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Dayak Values–Based Cognitive Behavioral Therapy for Technological Adaptability

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Abstract

Background: Rapid digital transformation demands strong psychological adaptability, as difficulties in adjusting to technological change increase vulnerability to stress and reduced well-being. Cognitive Behavioral Therapy (CBT) integrated with Dayak cultural values offers a culturally grounded approach to strengthening adaptive cognition. **Objective:** This study examined the effectiveness of Dayak Values– Based CBT in enhancing technological adaptability and tested the moderating role of digital literacy. **Method:** A quasi-experimental 2×2 factorial design was conducted with 80 undergraduate students in Palangkaraya, Indonesia. Participants were grouped based on intervention type (Dayak Values–Based CBT vs. lecture-based instruction) and digital literacy level (high vs. low). Data were analyzed using two-way ANOVA ($\alpha = 0.05$). **Results:** Significant main effects of Dayak Values–Based CBT and digital literacy on technological adaptability were found ($p < 0.001$). No significant interaction effect was observed, indicating consistent intervention effectiveness across literacy levels. **Conclusion:** Dayak Values–Based CBT effectively enhances technological adaptability through culturally grounded adaptive thinking and supports the development of culturally responsive psychological interventions in the digital era.

Keywords: Cognitive behavioral therapy (CBT); cultural adaptation; dayak cultural values; digital literacy; technological adaptability.

Abstrak

Latar Belakang: Transformasi digital secara pesat menuntut adaptabilitas psikologis yang kuat, karena kesulitan dalam menyesuaikan diri dengan perubahan teknologi meningkatkan kerentanan terhadap stres dan penurunan kesejahteraan. Terapi Perilaku Kognitif (CBT) yang terintegrasi dengan nilai-nilai budaya Dayak menawarkan pendekatan yang berlandaskan budaya untuk memperkuat kognisi adaptif. **Tujuan:** Studi ini meneliti efektivitas CBT Berbasis Nilai Dayak dalam meningkatkan adaptabilitas teknologi dan menguji peran moderasi literasi digital. **Metode:** Desain faktorial 2×2 kuasi-eksperimental dilakukan dengan 80 mahasiswa S1 di Palangkaraya, Indonesia. Partisipan dikelompokkan berdasarkan jenis intervensi (CBT Berbasis Nilai Dayak vs. instruksi berbasis ceramah) dan tingkat literasi digital (tinggi vs. rendah). Data dianalisis menggunakan ANOVA dua arah ($\alpha = 0,05$). **Hasil:** Ditemukan efek utama yang signifikan dari CBT Berbasis Nilai Dayak dan literasi digital terhadap adaptabilitas teknologi ($p < 0,001$). Tidak ditemukan efek interaksi yang signifikan, menunjukkan efektivitas intervensi yang konsisten di berbagai tingkat literasi. **Kesimpulan:** Terapi Perilaku Kognitif Berbasis Nilai-Nilai Dayak secara efektif meningkatkan kemampuan beradaptasi terhadap teknologi melalui pemikiran adaptif yang berlandaskan budaya dan mendukung pengembangan intervensi psikologis yang responsif secara budaya di era digital.

Keywords: Adaptasi budaya; kemampuan beradaptasi teknologi; literasi digital; nilai-nilai budaya Dayak; terapi perilaku kognitif (CBT).

Introduction

The rapid advancement of digital technology has fundamentally reshaped patterns of thinking, working, and social interaction. The integration of artificial intelligence, automation, and digital platforms into everyday life has increased efficiency while simultaneously generating new psychological demands. Individuals are now required to adapt continuously to evolving technologies, a process that may evoke uncertainty, cognitive overload, and emotional exhaustion when adaptive resources are insufficient (Ennis et al., 2019). Psychological adaptability—the capacity to flexibly adjust cognition, emotion, and behavior in response to change—has therefore become a critical determinant of mental well-being and functional adjustment in the digital era. Empirical evidence indicates that individuals who struggle to adapt psychologically to technological change are more vulnerable to stress, reduced meaning in work and life, and declining mental health (Bercean et al., 2020). Consequently, identifying effective psychological strategies that support adaptive responses to technological transformation has become an increasingly important scholarly and practical concern.

Within this global digital transition, cultural context plays a central role in shaping how individuals interpret, respond to, and cope with technological change. Psychological adaptation does not occur in a cultural vacuum; rather, it is deeply embedded in systems of meaning, values, and social norms. In Indonesia, particularly in Central Kalimantan, Dayak culture offers a rich framework of local wisdom emphasizing harmony, cooperation, and moral balance. The Huma Betang philosophy, which reflects communal living, deliberation (hapakat), mutual respect, and ethical conduct (belom bahadat), represents a collective orientation toward managing change through shared responsibility and emotional regulation rooted in social cohesion (Mishu et al., 2023). These values have long functioned as psychological resources that foster resilience and balance in the face of social and environmental change. Integrating such cultural principles into contemporary psychological interventions is therefore expected to enhance both cultural relevance and intervention effectiveness, particularly in communities navigating rapid technological transformation.

Cognitive Behavioral Therapy (CBT) is widely recognized as one of the most empirically supported psychological interventions for improving adaptive functioning under conditions of stress and change. CBT focuses on identifying and modifying maladaptive cognitive patterns that influence emotional responses and behavior, thereby promoting more flexible, problem-oriented coping strategies. In the context of digital transformation, CBT is particularly relevant because technological stress often stems from distorted appraisals of change as threatening, overwhelming, or beyond one's control. Through cognitive restructuring and behavioral activation, CBT enables individuals to reinterpret technological challenges more adaptively, reduce avoidance behaviors, and strengthen confidence in engaging with digital environments (Piñeros-Leaño et al., 2017; Bercean et al., 2020).

Despite its empirical robustness, conventional CBT has been critiqued for its limited cultural sensitivity and its grounding in Western individualistic assumptions. Without cultural adaptation, CBT risks overlooking collective identities, relational values, and culturally embedded meaning systems that shape cognition and behavior in non-Western societies. In response to this limitation, scholars have increasingly emphasized the importance of Culturally Adapted CBT (CA-CBT), which integrates local cultural values, narratives, metaphors, and social practices into the therapeutic process. Empirical studies demonstrate that culturally grounded CBT enhances therapeutic engagement, strengthens meaning-making processes, and produces more sustainable behavioral change compared to culturally neutral approaches (Hernández et al., 2020; Kunorubwe, 2023; Huey et al., 2023).

In the context of Central Kalimantan, integrating Dayak cultural values into CBT represents a theoretically coherent and contextually grounded approach. Core CBT principles such as collaboration, empathy, and problem-solving align closely with the communal orientation of the Huma Betang philosophy. Cultural metaphors familiar to Dayak communities—such as navigating a river to symbolize gradual exposure to challenges or the hornbill's wings as a symbol of resilience and balance—can be employed to translate abstract cognitive concepts into culturally meaningful representations. Embedding values such as handep (mutual responsibility) and belom bahadat (ethical self-regulation) within CBT techniques may further strengthen adaptive responses to technological stress by linking personal cognitive change with collective well-being and moral responsibility.

Another psychological factor closely associated with adaptation to technological change is digital literacy. Digital literacy is a multidimensional construct encompassing technical skills, cognitive processing of information, social communication abilities, and ethical awareness in digital environments. Higher levels of digital literacy are consistently associated with greater self-efficacy, reduced digital-related anxiety, and improved psychological well-being (Zhou et al., 2025; Yan & Hu, 2025). In educational contexts,

students with stronger digital literacy tend to demonstrate greater adaptability, problem-solving ability, and confidence when engaging with new technologies, whereas those with lower digital literacy often experience uncertainty, stress, and avoidance behaviors (Tamarana et al., 2025). Thus, digital literacy not only reflects technical competence but also constitutes a form of psychological readiness for technological change.

Existing empirical research suggests that CBT and digital literacy each contribute to adaptive capability; however, these variables are typically examined independently. Studies on CBT emphasize cognitive and emotional mechanisms underlying adaptation, while research on digital literacy focuses primarily on skills and competencies. Very few studies have empirically investigated how these factors interact, particularly within culturally grounded intervention frameworks. More critically, most CBT-based adaptation studies remain culturally neutral or Western-centric and are often conducted in clinical or urban populations. This leaves a significant gap in understanding how culturally adapted CBT operates in non-clinical settings where indigenous values and digital modernity intersect. It also remains unclear whether cultural grounding in CBT can function as a compensatory psychological resource for individuals with varying levels of digital literacy when adapting to technological change.

Addressing this gap, the present study introduces and empirically tests a culturally grounded intervention model referred to as Dayak Values-Based Cognitive Behavioral Therapy. This model systematically integrates core CBT techniques—such as cognitive restructuring and behavioral activation—with Dayak cultural narratives emphasizing balance, cooperation, and social responsibility. The intervention is designed to help individuals reinterpret technological change not as a threat, but as an opportunity for growth embedded within their sociocultural framework. In addition, this study examines the moderating role of digital literacy to determine whether the effectiveness of culturally adapted CBT varies across different levels of digital competence.

Theoretically, this study extends CBT by demonstrating how indigenous cultural values can be incorporated into cognitive-behavioral mechanisms to support psychological adaptability in the digital era. It also advances psychological theory by positioning digital literacy as a moderating construct that links cognitive change processes with adaptive behavior toward technology. Practically, the findings offer an evidence-based foundation for developing culturally responsive mental health interventions that remain effective across diverse levels of digital literacy. Focusing on non-clinical young adults in Central Kalimantan and employing a 2×2 factorial experimental design, this study represents one of the first empirical efforts to integrate cultural identity, psychological science, and technological adaptability within a unified intervention framework.

Method

Research Design

This study employed a 2×2 factorial experimental design to examine the main and interaction effects of a culturally adapted Cognitive Behavioral Therapy (CBT) intervention based on Dayak values and levels of digital literacy on technological adaptability. A factorial design was selected because it allows for simultaneous examination of the independent contributions of each factor as well as their potential interaction effects on adaptive outcomes. This approach is particularly appropriate when investigating behavioral interventions alongside cognitive moderators in psychological research (Asif et al., 2023). Figure 1 illustrates the procedural stages of the adaptation process, while Table 1 presents the 2×2 factorial structure of the study design.

The first independent variable was the intervention type, consisting of Dayak Values-Based CBT and a control condition using a lecture-based method. The second independent variable was digital literacy, categorized into high and low levels based on participants' median scores. The dependent variable was technological adaptability, conceptualized as an individual's capacity to cognitively, emotionally, and behaviorally adjust to technological change. This operationalization reflects contemporary psychological models of adaptability that emphasize learning agility, problem-solving, and stress management in dynamic environments.

Participants were randomly assigned to one of four experimental conditions: (1) high digital literacy with Dayak Values-Based CBT, (2) low digital literacy with Dayak Values-Based CBT, (3) high digital literacy with the lecture-based control condition, and (4) low digital literacy with the lecture-based control condition. Random assignment was conducted using SPSS software to ensure balance across groups and to minimize selection bias, thereby strengthening internal validity.

Sample or Population

The sample consisted of 80 final-year undergraduate students drawn from several universities in Central Kalimantan, Indonesia. Final-year students were selected because they represent a population

undergoing a critical transitional phase from academic to professional environments, a period characterized by increasing exposure to digital demands and technological change. This developmental and contextual position makes them particularly relevant for examining psychological adaptability to technology.

A purposive sampling strategy was employed with clearly defined inclusion criteria: participants were required to be (a) active final-year undergraduate students, (b) residents of Central Kalimantan, and (c) willing to participate fully in all intervention sessions and complete the research instruments. Although purposive sampling limits statistical generalizability, it was considered appropriate given the study's focus on culturally grounded psychological processes within a specific sociocultural context. Representativeness was therefore addressed conceptually rather than statistically, ensuring that participants reflected the target population for which the intervention was theoretically and practically intended.

Participants were subsequently randomly allocated to the four experimental groups, with approximately 20 individuals per group. Demographic characteristics such as age, gender, and academic background were examined to ensure comparability across groups, reducing the likelihood of confounding influences on the outcome variable.

Procedure

The experimental intervention consisted of six structured sessions of Dayak Values-Based CBT, each lasting approximately 90–120 minutes. The intervention integrated core CBT techniques with Dayak cultural values to enhance psychological adaptability to technological change. Each session followed a standardized structure including goal setting, reflective warm-up, implementation of CBT techniques, cultural value integration, experiential exercises, homework assignments, and feedback.

The cultural components were drawn from central Dayak philosophical principles, including *Huma Betang* (togetherness and mutual respect), *Hapakat* (deliberation and consensus), *Handep* (cooperation), and *Belom Bahadat* (ethical self-regulation). Cultural metaphors familiar to participants—such as the river as a symbol of adaptive flow and the hornbill (*Enggang*) as a symbol of resilience and balance—were incorporated to facilitate cognitive internalization and cultural resonance.

The sessions were delivered progressively: Session 1 focused on psychoeducation and orientation toward technological change; Session 2 emphasized cognitive monitoring and restructuring; Session 3 addressed behavioral activation and gradual exposure; Session 4 focused on problem-solving and time management; Session 5 targeted emotional regulation and digital ethics; and Session 6 emphasized relapse prevention and future-oriented planning. Group-based activities were intentionally emphasized to align with the collectivist orientation embedded in Dayak cultural values. Figure 2 depicts the procedural flow of the six-session CBT model.

Participants in the control condition received lecture-based instruction covering general information about technology use and adaptation, without structured cognitive-behavioral techniques or cultural integration.

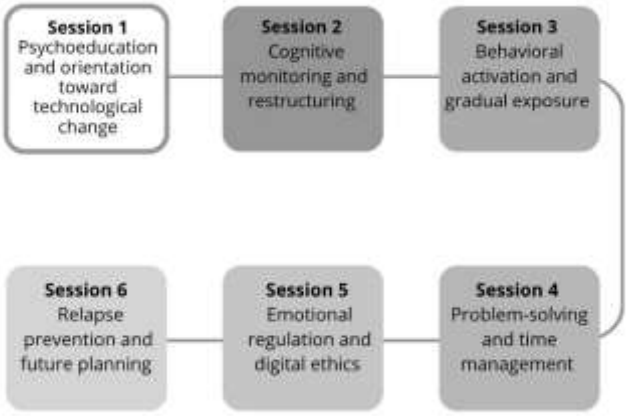

Figure 1. Procedural flow of the six-session CBT model.

Data Measurement

Two primary instruments were used in this study: the Technology Adaptability Scale and the Digital Literacy Scale.

Technological adaptability was measured using an adapted version of the Individual Adaptability (I-ADAPT) framework developed by Ployhart and Bliese. The scale assessed adaptability in technological contexts across dimensions such as learning agility, creativity, problem-solving, and stress management. Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This scale was selected due to its strong theoretical grounding and frequent use in adaptability research.

Digital literacy was measured using a scale adapted from Ng and Eshet-Alkalai, encompassing technical, cognitive, and social-emotional dimensions of digital competence. Participants were classified into high and low digital literacy groups based on median split scores, a method commonly applied in experimental moderation studies to facilitate group comparisons.

Both instruments underwent a rigorous cross-cultural adaptation process following established guidelines. This process included forward translation, synthesis, back-translation, expert panel review involving psychologists with expertise in psychometrics and cultural psychology, and pilot testing with 30 students. These procedures were intended to ensure linguistic accuracy, conceptual equivalence, and cultural relevance for Dayak participants.

Construct validity was evaluated using Confirmatory Factor Analysis (CFA) with AMOS software. Model fit was assessed using standard indices (RMSEA ≤ 0.08, CFI ≥ 0.90, TLI ≥ 0.90, $\chi^2/df \leq 3.00$). Items with factor loadings below 0.50 were excluded. Both scales demonstrated satisfactory fit indices, with Composite Reliability values exceeding 0.70 and Average Variance Extracted values above 0.50, indicating acceptable construct validity and internal consistency in line with recent psychometric standards (Gkintoni & Nikolaou, 2024; Magantor et al., 2025).

Data Analysis

Data were analyzed using factorial Analysis of Variance (ANOVA) to examine the main effects of the CBT intervention and digital literacy, as well as their interaction effect on technological adaptability. Prior to hypothesis testing, assumptions of normality and homogeneity of variance were assessed using the Shapiro–Wilk and Levene's tests, respectively. All assumptions were adequately met.

The analysis focused on three effects: (1) the main effect of Dayak Values-Based CBT, (2) the main effect of digital literacy, and (3) the interaction effect between intervention type and digital literacy. Statistical significance was evaluated at $p < 0.05$, following conventional standards in psychological experimental research (Asif et al., 2023).

Result

This section presents the empirical findings of the study, including descriptive statistics, assumption testing, and the results of the two-way ANOVA examining the effects of Dayak Values-Based Cognitive Behavioral Therapy (CBT) and digital literacy on technological adaptability.

Descriptive Statistics

Table 1 presents the pretest and posttest mean scores of technological adaptability across the four experimental conditions. The technological adaptability scale ranged from 20 to 100. All groups demonstrated increased mean scores from pretest to posttest. However, participants who received Dayak Values-Based CBT showed greater improvements compared to those in the lecture-based control condition.

The highest mean increase was observed in the experimental group with high digital literacy (X_1Y_1), followed by the experimental group with low digital literacy (X_1Y_2). In contrast, both control groups exhibited smaller gains. These descriptive results indicate a stronger improvement pattern associated with the CBT intervention.

Table 1. Differences in pretest and posttest mean scores

Group	N	Pretest Average	Posttest Average	Difference	Improvement (%)	t-Score	Sig. (p)
Experiment – High Digital Literacy (X_1Y_1)	20	71.40	90.85	19.45	27.23%	12.754	0.000
Control – High Digital Literacy (X_2Y_1)	20	70.85	82.15	11.30	15.95%	9.622	0.000
Experiment – Low Digital Literacy (X_1Y_2)	20	69.25	86.55	17.30	24.99%	11.118	0.000
Control – Low Digital Literacy (X_2Y_2)	20	68.75	77.10	8.35	12.14%	8.807	0.000

Assumption Testing

Normality of the technological adaptability scores was assessed using the Shapiro–Wilk test. As shown in Tables 2 and 3, all pretest and posttest scores across intervention conditions and digital literacy levels yielded p-values greater than 0.05, indicating normal distribution.

Table 2. Shapiro–Wilk normality test results for pretest and posttest scores

Variable	Group	Statistical Value (Shapiro–Wilk)	Significance (p)	Description
Pretes	Experiment	0.972	0.245	Normal
	Control	0.968	0.312	Normal
Postes	Experiment	0.978	0.356	Normal
	Control	0.963	0.229	Normal

Table 3. Shapiro–Wilk normality test results based on digital literacy levels

Variable	Digital Literacy Group	Statistical Value (Shapiro–Wilk)	Significance (p)	Description
Pretes	High	0.975	0.281	Normal
	Low	0.971	0.341	Normal
Postes	High	0.982	0.397	Normal
	Low	0.977	0.365	Normal

Homogeneity of variance was examined using Levene's test. As presented in Table 4, all significance values exceeded 0.05, indicating that the assumption of homogeneity of variance was satisfied.

Table 4. The homogeneity of variance

Variabel	F-Score	Significance (p)	Description
Technology Adaptability Pretest	0.681	0.413	Homogeneous
Technology Adaptability Postest	1.284	0.285	Homogeneous
Digital Literacy Pretest (High vs. Low)	1.097	0.352	Homogeneous
Digital Literacy Posttest (High vs. Low)	1.203	0.274	Homogeneous

Two-Way ANOVA Results

A two-way ANOVA was conducted to examine the main and interaction effects of intervention type and digital literacy on technological adaptability. The results are summarized in Table 5.

Table 5. Summarizes the main and interaction effects obtained through two-way ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig. (p)	Description
Corrected Model	2412.538	3	804.179	23.311	0.000	Significant
Intercept	512392.500	1	512392.500	14847.750	0.000	Significant
Method	1320.467	1	1320.467	38.278	0.000	Main effect Significant
Digital literacy (high vs low)	802.519	1	802.519	23.282	0.000	Main effect Significant
Interaction (Method × Digital Literacy)	46.259	1	46.259	1.342	0.251	Not Significant
Error	2623.594	76	34.526			
Total	517728.000	80				
Corrected Total	5036.132	79				

The analysis revealed a significant main effect of the intervention method on technological adaptability, indicating that participants who received Dayak Values-Based CBT achieved higher adaptability scores than those in the control condition. A significant main effect of digital literacy was also observed, with participants in the high digital literacy group demonstrating higher adaptability scores than those in the low literacy group. The interaction effect between intervention type and digital literacy was not statistically significant, indicating that the effectiveness of Dayak Values-Based CBT did not differ across levels of digital literacy.

The results indicate that (1) Dayak Values-Based CBT significantly improves technological adaptability compared to lecture-based instruction, (2) digital literacy independently contributes to higher adaptability levels, and (3) the effectiveness of Dayak Values-Based CBT is consistent across participants with both high and low digital literacy.

Discussion

The findings of this study make a significant contribution to understanding how culturally adapted Cognitive Behavioral Therapy (CBT) can enhance technological adaptability through the integration of Dayak local values and digital literacy. The results demonstrate that Dayak Values-Based CBT significantly increases individuals' adaptive capacity toward technological change, while also showing its universal effectiveness across varying levels of digital literacy. These findings align with global discourses on cultural adaptation in psychotherapy, emphasizing the importance of localizing psychological interventions to improve accessibility and efficacy (Mishu et al., 2023; Kunorubwe, 2023; Ennis et al., 2019).

Cultural Integration and Theoretical Implications

This study sought to examine the effectiveness of Dayak Values-Based Cognitive Behavioral Therapy (CBT) in enhancing technological adaptability and to clarify the role of digital literacy within this process. The findings demonstrate that culturally adapted CBT significantly improves technological adaptability and that its effectiveness is consistent across different levels of digital literacy. These results extend existing psychological literature by highlighting how indigenous cultural values can be systematically integrated into evidence-based interventions to support adaptation in digitally transforming contexts (Mishu et al., 2023; Kunorubwe, 2023; Ennis et al., 2019).

Theoretical Contributions: Cultural Adaptation as a Core Mechanism in CBT

The primary theoretical contribution of this study lies in its demonstration that cultural values function not merely as contextual enhancers but as active mechanisms within cognitive-behavioral change processes (Salamanca-Sanabria et al., 2019; Shea et al., 2016). By embedding Dayak values such as *Huma Betang*, *Handep*, and *Belom Bahadat* into CBT techniques, the intervention operationalized culture as a cognitive–moral framework shaping appraisal, emotion regulation, and behavioral responses to technological change. This finding supports cultural psychology perspectives that view cognition as inseparable from culturally embedded meaning systems (Hinton & Jalal, 2019).

From a CBT standpoint, the results suggest that cognitive restructuring becomes more effective when maladaptive thoughts are challenged not only through rational evidence but also through culturally meaningful narratives and moral principles. The integration of communal values reframed technological change from an individual burden into a shared adaptive challenge, thereby strengthening motivation and emotional regulation.

This extends classical CBT theory by illustrating that cultural meaning structures can amplify cognitive flexibility and adaptive belief formation, particularly in collectivist societies (Shea et al., 2016; Mrgan & Jokić-Begić, 2023).

Furthermore, the findings contribute to indigenous psychology by empirically demonstrating that local wisdom can coexist with—and enrich—standardized therapeutic frameworks. Rather than positioning culture as an external modifier of CBT, this study conceptualizes cultural values as internalized cognitive schemas that directly influence adaptive functioning. This supports arguments for a pluralistic psychological science that balances universal mechanisms with culturally specific expressions of cognition and behavior.

Digital Literacy and Psychological Adaptability

The significant main effect of digital literacy confirms its role as a critical psychological resource in technological adaptation. Participants with higher digital literacy demonstrated greater adaptability, reinforcing prior research linking digital competence with self-efficacy, reduced anxiety, and cognitive flexibility in digital environments (Zhou et al., 2025; Chen, 2025; Culcasi et al., 2025). Digital literacy appears to facilitate adaptive behavior by increasing individuals' perceived control over technology and their confidence in engaging with digital systems (Franco, 2018; Hoaihongthong et al., 2024).

However, the absence of a significant interaction effect between digital literacy and CBT intervention provides an important theoretical insight. While digital literacy enhances adaptability independently, the effectiveness of Dayak Values-Based CBT did not depend on participants' initial digital competence. This suggests that culturally grounded CBT may operate as an equalizing psychological intervention, reducing disparities associated with differing levels of digital skill. Cultural values emphasizing cooperation, moral responsibility, and collective resilience may provide a shared cognitive–emotional foundation that supports adaptation regardless of technical proficiency (Munawar et al., 2025).

These finding challenges assumptions that psychological interventions targeting technological adaptation must be contingent on high digital literacy. Instead, it suggests that culturally adapted CBT can foster adaptive mindsets even among individuals with limited technological skills, thereby broadening the accessibility and inclusivity of mental health interventions in digital contexts.

Implications for Psychological Theory and Practice

From a theoretical perspective, this study advances CBT by demonstrating that cultural integration enhances not only engagement but also the depth of cognitive change. It also contributes to adaptability theory by positioning technological adaptability as a culturally mediated psychological construct rather than a purely individual skill-based outcome. Digital literacy, in this framework, functions as a facilitator rather than a prerequisite for adaptive cognition (Gkintoni & Nikolaou, 2024; Huang et al, 2021).

Practically, the findings underscore the importance of culturally responsive intervention design, particularly in multicultural and indigenous contexts. Mental health practitioners and educators can draw on local values and metaphors to contextualize cognitive-behavioral strategies, thereby increasing relevance and sustainability. In educational and organizational settings, Dayak Values-Based CBT offers a model for fostering psychological readiness for digital transformation alongside technical skill development (Ennis et al, 2019; Piñeros-Leaño et al, 2017).

Beyond clinical practice, the study highlights opportunities for interdisciplinary collaboration among psychologists, educators, and technology practitioners. Integrating cultural narratives into digital literacy and adaptation programs may help cultivate not only technical competence but also ethical awareness, emotional regulation, and collective responsibility in technology use (Shea et al, 2016).

Limitations and Directions for Future Research

Several limitations should be acknowledged. First, the study employed purposive sampling within a specific cultural and regional context, which limits statistical generalizability. Future research should examine the applicability of culturally adapted CBT across diverse indigenous and non-indigenous populations to assess the transferability of the model. Second, the study focused on short-term outcomes; longitudinal designs are needed to evaluate the sustainability of adaptive changes over time. Third, although psychometric properties of the instruments were satisfactory, future studies could incorporate mixed-method approaches to capture deeper qualitative insights into participants' cognitive and cultural transformation processes.

Further research may also explore additional moderators, such as social support, cultural identity strength, or technology-related values, to refine understanding of how cultural and psychological factors interact in digital adaptation. Comparative studies across different cultural frameworks would further strengthen the theoretical contribution of culturally grounded CBT models.

Overall, this study provides empirical evidence that integrating indigenous cultural values into CBT enhances technological adaptability and promotes inclusive psychological resilience in the digital era. By demonstrating that cultural grounding strengthens cognitive-behavioral mechanisms independently of digital literacy levels, the findings contribute to both cultural psychology and contemporary CBT theory. The Dayak Values-Based CBT model offers a theoretically grounded and practically applicable framework for addressing psychological challenges associated with digital transformation, affirming the relevance of local wisdom in advancing global psychological science

Conclusion

This study demonstrates that Dayak Values-Based Cognitive Behavioral Therapy is an effective and culturally grounded intervention for enhancing technological adaptability among university students in Central Kalimantan. The experimental findings indicate that participants who received the Dayak Values-Based CBT intervention achieved significantly higher levels of technological adaptability than those in the lecture-based control group. Digital literacy also showed a significant main effect on adaptability. However, the absence of a significant interaction effect suggests that the effectiveness of the culturally adapted CBT intervention was consistent across participants with differing levels of digital literacy.

These results indicate that integrating Dayak cultural values—such as *Huma Betang* (communal harmony), *Handep* (mutual cooperation), and *Belom Bahadat* (ethical self-regulation)—into CBT supports adaptive cognitive and emotional processes related to technological change. Rather than amplifying differences based on digital competence, cultural grounding appears to provide a shared psychological framework that facilitates adaptive thinking and emotional regulation across groups.

From a theoretical perspective, this study contributes to the literature on culturally adapted CBT and indigenous psychology by empirically demonstrating that local cultural values can be systematically incorporated into evidence-based interventions without diminishing their core cognitive-behavioral mechanisms. Practically, the findings suggest that culturally responsive psychological interventions may serve as a viable approach for supporting technological adaptability and psychological readiness in educational settings undergoing digital transformation.

Future research should examine the long-term effectiveness of Dayak Values-Based CBT through longitudinal designs and explore its applicability across different cultural groups, educational levels, and non-academic populations. Additionally, further studies may investigate other contextual moderators, such as cultural identity strength or social support, to refine understanding of how culturally grounded interventions promote adaptability in technologically evolving environments.

Future studies are encouraged to employ longitudinal designs and multi-site samples to examine the sustainability and cross-cultural applicability of Dayak Values-Based CBT in diverse technological contexts.

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