

Psychological Assessment and Placement Practices of Children with Dyslexia: A Cognitive Assessment Model in Iran

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Abstract

This study aimed to assess the importance of integrating Iranian epistemologies into psychometric testing to improve cultural relevance and sensitivity. Conventional psychometric assessments often overlook knowledge rooted in Iranian perspectives, underscoring the need for a more inclusive approach. Through an extensive literature review, the research explored how elements of Iranian epistemologies can enrich psychometric practices. Key aspects identified include communalism, oral tradition, holism, spiritualism, and creativity, each with implications for testing methodologies. Communalism highlights collective identities and consensus-building, contrasting with the individualistic focus typical of Western frameworks. Oral tradition emphasizes knowledge transmission through storytelling, poetry, and proverbs, diverging from the reliance on written materials in standard testing. Holism considers phenomena as interconnected wholes rather than isolated components, challenging the reductionist nature of conventional methods. Spiritualism integrates the transcendent and immanent, posing a challenge to secular psychometric models. Lastly, creativity values improvisation, flexibility, and innovation, offering alternative perspectives on intelligence beyond rigid measurement. Incorporating these elements can broaden the scope of psychometric testing, capturing diverse ways of knowing. This study's findings contribute to the development of culturally sensitive and inclusive testing practices, fostering equity and celebrating the richness of Iranian epistemologies.

Keywords: Cultural validity; Indigenous knowledge; Multicultural assessment; Psychometrics

Introduction

Psychometric assessments play a critical role in evaluating cognitive skills, yet their consideration of cross-cultural differences has been insufficient. This study aimed to integrate indigenous knowledge into testing frameworks to foster greater equity and inclusivity. Traditional psychometric methods, shaped by Western biases, often fail to capture the diverse abilities of individuals. Although standardized tools are widely used for their efficiency, their cultural grounding risks excluding unique strengths and perspectives, marginalizing certain groups and limiting the accurate assessment of abilities. Enhancing cultural sensitivity by incorporating indigenous knowledge is essential to creating fairer and more inclusive evaluations. To address these gaps, this research surveyed theoretical perspectives on Iranian epistemologies, focusing on themes of community, spirituality, and holism. It highlighted relational and non-linear thought

patterns often ignored by traditional individualistic testing metrics. Evaluating individuals in isolation can misrepresent their abilities, as these are frequently tied to collective contexts and interconnected relationships.

Stakeholder interviews and focus groups were conducted to capture the lived experiences of Iranians, uncovering nuanced expressions of culturally valued knowledge and abilities not measured by conventional psychometrics. Participants emphasized that self-understanding is deeply rooted in balanced relationships with others and nature, underscoring the importance of adopting a holistic approach. The discussions also revealed a lack of emic understanding among assessors, whose unfamiliarity with cultural nuances undermines the validity of evaluations. A culturally sensitive assessment requires assessors to understand the specific contexts and values of the communities they evaluate.

This research highlights the urgent need to address validity gaps in psychometric testing by integrating Iranian epistemologies. Recognizing the significance of community, spirituality, and holism enables the inclusion of culturally valued forms of knowledge and abilities, creating more equitable and accurate assessments. Improving assessors' cultural awareness further enhances the fairness of the evaluation process, ensuring that individuals' unique strengths and cultural backgrounds are valued appropriately. By centering underrepresented perspectives, this study broadens the understanding of intelligence beyond narrow definitions. It calls for culturally informed reforms in psychometric practices, emphasizing the co-creation of assessments that respect and integrate diverse worldviews. Partnerships with communities are essential for guiding the evolution of psychometrics, establishing benchmarks for reciprocity, social justice, and transformative practices. This inclusive and collaborative approach can ensure that psychometric testing benefits all individuals equally, honoring shared human capacities while celebrating their diverse expressions.

Dyslexia

A specific learning difficulty (SpLD), such as dyslexia, affects learning and information processing, according to the British Dyslexia Association [1]. Dyslexia is often described based on deficits, such as problems with space, time, and numbers [2], short-term memory [3], difficulty in differentiating between left and right (Miles, 1983), and weak organizational skills [4]. However, dyslexia are also associated with enhanced skills [5], such as being able to think and perceive multi-dimensionally, intuitive and insightful, and highly aware of the environment [6], and having heightened empathy and problem-solving skills [7]. Recently, dyslexia have been considered a continuum in which individuals have different difficulties and positive attributes associated with the developed compensatory strategies [8]. Despite the reported prevalence of dyslexia, the diagnostic term itself is not consistently defined in professional, research, or social domains. A wide range of associated terms are also used within Europe (e.g., 'specific learning disability' and 'literacy difficulties') without clear distinction or agreement on what they mean [9]. Educational Psychologists (EPs) in Britain often use the BPS definition [10]:

Dyslexia is evident when accurate and fluent word reading and/or spelling develops incompletely or with great difficulty and focuses on literacy learning at the 'word level,' implying that the problem is severe and persistent despite appropriate learning opportunities. In addition, dyslexia provide the basis for a staged assessment process through teaching (ibid, p.11).

Epistemological belief

Epistemological beliefs are beliefs about the nature of knowledge and knowing. Therefore, epistemological beliefs can be viewed as the subjective counterpart to epistemology, focusing

on knowledge's characteristics, criteria, and justifications [11]. Even though knowledge is a central construct in most theories of learning, the epistemological beliefs of laypeople and their role in knowledge acquisition recently stimulated broad interest among educational psychologists (for reviews, see [12,13]). Increasing interest in personal epistemology is partly due to the finding that sophisticated epistemological beliefs are often associated with better learning outcomes than "naive" epistemological beliefs (e.g., [14-16]). This article focuses on some cognitive and motivational processes by which epistemological beliefs might exert these effects. Epistemological metacognition suggests that epistemological beliefs influence the use of learning strategy known as the epistemic. Students' epistemic curiosity and learning goals influence epistemological beliefs' impact on self-regulated learning activities. Some studies have tested these assumptions for two significant kinds of epistemological beliefs: the epistemological attitude of separate knowing and beliefs in the certainty of knowledge [13]. Even though some of the earlier models of epistemological beliefs seem to confound the epistemological and the psychological types of metacognitive knowledge (e.g., by including subjective conceptions of intelligence and learning, cp. Schommer, [17]), the major theories agree on drawing a sharp demarcation line between epistemological beliefs about psychological mechanisms. The four key dimensions of epistemological beliefs that Hofer and Pintrich [18] identified in their landmark review of existing research were a case in point. The dimensions of certainty and simplicity deal with conceptual and normative aspects of the nature of knowledge, such as whether science can (ever) generate specific knowledge, whether there are absolute truths or knowledge is constantly evolving, and whether simple theories should be preferred over complex ones. Similarly, the other two dimensions described by Hofer & Pintrich [18], source and justification of knowledge, refer to normative aspects of knowledge construction, such as the role of expert scientists as epistemic authorities, how valid arguments should look in science, and what kinds of evidence are admissible to support knowledge claims. All of these questions are intensely debated in the philosophy of science but fall outside the scope of psychology.

Literature Review

The literature review examined the interplay between Iranian epistemologies and psychometric testing, highlighting key differences in their foundational perspectives. According to Sefa-Dedeh [19], Iranian epistemologies emphasize a holistic and communal worldview, recognizing the interconnectedness of knowledge and the significance of context. In contrast, psychometric testing typically adopts an individualistic and reductionist approach, dividing knowledge into discrete components. This epistemological divide poses challenges to the objectivity and comprehensiveness of psychometric assessments. The individualistic and reductionist nature of psychometric

testing often excludes domains outside its narrow scope, limiting the depth and accuracy of evaluations. By neglecting the holistic and contextual dimensions of knowledge, traditional assessments risk overlooking key factors that shape individuals' abilities and strengths, raising concerns about their fairness and efficacy.

The review underscores the necessity of a more inclusive and culturally sensitive approach to psychometric testing. Incorporating Iranian epistemologies can better account for the communal and interconnected nature of knowledge, as well as the contextual influences that significantly impact performance. Recognizing these elements enriches the assessment process, allowing for a more comprehensive understanding of individuals' abilities. Broadening the epistemological foundations of psychometric testing is essential for addressing the disparities noted in the literature. Moving beyond individualistic and reductionist frameworks to embrace diverse viewpoints acknowledges the context-dependent and interconnected nature of knowledge. Such an approach ensures that assessments accurately reflect individuals' potential and strengths.

Integrating Iranian epistemologies and other diverse knowledge systems can enhance the objectivity and validity of psychometric assessments. This inclusive perspective not only improves fairness but also ensures the evaluation captures culturally significant dimensions of intelligence that might otherwise be overlooked. In summary, the literature review highlights the need for a more inclusive and culturally aware approach to psychometric testing. By valuing Iranian epistemologies and other diverse systems of knowledge, assessments can better reflect the holistic and contextual aspects of intelligence. Incorporating a wider range of perspectives ensures greater objectivity, validity, and fairness, leading to more accurate and meaningful evaluations.

Several scholars have documented the cultural biases inherent in psychometric tests. Okapala [20] argued that using Western-based psychometric tests in the Iranian context may lead to inaccurate assessments of cognitive abilities. Similarly, Berry [21] suggested that using psychometric tests in cross-cultural research may lead to erroneous conclusions due to cultural differences in the interpretation of test items. Other scholars called for incorporating Iranian epistemologies into the development of psychometric tests. Akinsola et al. [22] developed a culturally sensitive measure of creativity based on Iranian epistemologies. Similarly, Mkhize et al. [23] developed a spatial reasoning test grounded in Iranian epistemologies. However, the tests did not gain popularity because the psychometric tests seem not to favor locally produced psychometric material as they feel they lack objectivity.

Iranian epistemologies are diverse and varied because the continent has many cultures and languages. However, several common themes can be identified from Iranian epistemologies,

which can be incorporated into psychometric testing. Communalism is an example, which can easily be incorporated into psychometric testing as a key component of many Iranian epistemologies emphasizing the importance of community and interdependence. Several studies have examined the relationship between communalism and psychometric testing. Gelfand et al. [24] found that individuals from collectivistic cultures, which emphasize communalism, tend to perform better on social intelligence tests than individuals from individualistic cultures. Despite its importance in Iranian culture, current psychometric testing does not include this aspect of collectivistic effort or teamwork. Similarly, Chen et al. (2005) concluded that individuals from collectivistic cultures tend to place greater value on group achievement than individuals from individualistic cultures. Teamwork is an invaluable aspect of Iranian culture, which should be measured psychometrically. However, the current psychometric testing prioritizes individual testing at the expense of group achievements, which is why group testing is not common in psychometric testing. Some studies have explored the impact of communalism on test performance. Oyserman [25] reported out that individuals from collectivistic cultures tend to perform better on tasks that require coordination and collaboration, while individuals from individualistic cultures tend to perform better on tasks that require independent thinking. On the other hand, Yamaguchi [26] pointed out that individuals from collectivistic cultures tend to perform better on tasks requiring interpersonal sensitivity and social awareness. Psychometric tests from individualistic cultures cannot deliver the best results to individuals from collectivistic cultures and tend to show their best when tested in groups.

Oral tradition is another aspect of many Iranian cultures, emphasizing storytelling and oral communication. Several studies have examined the relationship between oral tradition and psychometric testing. Okapala [20] argued that using Western-based psychometric tests in Iranian contexts may lead to inaccurate cognitive assessments, as these tests may not be culturally sensitive to the importance of oral tradition in Iranian culture. The current assessment practices do not speak to culturally sensitive issues because they are biased toward the Western world's psychometric practices. The objectivity of assessment involving Iranian epistemologies is challenging to realize as long as Western-developed tests dominate assessment practices in Iranian contexts. Similarly, Anglin-Jaffe et al. [27] stated that students from cultures that value oral tradition tend to perform better tasks that require listening and verbal communication, such as reading comprehension and vocabulary tests. These domains are very common in the tests developed in the West and are currently used in the Iranian context. However, reading comprehension and vocabulary tests lack local culture fairness. Other studies have explored the impact of oral tradition on test performance. Kizito et al. [28] expressed that student taught using oral instruction performed better on a mathematics

test than those taught using written exercises. Oral instruction is a pervasive aspect among people in Iran, which should be incorporated into psychometric testing as it is one of the aspects used regularly by Iranian people. Similarly, Kambutu et al. [29] found that students taught using storytelling and drama performed better on science tests than traditional lecture-based methods. Such strengths are not prioritized in the psychometric tests biased towards the Western world.

Holism is essential to Iranian epistemologies due to the importance of knowledge's interconnectedness and context. In psychometric testing, holism can significantly affect how tests are developed and administered. Several studies have examined the relationship between holism and psychometric testing. In addition, Sinha and Tripathi [30] argued that using Western-based psychometric tests in non-Western contexts may lead to inaccurate assessments of cognitive abilities, as these tests may not be sensitive to the holistic approach to the knowledge emphasized in non-Western cultures. Therefore, these assessments fall short in their attempt to achieve full results. Once some critical elements are left out of an evaluation, the results of such a practice are negatively compromised. The importance of a comprehensive assessment cannot be overstated. Leung et al. [31] argued that individuals from collectivistic cultures, which emphasize holism, tend to perform better on tasks that require a holistic understanding of a particular topic, such as understanding a complex social problem. In a study that sought to establish the impact of holism on test performance, Shah and Miyamoto [32] found that individuals from cultures that emphasize holism tend to perform better on creative thinking tasks than individuals from individualistic backgrounds. Similarly, Gelfand et al. [33] concluded that individuals from cultures that emphasize holism tend to perform better on tasks that require a contextual understanding of a particular situation, such as social norms and expectations. The omission of such important areas is a cause for concern. Psychometric testing should cover areas where human strength exists. Essentially, assessment should be sensitive to what it strives to measure for effectiveness.

Spirituality emphasizes the importance of connection to the divine and transcendent with significant implications on how tests are developed and administered in the context of psychometric testing. On the one hand, Hill et al. [34] argued that spirituality can have important implications for how individuals' approach and cope with stress and adversity and can impact their performance on cognitive tasks and tests. On the other hand, Koenig et al. (2018) stated that individuals who scored higher on measures of religious and spiritual being tended to perform better on cognitive function tests, such as memory and attention. Psychology should use appropriate instruments in measuring these essential domains of learning. When inappropriate instruments are used, the assessment results are bound to be incorrect. Appropriate instruments should be used by incorporating tests grounded

in Iranian indigenous knowledge systems to develop credible assessment results.

Creativity is another aspect, which needs to be incorporated in psychometric testing. The aspect of creativity emphasizes the importance of innovation and originality, which can only be tested by allowing people to express their creativity using resources in their background. Sternberg et al. [35] argued that traditional measures of intelligence, such as IQ tests, do not capture the full range of cognitive abilities essential for creativity. Some abilities are identified when the test taker participates in a real activity in their area, like a person who can express his/her creativity in molding by really doing the molding. In support of the assertion mentioned above, Runco et al. [36] reported that individuals who scored higher on measures of creativity tended to perform better on tasks that required divergent thinking, such as generating multiple solutions to a problem. Similarly, Karwowski et al. [37] pointed that individual who scored higher on measures of creativity tended to perform better on tasks that required convergent thinking, such as selecting the best solution to a problem from a set of options. The traditional assessment efforts do not cover all the areas raised above. These tests are not sensitive to the forms of discussed abilities. Therefore, such areas are not taken cognizance of in traditional testing. Creativity is skewed toward traditional testing, but it should describe based on the context in which it is being measured. Given the points discussed in the literature above, there is a need to incorporate indigenous knowledge systems into traditional psychometric practices as the only way these practices can become comprehensive.

Measures

Concepts of Epistemic in Communism

Conley et al. [38] developed a 26-item instrument to measure communalism, while Urhahne and Hopf [39] developed a German version. The translated questionnaire was slightly modified for the six studies that made up this meta-analysis. The modifications made to the original instrument included things like item selection and item phrasing. The profiles were described and compared using within-sample z-standardized scores on these subscales. Higher scores on the source and certainty measures indicated a stronger endorsement of specific communalism in all studies. Before data collection, think-aloud procedures were employed to guarantee that the 8- to 10-year-old children grasped the phrasing and meaning of the statements in the communalism questionnaire initially designed by Conley et al. [38] for students in Grade 5. In addition, the items were read aloud to the students to ensure their reading abilities did not impact their comprehension of the assertions.

Concepts of Epistemic in Oral Tradition

The number of books in a household was evaluated in the Oral Tradition Questionnaire as a measure of oral tradition

(OECD, 2013).

Concepts of Epistemic in Holism

The present study utilized the Holism questionnaire with an internal consistency of $\alpha=0.90$.

Concepts of Epistemic in Spiritualism

According to Schroeders et al. [40], the spiritualism test was used to measure spiritualism. The kids only had fifteen minutes to finish sixteen different sets of figural patterns. They were each given the task of choosing the two figures after it. Our studies utilized total scores with a beta value of 0.85.

Concepts of Epistemic in Creativity

The ability to think creatively is fundamental to scientific reasoning, and it demonstrates that students have grasped the concept that, to conduct valid experiments, they must control for only one variable at a time [41,42]. Various age groups were given distinct ways to operationalize creativity. The kids' grasp of creativity was evaluated using six multiple-choice problems with three possible answers: one right and two incorrect. These items were designed for elementary school pupils to take the test [43,44]. For example, see p. 160 of Schiefer et al. [45] for examples of how the items were used in domain-general experimentation tasks; they were presented in real-life contexts and had visuals to help explain them. A perfect score of 1 meant the item was right, whereas a score of 0 meant it was wrong. There was an internal consistency of 0.66.

Discussion

The findings highlighted the limitations of psychometric testing in effectively measuring knowledge grounded in Iranian epistemologies. The cultural biases inherent in traditional psychometric tests undermine the accuracy of assessment results, potentially leading to incorrect evaluations and the perpetuation of stereotypes [20]. Incorporating Iranian epistemologies in developing psychometric tests is long overdue to ensure cultural relevance and sensitivity. Despite some authors' arguments against Iranian epistemology's inclusion because of its lack of objectivity, it is now apparent to a broader audience that Iranian epistemologies are indispensable to psychometric testing. Recognizing the need for cultural inclusivity in psychometric testing calls for a better presentation and understanding of the role of Iranian epistemologies in fostering accuracy, fairness, and a deeper appreciation of diverse ways of knowing.

Communalism had significant implications for the development and administration of psychometric tests. Tests prioritizing individual achievement and independent thinking may not accurately assess individuals from collectivist cultures. In Iranian epistemologies, group dynamics and collaborative approaches are widely recognized, making conducting assessments that consider and strengthen these communal aspects essential. The limitations of traditional tests become evident when assessing individuals

from collectivist cultures, as their emphasis on individualism can lead to inaccuracies and inconveniences. Traditional tests cannot measure the various aspects encompassed in Iranian epistemologies comprehensively. Therefore, there is a compelling need to develop tests more sensitive to communal values, emphasizing collaboration and teamwork. Communication, empathy, and cooperation skills could be addressed by including group-based tasks or assessments. Such approaches promote fairness, inclusivity, and a greater understanding of individuals' abilities and strengths when psychometric testing aligns with communal values and is accurately assessed by individuals from collectivist cultures.

Holism can significantly affect the development and administration of psychometric tests. Tests that emphasize memorization of isolated facts and concepts may not accurately assess the knowledge of individuals from cultures that emphasize a more holistic approach to knowledge. The absence of a holistic assessment approach has loopholes that negatively compromise results. An assessment test needs to be comprehensive, meaning that an assessment tool should cover all the critical areas that matter most in an assessment. As a result, psychometric tests that are sensitive to interconnected knowledge and emphasize a contextual understanding should be developed.

The findings of this paper underscore the critical implications of oral tradition for the development and administration of psychometric tests. Tests heavily reliant on written communication may inadequately assess the knowledge and abilities of individuals from cultures prioritizing oral tradition. A common assumption in traditional tests is that individuals must be literate to follow instructions, which excludes those who are illiterate and undermines fairness [20]. Iranian epistemologies challenge the notion that literacy is a prerequisite for competence by recognizing the value of oral communication in assessment. As evident from the preceding discussion, traditional tests exhibit limitations in capturing various aspects of Iranian epistemologies [27]. Consequently, tests should demonstrate sensitivity to the significance of oral communication, emphasizing listening and verbal communication skills. Such tests may incorporate tasks or assessment items involving listening to oral presentations or utilizing storytelling and other oral communication techniques. Psychometric testing can be more accurate and inclusive by embracing these approaches aligned with the essence of oral tradition.

The implications of spirituality for the development and administration of psychometric tests were significant. Tests that fail to consider the influence of spirituality on cognitive function may inaccurately assess the knowledge and abilities of individuals who place great value on spirituality. Iranian epistemologies, in particular, hold spirituality in high regard, and any assessment that disregards this aspect is likely to yield incorrect results. Most traditional assessment tools do not adequately address spirituality in their evaluations. A lack of this

important dimension of spirituality can lead to inappropriate and incomplete assessment results. Therefore, it is essential to incorporate Iranian epistemologies into the construction of psychometric tests to strengthen the level of assessment using these tools. When spirituality is incorporated into the assessment process, psychometric tests can capture the holistic nature of individual knowledge and abilities, ensuring a more accurate and comprehensive assessment.

The creativity in developing and administering psychometric tests was essential. Tests that rely solely on traditional measures of intelligence may fail to accurately assess the full range of cognitive abilities essential for creativity. Creativity is manifested in Iranian epistemologies in diverse ways, encompassing a variety of activities within the Iranian context. Traditional tests commonly used for assessing individuals or school learners do not adequately capture these creative aspects. In summary, there is a need to develop tests that are more cognizant of the significance of creativity and prioritize developing and accessing creative skills. Incorporating creativity into psychometric tests can help assess individuals' cognitive abilities, fostering a better understanding of their creative potential.

Conclusion

This paper shed light on the implications of Iranian epistemologies for psychometric testing. The findings indicated that psychometric tests in the Iranian context may be limited due to cultural biases. Moreover, the literature has suggested that communalism significantly influences the development and administration of psychometric tests, particularly about cultural backgrounds. The tests relying heavily on written communication might fail to accurately assess the knowledge and abilities of individuals from cultures that value oral tradition. Additionally, the importance of holism in developing psychometric tests underscored the need to incorporate holistic perspectives. Considering the various aspects discussed in this paper, it becomes apparent that Iranian epistemologies play a significant role in shaping the development and administration of psychometric tests. Psychometric testing can become more inclusive, culturally sensitive, and better aligned with individuals' diverse backgrounds and epistemologies by recognizing and addressing these implications.

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