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# Validation of the Moroccan Three-dimensional Wisdom Scale (3D-WS): A cross-cultural exploration of wisdom

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**Abstract:** This study adapted and validated the Three-Dimensional Wisdom Scale (3D-WS; Ardelt, 2003) for a Moroccan adult sample. The 3D-WS conceptualizes wisdom through cognitive, reflective, and affective dimensions. A total of 404 Moroccan adults (56.9% women; M = 31.8 years, SD = 9.4) completed an online survey. Exploratory factor analysis (principal-axis extraction with Promax rotation) reduced the scale to 15 culturally adapted items across three factors, accounting for 44.3% of the total variance. Confirmatory factor analysis demonstrated satisfactory fit: $\chi^2/df = 1.46$, GFI = 0.94, CFI = 0.91, RMSEA = 0.049. Bifactor modeling indicated a strong general wisdom factor (ECV = 0.62; $\omega_h = 0.79$). The adapted Moroccan 3D-WS showed good internal consistency and construct validity. These findings support its use as a culturally sensitive tool for assessing wisdom in North African contexts and contribute to the global understanding of wisdom's multidimensional structure.

**Keywords:** wisdom; scale validation; cross-cultural psychology; 3D-WS; Morocco

## Introduction

Since ancient times, wisdom has captivated scholars and laypeople as a hallmark of human development. Philosophers, religious scholars, and ordinary citizens have pondered its nature, origins, and manifestations. For example, in classical Greece, Plato and Aristotle distinguished practical wisdom (phronesis), rooted in sound reasoning and morally right practice, from theoretical wisdom, devoted to the pursuit of truth (Baltes & Smith, 2008). In recent decades, researchers have begun to validate operational measures of wisdom and to test their cross-cultural transportability. In recent decades, researchers have begun to validate operational measures of wisdom and to test their cross-cultural transportability. Prominent psychological models, such as Sternberg's Balance Theory of Wisdom (Sternberg, 1998) and the more recent Unified 6P Framework (Sternberg & Karami, 2021), have emphasized the integration of knowledge, values, and practical skills to achieve a common good. Historical analyses further trace the evolution of wisdom across cultural and philosophical traditions, highlighting its enduring significance (Birren & Svensson, 2005).

One of the best-known self-report instruments is the Three-Dimensional Wisdom Scale (3D-WS) (Ardelt, 2003). The 3D-WS rests on the premise that wisdom comprises three interrelated dimensions: cognitive, reflective, and affective (Ardelt, 2003; Clayton & Birren, 1980; García-Campayo et al., 2018). However, whether this structure remains stable across cultures is still an open empirical question.

### *The scientific study of wisdom*

The scientific study of wisdom extends beyond mere intellectual curiosity and is closely associated with human flourishing (Ardelt & Kingsbury, 2024). Wisdom has been conceptualized as an orchestration of mind and virtue toward excellence (Baltes & Staudinger, 2000). In positive psychology, wisdom is regarded as the essence of virtue and human perfection, integrating knowledge and experience to enhance well-being (Baltes & Kunzmann, 2003; Schwartz & Sharpe, 2006) and quality of life (Ardelt, 1997, 2000; Jeste & Oswald, 2014; Haybron, 2007). Wisdom has been linked to positive aging and various psychological health outcomes, including resilience (Jeste et al., 2013), happiness (Etezadi & Pushkar, 2013), self-efficacy (Glück et al., 2005), and forgiveness (Taylor et al., 2011). Additionally, wisdom fosters societal benefits by enhancing interpersonal well-being, strengthening social relationships (Ardelt, 1997, 2000; Jeste & Oswald, 2014), promoting leadership excellence (Yang, 2011), encouraging prosocial behavior (Andor et al., 2023), and supporting moral development (Adams, 2006).

Cultural differences can shape or emphasize different dimensions of wisdom, and the relative importance of these dimensions is likely to vary across cultural backgrounds (Takahashi & Overton, 2005). In Western traditions, wisdom is often associated with analytical knowledge and cognitive complexity. In contrast, Eastern traditions emphasize a harmonious balance between cognitive and affective elements, highlighting humility and collective well-being (Takahashi & Overton, 2005). This cultural dichotomy presents a significant challenge to developing a universally applicable framework for measuring wisdom and underscores the need for an approach that respects cultural specificities while identifying commonalities in the human experience of wisdom.

### *Three-dimensional wisdom scale (3D-WS)*

The 3D-WS highlights the association of wisdom with sound judgment, emotional regulation, prosocial behavior, and adeptness in navigating complex social interactions. This scale presents wisdom as a combination of cognitive, reflective, and affective facets. The scale comprises 39 items balanced across the three dimensions. The cognitive facet assesses understanding of life's complexities and a thirst for truth (e.g., "I try to anticipate the long-term consequences of my actions"; "I enjoy learning from people whose ideas differ from mine"). The reflective facet measures self-examining insight and perspectival balance (e.g., "I often re-examine my opinions when faced with new evidence"; "I can view a problem from several points of view"). The affective facet captures compassion, sympathy, and emotional regulation (e.g., "I feel a strong desire to help people in need"; "Seeing someone unhappy makes me want to comfort them"). Most items were drawn from the existing wisdom literature (Ardelt, 2003).

Cross-cultural validation studies have been conducted in Korea (Kim & Knight, 2015) to incorporate culturally relevant dimensions of wisdom, modesty, and unobtrusiveness. The findings identified three distinct factors: cognitive flexibility, viewpoint relativism, and empathic modesty. In the Spanish context, García-Campayo et al. (2018) reported three correlated factors (reflective, cognitive, and affective), demonstrating strong psychometric properties and model fit. In the Polish context, Ardelt's Three-Dimensional Wisdom Scale reported four dimensions: cognitive, affective, self-awareness, and empathic (Steuden, et al., 2016). However, little is known about the conceptualization of wisdom within Moroccan culture, a gap this study seeks to address.

### *The Moroccan cultural context*

Morocco has historically been a melting pot of civilizations due to its strategic location at the crossroads of the Greater Maghreb, Europe, and the African continent. This convergence of diverse cultures has significantly shaped Moroccan identity, enriched its linguistic landscape, and fostered a multilingual society. The historical amalgamation of cultures and languages has contributed to what is now recognized as Morocco's distinctive linguistic environment (Zouhir, 2013).

Today, Morocco exhibits a unique triglossic linguistic structure, where three distinct forms of Arabic coexist, each serving specific sociolinguistic functions and holding different statuses. Classical Arabic, primarily used in religious contexts such as prayers and sermons, remains the traditional written form of the language. Modern Standard Arabic (MSA), understood by approximately two-thirds of the population, serves as one of Morocco's official languages and plays a crucial role in education, governance, media (including television and print), and administration. In contrast to these formal varieties, Moroccan Arabic (*Darija*) serves as the native language of most Moroccans, acting as the preferred medium for daily communication in informal settings and the oral transmission of Morocco's rich popular and folkloric heritage. *Darija* is widely spoken among Arab and Tamazight (Berber) speakers across the country (Zouhir, 2013). Recent discourse increasingly acknowledges *Darija* as a key component of Moroccan identity, often referred to as "Moroccanness" (Caubet, 2017).

### *Purpose of the present study*

This study builds upon previous theoretical and empirical research on wisdom and its cultural variations to address the following research question:

How valid and reliable are the Three-Dimensional Wisdom Scale (3D-WS) scores in the Moroccan context, along with cultural adaptation?

This adaptation process involves both linguistic and conceptual translation, as well as a deeper engagement with Moroccan cultural constructs of wisdom. It fosters a dialogue between universal and culture-specific expressions of wisdom, ultimately enriching the global understanding of wisdom and advancing culturally sensitive psychological assessment tools.

## Method

### *Participants and setting*

A total of 470 questionnaires were submitted; after removing 66 cases (due to incomplete responses), the final analytic sample consisted of 404 participants (56.9% women). Ages ranged from 18 to 80 years ($M = 31.8$, $SD = 9.4$). Eligibility criteria included Moroccan nationality, age 18 years or older, and provision of electronic informed consent. Recruitment was conducted nationwide via university mailing lists, professional networks, and social media advertisements. The Google-Form link remained active from June to October 2023; the median completion time was $Mdn = 14$ min, and no incentives were offered.

Participants provided basic sociodemographic information, including sex, age, marital status (single, married, divorced, widowed), highest educational level (primary, secondary, university), and employment category (student, senior executive, executive technician, liberal profession, contractor, unemployed). Descriptive frequencies and ages are reported in Table 1. Briefly, most respondents were single (33.9%) or married (61.6%), highly educated (92.8% held at least a university degree), and professionally active (53.7%) identified as senior executives and 8.2% as entrepreneurs. Approximately 60.4% were between 20 and 40 years of age, whereas fewer than 1% were over 70 years of age. Overall, the sample was predominantly young, well-educated, and professionally engaged.

### *Procedure*

The study was conducted in accordance with the ethical guidelines of the National School of Business and Management of Fez and adhered to the Declaration of Helsinki. After reading an online consent form, participants proceeded to the survey using Google Forms. They first completed the Arabic–*Darija* version of the Three-Dimensional Wisdom Scale (3D-WS) and then provided demographic information. All responses were anonymous; no personally identifying data was collected, and no monetary or course-credit incentives were offered.

**Table 1.** *Descriptive characteristics of the sample (N = 404)*

| Variable | Category | n | % |
|---|---|---|---|
| Sex | Female | 230 | 56.9 |
| | Male | 174 | 43.1 |
| Age (years) | Under 20 | 11 | 2.7 |
| | 20–30 | 117 | 29.0 |
| | 31–40 | 127 | 31.4 |
| | 41–50 | 86 | 21.3 |
| | 51–60 | 47 | 11.6 |
| | 61–70 | 15 | 3.7 |
| | 71–80 | 1 | 0.2 |
| Employment | Student | 69 | 17.1 |
| | Senior executive | 217 | 53.7 |
| | Technician | 34 | 8.4 |
| | Liberal profession | 27 | 6.7 |
| | Entrepreneur | 33 | 8.2 |
| | Unemployed | 24 | 5.9 |
| Marital status | Single | 137 | 33.9 |
| | Married | 249 | 61.6 |
| | Divorced | 16 | 4.0 |
| | Widowed | 2 | 0.5 |
| Education level | Self-study | 8 | 2.0 |
| | BAC level | 11 | 2.7 |
| | BAC | 10 | 2.5 |
| | Higher education | 375 | 92.8 |

*Note*. N = 404 Moroccan adults. Percentages may not sum to exactly 100 due to rounding.

### *Translation and cultural adaptation*

For this study, we obtained explicit permission from the original author, Ardelt, to translate and validate the Three-Dimensional Wisdom Scale (3D-WS) for use among Moroccan audiences. This adaptation process involved Classical Arabic and *Darija*, ensuring clarity and cultural relevance.

The translation process followed a systematic methodology, including:

1. Forward translations by bilingual linguistic experts,
2. Back-translations to ensure fidelity and conceptual equivalence, and
3. A final review conducted by a native English-speaking professor in adherence to recognized cross-cultural adaptation guidelines (Borsa et al., 2012; Hambleton & Li, 2005).

To ensure cultural and linguistic appropriateness, the English version of the 3D-WS was provided to four researchers, who were asked to suggest translations into Classical Arabic and *Darija*, a Moroccan dialect derived from Classical Arabic and commonly used in everyday communication. The primary goal was to ensure clarity in the translated items, as some Moroccans may struggle with certain nuances in Classical Arabic.

## Results

### *Exploratory factor analysis (EFA)*

We split the retained sample of 404 participants into two subsamples: 100 for exploratory factor analysis (EFA) and 304 for confirmatory factor analysis (CFA). An exploratory factor analysis (EFA) was conducted on the calibration subsample (n = 100) using principal-axis extraction and Promax ($\kappa = 4$) rotation. Bartlett's test of sphericity was significant, $\chi^2(105) = 692.14$, $p < 0.001$, and the Kaiser–Meyer–Olkin measure indicated adequate sampling adequacy (KMO = 0.79). Initial eigenvalues, parallel analysis, and the scree plot suggested as many as 11 components; however, only three factors possessed interpretable structure and sufficient item loadings.

Items with primary loadings < 0.40, cross-loadings > 0.30, or negative effects on Cronbach's $\alpha$ were iteratively removed, yielding a 15-item solution with *five items per facet*. The final three factors, Cognitive ($\lambda = 6.72$), Reflective ($\lambda = 3.18$), and Affective ($\lambda = 2.11$), jointly accounted for 44.3% of the total variance. Reliability analysis showed acceptable internal consistency for the overall 15-item scale (Cronbach's $\alpha = 0.71$). Subscale alphas were 0.66 for Cognitive, 0.57 for Affective, and 0.78 for Reflective dimensions. Following these refinements, a 15-item solution: five cognitive items (e.g., "I can get along comfortably with all kinds of people"; C12), five affective items (e.g., "Sometimes I do not feel sorry when others suffer"; A12), and five reflective items (e.g., "Before I criticize anyone, I try to imagine being in their place"; R2) was retained for confirmatory factor analysis.

### *Confirmatory factorial analysis CFA*

The 15-item solution emerging from the exploratory phase was evaluated with a confirmatory factor analysis (CFA) on the validation subsample (n = 304) using robust maximum-likelihood (MLR) estimation in *Mplus* 8.8. A three-factor correlated model (Model B) representing the Cognitive (five items), Reflective (five items), and Affective (five items) facets provided an acceptable but improvable fit: $\chi^2/df = 2.465$, GFI = 0.935, CFI = 0.876, RMSEA = 0.060 (90% CI = 0.049–0.071), SRMR = 0.058. Examination of modification indices suggested three theoretically defensible correlated error terms, reflecting shared wording and content overlap. Incorporating these residual covariances yielded a substantially better-fitting model (Model C): $\chi^2/df = 1.457$, GFI = 0.944, CFI = 0.906, RMSEA = 0.049 (90% CI = 0.038–0.060), SRMR = 0.043, satisfying conventional criteria (CFI/TLI ≥ 0.90; RMSEA/SRMR ≤ 0.08).

Standardised factor loadings were uniformly significant (Table 2), ranging from 0.43 (COG9) to 0.76 (REF11), with an average loading of 0.57. Factor correlations were moderate (r = 0.30–0.46), indicating related but distinguishable dimensions. Composite reliability estimates were satisfactory. Bifactor modeling further supported the scale's structure by indicating the presence of a strong general wisdom factor (ECV = 0.62; $\omega_h = 0.79$), suggesting that while three dimensions are distinguishable, they also reflect a unified wisdom construct. These results support the convergent validity of the 15-item Moroccan 3D-WS and the adequacy of its three-factor structure.

**Table 2.** *Standardized factor loadings (CFA) for the 15-item Moroccan 3D-WS*

| Item | Cognitive loading | Affective loading | Reflective loading |
|---|---|---|---|
| COG5 | 0.492 | — | — |
| COG9 | 0.428 | — | — |
| COG10 | 0.580 | — | — |
| COG12 | 0.703 | — | — |
| COG14 | 0.622 | — | — |
| AFF5 | — | 0.528 | — |
| AFFI6 | — | 0.399 | — |
| AFF9 | — | 0.468 | — |
| AFF10 | — | 0.419 | — |
| AFF12 | — | 0.421 | — |
| REF2 | — | — | 0.498 |
| REF6 | — | — | 0.628 |
| REF7 | — | — | 0.755 |
| REF8 | — | — | 0.595 |
| REF11 | — | — | 0.596 |

*Note.* Model fit indices: $\chi^2/df = 1.46$, GFI = 0.944, CFI = 0.906, RMSEA = 0.049. Internal consistency for total scale Cronbach's $\alpha = 0.71$.

## Discussion

The present study aimed to validate the Moroccan version of the Three-Dimensional Wisdom Scale (3D-WS; Ardelt, 2003), addressing the lack of validated instruments for assessing wisdom in Arabic-speaking populations. Results supported a three-factor structure (cognitive, reflective, and affective dimension) consistent with previous validations in American, Korean, and Polish contexts (Ardelt, 2003; Kim & Knight, 2015; Steuden et al., 2016). The factorial structure demonstrated acceptable model fit and strong internal consistency, supporting the 3D-WS as a psychometrically sound tool for Moroccan samples.

These findings align with prior research indicating that wisdom is a multidimensional construct with both universal and culturally specific aspects (Takahashi & Overton, 2005; Ferrari & Alhosseini, 2019). An analysis of retained and excluded items provides insight into how Moroccan respondents interpret and prioritize wisdom traits in culturally resonant ways.

### *Interpretation of the three-factor structure*

The cognitive dimension, typically associated with knowledge and reasoning, showed robust factor loadings, suggesting that Moroccan respondents value practical discernment and a nuanced understanding of social dynamics. The reflective dimension involves self-awareness and perspective-taking, aligning with Moroccan collectivist values that emphasize self-examination within interpersonal and societal contexts (Caubet, 2017). The affective dimension, linked to compassion and emotional regulation, also emerged as essential, consistent with Moroccan cultural emphases on interpersonal harmony and ethical conduct (García-Campayo et al., 2018).

Content inspection of excluded items revealed that many removed statements were (a) overly abstract (e.g., "In this complex world, the only way to understand what happens is to rely on trusted leaders and experts"; C1), (b) strongly dichotomous or individualistic (e.g., "Most people can be divided into two kinds: good or bad"; C3), or (c) reverse-worded items that proved difficult to interpret in Moroccan Arabic (e.g., "I am not interested in comforting others when they suffer"). Such wording likely reduced cultural resonance and increased response error, producing low communalities and inflated residual correlations.

#### *Cognitive wisdom as social discernment and bounded responsibility*

Four of the five cognitive items emphasize quick moral appraisal and pragmatic limits on responsibility. For example, "Most people can be divided into honest or cheater" (C5) and "Whether others get into trouble is not necessarily my problem" (C14) reflect a practical heuristic: assess others quickly but maintain personal boundaries. Such heuristics align with culturally shaped expectations of social discernment in high-context, relationally oriented societies (Nisbett et al., 2001; Grossmann et al., 2010; Grossmann, 2017). Only one cognitive item, "I can get along comfortably with all kinds of people" (C12), suggests abstract tolerance, necessary for navigating Morocco's multilingual, hierarchically layered society (Zouhir, 2013; Caubet, 2017).

#### *Affective wisdom as calibrated empathy*

The retained items depict a nuanced, culturally specific understanding of selective compassion. Statements such as "Sometimes I do not feel sorry when others suffer" (A12) and "Problems that seem unsolvable do not interest me much" (A10) suggest that emotional wisdom includes guarding against excessive worry (hamm) and conserving psychological resources. Such emotional self-regulation reflects the need for balance between empathy and self-protection in collectivist societies, where social obligations can be intense (Kitayama & Markus, 2000; Takahashi & Overton, 2005). This calibrated empathy aligns with cultural values prioritizing community harmony while recognizing limits to individual responsibility (Ferrari & Alhosseini, 2019).

#### *Reflective wisdom as perspective-taking under emotional pressure*

All five reflective items highlight self-monitoring in emotionally charged situations. Classic perspective-taking prompts such as "Before I criticise anyone, I imagine being in their place" (R2) and "I put myself in others' shoes when I am angry" (R6) resonate with the cultural virtue of *hilm* (forbearance) and the Qur'anic ethic of shūrā (consultative respect). This perspective-taking is consistent with findings that wisdom in collectivist contexts often emphasizes interpersonal attunement and relational negotiation (Grossmann et al., 2010; Staudinger & Glück, 2011).

Taken together, these patterns suggest that Moroccan wisdom privileges context-sensitive pragmatism over idealized saintliness. Cognitive items emphasize moral discernment and realistic limits of responsibility, consistent with the values of aql (practical reason) and acceptance

of one's destiny. Affective items promote compassion that is neither indiscriminate nor self-sacrificial, striking a balance between empathy and self-preservation. Reflective items blend empathic stance-taking with acknowledgment of anger, regret, and hesitation. In sum, the adapted Moroccan 3D-WS captures a culturally grounded blend of practical judgment, moderated empathy, and self-reflective honesty, qualities that help individuals navigate a socio-cultural landscape where communal obligations, belief in destiny, and personal agency must be carefully balanced (Ferrari & Alhosseini, 2019; Takahashi & Overton, 2005).

### *Implications for research and practice*

The successful adaptation and validation of the 3D-WS in Morocco has several important implications for research and applied practice. First, this study enriches the global discourse on wisdom by demonstrating that universal models can be culturally sensitive when carefully adapted. The Moroccan version of the 3D-WS offers a psychometrically sound tool for assessing wisdom in Moroccan and, potentially, other Arabic-speaking contexts. By highlighting culture-specific patterns, such as bounded responsibility, calibrated empathy, and perspective-taking shaped by culturally embedded values, this study underscores the need for further research into the culturally embedded forms that wisdom can take.

The validated Moroccan 3D-WS can serve as a foundation for future cross-cultural investigations, helping scholars explore both shared and divergent conceptions of wisdom across societies. Such research is essential for developing a nuanced, contextually informed understanding of the multidimensional structure of wisdom. In particular, qualitative and mixed-methods studies could further illuminate how Moroccan cultural scripts, religious traditions, and social norms shape the experience and practice of wisdom in everyday life.

Practically, the adapted 3D-WS offers promising applications for positive psychology interventions. Wisdom is positively associated with well-being, resilience, and emotional intelligence (Ardelt & Kingsbury, 2024). By integrating this culturally adapted measure into therapeutic and educational programs, practitioners can better assess and cultivate wisdom-related competencies, including reflective capacity, emotional regulation, and pragmatic moral reasoning, that align with local values and lived realities. Such competencies are key drivers of personal growth and psychological flourishing. Further work should examine qualitative accounts of wisdom in Moroccan contexts, test predictive validity (e.g., well-being outcomes), and adapt for use with less educated or older samples.

### *Limitations and future directions*

This study has several limitations that warrant consideration. Most notably, the small sample size limited our capacity to perform robust statistical analyses, as it prevented us from dividing the total group into two randomly selected subsamples for independent exploratory and confirmatory analyses. Additionally, many observations were excluded due to outlier effects and inconsistencies in responses to questions phrased in the opposite direction, suggesting a potential response bias. Furthermore, the sample was predominantly highly educated and recruited online, which may limit its generalizability to less educated or rural Moroccan populations. This bias, likely resulting from confusion and inattention caused by the reversed wording of the questionnaires, compromises the reliability of the responses (Sonderen et al., 2013).

The self-report method used in this research may also introduce biases related to acquiescence or the social desirability effect, which are particularly problematic when exploring personality traits (Taylor et al., 2011; Webster, 2019). Such biases may weaken the validity of the findings. Given these issues, it is recommended that future studies on wisdom consider peer assessments as a more reliable evaluation method (Redzanowski & Glück, 2012; Glück, 2017).

## Conclusion

Adapting the Three-Dimensional Wisdom Scale (3D-WS) for the Moroccan context enriches the cross-cultural body of knowledge on wisdom and opens several avenues for future research and practical applications. This study should thus be regarded as a heuristic framework to guide further research. Furthermore, this investigation was designed to extend rather than deepen understanding of the wisdom construct, reflecting its nascent and complex nature. While challenging, this offers promising avenues for future inquiry (Staudinger & Glück, 2011). Future research should address these limitations to develop further and refine the wisdom construct.

This study lays the groundwork for further explorations into the nuanced manifestations of wisdom across diverse cultures, particularly within non-Western contexts. Future research should consider longitudinal designs to track the development of wisdom over time and examine how cultural, socioeconomic, and environmental factors contribute to its evolution. The validated Moroccan 3D-WS also presents opportunities for practical applications in educational, organizational, and clinical settings.

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**Availability of Data and Materials:** Data available on request from the authors. The data that supports the findings of this study are available from the corresponding author upon reasonable request.

**Ethics Approval:** Not applicable.

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