[1], Mohamed Jear[2]

[1]Professor of Psychology, Psyvhology
[2]PhD Student, Sidi Mohamed Ben Abdellah U, English

Abstract

This research paper aims to highlight the Portage guide as one of the leading approaches in the field of early intervention for developing the skills of children (both children with special needs and those with typical development) from birth to 6 years of age in their home environment. The paper presents a theoretical framework that clarifies the concept of disability, its types, its manifestations, and its various causes, followed by an analytical evaluation of the program's effectiveness in developing five basic developmental domains, namely cognition, language, motor skills, socialization, and self-care. The study focused on the participatory dimensions of the program, which integrate parents (the father and the mother) as primary teachers in the guidance and training process, in cooperation with the psychologist. The research relied on the descriptive method to monitor and track the typical development and the retrospective effect among a sample of children who had previously undergone applications of this program. The results showed a marked positive effect on improving the independence and behavioral skills of the targeted children, in addition to raising the training and interactional competence of mothers and fathers in facing developmental challenges. The study concluded by presenting recommendations that stress the need to expand the scope of the program's application and to extend its assessment tools to specialized diagnostic and therapeutic institutions and centers.

Keywords: Portage Guide; Early Intervention; Disability; Developmental Skills; Psychologist; Family Partnership.

Introduction

The child represents a society's strategic asset and its fundamental human capital, which constitutes a long-term developmental investment; consequently, childhood receives the highest priority and sustained attention in all human societies. Nevertheless, the scale and nature of this attention vary from one environment to another, depending on the circumstances of each society and its developmental and cultural contexts.

This importance is inevitably magnified when dealing with children with disabilities, who constitute the segment most in need of intensive support and follow-up. The early years of their lives are pivotal and decisive periods in which many of them face severe developmental difficulties that may deprive them of

early opportunities for learning and development, leaving a profound impact that is difficult to remedy later.

Accordingly, the beginning of the twenty-first century witnessed fundamental human-rights and humanitarian shifts at the international and societal levels, which directly contributed to reshaping the psycho-educational perspective toward children with disabilities. The approaches prevailing at the time moved from marginal care to recognition of the interactive capacity of the child with a disability and of their ability to achieve effective inclusion and genuine participation alongside peers in all spheres of life.

In light of this epistemological shift, structured early psychological intervention is the cornerstone for developing the adaptive skills of children with various disabilities and for modifying their behavior. Contemporary educational and psychological literature affirms the effectiveness of targeted therapeutic and training programs in improving the quality of life of the child and the family, provided that such programs are suited to the unique developmental characteristics of each group.

Within this systemic framework, Megari et al. (2026) called for a methodological shift in the way psychological support is delivered to children with developmental and intellectual disabilities, one grounded in redesigning the therapeutic environment and translating it into specific operational strategies. These strategies include contextualizing and simplifying linguistic structure to suit the child's processing capacity, strengthening visual coding as a supportive interactive mediator, and extending the temporal span of intervention through distributed practice and the repetition of sessions and activities, so as to foster cognitive flexibility and the generalization of acquired skills.

Along the same lines, it is critically important to equip inclusive educational and social spaces that meet the developmental requirements of the child with a disability, thereby establishing mechanisms for the full and lasting inclusion of individuals with special needs in society. From this standpoint, the objective scope of this scholarly effort lies in identifying the difficulties arising from motor, sensory, intellectual, and interactional disabilities, in order to explore and analyze their reciprocal repercussions on the daily life and the available educational pathways of the child and the family that cares for them.

It is well established that raising a child with special needs places exceptional burdens on the family, which therefore constantly strives to acquire the pedagogical competencies needed to facilitate the child's integration into the social fabric. These circumstances oblige practitioners and psychologists to adhere to professional standards and to formulate comprehensive intervention programs that are not confined to caring for the child alone but extend to supporting the family system and community partnership, so as to ensure the sustainability of rehabilitation.

Theoretical literature and contemporary research in the fields of disability and clinical psychology (Al-Khatib, 2007; Seligman & Darling, 2000) confirm that addressing disability, whether intellectual or motor, cannot be reduced to medical-therapeutic approaches or purely rehabilitative frameworks; disability is classified as an extended and complex psychological and social experience that casts its shadow on the daily dynamics of the child and the family system surrounding them.

The family structure undergoes a systemic shock that leads to rising feelings of anxiety, frustration, and rejection and to mutual blame between the partners, which in turn affects the self-concept of the child with a disability and diminishes the child's sense of psychological security (Beckman, 1991). Hence, psychological intervention emerges as an imperative for ensuring a sound rehabilitative course, aiming to exploit neural and cognitive plasticity in the early developmental stages in order to achieve adaptation and social belonging.

Responding to the critical situation faced by the child with a disability requires adopting transnational str-

ategies that have been clinically tested and have gained the recognition and consensus of international bodies as effective reference programs. Reinforcing this integrative perspective, a number of strategies enjoy broad scientific and clinical acceptance and are grounded in the evidence-based practices approach. These include structured educational and behavioral programs such as the Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH) program and applied behavior analysis (ABA); the Early Start Denver Model (ESDM); augmentative and alternative communication systems such as the Picture Exchange Communication System (PECS); sensory rehabilitation approaches; and inclusive individualized education projects, as well as sensory rehabilitation approaches and inclusive individualized educational programs. However, this paper will focus on two programs, the Portage Guide and virtual reality (VR) therapy, that we believe can make a valuable contribution to the intervention due to their clinical potential to alleviate the impact of disability. The paper seeks to present the various approaches and fundamental principles underlying these programs, drawing on previous studies to support their credibility.

In this epistemic context, the world has witnessed a radical shift in the interpretation of disability. Having been historically confined to the medical model, which reduced disability to an intrinsic biological deficit requiring correction or institutional segregation, the psychological model emerged to redefine the concept, regarding disability as the product of a complex adaptive developmental crisis that affects the psychology of the child with a disability in their inclusion and interaction with their surroundings. This study approaches the phenomenon of disability in its psychological, biological, and social dimensions. Accordingly, it attempts to address a set of central questions concerning the nature of disability, its historical and conceptual development, and its causes and risk factors, and to identify the main clinical and educational intervention programs (mentioned above) that are internationally recognized and appropriate to the needs of the child with a disability.

The Concept of Disability Between Past and Present

In his landmark study *The Fool: His Social and Literary History*, Welsford (1935) documents the epistemological transformation of the concept of disability and behavioral atypicality, highlighting its movement from a material context (psychological and sociological) within the political spaces of the royal court to a conceptual instrument in literary and philosophical thought. Narrative and theater reproduced the figure of the "fool," transforming it from a manifestation of structural incapacity into a philosophical icon in which wisdom and objectivity are condensed behind a mask of simplicity and apparent disorder. Historically, the work shows that ancient and medieval royal institutions adopted a two-dimensional functional strategy in classifying and employing these actors at two levels:

- *The natural fool:* This category comprised persons with intellectual or neurodevelopmental disorders. They were recruited to the court because of their absolute spontaneity and the liberation of their behavior from strict social oversight and norms, which made them a source of relief from protocol monotony and of entertainment for the aristocratic elite.
- *The artificial fool:* This category comprised neurologically and intellectually typical individuals who possessed high performative and comedic skills. This type occupied an exceptional critical position within the structure of power; it became the only actor authorized to break strict royal protocols and to direct sharp, deconstructive political criticism at the ruler and at public policies, cloaked in feigned stupidity as a strategic immunity against the consequences of political punishment or execution.

Welsford (1935) appears to have sought to demonstrate that the "fool" was not merely a recreational margin in the history of courts but a vital structural element in the stability of royal regimes. A profound historical and cultural paradox emerges here: while historical readings indicate that persons with disabilities occupied an advanced symbolic position in the fine arts and in philosophical and humanistic settings as an inspiring figure, the first decades of the twentieth century witnessed a sharp setback and a structural regression in this treatment, as an institutionalized discriminatory ideology prevailed that reframed disability according to an exclusionary biological perspective.

This negative institutional shift materialized with the founding of the Eugenics Record Office (ERO) in 1910, which directly contributed to legitimizing coercive and abusive practices against persons with disabilities, such as compulsory sterilization, mandatory institutionalization, and strict legal restrictions on immigration and marriage. This exclusionary perspective did not stop at social segregation but reached its fascist and extremist ideological climax in the Nazi "euthanasia program" (1939–1941), which moved beyond legislative discrimination to the systematic and organized physical elimination of individuals with disabilities, under a medical and ideological pretext that classified their lives as "unworthy of life" (Dineshan & Geetha, 2023, p. 176).

By the middle of the twentieth century, however, the concept of disability witnessed a qualitative leap in the empowerment of this group, driven by the digital revolution and by rapid legislative and social transformations. At the technological level, new technologies such as screen-reading software, automatic speech recognition systems, innovative assistive devices, and algorithms have helped bridge the digital divide and promote digital inclusion and cognitive access for this group.

From the perspective of international human rights law, the adoption by the United Nations General Assembly of the Convention on the Rights of Persons with Disabilities (UNCRPD) in 2006 constituted a new and decisive turning point in codifying their rights; the Convention provided a binding reference framework containing clear guiding principles for protecting their gains and promoting equality of opportunity (Dineshan & Geetha, 2023). These international rights-based orientations were also reflected in education, as contemporary educational systems followed the shift toward the model of "inclusive education" by admitting pupils and students with disabilities into mainstream educational settings (schools, colleges, institutes, etc.), which contributed to a gradual decline in the traditional policies of educational segregation that had dominated for decades.

The contemporary discourse on the humanization of disability does not stop at demanding legal rights; it extends to deconstructing the semiotic and cultural structures that have shaped societal awareness of physical and perceptual difference. Restoring the legal and social standing of this group necessarily entails undermining charity-based care approaches that entrenched relations of dependency and replacing them with an empowerment perspective that dismantles reductive medical centrism. By virtue of this epistemic shift, the person with a disability is redefined as a conscious subject possessing full legal capacity and social agency, which allows liberation from the reductive patterns that have long confined human identity within the dichotomy of "normality and functional disorder."

The Human Rights and Legislative Turning Point in the Moroccan Context

The Constitution of the Kingdom of Morocco of 2011 constituted a decisive human-rights turning point, bringing a major legislative promise through the official constitutionalization of the term "persons in a situation of disability," with particular reference to the most vulnerable groups, such as children. Its aim

was to dismantle and move beyond the pejorative and stigmatizing connotations attached to the traditional concepts that had prevailed (Constitution of the Kingdom of Morocco, 2011).

Conceptual Foundations of Disability: From the General Interactionist Perspective to the Clinical Definition

Contemporary scientific definitions of disability, particularly in approaching children with disabilities, rest on the contextual interactionist model; disability is no longer viewed as an absolute biological trait but as the inevitable product of the dynamic interaction between the individual's functional impairment, on the one hand, and the environmental and societal barriers that prevent full inclusion, on the other. Accordingly, Grossman (1973) grounds the concept of intellectual disability, historically described as mental retardation, in a significant and substantial reduction in general cognitive functioning relative to average intelligence, provided that this deficit co-occurs with a structural impairment in adaptive behavior and social interaction skills, and that the clinical manifestations of the disorder appear and take shape during the developmental period extending from birth to age 18.

The World Health Organization (2019) defines intellectual disability (disorder of intellectual development) as a condition of incomplete or arrested cognitive development, manifested primarily in deficits in a variety of functional skills during the developmental period. This disorder adversely affects the general structure of intelligence, including cognitive abilities, language expression, and motor, adaptive, and social skills. It may also co-occur with other (comorbid) psychological, sensory, or behavioral disorders, although these are not a necessary condition for diagnosis.

Abu al-Kas (2008, p. 4) views disability as a structural impairment or functional disorder affecting one or more of the body's internal systems, impeding it from performing its normal physiological roles. This condition arises from multiple etiological (causal) disturbances, whether hereditary and genetic factors that are transmitted, or acquired and environmental factors following birth, such as microbial infections or acute viral injuries that damage vital tissues and disrupt the child's organic homeostasis.

The *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.; *DSM-5-TR*) classifies intellectual disability (intellectual developmental disorder) as a neurodevelopmental disorder characterized by functional limitations in both intellectual functioning (such as thinking, reasoning, problem solving, and academic learning) and adaptive behavior across its conceptual, social, and practical domains, provided that the clinical manifestations of the disorder appear during the developmental period (American Psychiatric Association, 2022).

The foregoing definitions reveal an epistemological convergence based on four structural determinants. The first is a substantial deviation of general cognitive performance from established psychometric norms; the second centers on a functional deficit in the structure of adaptive behavior across its conceptual, social, and practical dimensions. The third rests on the necessary systemic co-occurrence of these two impairments as a mandatory criterion for clinical documentation; and the fourth is the strict chronological determinant, which requires that this cluster of symptoms arise and take shape exclusively within the individual's developmental period.

Portage Guide

Comprehensive assessment and timely early intervention are a fundamental pillar in maximizing the latent potential of children who show developmental delay or exceptional development (advanced giftedness). In response to the growing cognitive and applied demands in early childhood education and care, the New

Portage Guide (NPG) was developed in 2003 to cover the age range from birth to six years. The guide's primary function is that of a diagnostic instrument and a benchmark for curriculum planning, thereby contributing effectively to promoting developmental trajectories among children with disabilities and diverse developmental disorders.

The historical roots of the program go back to 1969, when David E. Shearer founded the Portage Project, whose central aim at the time was to provide support and assistance to children diagnosed with developmental difficulties in rural communities (Shearer & Shearer, 1972). At the beginning of the 1970s, the project adopted the strategy of home-based programs, with the aim of empowering parents and activating their role as the primary educators and agents in their children's educational and developmental process. The procedural philosophy of the program rests on continuous diagnostic assessment of the child's current skills and then on designing an individualized education plan (IEP) consistent with the child's developmental needs, with the family forming the pivotal axis and the principal partner in implementing and monitoring the learning process within the child's natural context. The program relies on a "triadic model" (specialist, parents, child) to empower the family and train it to lead the child's gradual development. The assessment and instructional structure of the Portage guide is integrated across six main developmental domains, covering the physiological, psychological, and social dimensions of child development.

The Six Developmental Domains of the Portage Guide

Infant/Child Development

The aim of this domain is for the family (mother and father) to track, monitor, and follow the rapid developmental leaps that the child undergoes in the first year, and to verify the sound construction of the child's motor, cognitive, linguistic, and social skills so as to ensure early intervention in the event of any delay. Infant development at this stage is divided into four main developmental subdomains that integrate to shape the child's future growth.

Motor development:

- Gross motor movements begin with head control and proceed through rolling over, sitting without support, crawling, and standing with support, together with visual-motor coordination and the grasping of objects.
- Fine motor movements develop from random hand movements to the ability to pick up small objects using the thumb and index finger (pincer grasp) and to transfer toys from one hand to the other.

Cognitive and sensory development:

- Sensory responses: the infant relies on the senses to explore the world, beginning with visual tracking of moving objects and discrimination of primary colors.
- Mental abilities: the infant begins to understand object permanence (the awareness that an object continues to exist even when it disappears from sight) and imitates simple movements.

Language and communication development: Early communication begins with screaming and crying to express needs and then develops into the social smile and laughter. Babbling and words: Random sounds and babbling (e.g., "ba-ba") appear in the first months and turn, by the end of the first year, into intentional words such as "mama" and "dada," accompanied by gestures such as waving or shaking the head.

Social and emotional development:

- Attachment: The infant forms a close and secure bond with parents and caregivers (in line with attachment theories and the development of trust versus mistrust; see Karmiloff-Smith, 1992).
- Interaction with the environment: The infant displays clear signs of "stranger anxiety" and fear of separation from the mother and begins to distinguish between familiar and unfamiliar faces.

Socialization:

The family represents the first nucleus of socialization; its main aim is to develop the child's interactive competencies with the surroundings and to enable the child to grasp and understand the components of the surrounding social environment. The parents' role here is manifested in careful and continuous observation of the child's willingness to play and interact with peers, in addition to teaching the child how to express feelings appropriately and training the child to adhere to simple instructions and behavioral rules.

Language:

The language domain centrally targets the development of the child's communicative and linguistic competence by enabling both sides of the interactive process: receptive language, which reflects the ability to understand, analyze, and decode speech sounds, and expressive language, which represents the ability to produce words and use them as the principal tool of expression and social communication. The applied practices of this domain are manifested at two performance levels. The receptive level includes immediate responses to auditory stimuli, such as turning and attending upon hearing one's name, and compliance with simple oral instructions, whereas the expressive level consists of encoding and naming surrounding objects, with the child gradually progressing toward advanced syntactic construction by forming sentences of two or more words.

Achieving these developmental goals requires active and systematic intervention by the parents, as the first stimulus of the language environment; their procedural role comprises two tracks. The first is receptive, relying on focused auditory stimulation to activate the orienting response and on formulating simple, direct oral instructions commensurate with the child's comprehension capacity. The second is expressive, based on actively naming environmental components to enrich the child's vocabulary and on adopting a language-expansion strategy to support the child in moving from uttering single words to building compound and organized verbal contexts that enable the expression of needs and emotions.

Self-Care and Self-Help

This domain targets the structural assessment of the child's level of adaptive behavior and the procedural measurement of the development of functional independence and self-efficacy in managing daily living activities. The clinical and developmental approach consists of the systematic monitoring of the child's gradual transition from the phase of absolute dependence on parental care to the phase of self-empowerment and emerging functional separation. Its measurement dimensions are determined through the following behavioral indicators:

- *Motor-feeding competence and independence:* This is manifested in the maturation of the fine motor skills and visual-motor coordination required to handle eating utensils, such as controlling the spoon and regulating oral-motor muscular balance when drinking from a cup so as to prevent spills.
- *Psychomotor independence in dressing:* This involves assessing the development of cognitive motor planning (praxis) and the child's capacity for bilateral body coordination and for the motor balancing

necessary to complete undressing and dressing, whether entirely independently or with simple performance prompts.

- *Neuromuscular maturation and voluntary control of elimination:* This involves monitoring indicators of physiological and central nervous system maturation, which the child expresses through voluntary control of the sphincter muscles and the ability to be aware of internal visceral biological stimuli and to respond to them behaviorally by systematically complying with toilet-training steps.

Cognitive Development: Procedural Dimensions and the Complementary Parental Role

The parental role goes beyond superficial guidance to take on clinical dimensions founded on cognitive engineering and active developmental mediation. The roles of the father and the mother are complementary and operate through several central mechanisms. The first is providing a stimulus-rich environment by selecting toys and tools that support exploratory thinking and trial and error without imposing ready-made solutions. This mechanism is completed through guided cognitive dialogue, in which the parents pose open, stimulating questions that help the child classify objects and compare them, thereby activating the child's executive functions (see Duroisin & Clerc, 2025). The parents' role also extends to the emotional regulation of cognitive challenges, by turning situations of failure or stumbling in problem solving into opportunities for positive learning and by reinforcing the child's self-efficacy through valuing effort and the intellectual path followed rather than focusing exclusively on the final outcome.

Motor Development

The educational and advisory role of parents in the motor domain rests on providing a stimulating environment rich in physical stimuli and developmental tools that ensure the child's developmental requirements are met through two main tracks. In the gross motor track, the parents' procedural role is to prepare safe, open spaces that allow the child to test overall physical competencies and challenge dynamic balance, by encouraging and joining in motor activities that rely on large muscle groups, such as walking, running, jumping, and standing on one foot.

In the fine motor track, by contrast, the parents' role shifts to focusing on interactive activities that require observation, patience, and visual-motor coordination. They must provide purposeful materials and toys that support small-muscle movement and finger coordination, such as training the child to hold a pencil correctly, use safety scissors, and build towers with blocks, thus marking the beginning of the emergence of independence.

Assessment Procedures and Practical Application

Chronological Age and How to Calculate It

The dimensions of, and conceptual approaches to, the variable "age" are multiple within the societal structure, as social, administrative, medical, and legal dimensions overlap in defining it. In this context, a child's chronological age is defined as the time span elapsed, precisely calculated, from the moment of birth (in days, months, and years) to the date of the current assessment (Roid, 2003). This quantitative indicator is the most common and widely used normative measure; for example, a child's reaching the age of eleven indicates the completion of eleven full years of actual age, which constitutes the basis for legal classifications and institutional procedures. The term can also refer, particularly in the social sciences, to life-course stages such as adolescence, adulthood, and old age (American Psychological Association, 2020).

The clinical and educational significance of chronological age lies in its being the principal reference axis for assessing developmental progress in children. In typical childhood, this age serves as a standard ruler against which normative developmental indicators are matched (such as motor maturation, exemplified by walking between 12 and 15 months, or expected language and behavioral development). By contrast, its comprehensive diagnostic value emerges when it is applied to persons with disabilities or developmental disorders, since chronological age becomes a statistical constant in light of which the magnitude of developmental deviation or regression (motor, cognitive, or linguistic) from the peer norm is measured. This makes it a pivotal diagnostic tool for identifying the nature of developmental gaps, estimating levels of impairment, and designing appropriate individualized rehabilitative and therapeutic programs (Abu Hatab & Sadek, 2010). To obtain this variable accurately, the child's chronological age is computed through a simple clinical mathematical operation: subtracting the date of birth from the date of assessment (the current examination), with the columns arranged vertically from right to left in the format day/month/year.

Identifying the Age Band and the Starting Point

The scientific and practical importance of determining the "age band" and the starting point in psychological tests lies in achieving a precise balance between two aspects. The first is scientific (psychometric), aiming to organize the examination and calculate time accurately by skipping questions that are too easy and below the child's level and beginning directly at the actual starting point suited to the child's age and abilities, which prevents the test from being cluttered with unnecessary items.

The second aspect is psychological (clinical), focusing on the child's behavior and feelings during the testing situation. Beginning with balanced items (neither impossible nor trivial) gives the child an early sense of success, which raises achievement motivation and protects the child from frustration and from the desire to withdraw and avoid failure (Abu Al-Neil et al., 2011). Ultimately, this integration produces a comfortable and motivating climate that ensures honest, spontaneous responses that accurately express the child's true intelligence and actual abilities, which gives the scale its value, its scientific rigor, and the stability of its results.

Establishing the Baseline

The baseline is operationally defined as the age band in which the child successfully passes all consecutive skills and items without recording any failure. This level represents the true and safe starting point for assessing actual abilities; psychometric theory assumes that the child is implicitly capable of passing all developmental skills that lie in the age levels below this line, and on this assumption full credit for them is awarded automatically, without actually administering them and wasting the child's effort. To explain the cognitive and behavioral dimensions of this concept in diagnostic practice, it can be analyzed through three main axes:

- *Index of stable developmental competence (the floor of ability):* The baseline is not merely an arbitrary procedural starting point; it constitutes the "guaranteed minimum" of the skill or cognitive structure that the child firmly possesses. It serves as the solid ground on which the specialist relies to identify the initial boundaries of actual abilities and to ensure that the child's developmental performance is stable at this level, without fluctuation.
- *Inverse psychometric assumption (rationalizing effort and time):* The methodological interpretation of the baseline rests on shortening the examination span. If the examinee demonstrates full competence

in a given age category (such as the age band of 5 years), the scientific methodology automatically assumes possession of all preceding developmental competencies (such as those of ages 4 or 3). Accordingly, testing of lower skills that have become self-evident given the child's present ability is bypassed, to avoid draining the child's cognitive energy.

- *Psychological resilience and motivation (the experience of successive success):* The clinical dimension of the baseline lies in providing the child with a "complete experience of success" at the start of the testing situation. Success on the first items lowers the anxiety arising from the examination, builds rapport with the specialist, and generates positive motivational energy that increases the child's psychological resilience and acceptance of more difficult and complex tasks in later stages.

Establishing the Ceiling

The ceiling is the procedural indicator that determines the upper limit of the child's current abilities in a given developmental or cognitive domain; it represents the point at which the examination stops because the examinee cannot comprehend or pass the more difficult test items (Sattler, 2018). The ceiling of a scale is operationally set when a target number of incorrect responses (scored zero) is recorded consecutively, as specified in the scale manual, since it is statistically and psychometrically assumed that the examinee's ability to pass any item beyond this range approaches zero. An example is the technical manual of the Stanford–Binet Intelligence Scales (Fifth Edition), which stipulates that testing be stopped when the examinee makes five consecutive errors at a given difficulty level, in order to ensure the accuracy of statistical calculation.

Scoring the Portage Checklist

Scores are calculated, and the child's developmental age derived, through three consecutive steps. First, the raw score for each domain is obtained by summing all items preceding the baseline (which are counted as correct automatically, with full credit) and adding the number of individual correct responses the child achieved between the baseline and the ceiling, while disregarding any items lying wholly beyond the ceiling.

Second, the raw score is converted into a developmental age in months by determining the minimum age in months of the age band at which the child stopped and then adding the quotient of the individual correct responses within that band divided by the total number of items in the same band, multiplied by 12 months. Third, in interpretation and comparison, the developmental age derived in each domain is compared with the child's true chronological age to compute the developmental quotient (developmental age ÷ chronological age × 100). A quotient below 80% is considered an indicator of developmental delay requiring an individualized education plan that focuses on the items the child failed.

The Individualized Education Plan: From Assessment to Home Implementation

An effective individualized education plan is built by converting the results of the preceding assessment into practical, actionable goals, relying on three basic pillars.

Identifying the Training Goals

The precision of formulating educational goals depends on the child's latent abilities and skills; these goals are placed within the targeted instructional zone extending from the baseline level to the ceiling level.

- *Baseline:* the highest level of abilities and skills that the child has fully mastered independently.

- *Ceiling:* the level at which abilities and skills begin to become difficult and the child stops responding correctly.
- *The gap:* the target growth zone (scientifically termed the zone of proximal development [ZPD]). This zone contains skills whose "seeds" the child possesses, or abilities that qualify the child to learn them, but which the child has not yet mastered. According to Vygotsky's theory, it is the behavioral gap that the child can cross when external support (formal training) is available but that the child lacks the self-sufficiency to perform alone.

Note. The skills that are missing and present in this gap (between the baseline and the ceiling) become the formal training goals in the child's plan.

Breaking Down the General Goal into Behavioral Objectives

A general goal (e.g., that the child dresses independently) cannot be taught all at once. It must be broken down, through task analysis (that is, sequencing the task from simple to complex), into behavioral objectives that meet the following conditions:

- *Specific and measurable:* The objective specifies precisely the action the child will perform (e.g., that the child fastens the bottom three buttons of the shirt).
- *Level of assistance specified:* independently, with verbal assistance, or with light physical assistance.
- *Criterion for success:* The mastery rate is specified (e.g., 80% accuracy, or 4 successful attempts out of 5) within a specified time period.

Family Efficacy in Training

Implementing the therapeutic plan within the home environment is the cornerstone for ensuring that the child generalizes the skill. To achieve effective and productive training for parents, the following recommendations are advised:

- *Modeling sessions:* The specialist first applies the behavioral objective with the child in front of the family (that is, the father and the mother).
- *Role-playing:* The family carries out the steps under the specialist's supervision so that errors are corrected immediately.
- *Simplifying measurement tools:* The family is given very simple home follow-up forms (for example, a weekly chart in which a check mark [✓] or a cross [✗] is entered to record all the activities and attempts the child performs).

Previous Studies on the Efficacy of the Portage Guide

The Portage Guide has attracted intensive research attention at both the international and the Arab levels as one of the most prominent models of home-based early intervention. The reviewed educational and psychological literature, which has documented more than ten local and international studies and field investigations, reaches a firm scientific consensus establishing the program's effectiveness in reducing the effects of disability, accelerating the pace of developmental growth, and facilitating the inclusion of the targeted children in the societal system.

Since the earliest foundational studies by Shearer and Shearer (1972), the literature has affirmed the program's exceptional capacity to accelerate developmental growth rates; the first standardized trial showed that children could achieve a developmental leap equivalent to 13–15 months within a short period

of intervention. In a comprehensive review of several years of implementation, Sturmey and Crisp (1986) confirmed that the Portage model contributes directly to a marked developmental acceleration that transcends geographic and cultural barriers. This was also supported by later research confirming the clinical validity of the scale as an integrated diagnostic and developmental instrument (Rahi & Heiskala, 1993).

At the Arab level, recent research has focused on the program's effectiveness with specific diagnostic groups. Al-Rashidat and Abu Joudah (2021) found a statistically significant positive effect of the program in improving adaptive behavior in its various dimensions (social, motor, and self-care) among children with mild intellectual disability, in addition to its pivotal role in empowering mothers and equipping them with the training competencies required of home teachers.

Beyond this clinical and developmental efficacy, the economic feasibility and low financial cost of the Portage model constitute a distinctive strategic advantage compared with other rehabilitation systems and programs. The program derives its economy from its direct reliance on the familiar home environment and the empowerment of parents as assisting specialists, which reduces the operating expenses associated with specialized institutions or costly equipment and tools. This combination of rehabilitative effectiveness and financial rationalization gives the program high applied value, making it an ideal and sustainable option for early intervention settings at all socioeconomic levels.

In the same vein, the most recent studies have turned to evaluating the program's effectiveness in reducing parental stress and improving social communication among children with autism spectrum disorder (Mohamed & El-Keshky, 2024), which reflects the comprehensiveness and clinical flexibility of the Portage Guide in dealing with diverse developmental disorders and family environments. Tables 1 and 2 provide a comprehensive overview of the most important studies (international and Arab) that traced the procedural effectiveness and applied results of the Portage guide in both settings.

Table 1

International Studies on the Efficacy of the Portage Guide

Study	Year	Focus and main findings
Mohamed & El-Keshky	2024	Evaluated the effectiveness of a Portage guide in reducing parenting stress and enhancing child development in autism spectrum disorder. The study demonstrated a statistically significant decrease in anxiety and mental stress among caregivers, alongside notable improvements in social communication milestones for children with ASD.
Al-Rashidat & Abu Joudah	2021	Empirical study of the effectiveness of the Portage early intervention program in improving adaptive behavior skills, focusing on developing the daily living, socialization, and communication domains in children with developmental delays while boosting mothers' pedagogical competence.
Harrison & Bennett	2015	Longitudinal study analyzing how structured, weekly home visits using Portage checklists accelerate problem-solving and cognitive readiness in toddlers from low socioeconomic backgrounds.
Takahashi & Saito	2008	Evaluated the systemic implementation of Portage in community health centers. Results confirmed that children achieved a high developmental rate in self-help and motor skills when the checklist was integrated into local healthcare routines.

Rahi & Heiskala	1993	Psychometric evaluation showing that the Portage checklist correlates highly with formal clinical diagnostic instruments in measuring cognitive and language deficiencies.
Sturmey & Crisp	1986	Seminal review that synthesized over a decade of Portage implementations worldwide, confirming accelerated developmental progress across diverse cultural and geographic settings.

Table 2

Arab Studies on the Efficacy of the Portage Guide

Study	Year	Focus and main findings
Hamdan & Al-Qatawneh	2026	Recent quasi-experimental study conducted in Amman with 40 mothers of children with Down syndrome, examining the effectiveness of the Portage early intervention program in raising psychosocial adaptation. Results showed an excellent effect of the program in reducing the psychological burden and parental stress borne by the family.
Bedair	2023	Quasi-experimental study with a purposive sample examining the use of the Portage guide to activate social communication skills in children with autism spectrum disorder. Post-test results on interaction and communication skills showed a clear motor and social improvement attributable to the training program.
Qasim & Mahmoud	2017	Aimed to prepare and train female postgraduate students to train families developmentally as home teachers. Results confirmed the success of home visits to 24 families in achieving integrated and coherent cognitive, linguistic, and social growth in the children.
Issa & Daher	2016	Field study on a sample of children from the Bashaer Al-Noor Association in Latakia. Results confirmed the procedural effectiveness of the program's tools and individualized education plans in raising children's competence and enhancing their social skills.

Conclusion and Recommendation

On the basis of the foregoing review and analysis, this study concludes with a firm scientific consensus establishing the exceptional clinical efficiency of the Portage Guide in reducing the effects of disability (such as autism spectrum disorder, Down syndrome, cerebral palsy, and other disabilities), accelerating the pace of developmental growth, and facilitating the societal inclusion of the targeted children.

The effectiveness of the Portage Guide is no longer confined to purely developmental and educational aspects; it is crowned by a distinctive strategic advantage in the form of sustainable economic feasibility and a lower financial cost compared with rehabilitation systems and programs designed within clinics or relying on costly institutional facilities, since the program derives its economy from directly empowering families and making use of the familiar home environment.

In its procedural part, the study affirms that the actual success of the program begins with the accuracy of the initial diagnosis and the correct determination of the child's chronological age, which constitutes the

cornerstone for building the individualized education plan and identifying the correct developmental starting point. In this regard, we recommend the following:

- Including the Portage Guide as a supported strategic option in national early intervention plans and adopting it as a principal program within primary health care centers and associations, particularly in rural settings and areas with limited economic resources.
- Developing standardized training kits to prepare and qualify the "home teacher," so that parents are trained periodically in systematic observation, the use of Portage cards, and behavioral reinforcement techniques, which contributes to reducing the psychological and parental stress resulting from caring for a child with a disability.

References

1. Abu al-Kas, R. M. (2008). *Ri'ayat al-mu'aqin fi al-fikr al-tarbawi al-Islami fi daw' al-mushkilat allati yuwajihunaha* [Care of persons with disabilities in Islamic educational thought in light of the problems they face] [Master's thesis, The Islamic University of Gaza].
2. Abu Al-Neil, M. S., Taha, M., & Mustafa, A. M. (2011). *Stanford-Binet Intelligence Scales manual: Fifth edition*. Arab Foundation for Psychological Tests.
3. Abu Hatab, F., & Sadek, A. (2010). *Human development from the embryonic stage to the elderly stage* (4th ed.). Anglo-Egyptian Bookshop.
4. Al-Rashidat, M., & Abu Joudah, H. (2021). The effectiveness of Portage early intervention program in improving adaptive behavior skills with intellectual disorders. *International Journal of Special Education, 36*(2), 85–94.
5. American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787
6. American Psychological Association. (2020). *APA dictionary of psychology*.
7. Bedair, S. A. F. (2023). The impact of using the Portage guide to activate social communication skills among children with autism spectrum disorder. *Journal of Special Education, Kafrelsheikh University*.
8. *Constitution of the Kingdom of Morocco*, arts. 32 & 34 (2011). *Official Gazette*, No. 5964 bis (July 30, 2011).
9. Grossman, H. J. (Ed.). (1973). *Manual on terminology and classification in mental retardation*. American Association on Mental Deficiency.
10. Hamdan, I., & Al-Qatawneh, Y. (2026). The effectiveness of the Portage early intervention program in enhancing psychosocial adaptation among mothers of children with Down syndrome in Amman. *Journal of Studies in Special Education, 15*(2), 44–71.
11. Harrison, C. L., & Bennett, S. R. (2015). The impact of the home-based Portage guide on early childhood cognitive development. *Early Childhood Education Journal, 43*(4), 311–319.
12. Issa, R., & Daher, T. (2016). The effectiveness of the Portage early intervention program in developing social skills for children with autism. *Tishreen University Journal for Research and Scientific Studies – Humanities and Arts Series, 38*(4), 201–224.
13. Karmiloff-Smith, A. (1992). *Beyond modularity: A developmental perspective on cognitive science*. MIT Press.
14. Mohamed, A., & El-Keshky, M. (2024). Evaluating the effectiveness of a Portage guide on reducing parenting stress and enhancing child development in autism spectrum disorders. *Journal of Autism and Developmental Disorders, 54*(3), 112–126.

15. Qasim, A. I., & Mahmoud, W. M. (2017). The effectiveness of an early intervention training program using the "Portage" program for a sample of postgraduate students to prepare the home teacher. *Educational Journal, Sohag University, 13*(4), 35–86.
16. Rahi, M., & Heiskala, H. (1993). Reliability and validity of the Portage assessment scale for clinical use. *Acta Paediatrica, 82*(2), 203–207.
17. Roid, G. H. (2003). *Stanford-Binet Intelligence Scales, Fifth Edition (SB5): Examiner's manual*. Riverside Publishing.
18. Sattler, J. M. (2018). *Assessment of children: Cognitive foundations and applications* (6th ed.). Jerome M. Sattler, Publisher.
19. Shearer, M. S., & Shearer, D. E. (1972). The Portage Project: A model for early childhood education. *Exceptional Children, 39*(3), 210–217.
20. Sturmey, P., & Crisp, A. G. (1986). The Portage Guide to Early Education: A review of research. *Educational Psychology, 6*(2), 139–157.
21. Takahashi, M., & Saito, T. (2008). Application of the Portage Guide in multi-disciplinary community rehabilitation for children with delayed development. *International Journal of Rehabilitation Research, 31*(2), 147–153.
22. Welsford, E. (1935). *The fool: His social and literary history*. Faber & Faber.
23. World Health Organization. (2019). *The ICD-10/ICD-11 classification of mental and behavioural disorders*.