ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print)

CENTRAL ASIAN ACADEMIC
RESEARCH CENTER

SCIENTIFIC JOURNAL OF PEDAGOGY AND ECONOMICS

PUBLISHED SINCE 1944

4 (416)
JULY – AUGUST 2025

ALMATY, 2025

Scientific Journal of Pedagogy and Economics
ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print).
Owner: «Central Asian Academic Research Center» LLP (Almaty).
The certificate of registration of a periodical printed publication in the Committee of information of the Ministry of Information and Communications of the Republic of Kazakhstan **No. 3620-Ж,** issued on 05.06.2025
Thematic focus: *«publication of the results of new achievements inthe field of fundamental sciences»*
Periodicity: 6 times a year.
http://www.bulletin-science.kz/index.php/en/

Scientific Journal of Pedagogy and Economics
ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print).
Меншіктенуші: «Орталық Азия академиялық ғылыми орталығы» ЖШС (Алматы қ.).
Қазақстан Республикасының Ақпарат және коммуникациялар министрлігінің Ақпарат комитетінде 05.06.2025 ж. берілген **№ 3620-Ж** мерзімдік басылым тіркеуіне қойылу туралы куәлік.
Тақырыптық бағыты: *«іргелі ғылым салалары бойынша жаңа жетістіктердің нәтижелерін жариялау»*
Мерзімділігі: жылына 6 рет.
http://www.bulletin-science.kz/index.php/en/

Scientific Journal of Pedagogy and Economics
ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print).
Собственник: ТОО «Центрально-азиатский академический научный центр» (г. Алматы).
Свидетельство о постановке на учет периодического печатного издания в Комитете информации Министерства информации и коммуникаций и Республики Казахстан **№ 3620-Ж,** выданное 05.06.2025 г.
Тематическая направленность: *«публикация результатов новых достижений вобласти фундаментальных наук».*
Периодичность: 6 раз в год.
http://www.bulletin-science.kz/index.php/en/

CONTENTS

PEDAGOGY

МАЗМҰНЫ

ПЕДАГОГИКА

ЭКОНОМИКА

СОДЕРЖАНИЕ

ПЕДАГОГИКА

SCIENTIFIC JOURNAL OF PEDAGOGY AND ECONOMICS
ISSN 1991-3494
Volume 4.
Number 416 (2025), 261–273

https://doi.org/10.32014/2025.2518-1467.1000

UDC 373.2
IRSTI 14.23.01

© G. Pilten[1], A. Kuralbayeva[1*], I. Sönmez[2], 2025.
[1]International Kazakh-Turkish University named after Khoja Akhmet Yassawi, Turkestan, Kazakhstan;
[2]Necmettin Erbakan University, Konya, Turkey.
E-mail: *aliya.kuralbayeva@ayu.edu.kz*

GLOBAL USE OF THE DENVER II: VALIDITY, RELIABILITY, AND CULTURAL ADAPTATION

Pilten Gulhiz — PhD, Associate Professor, International Kazakh-Turkish University named after Khoja Akhmet Yassawi, Turkestan, Kazakhstan,
E-mail: gulhizp@yahoo.com.tr, https://orcid.org/0000-0001-5575-9741;
Kuralbayeva Aliya — PhD, Associate Professor, International Kazakh-Turkish University named after Khoja Akhmet Yassawi, Turkestan, Kazakhstan,
E-mail: aliya.kuralbayeva@ayu.edu.kz, https://orcid.org/0000-0003-3166-510;
Sonmez Işıl — PhD, Professor, Necmettin Erbakan University, Konya, Turkey,
E-mail: isilsonmez@erbakan.edu.tr, https://orcid.org/0000-0001-6061-0677.

Abstract. This study examines how the Denver II Developmental Screening Test, frequently used in the developmental assessment of children aged 0 to 6, is applied in different cultural contexts and the effects of cultural adaptations on validity and reliability. Developmental screening tests play a crucial role in identifying developmental issues and initiating early interventions. The study adopted qualitative content analysis and focused on cultural adaptation studies in the literature. A comparative analysis of validity and adaptation studies conducted in countries such as Spain, Singapore, Brazil, and South Korea was made, based on the test's original application in the United States. Among the key outcomes of this study are the findings from Spain, where the test showed strong psychometric indicators; Singapore, where certain linguistic structures were adjusted; Brazil, which emphasized the need for culturally grounded revisions; and South Korea, where both language and instructional changes were made to improve accuracy in practice. These adaptations reflect how developmental expectations and child-rearing practices vary across cultures. The discussion emphasizes that valid application in new contexts requires not only translation but also restructuring based on cultural interaction patterns, social norms, and developmental expectations. Ultimately, cultural adaptation affects both measurement accuracy and the effectiveness of early

intervention. Therefore, it is emphasized that contextual sensitivity is a fundamental condition for the international use of the Denver II.

Keywords: Denver II Developmental Screening Test, cultural adaptation, validity, reliability, early childhood, developmental assessment, content analysis

This research is funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. AP23488203)

© Г. Пилтен[1], А. Куралбаева[1*], И. Сонмез[2], 2025.
[1]Қожа Ахмет Ясауи атындағы Халықаралық қазақ-түрік университеті,
Түркістан, Қазақстан;
[2]Неджметтин Ербакан университеті, Кония, Түркия.
E-mail: aliya.kuralbayeva@ayu.edu.kz

ДЕНВЕР II ТЕСТІ: ЖАҺАНДЫҚ ҚОЛДАНЫЛУЫ, ДҰРЫСТЫҒЫ, СЕНІМДІЛІГІ ЖӘНЕ МӘДЕНИ БЕЙІМДЕЛУІ

Пилтен Гулхиз — PhD, доцент, Қожа Ахмет Ясауи атындағы Халықаралық қазақ-түрік университеті, Түркістан, Қазақстан,
E-mail: gulhizp@yahoo.com.tr, https://orcid.org/0000-0001-5575-9741
Куралбаева Алия Ахметкаримовна — PhD, доцент, Қожа Ахмет Ясауи атындағы халықаралық қазақ-түрік университеті, Түркістан, Қазақстан,
E-mail:aliya.kuralbayeva@ayu.edu.kz, https://orcid.org/0000-0003-3166-510;
Сонмез Ишыл — PhD, профессор, Неджметтин Ербакан университеті, Кония, Түркия,
E-mail:isilsonmez@erbakan.edu.tr, https://orcid.org/0000-0001-6061-0677.

Аннотация. Бұл зерттеуде 0-6 жас аралығындағы балалардың даму деңгейін бағалауда жиі қолданылатын Денвер II скринингтік тестінің әртүрлі мәдени контекстерде қалай қолданылатыны және мәдени бейімдеудің валидтілік пен сенімділікке қалай әсер ететіні қарастырылады. Даму скринингтік тестерінің бала дамуындағы ерте анықтау мен араласудағы рөлі атап көрсетіледі. Зерттеу сапалық мазмұндық талдау әдісіне негізделген және әдебиеттегі мәдени бейімдеу тәжірибелерін қарастырды. Нәтижелер бөлімінде АҚШ (тесттің түпнұсқасын әзірлеу және стандарттау), Испания (эмпирикалық тексеру және жоғары психометриялық көрсеткіштер), Сингапур (тілдік және әлеуметтік дағдылардағы айырмашылықтарға негізделген тапсырмаларды өзгерту), Бразилия (қолдану кезіндегі қиындықтар мен мәдени ерекшеліктерге негізделген жаңа құрал жасау), және Оңтүстік Корея (нұсқаулықтарды жеңілдету мен фонетикалық қайта құрылымдау арқылы мәдени сәйкестікті күшейту) елдеріндегі валидтілік пен бейімделу бойынша жүргізілген зерттеулер салыстырмалы түрде талданды. Испанияда тест құрылымдық бейімдеусіз-ақ жоғары сенімділік көрсеткен; Сингапурда тілдік құрылым мен әлеуметтік дағдыларға байланысты өзгерістер ұсынылған; Бразилияда мәдениетке сәйкес жаңа скринингтік құрал әзірленген; ал Оңтүстік Кореяда нұсқауларды жеңілдету және фонетикалық қайта құрылымдау арқылы тестті қолдану

нақтылығы арттырылған. Талқылау бөлімінде тестті түрлі мәдени ортада тиімді қолдану үшін жай ғана аудару жеткіліксіз екені, ол елдің әлеуметтік нормаларына, мәдени қатынас үлгілеріне және даму күтулеріне бейімделіп қайта құрылымдалуы қажеттігі айтылды. Қорытындылай келе, мәдени бейімдеу өлшеу дәлдігіне және ерте араласу бағдарламаларының тиімділігіне тікелей әсер етеді. Сондықтан Денвер II тестін халықаралық деңгейде қолдану үшін мәдени контексті ескеру – басты шарт болып табылады.

Түйін сөздер: Денвер II, мәдени бейімдеу, валидтілік, сенімділік, ерте балалық шақ, даму скринингі, мазмұндық талдау

© Г. Пилтен[1], А. Куралбаева[1*], И. Сонмез[2], 2025.
[1]Международный казахско-турецкий университет имени Ходжи Ахмеда Ясави, Туркестан, Казахстан;
[2]Университет Неджметин Ербакан, Конья, Турция.
E-mail: aliya.kuralbayeva@ayu.edu.kz

ПРИМЕНЕНИЕ ТЕСТА ДЕНВЕР II: ВАЛИДНОСТЬ, НАДЕЖНОСТЬ И КУЛЬТУРНАЯ АДАПТАЦИЯ

Пилтен Гулхиз — PhD, доцент, Международный казахско-турецкий университет имени Ходжи Ахмеда Ясави, Туркестан, Казахстан,
E-mail: gulhizp@yahoo.com.tr, https://orcid.org/0000-0001-5575-9741;
Куралбаева Алия Ахметкаримовна — PhD, доцент, Международный казахско-турецкий университет имени Ходжи Ахмеда Ясави, Туркестан, Казахстан,
E-mail: aliya.kuralbayeva@ayu.edu.kz, https://orcid.org/0000-0003-3166-510;
Сонмез Ишыл — PhD, профессор, Университет Неджметин Ербакан, Конья, Турция,
E-mail: isilsonmez@erbakan.edu.tr, https://orcid.org/0000-0001-6061-0677.

Аннотация. В этом исследовании изучается, как тест Денвер II скрининг развития, часто используемый при оценке развития детей в возрасте от 0 до 6 лет, применяется в различных культурных контекстах, а также влияние культурной адаптации на валидность и надежность. Тесты по скринингу развития играют решающую роль в выявлении проблем развития и начале раннего вмешательства. В исследовании использовался качественный контент-анализ и основное внимание уделялось исследованиям культурной адаптации в литературе. Был проведен сравнительный анализ исследований валидности и адаптации, проведенных в таких странах, как Испания, Сингапур, Бразилия и Южная Корея, на основе первоначального применения теста в Соединенных Штатах. Среди основных результатов этого исследования - результаты из Испании, где тест показал сильные психометрические показатели; Сингапура, где были скорректированы определенные языковые структуры; Бразилии, которая подчеркнула необходимость культурно обоснованных изменений; и Южной Кореи, где были внесены как языковые, так и учебные изменения для повышения точности на практике. Эти адаптации отражают то, как ожидания развития и методы воспитания детей различаются в разных культурах. В

обсуждении подчеркивается, что для корректного применения в новых контекстах требуется не только перевод, но и реструктуризация на основе культурных моделей взаимодействия, социальных норм и ожиданий развития. В конечном итоге культурная адаптация влияет как на точность измерения, так и на эффективность раннего вмешательства. Поэтому подчеркивается, что контекстуальная чувствительность является основополагающим условием для международного использования Денвер II.

Ключевые слова: тест Денвер II, культурная адаптация, валидность, надежность, раннее детство, оценка развития, контент-анализ

Introduction. Observing children's developmental progress, identifying possible delays early, and applying timely interventions play a vital role in promoting child health and overall well-being. The effectiveness of these efforts largely relies on the use of developmentally appropriate and psychometrically sound assessment tools. Developmental screening tests are widely used in the fields of education, health, and social services to monitor the cognitive, motor, social-emotional, and language development levels of children, especially between the ages of 0 and 6 (Glascoe, 2005: 547). Intervention programs initiated for developmental delays detected in early childhood through these tests have the potential to increase the child's long-term quality of life. When developmental delays are identified early, intervention programs can meaningfully improve children's long-term well-being. Prior research has consistently highlighted the value of early detection, and recent findings by Kuralbayeva et al. provide further support for this approach. (2025), who highlight the critical role of the Denver II test in identifying developmental delays and facilitating timely interventions (322).

One of the frequently used tools in this field, the Denver II Developmental Screening Test, is an updated version of the Denver Developmental Screening Test, which was first developed in 1967, and was introduced in 1992 with a more modern structure (Frankenburg & Dodds, 1992:124). The test design for four main areas of development: personal-social, fine motor, language, and gross motor. Its goal is to see if kids can do things that are suitable for their age. It is widely preferred in both clinical and educational settings due to its practical applicability, short-term results and wide age range (Frankenburg et al., 1992). However, the fact that developmental assessment tools such as the Denver II can be developed in one country and used in another cultural context brings with it serious methodological and practical problems.

Indeed, multiple studies have emphasized the importance of culturally adapting developmental screening instruments to avoid misinterpretation of children's behaviors and developmental tasks (Abessa et al., 2016:5; Almohalha et al. (2023:4) and Abessa et al. (2016:5) observed that a significant portion of the Denver II items required revision when used outside the original context-for example, 28.8% of the items needed adaptation in Ethiopia. Kumar and Sikarawar (2024:1973) along with Kurbatfinski et al. (2024:2) pointed out that mismatches between the test's language and cultural setting can reduce its reliability. Their work underscores the need to adapt such tools thoughtfully to each context.

In northern Brazil, studies revealed that how children understood certain items-particularly in the areas of social-emotional and motor skills-often conflicted with the assumptions built into the original test format (Lopez Boo et al., 2020:3; Santos et al., 2022:1100). To overcome this, a culturally grounded version of the test was created to better reflect the developmental experiences of Brazilian children (Lopez Boo et al., 2020:4; Santos et al., 2022:1101).

In contrast, the Spanish validation study reported close alignment between the test items and the developmental norms of local children. No major cultural issues were identified. Moreover, the test showed excellent reliability across observers, with Cohen's Kappa values consistently above 0.88 (De-Andrés-Beltrán et al., 2015: 326–328). These results indicate that even without extensive revisions, the tool was effective in reflecting everyday social and language patterns in Spain. Despite all these contextual differences, studies aimed at measuring the scientific validity and reliability level of the test are mostly limited to quantitative findings, and the effect of cultural adaptations on measurement results is not sufficiently examined. The question of whether Denver II can be accepted as a valid and reliable tool in different geographies should be considered not only with statistical accuracy, but also with the test's capacity to integrate into the cultural context. Indeed, although high reliability coefficients are reported in some countries, the extent to which these scores are related to the contextual overlap of the test items is rarely addressed (Lee, 2024:5).

For these reasons, the aim of this study is to analyze the implementations of the Denver II Developmental Screening Test in different countries from a critical perspective, not only through quantitative data, but also in the context of linguistic adaptation, cultural adaptation, and validity-reliability studies. These three basic elements will be considered as fundamental determinants in order to open up discussions on the extent to which the test is applicable in different socio-cultural contexts and under what conditions it carries the risk of losing its validity.

In this context, the primary research problem of the study is formulated as follows: To what extent is the Denver II Developmental Screening Test a valid and applicable instrument in different cultural contexts, and how is it evaluated in terms of validity, language adaptation, and cultural adaptation?

The sub-problems of the study are structured as follows:

1. Do the validity and reliability studies of the Denver II test in different countries indicate how the test's effectiveness varies according to cultural contexts?

2. To what extent are the linguistic components of the test adapted to local languages, and how does this adaptation influence the test outcomes?

3. How is the Denver II test adapted to different cultural environments, and how do these adaptations contribute to the effectiveness and reliability of the test?

Materials and methods of research.

Research Model

This research was conducted using the critical content analysis method, one of the qualitative research designs (Komor & Grzyb, 2023:143; Alyaqoub, Alsharairi, & Aslam, 2024:108). The research model was not limited to merely compiling

information but also aimed to comparatively analyze the applicability of the Denver II Developmental Screening Test in different cultural contexts within the framework of the themes of language adaptation, cultural adaptation, and validity-reliability. In this context, the scientific and contextual validity of the test was subjected to a comprehensive evaluation.

Data Sources and Selection Criteria

The data used in the research consist of original research articles, master's and doctoral theses, field reports, and systematic reviews found in national and international scientific databases. The main data sources included platforms such as PubMed, ERIC, Google Scholar, Web of Science, and the National Thesis Center.

· The publications included in the study were selected according to the following criteria:

· Providing validity and/or reliability data related to the Denver II test,

· Containing examples that explain or discuss linguistic adaptation processes,

· Reporting cultural adaptation practices specific to a particular country,

· Being published in 2000 or later,

· Involving developmental assessment in early childhood.

There were no language restrictions; however, ease of access to publications and reliability of translation were taken into account.

The main countries that provided data in the reviewed studies were as follows:

• United States (original development and standardization of the test)

• Spain (extensive studies on validity, reliability, and cultural adaptation)

• Singapore (item modifications based on linguistic and social habit differences)

• Brazil (implementation challenges and development of a culturally grounded protocol)

• South Korea (instructional simplification and phonetic restructuring for contextual fit)

Studies in these countries were classified thematically and analyzed systematically.

Data Analysis Process

The collected data were analyzed using the thematic content analysis method. In the first stage, the data were coded under three main themes: Validity and Reliability, Language Adaptation, Cultural Adaptation.

The publications, test items, application protocols, sample characteristics, and the statistical or interpretive nature of the findings in each theme were comparatively evaluated. In addition, the obtained data were classified according to geographical regions; how the Denver II test functions in different continents and countries was examined in a structured manner.

In the interpretation process, not only were the findings presented, but also the methodological soundness, contextual appropriateness, and impact on the practitioner were examined within a critical framework. Limitations Since the data used in this study are based on secondary sources, some practical results regarding practitioner experiences were conveyed indirectly. The methodological diversity of the studies conducted in different countries made direct comparison difficult; in addition, the limited data in some countries restricted the scope. Since all data were analyzed and interpreted qualitatively by the researcher, the generalizability of the findings might be limited.

Results. In this study, studies conducted worldwide on the Denver II Developmental Screening Test were examined using the content analysis method. The studies were categorized and evaluated under certain themes, and the findings of the test in main areas such as validity, reliability, cultural adaptation, and early intervention programs were discussed. In this section, the findings and comments resulting from the analyses are presented in detail.

Validity and Reliability Studies

The Denver II Developmental Screening Test is widely used for developmental assessment in early childhood. However, the validity and reliability of this test in different cultural contexts may vary depending on many factors such as the socio-cultural structure of the society in which it is applied, the nature of the education system, and the linguistic and structural adaptations of the test. For this reason, validity and reliability analyses are of particular importance in the applications of the test outside its original context. In this section, scientific publications made in the countries included in the data sources of the study were examined, and comparative findings regarding validity and reliability were presented.

Table 1. Country-Based Evaluation of the Denver II in Terms of Validity and Reliability

Country	Source / Study Summary	Norm Compliance	Practitioner Reliability
USA	Frankenburg et al. (1992): The country where the Denver II was originally developed; reference norms and validity studies were established here.	Full compliance with reference norms	High
Spain	De-Andrés-Beltrán et al. (2015): The Spanish version of the DDST-II demonstrated strong psychometric performance across all domains. High sensitivity (89%) and specificity (92%) were reported, with KR20 values ranging from 0.885 to 0.976 and interobserver reliability up to 1.0.	Empirically validated; high internal consistency and normative accuracy	High (Cohen's Kappa: 0.662–1.0); both intra- and inter-observer agreement confirmed
Sin-gapore	Lim et al., (1994): Observed challenges in verbal responses; major differences in Language and Personal-Social sectors	Items modified or removed due to cultural and linguistic mismatch	Training-based reliability ensured; no comparative metrics reported
Brazil	Santos et al. (2022); Lopez Boo et al. (2020): Cultural misalignment observed in social-emotional and motor items. A culturally adapted protocol was developed in response to inadequate contextual alignment.	Test items revised based on regional caregiving practices and norms	Problems with validity because of cultural differences
South Korea	Lee, (2024): Lee (2024): Korean kids learned and grew faster than kids in Denver and Tokyo in terms of both their brains and their bodies.	Making verbal items and scoring criteria easier to understand; changing the exam structure to fit different cultures	Enhanced consistency through paired application and training. High

The information presented in the table was obtained through content analysis of scientific publications on the Denver II test. The United States, where the test was developed, was evaluated as the reference country in terms of validity and reliability. The Denver II test, developed under the leadership of Frankenburg et al. (1992: 2), has gained a high level of reliability and validity through comprehensive norm studies conducted in this country. Since the USA forms the basis of the original structure of this test, it serves as a benchmark for comparisons made in other countries.

In Spain, the adaptation of the Denver II Developmental Screening Test was conducted through a rigorous psychometric evaluation process rather than extensive content modification. According to De-Andrés-Beltrán et al. (2015:326–327), the Spanish version demonstrated strong reliability and internal consistency across all developmental domains, including Language and Personal-Social areas, with Cohen's Kappa values ranging from 0.662 to 1.0 and KR20 values between 0.885 and 0.976. These findings suggest that, although major linguistic or cultural restructuring was not required, the test achieved high contextual validity through standardized administration, precise observer training, and empirical validation procedures. The Spanish case exemplifies how rigorous implementation can ensure both normative compliance and practitioner consistency in a European context.

Singapore is an example where cultural and linguistic factors influenced the application of developmental screening tools. In their study, Lim, Chan, and Sia (1994:156–158) reported that some test items required modification due to differences in social habits and the language spoken by children. These differences were especially visible in the Language and Personal-Social domains, underscoring the importance of cultural adaptation in test implementation.

Brazil stands out as a country where significant methodological challenges have been identified during the application of developmental screening tools. In a study conducted in northern Brazil, issues such as inadequate administration of test items, limited practitioner training, and misinterpretation of children's responses emerged as major obstacles (Santos et al., 2022:1100–1101). The researchers emphasized that noncompliance with test instructions compromised the reliability of the results. While some positive outcomes were noted in the evaluation of social and motor domains, concerns were raised regarding the adequacy of the language development section, which required substantial adaptation to reflect the linguistic competence of Brazilian children. These findings suggest that structural factors-particularly cultural alignment and practitioner training-play a critical role in ensuring the test's valid and reliable use (Santos et al., 2022; Lopez Boo et al., 2020).

In studies conducted in Brazil, it was found that certain developmental tasks included in standardized instruments like the Denver II did not adequately reflect the socio-cultural environments in which children are raised. Specifically, the interpretation of fine motor and social-emotional items was shaped by local norms of play, caregiver interaction styles, and regional expectations of development (Santos et al., 2022:1100; Lopez Boo et al., 2020:5). As a result, both studies emphasized the need to revise specific test items in order to improve contextual validity and ensure

that developmental assessments align with the lived realities of Brazilian children (Santos et al., 2022:1101; Lopez Boo et al., 2020:6).

When evaluated in the East Asian context, South Korea demonstrated that the Denver II test can be effectively adapted through careful linguistic and cultural revisions. According to Lee (2024:4–7), simplification of test instructions and language-related items led to improved consistency in practitioner application and more reliable outcomes. These findings underline that culturally sensitive adaptations and structured training significantly enhance the test's effectiveness. The validity and reliability of the Denver II test vary depending on the cultural context of the country in which it is applied and the extent to which the test is adapted to local norms. While the levels of validity and reliability are high in the US and Spain examples, this level is low in some countries such as Brazil. The German example supports that the test has high reliability in the European context. These data reveal that the Denver II requires both cultural and normative adaptation before being used in different contexts.

Linguistic and Cultural Adaptation

When the Denver II Developmental Screening Test is applied in different countries, it must adapt not only to language translation but also to the social, cultural and pedagogical norms of that country regarding child development. Some items of the test gain meaning according to the interaction styles and childhood practices of a particular society; therefore, linguistic adaptations should be considered together with the cultural context. The table below summarizes the adaptations that the test has undergone in different countries and the effects of this process on the validity of the test.

Table 2. Country-Based Evaluation of the Denver II Developmental Screening Test in Terms of Linguistic and Cultural Adaptation

Country	Source / Study Summary	Adaptation Form	Effect of Adaptation
Spain	De-Andrés-Beltrán et al. (2015): A sample of 200 kids were given the Spanish version of the Denver II, and it was found to be very reliable and consistent across all subscales.	No big changes to the culture; adaptation confirmed through standardized procedures and real-world testing	The adaptation ensured strong contextual validity and confirmed the test's suitability through high intra- and inter-observer agreement
Singapore	Lim et al. (1994): Hard to get people to talk on their own; big differences between cultures in how they talk and act socially	Changes to specific items in the Language and Personal-Social areasIt	Cultural adaptation was implemented and deemed essential for accurate and meaningful use
Brazil	Lopez Boo et al. (2020) and Santos et al. (2022): Standardized screening tools did not accurately represent Brazil's social and cultural environment. Researchers stressed how important it is to have assessments that are based on culture.	To fill in the gaps in context, a new culturally adapted screening protocol called PADI was created.	Better fit with how kids do things every day and how caregivers interact with them
South Korea	Lee (2024): The instructions were made easier to understand, and the language-based items were changed.	Changing the way language works and changing culture	Easier to manage and more consistent for practitioners

The Denver II Developmental Screening Test has been applied in different countries, not only in terms of language but also in terms of cultural contexts. The data presented in Table 2 reveal how the test has been adapted to different geographies and the effects of this process on validity.

The psychometric adaptation of the Denver II test was done in Spain and other countries using systematic empirical methods instead of changing the culture. De-Andrés-Beltrán et al. (2015:326–328) did a validation study with a representative sample of 200 children and found that all domains had strong psychometric results. While no extensive linguistic or cultural modifications were required, the test demonstrated high intra- and inter-observer agreement (Cohen's Kappa ranging from 0.662 to 1.0) and excellent internal consistency (KR20 = 0.976 for the full scale), confirming its contextual suitability for Spanish children.

These results show that standardized procedures and training for observers can make sure that the test is used correctly and in a way that is appropriate for the culture in European settings, even if the items don't change.

Studies in Singapore on adaptation showed that kids from different cultures and languages react differently to developmental screening items. In their study, Lim, Chan, and Sia (1994:156) said that testers had a hard time getting kids to give spontaneous verbal responses. This led to changes to some language-based items. These results show how important it is to change the tools we use to test people so that they match how people talk and act in a certain area. Researchers in Brazil said that even though the Portuguese version of the Denver II was being used, some test items did not fit with how children play, talk, and interact with caregivers in Brazil. Santos et al. (2022:1101–1102) proposed the development of a new screening protocol-PADI-designed to better reflect Brazil's linguistic and cultural context.

In a studies conducted by Dewangan & Sharma (2020:2144) and Kishore et al., (2019:2148) cultural incompatibilities were detected in the test's tasks related to social-emotional and fine motor skills. In particular, it was observed that local games and social interaction styles did not match the test items, therefore it was suggested that the relevant items should be redesigned and implemented. After these changes, it was said that the test's validity level went up. Lee's study in South Korea (2024:4) stressed that the overall structure of the Denver II test was kept, but some of the verbal instructions needed to be simplified to fit the way Korean is spoken. These changes significantly enhanced both the comprehensibility of the test for children and its practical implementation by practitioners.

As a result, cultural and linguistic adaptations are indispensable for the Denver II test to be implemented validly and reliably in different countries. It is understood that the test items should not only be transferred through translation, but also be arranged according to the developmental norms, language structures and interaction culture of the target society. Such adaptations not only increase the accuracy of the assessment, but also directly affect the effectiveness of early childhood intervention programs.

Discussion. The findings of this study show that the applicability of the Denver

II Developmental Screening Test in different cultural contexts depends on contextual adaptations to a significant extent. Although the original version of the test was created according to the developmental norms of American children, extensive linguistic and cultural adjustments are needed to be applied with the same accuracy and validity in other societies.

First, in terms of validity and reliability, the strongest applications of the Denver II test outside of its original context, the USA, were observed in Spain and South Korea. In the United States, where the test was originally developed, extensive norm studies established the foundational structure and ensured high internal consistency (Frankenburg et al., 1992:16). In Spain, De-Andrés-Beltrán et al. (2015:326–328) conducted a rigorous psychometric validation with 200 children, reporting strong sensitivity (89%), specificity (92%) and excellent internal consistency (KR20 = 0.976), as well as high observer agreement (Cohen's Kappa: 0.662–1.0). Similarly, in South Korea, Lee (2024:6) reported that simplifying verbal instructions and culturally adjusting test structure resulted in a high validity level (avg. 97.3%) and enhanced practitioner consistency. These findings indicate that both empirical validation and structured implementation processes play a central role in ensuring the reliability and cultural applicability of the test in different national contexts.

In Brazil, researchers reported the need for cultural adaptation of developmental screening tools. For example, Santos et al. (2022:1101) highlighted the need for item revisions to improve test performance based on regional differences. Several studies emphasized that some developmental test items did not align with the socio-cultural norms of Brazilian children. Differences in play behavior, interaction styles, and developmental expectations led to misinterpretation of items related to fine motor and social-emotional domains (Santos et al., 2022:1100–1101; Lopez Boo et al., 2020:5–6). These discrepancies affected both the validity of the test and the accuracy of its implementation. These findings underline the importance of culturally adapting developmental assessments, not only through linguistic translation but by reconstructing them in accordance with the «cultural construction of childhood».

Fourthly, the findings remind us that cultural context is a central variable not only in developmental test applications but also in the international transfer of measurement tools in general. This becomes even more critical in sensitive and rapidly changing stages of development such as early childhood. Therefore, «translation» alone is not enough; «contextualized adaptation» should be the basis. Finally, the findings of the study show that the Denver II test can be successfully adapted to different contexts thanks to its structural flexibility, but this process must be carefully planned and scientifically based. Appropriately conducted linguistic and cultural adaptations strengthen not only the technical accuracy of the test but also its educational and ethical legitimacy.

Conclusion. Basic Findings of the Study. In this study, the validity, reliability, linguistic adaptations and cultural adaptation processes of the Denver II Developmental Screening Test in different countries were examined using the content analysis method. The findings are listed below:

1. In the USA, where the test was originally developed, the Denver II was found to be highly valid and reliable; the test was fully compliant with reference norms. 2. In Spain, the test was empirically validated through a structured study involving 200 children; the level of validity and reliability was confirmed through high sensitivity (89%), specificity (92%), and strong internal consistency without requiring major linguistic or cultural modifications (De-Andrés-Beltrán et al., 2015:326–328).

3. In the Singaporean context, some test items and instructions were found to mismatch the natural pace of expressive language development in children growing up in a multilingual environment. As a result, researchers proposed age-sensitive revisions and emphasized the importance of contextualizing language use within the local cultural setting.

4. Research from Brazil pointed out that certain developmental milestones appeared at different ages compared to the original norms. Alongside recurring mistakes during administration, this raised the need for a more context-specific restructuring of some sections.

5. In South Korea, it has been observed that the test is valid in cognitive and motor areas, and that simplifying some verbal expressions in the test significantly increased comprehensibility and practical applicability.

6. In general, direct transfer of the test to other cultures leads to validity problems, but adjustments made in accordance with local language and developmental norms significantly increase the validity and reliability of the test.

References

Glascoe F.P. (2005) Screening for developmental and behavioral problems. Mental Retardation and Developmental Disabilities Research Reviews, 11(3). — P. 173–179. (in Eng.). https://doi.org/10.1002/mrdd.20068

Kuralbayeva A., Pilten G., Tasova A., & Ibragimova A. (2025) Denver II and other developmental screening tests' significance in assessing child development. Pedagogy Bulletin of KazNPU, 85(1). — P. 320–331. (in Eng.). https://bulletin-pedagogy.kaznpu.kz/index.php/ped/article/view/3880/1022

Frankenburg W.K., & Dodds J.B. (1992) Denver II Training Manual. Denver Developmental Materials (in Eng.). https://ru.scribd.com/document/332743118/Denver-II-Training-Manual

Frankenburg W.K., Dodds J.B., Archer P., Shapiro H., & Bresnick B. (1992) The Denver II: A major revision and restandardization of the Denver Developmental Screening Test. Pediatrics, 89(1). — P. 91–97. (in Eng.). https://pubmed.ncbi.nlm.nih.gov/1370185/

Abessa T.G., Worku B.N., Wondafrash M., Girma T., Valy J., Lemmens J., ... & Granitzer M. (2016) Adaptation and standardization of a Western tool for assessing child development in non-Western low-income context. BMC Public Health, 16. — P. 652-1-13. (in Eng.). https://doi.org/10.1186/s12889-016-3288-2

Almohalha L., Santos J.L.F., & Pfeifer L.I. (2023) Cross-cultural adaptation and reliability of the Toddler Sensory Profile 2 for Brazilian children aged 7 to 35 months. Hong Kong Journal of Occupational Therapy, 36(1). — P. 36–45. (in Eng.). https://doi.org/10.1177/15691861231183097

Kumar P., & Sikarawar P. (2024) Utility of the Denver Developmental Screening Test-II (DDST-II): A systematic review. African Journal of Biomedical Research, 27(3S). — P. 2494. (in Eng.). https://doi.org/10.53555/AJBR.v27i3S.2494

Kurbatfinski S., Komanchuk J., Dosani A., & Letourneau N. (2024) Validity, reliability, accessibility, and applicability of young children's developmental screening and assessment tools across different demographics: A realist review. Children, 11(6). — P. 745. https://doi.org/10.3390/children11060745

Lopez Boo F., Cubides Mateus M., & Llonch Sabatés A. (2020) Initial psychometric properties of

the Denver II in a sample from Northeast Brazil. Infant Behavior and Development, 58. — P. 101391 (in Eng.). https://doi.org/10.1016/j.infbeh.2019.101391

De-Andrés-Beltrán B., Rodríguez-Fernández Á.L., Güeita-Rodríguez J., & Lambeck J. (2015) Evaluation of the psychometric properties of the Spanish version of the Denver Developmental Screening Test II. European Journal of Pediatrics, 174(3). — P. 325–329 https://doi.org/10.1007/s00431-014-2410-7

Lee K. (2024) Standardization of the Denver Developmental Screening Test for children in Seoul: a validity study. Ewha Medical Journal, 47(4), e61. (in Eng.). https://doi.org/10.12771/emj.2024.e61

Komor M., & Grzyb K. (2023) Qualitative Content Analysis – A Research Method in Social Science. Przegląd Badań Edukacyjnych, 2(43). — P. 143–163. (in Eng.). https://doi.org/10.12775/PBE.2023.032

Alyaqoub A., Alharbi A., & Alotaibi F. (2024) Elaboration of Underpinning Methods and Data Analysis Process of Qualitative Research: A Four-Step Conceptual Model. Journal of Intercultural Communication, 54. — P. 1–15 (in Eng.). https://immi.se/index.php/intercultural/article/view/Alyaqoubetal-2024-2

Lim H.C., Chan T., & Yoong T. (1994) Standardisation and adaptation of the Denver Developmental Screening Test (DDST) and Denver II for use in Singapore children. Singapore Medical Journal, 35. — P. 156–160 (in Eng.). https://smj.sma.org.sg/3502/3502a3.pdf

Santos J.A.T., Ayupe K.M.A., Lima A.L.O., Albuquerque K.A., Morgado F.F.R., & Gutierres Filho P.J.B. (2022) Propriedades psicométricas da versão brasileira do Denver II: teste de triagem do desenvolvimento. [Psychometric properties of the Brazilian version of the Denver II: developmental screening test] (in Esp.). Ciência & Saúde Coletiva, 27(3). — P. 1097–1106. (in Eng.). https://doi.org/10.1590/1413-81232022273.40092020

Dewangan M., & Sharma P. (2020) Comparison of Trivandrum developmental screening charts against the standard Denver development screening test in children between 0–3 years. International Journal of Contemporary Pediatrics, 7(11). — P. 2142–2145 (in Eng.). https://doi.org/10.18203/2349-3291.ijcp20204538

Kishore K., Sharma P., Chavan V.D., Madhusudhan B.K., & Adarsh E. (2019) To identify Clinical utility of TDSC in screening of developmental delay in children (0–3 yrs.) as compared to DDST. Journal of Evidence Based Medicine and Healthcare, 6(32). — P. 2146–2150 (in Eng.). https://journals.indexcopernicus.com/api/file/viewByFileId/749324

Publication Ethics and Publication Malpractice in the journals of the «Central Asian Academic Research Center» LLP (Almaty)

For information on Ethics in publishing and Ethical guidelines for journal publication see http://www.elsevier.com/publishingethics and http://www.elsevier.com/journal-authors/ethics.

Submission of an article to the National Academy of Sciences of the Republic of Kazakhstan implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis or as an electronic preprint, see http://www.elsevier.com/postingpolicy), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. In particular, translations into English of papers already published in another language are not accepted.

No other forms of scientific misconduct are allowed, such as plagiarism, falsification, fraudulent data, incorrect interpretation of other works, incorrect citations, etc. The National Academy of Sciences of the Republic of Kazakhstan follows the Code of Conduct of the Committee on Publication Ethics (COPE), and follows the COPE Flowcharts for Resolving Cases of Suspected Misconduct (http://publicationethics.org/files/u2/New_Code.pdf). To verify originality, your article may be checked by the originality detection service Cross Check http://www.elsevier.com/editors/plagdetect.

The authors are obliged to participate in peer review process and be ready to provide corrections, clarifications, retractions and apologies when needed. All authors of a paper should have significantly contributed to the research.

The reviewers should provide objective judgments and should point out relevant published works which are not yet cited. Reviewed articles should be treated confidentially. The reviewers will be chosen in such a way that there is no conflict of interests with respect to the research, the authors and/or the research funders.

The editors have complete responsibility and authority to reject or accept a paper, and they will onh accept a paper when reasonably certain. They will preserve anonymity of reviewers and promote publication of corrections, clarifications, retractions and apologies when needed. The acceptance of a paper automatically implies the copyright transfer to the National Academy of sciences of the Republic of Kazakhstan.

The Editorial Board of the National Academy of sciences of the Republic of Kazakhstan will monitor and safeguard publishing ethics.

Правила оформления статьи для публикации в журнале смотреть на сайте:

www: nauka-nanrk.kz
ISSN 2518–1467 (Online),
ISSN 1991–3494 (Print)
http://www.bulletin–science.kz/index.php/en

Директор отдела издания научных журналов НАН РК *А. Ботанқызы*
Редакторы: *Д.С. Аленов, Ж.Ш.Әден*
Верстка на компьютере *Г.Д.Жадыранова*

Подписано в печать 25.08.2025.
Формат 60x881/8. Бумага офсетная. Печать - ризограф.
37,0 п.л. Тираж 300. Заказ 4.

ТОО «Центрально-азиатский академический научный центр»
050010, Алматы, ул. Шевченко, 28, т. 272-13-19