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Towards an AI-Enabled Digital Wellbeing Assessment Framework: A Multidimensional Evaluation of Existing Digital Wellbeing Tools

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Abstract

The rapid integration of smartphones, social media, online services, artificial intelligence, and other digital technologies into everyday life has increased the importance of understanding digital wellbeing. In response, numerous digital wellbeing applications and built-in device features have been developed to monitor technology use, reduce distraction, encourage healthier habits, and provide wellbeing support. However, existing tools differ considerably in their objectives, functionality, automation, personalization, and approaches to wellbeing assessment. More importantly, monitoring digital behaviour through screen time, application usage, notifications, or device activity does not necessarily provide a comprehensive assessment of an individual's digital wellbeing. This study presents an exploratory comparative evaluation of existing digital wellbeing tools with particular attention to their monitoring capabilities, intervention mechanisms, personalization, artificial intelligence (AI), and relationship to wellbeing assessment. Ten representative tools were examined using publicly available information, official documentation, application-store information, and exploratory hands-on observation. The findings indicate that existing tools are predominantly specialized, with many concentrating on usage monitoring, application blocking, focus management, productivity, or individual aspects of mental wellbeing. AI capabilities are emerging but remain fragmented, while many interventions continue to rely on predefined rules, timers, thresholds, and user configuration. The review further identifies an important measurement gap. Although digital wellbeing has increasingly been recognized as a multidimensional construct, existing measurement approaches vary in theoretical foundations, dimensions, populations, and psychometric structures. Recent studies have begun developing and validating dedicated digital wellbeing instruments, but the literature continues to indicate a need for integrated, reliable, context-sensitive, and broadly validated approaches to digital wellbeing assessment. The study therefore argues that future AI-enabled digital wellbeing technologies require a stronger measurement foundation capable of distinguishing digital behaviour from broader wellbeing outcomes. The proposed direction is not a specific index or questionnaire, but a research pathway toward systematic measurement development that can support assessment, personalization, intervention evaluation, and responsible AI-enabled digital wellbeing systems.

Keywords: Digital Wellbeing, Artificial Intelligence, Digital Wellbeing Assessment, Digital Wellbeing Tools, Digital Behaviour, Measurement Development, Digital Self-Control, Human-Centered AI, Wellbeing Technology.

1. Introduction

Digital technology has become an integral part of contemporary life. Smartphones, social networking platforms, online learning environments, streaming services, digital communication platforms, productivity software, and artificial intelligence systems are increasingly used for education, employment, communication, entertainment, information seeking, and social interaction.

The benefits of digital technologies are substantial. They provide rapid access to information, facilitate communication across geographical boundaries, support flexible learning and working arrangements, and create new opportunities for social and economic participation. At the same time, continuous connectivity has introduced concerns regarding attention, digital dependency, behavioural regulation, privacy, psychological wellbeing, physical health, and the ability to maintain a healthy relationship with technology.

These developments have contributed to the emergence of digital wellbeing as an important research area. Digital wellbeing has been conceptualized in different ways, but the literature generally recognizes that it involves the relationship between individuals and digital technologies and the extent to which this relationship supports or undermines wellbeing [1–3].

Vanden Abeele [1] conceptualized digital wellbeing as a dynamic condition involving the benefits and drawbacks of mobile connectivity and the ability to regulate connection and disconnection. Gui et al. [2] emphasized the ability to manage digital information and communication in ways that support individual wellbeing. Burr et al. [3] further demonstrated that digital wellbeing also raises ethical questions involving autonomy, responsibility, values, and technology design.

The growing concern regarding digital wellbeing has resulted in the development of numerous digital wellbeing tools. Smartphone operating systems now provide features for monitoring screen time, application usage, notifications, and device activity. Third-party applications additionally provide application blocking, focus management, meditation, behavioural prompts, productivity monitoring, and other interventions.

However, the increasing number of digital wellbeing tools does not necessarily mean that digital wellbeing itself can be adequately measured.

For example, screen time represents one aspect of digital behaviour, but the same amount of screen time can have very different meanings depending on whether it is spent on education, employment, communication, entertainment, or other activities. Similarly, application-opening frequency, notification counts, or time spent on particular applications may provide useful behavioural information without directly indicating an individual's overall wellbeing.

Research has demonstrated that relationships between digital technology use and wellbeing are complex. Przybylski and Weinstein [4] found nonlinear associations between screen use and adolescent mental wellbeing. Orben and Przybylski [5] similarly demonstrated that associations between digital technology use and adolescent wellbeing are relatively small and complex. These findings challenge simplistic interpretations in which greater technology use automatically represents poorer wellbeing.

This issue creates an important distinction:

Digital behaviour measurement is not equivalent to digital wellbeing measurement.

Digital wellbeing applications are therefore relevant not only because of what they currently measure but also because of what they do not measure.

Artificial intelligence creates new possibilities in this area. AI can potentially analyse behavioural patterns, provide personalized recommendations, identify changes in usage, support adaptive interventions, and

provide conversational assistance. Recent research has specifically examined intelligent systems for digital wellbeing and identified opportunities for AI-based personalized and dynamic support [21].

Nevertheless, AI-based support also depends upon the availability of reliable definitions and measurements of wellbeing. An AI system cannot meaningfully personalize wellbeing interventions if the underlying wellbeing construct is poorly defined or inconsistently measured.

This study therefore revisits existing digital wellbeing tools from a measurement-oriented perspective. Rather than proposing a particular digital wellbeing index, the study investigates the current capabilities and limitations of existing tools and examines the broader research gap concerning systematic digital wellbeing assessment.

The objectives of this study are:

1. To examine the major functionalities of selected digital wellbeing tools.
2. To compare their monitoring, intervention, automation, personalization, and AI capabilities.
3. To distinguish digital behaviour monitoring from broader digital wellbeing assessment.
4. To examine developments in digital wellbeing measurement research.
5. To identify important gaps that should be addressed in future digital wellbeing assessment research.
6. To discuss how reliable measurement could support future AI-enabled digital wellbeing technologies.

2. Conceptual Background

2.1 Digital Wellbeing

Digital wellbeing is an emerging interdisciplinary concept involving computer science, psychology, health, human-computer interaction, behavioural science, and ethics.

Unlike traditional technology-use research, digital wellbeing focuses not only on whether a person uses technology but also on how that use relates to broader human functioning.

Vanden Abeele [1] described digital wellbeing as a dynamic construct involving the balance between the benefits and costs of mobile connectivity. Gui et al. [2] considered digital wellbeing in relation to an individual's ability to manage digital information and communication. Burr et al. [3] emphasized that digital wellbeing involves ethical considerations concerning autonomy and responsibility.

These perspectives indicate that digital wellbeing should not be reduced to a single variable such as screen time.

2.2 Digital Technology Use and Wellbeing

The relationship between digital technology use and wellbeing has produced mixed findings.

Przybylski and Weinstein [4] examined screen use and adolescent mental wellbeing and identified a nonlinear relationship. Orben and Przybylski [5] similarly found that the association between digital technology use and wellbeing is complex.

Research involving social media has also produced different findings. Kross et al. [6] reported associations between Facebook use and declines in subjective wellbeing among young adults, while Orben et al. [7] found that associations between social media use and life satisfaction vary across developmental periods. These findings demonstrate why digital wellbeing assessment should consider more than the duration of technology use.

2.3 Digital Self-Control

Digital self-control tools have become an important component of the digital wellbeing ecosystem.

Lyngs et al. [8] examined digital self-control tools and identified different mechanisms through which technology can support self-regulation. These include reminders, blocking, interruptions, and other behav

ioural interventions.

Roffarello and De Russis [9] reviewed digital self-control tools and highlighted the importance of understanding how such systems influence user behaviour. Their work also emphasizes the need for stronger evaluation and standardized approaches.

Digital self-control mechanisms can therefore be useful components of wellbeing support, but they should not automatically be interpreted as comprehensive wellbeing measurement.

3. Categories of Digital Wellbeing Tools

Existing digital wellbeing technologies can broadly be classified into several categories.

3.1 Usage Monitoring Tools

These tools provide information regarding screen time, application usage, device unlocks, notifications, and related activity.

Their primary objective is awareness.

3.2 Restriction and Blocking Tools

These tools allow users to limit applications or websites through timers, schedules, blocking systems, and intervention prompts.

Their primary objective is behavioural regulation.

3.3 Focus and Productivity Tools

These tools are designed to reduce distraction and improve concentration during study or work.

Common functions include focus sessions, timers, task management, productivity scores, and distraction blocking.

3.4 Mental and Emotional Wellbeing Tools

These applications focus on emotional support, meditation, breathing exercises, journaling, mood tracking, and conversational assistance.

3.5 Behaviour-Change Tools

These tools use reminders, prompts, nudges, rewards, interruptions, and other behavioural mechanisms to encourage changes in technology-use habits.

3.6 Hybrid Tools

Hybrid tools combine multiple functions, such as behavioural monitoring, focus management, mental wellbeing support, and personalized recommendations.

The existence of these categories demonstrates the diversity of the current digital wellbeing ecosystem. However, this diversity also creates fragmentation because individual tools generally address only selected aspects of the digital experience.

4. Literature Review

Digital wellbeing research has expanded considerably during the last decade.

Ong et al. [10] conducted a scoping review of subjective wellbeing measures used in online contexts and demonstrated substantial variation in approaches to measuring wellbeing in digital environments.

Dodge et al. [11] argued more generally that wellbeing should be understood as a state of balance rather than a single measurable outcome. This perspective is relevant to digital wellbeing because technology can simultaneously create opportunities and challenges.

Research into smartphones has examined relationships between technology habits and cognitive functioning. Wilmer et al. [12] reviewed research linking smartphone habits with cognitive processes, de-

monstrating the importance of examining how technology interacts with human functioning.

Problematic smartphone use has also been examined in relation to psychological outcomes. Elhai et al. [13] reviewed conceptual and empirical relationships between problematic smartphone use, anxiety, depression, and related psychopathology.

At the same time, research has increasingly moved toward understanding digital wellbeing interventions. Roffarello and De Russis [9] examined digital self-control tools and identified the importance of evaluating their effectiveness rather than assuming that monitoring or restriction automatically produces positive outcomes.

Research has also identified privacy and ethical concerns associated with wellbeing applications. Huckvale et al. [14] demonstrated that privacy risks can remain insufficiently addressed in health-related applications.

Artificial intelligence introduces additional opportunities and challenges. Recent work by Scibetta et al. [21] systematically examined intelligent support for digital wellbeing and proposed a design framework for AI-enabled wellbeing technologies. The authors highlighted the potential of AI to analyse behavioural data and provide personalized and dynamic solutions.

Shin [22] similarly emphasized the importance of human-centered AI for digital wellbeing, highlighting the need to align AI systems with human values, autonomy, and wellbeing rather than simply optimizing engagement.

The measurement literature has also developed significantly.

Liberacka-Dwojak et al. [27] recently validated an English version of a 13-item Digital Wellbeing Questionnaire among 1,853 young adults from the United States and United Kingdom. The study supported a four-factor structure and demonstrated reliability, validity, and measurement invariance across gender and country.

Appianing et al. [28] developed and validated a Digital Well-Being Scale among 1,533 university students in Ghana. Their research supported a multidimensional six-factor structure and used established scale-development procedures including expert evaluation, pilot testing, exploratory factor analysis, confirmatory factor analysis, reliability testing, validity assessment, and measurement invariance analysis.

A recent 2026 scoping review further synthesized digital wellbeing research and reported that current digital wellbeing measures lack an integrated and cross-culturally validated framework. It also identified limited Asian perspectives and a need for more holistic approaches [29].

These recent developments are particularly important because they demonstrate that digital wellbeing measurement is no longer an unexplored area. Instead, the field is moving toward instrument development, while still facing fragmentation and generalizability challenges.

5. Review Methodology

5.1 Research Design

This study adopted an exploratory comparative research design.

The research consisted of two interconnected components:

1. comparative examination of existing digital wellbeing tools; and
2. examination of the literature concerning digital wellbeing measurement.

The purpose was not to clinically evaluate applications or establish causal effectiveness. Instead, the study aimed to identify patterns, capabilities, limitations, and research gaps.

5.2 Selection of Digital Wellbeing Tools

Ten representative digital wellbeing tools were examined.

The tools were selected to represent different categories of digital wellbeing support, including:

- digital usage monitoring;
- application restriction;
- focus management;
- productivity;
- behavioural intervention;
- mental wellbeing; and
- AI-supported assistance.

Information was obtained from application stores, official websites, publicly available documentation, privacy information, and exploratory hands-on observation.

5.3 Evaluation Criteria

The selected tools were evaluated using the following criteria:

- primary purpose;
- wellbeing-related functionality;
- digital behaviour monitoring;
- intervention mechanism;
- automation;
- personalization;
- AI capability;
- platform support;
- privacy considerations; and
- limitations related to wellbeing assessment.

The evaluation was descriptive and qualitative.

5.4 Measurement-Literature Analysis

In addition to application analysis, literature concerning digital wellbeing measurement was examined.

Particular attention was given to:

- conceptual definitions;
- measurement dimensions;
- psychometric validation;
- target populations;
- reliability;
- validity;
- measurement invariance;
- contextual coverage; and
- integration with technology-based assessment.

Recent research published through 2026 was included to capture the current state of the measurement literature.

6. Comparative Analysis of Existing Digital Wellbeing Tools

Tool	Primary Orientation	Behaviour Monitoring	Intervention	Personalization	AI / Intelligent Function	Assessment Limitation
Google Digital Wellbeing	Device usage management	High	Moderate	Limited	Limited	Mainly reports device activity
Apple Screen Time	Device and application monitoring	High	Moderate	Limited	Limited	Activity-oriented rather than holistic wellbeing assessment
RestAI	Digital calm and behavioural support	Moderate	High	Moderate	Limited/partial	Limited transparency regarding intelligent decision processes
Mindless	Mental wellbeing	Low	Moderate	Moderate	Partial	Limited integration of digital-use behaviour
one sec	Behaviour interruption	Moderate	High	Moderate	Primarily rule-based	Does not provide broad wellbeing assessment
Opal	Focus and digital restriction	High	High	Moderate	Limited	Strong focus on attention and usage control
ScreenZen	Digital behaviour regulation	High	High	Moderate	Limited	Limited contextual wellbeing interpretation
RescueTime	Productivity and time tracking	High	Moderate	Moderate	AI-assisted	Primarily productivity-oriented

Wysa	Mental wellbeing	Low	High	High	Conversational AI	Mental wellbeing support rather than comprehensive digital wellbeing assessment
Forest	Focus and behavioural motivation	Moderate	High	Limited	Limited	Primarily focus-oriented

7. Findings

7.1 Existing Tools Are Highly Specialized

The comparison demonstrates that existing digital wellbeing tools generally specialize in particular functions.

Some tools primarily measure usage, while others restrict applications, improve focus, support productivity, or provide mental wellbeing assistance.

This specialization is useful for specific user needs but limits the ability of any individual tool to provide a broad assessment of digital wellbeing.

7.2 Behavioural Monitoring Dominates

Most tools rely heavily on observable digital activity.

Common measurements include:

- screen time;
- application usage;
- device unlocks;
- notifications;
- focus duration;
- productivity time; and
- application access frequency.

These measurements provide useful behavioural information.

However, they do not automatically explain whether the resulting digital experience is beneficial, harmful, balanced, satisfying, or sustainable.

7.3 AI Adoption Remains Fragmented

AI integration varies considerably across the tools examined.

A large proportion of applications continue to depend on predefined rules, thresholds, timers, scheduled interventions, or user-configured settings.

Some applications provide intelligent or AI-assisted functions, particularly in productivity analysis and conversational mental wellbeing support.

Recent research confirms that AI-enabled digital wellbeing remains an emerging field rather than a mature and standardized technological category [21], [22].

7.4 Personalization Is Still Limited

Personalization represents an important opportunity for AI.

However, many current applications depend on manually configured limits or schedules.
A truly adaptive system would ideally interpret changing user circumstances and adjust support accordingly.
Such personalization requires reliable information about the user's digital behaviour and wellbeing.
Therefore, measurement quality becomes an important prerequisite for intelligent personalization.

7.5 Monitoring Does Not Equal Assessment

One of the most important findings of this study is the distinction between monitoring and assessment.
A monitoring system can answer questions such as:

- How long was the device used?
- Which application was used most?
- How frequently was an application opened?
- How many notifications were received?

However, a wellbeing assessment requires a broader question:
What does this digital engagement mean for the individual's wellbeing?
The two questions are related but not identical.
This distinction is particularly important because research demonstrates that technology use can have both positive and negative consequences depending on context [4], [5].

7.6 Privacy Remains an Important Constraint

Digital wellbeing systems can process highly informative behavioural data.
Application usage, device activity, emotional responses, routines, and interaction patterns may reveal sensitive information.
Huckvale et al. [14] demonstrated privacy risks within health and wellbeing applications, while the WHO [25] has emphasized transparency, accountability, autonomy, safety, and protection of human rights in AI-based health applications.
Therefore, future intelligent wellbeing systems should incorporate privacy considerations from the design stage.

8. The Role of Artificial Intelligence

AI could potentially transform digital wellbeing technologies in several ways.

8.1 Behavioural Pattern Recognition

Machine learning can potentially identify changes in digital activity that are difficult to recognize through simple statistical summaries.

8.2 Adaptive Recommendations

AI can potentially generate recommendations according to individual behavioural patterns rather than applying identical rules to every user.

8.3 Context-Aware Intervention

AI could potentially distinguish between different contexts of digital use and provide interventions that are more appropriate to the situation.

8.4 Personalized Support

AI can potentially combine behavioural information with user feedback to provide personalized support.

8.5 Conversational Interaction

Conversational AI can provide interactive wellbeing assistance. Fitzpatrick et al. [23] demonstrated the feasibility of an automated conversational agent for delivering cognitive behavioural therapy to young ad-

ults.
However, conversational mental health support should not be considered equivalent to comprehensive digital wellbeing assessment.

9. Digital Wellbeing Measurement: The Emerging Research Area

The development of digital wellbeing measurement is increasingly becoming a distinct research area.
Earlier research often relied on broader wellbeing scales, problematic technology-use measures, screen-time indicators, or individual psychological constructs.
More recent work has attempted to develop dedicated digital wellbeing instruments.
Ong et al. [10] demonstrated the variation in subjective wellbeing measures used in online contexts.
The 2026 Digital Wellbeing Questionnaire validation study by Liberacka-Dwojak et al. [27] provides evidence that digital wellbeing can be operationalized through multiple dimensions. The validated instrument included four dimensions related to emotional resilience, agency, social connection, and communion.
Similarly, Appianing et al. [28] developed a six-factor Digital Well-Being Scale for university students. The study included dimensions related to task interference, digital safety and responsible use, perceived control and satisfaction, digital life balance, emotional regulation, and digital dependence and frustration.
These studies are important because they demonstrate that digital wellbeing is multidimensional.
At the same time, the existence of different measurement structures highlights a continuing research challenge.
Different instruments may differ in:

- conceptual definitions;
- dimensions;
- number of items;
- target populations;
- cultural settings;
- scoring procedures;
- validation procedures; and
- intended applications.

Therefore, digital wellbeing measurement remains an evolving research area.

10. Research Gap

The combined application analysis and literature review reveal several important research gaps.

10.1 Lack of Conceptual Uniformity

Digital wellbeing does not yet have one universally accepted conceptual definition.
Researchers emphasize different aspects, including digital balance, autonomy, emotional wellbeing, social connection, responsible technology use, self-regulation, and problematic digital behaviour [1–3].
This conceptual variation affects measurement development.

10.2 Fragmentation of Measurement Approaches

Existing digital wellbeing instruments differ in their structures and target populations.
The recent 2026 studies by Liberacka-Dwojak et al. [27] and Appianing et al. [28] demonstrate meaningful progress, but they also represent different conceptualizations and populations.

The 2026 scoping review explicitly identifies the absence of an integrated and cross-culturally validated measurement framework [29].
Therefore, further systematic measurement research is warranted.

10.3 Behaviour Monitoring Versus Wellbeing Assessment

Current digital wellbeing applications predominantly monitor observable behaviour.
However, behavioural indicators alone cannot necessarily establish wellbeing.
Screen time, application usage, or device unlocks describe activity, whereas wellbeing assessment requires consideration of the individual's experience and consequences associated with that activity.
This represents one of the most important gaps between current commercial tools and the academic measurement literature.

10.4 Limited Integration of Objective and Subjective Information

Digital technologies can collect objective behavioural data.
Psychological instruments can capture subjective experiences.
However, these two sources of information are not consistently integrated.
Future research should investigate how objective digital behaviour and validated subjective wellbeing assessment can complement one another without assuming that either source alone provides a complete representation.

10.5 Limited Cross-Cultural Evidence

Recent measurement studies have made important contributions, but their populations remain geographically and demographically specific.
Liberacka-Dwojak et al. [27] validated an English questionnaire among young adults from the United States and United Kingdom.
Appianing et al. [28] developed a scale using university students in Ghana.
The 2026 scoping review identifies limited Asian perspectives as an additional research gap [29].
This indicates a need for further validation across cultures, age groups, occupations, educational contexts, and levels of digital engagement.

10.6 Measurement as a Foundation for AI

AI-enabled digital wellbeing systems require meaningful data and reliable targets.
If an AI system only receives screen-time data, it may be able to predict or classify behavioural patterns but cannot necessarily determine the individual's overall wellbeing.
Consequently:
Reliable measurement → meaningful assessment → improved personalization → more appropriate intervention.
This relationship represents a major opportunity for future research.

11. Proposed Research Direction

The findings do not suggest that another application with additional screen-time features is sufficient.
Instead, future research should investigate a systematic pathway for digital wellbeing assessment.
A measurement-development process could include:

1. conceptual definition of digital wellbeing;
2. identification of theoretically grounded constructs;
3. generation of potential measurement items;
4. expert evaluation;

5. pilot testing;
6. exploratory factor analysis;
7. confirmatory factor analysis;
8. reliability testing;
9. convergent validity;
10. discriminant validity;
11. measurement invariance;
12. cross-cultural validation;
13. longitudinal validation; and
14. examination of relationships with objective digital behaviour.

This study intentionally does not prescribe a particular domain structure, index architecture, scoring system, or questionnaire.

The important research requirement is the development of a scientifically grounded measurement foundation capable of supporting future assessment and technology development.

12. Implications

12.1 Implications for Researchers

Researchers should move beyond measuring only technology exposure and examine the broader relationship between digital engagement and wellbeing.

Psychometric principles should be incorporated into digital wellbeing instrument development.

12.2 Implications for Application Developers

Developers should recognize that screen-time reduction is only one possible aspect of digital wellbeing.

Applications may benefit from incorporating scientifically validated assessment methods alongside behavioural monitoring.

12.3 Implications for AI Developers

AI systems should be designed around meaningful wellbeing outcomes rather than simply reducing or increasing technology use.

Reliable measurement can provide a stronger foundation for adaptive recommendations.

12.4 Implications for Privacy

AI-enabled wellbeing technologies may require access to behavioural and potentially sensitive information.

Privacy-preserving design, transparency, user control, and responsible data governance should therefore be integrated into system development.

13. Limitations

This study has several limitations.

First, only ten digital wellbeing tools were examined. The digital wellbeing ecosystem is considerably larger and changes rapidly.

Second, the application analysis was exploratory rather than experimental.

Third, application functionality may change through software updates, meaning that the findings represent the evaluated state of the selected tools rather than permanent characteristics.

Fourth, publicly available descriptions may not reveal the complete technical architecture of proprietary applications. Therefore, claims concerning AI implementation are based on available evidence and obser-

vable functionality rather than source-code inspection.

Fifth, the study does not provide clinical evidence regarding the effectiveness of the selected applications. Finally, digital wellbeing measurement is an emerging research area, and additional instruments and validation studies may continue to appear.

14. Future Research

Future research should concentrate on developing stronger foundations for digital wellbeing assessment. Important directions include:

- development of theoretically grounded constructs;
- systematic item generation;
- psychometric validation;
- cross-cultural validation;
- longitudinal research;
- population-specific validation;
- integration of subjective and behavioural information;
- examination of contextual technology use;
- privacy-preserving behavioural analytics;
- AI-assisted personalization;
- explainable AI for wellbeing recommendations; and
- evaluation of whether digital wellbeing interventions produce sustained improvements.

Future studies should also investigate how digital wellbeing measurement can adapt to emerging technologies such as generative AI, conversational agents, wearable devices, immersive environments, and AI-based recommendation systems.

The meaning of digital wellbeing may change as the relationship between humans and intelligent technologies evolves. Measurement frameworks should therefore be sufficiently rigorous to maintain scientific validity while remaining adaptable to changing digital environments.

15. Conclusion

Digital technologies have become deeply integrated into modern life, creating substantial opportunities while also introducing new challenges related to attention, behaviour, psychological wellbeing, social interaction, privacy, and digital balance.

This study examined selected digital wellbeing tools and evaluated their monitoring capabilities, interventions, personalization, automation, AI functionality, and limitations.

The findings indicate that the current digital wellbeing ecosystem is highly fragmented. Many tools focus on screen-time monitoring, application restriction, focus management, productivity, or specific mental wellbeing functions. AI capabilities are emerging, but their implementation remains uneven.

More importantly, the study identifies a distinction between monitoring digital behaviour and assessing digital wellbeing.

Behavioural measures such as screen time, application usage, device unlocks, and notifications provide useful information, but they do not necessarily represent the overall wellbeing of the individual.

The measurement literature has begun to address this problem. Recent psychometric studies demonstrate that digital wellbeing can be measured through multidimensional instruments, while the latest scoping

evidence indicates that an integrated and cross-culturally validated measurement framework remains lacking [27–29].

This creates an important research opportunity.

Future digital wellbeing technologies should not rely solely on behavioural monitoring. Instead, reliable measurement should form the scientific foundation upon which monitoring, personalization, intervention, and AI-supported wellbeing technologies are developed.

The objective should therefore not simply be to build applications that tell users how much they use technology, but to develop scientifically grounded approaches that help determine how digital engagement relates to their overall wellbeing.

Such progress requires collaboration among computer science, psychology, behavioural science, human-computer interaction, health research, measurement theory, artificial intelligence, and ethics.

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