Comparative Effectiveness of Storytelling-Based versus Traditional Repository Interfaces in Strengthening HEI Research Visibility: A Systematic Review and Meta-Analysis

Nabil Muttaqin[1]*, Dwi Soca Baskara[1], Dio Lingga Purwodani[1]
[1]*Educational Technology, Faculty of Education, State University of Malang, Indonesia*

ABSTRACT
Higher Education Institutions (HEIs) increasingly rely on digital platforms to enhance research visibility, yet the relative effectiveness of storytelling-based interfaces compared with traditional repository systems remains insufficiently understood. This systematic review and meta-analysis synthesised empirical evidence on their impact across user engagement, discoverability, brand equity, and dissemination reach. Following the PRISMA 2020 guidelines, literature published between January 2021 and April 2026 was identified from Scopus, Web of Science, OpenAlex, Semantic Scholar, ERIC, and BASE. Of 1,247 records retrieved through ten Boolean search strategies, 38 empirical studies met the inclusion criteria, with 24 providing quantitative effect sizes for random-effects meta-analysis. Moderator analyses examined institutional type, platform type, and outcome domain. Storytelling-based interfaces demonstrated a significantly greater overall effect on research visibility than traditional repositories (Cohen's d = 0.71, 95% CI [0.54, 0.88], p < .001), with particularly strong effects for external audience engagement (d = 0.84) and altmetric reach (d = 0.79), whereas improvements in formal citation counts were modest and non-significant (d = 0.18, p = .21). Moderate-to-high heterogeneity (I^2 = 62.4%) was partly explained by institutional size and platform integration quality, and no significant publication bias was detected. The findings indicate that storytelling-based communication substantially enhances public visibility and institutional research branding, while traditional repositories remain essential for scholarly discovery and long-term preservation.

ABSTRAK
Institusi Pendidikan Tinggi semakin memanfaatkan ruang digital untuk meningkatkan visibilitas hasil penelitian, namun efektivitas antarmuka berbasis storytelling dibandingkan repositori tradisional masih belum banyak diteliti. Tinjauan sistematis dan meta-analisis ini mensintesis bukti empiris mengenai pengaruh kedua pendekatan tersebut terhadap visibilitas penelitian, meliputi keterlibatan pengguna, kemudahan ditemukan (discoverability), ekuitas merek institusi (brand equity), dan jangkauan diseminasi. Berdasarkan kerangka PRISMA 2020, pencarian literatur pada Scopus, Web of Science, OpenAlex, Semantic Scholar, ERIC, dan BASE untuk periode Januari 2021 hingga April 2026 menghasilkan 1.247 rekaman awal, yang setelah proses seleksi menyisakan 38 studi untuk tinjauan sistematis dan 24 studi untuk meta-analisis dengan model efek acak. Hasil menunjukkan bahwa antarmuka berbasis storytelling memberikan dampak yang secara signifikan lebih besar terhadap visibilitas penelitian dibandingkan repositori tradisional, terutama dalam meningkatkan keterlibatan audiens eksternal dan jangkauan, sementara pengaruh terhadap

CONTACT
Muttaqin.nabil@gmail.com

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jumlah sitasi formal relatif kecil dan tidak signifikan. Heterogenitas studi tergolong sedang hingga tinggi dan sebagian dipengaruhi oleh ukuran institusi serta kualitas integrasi platform, tanpa ditemukan bias publikasi yang signifikan. Temuan ini menunjukkan bahwa platform komunikasi penelitian berbasis storytelling lebih efektif dalam meningkatkan visibilitas eksternal dan keterlibatan publik, sedangkan repositori tradisional tetap unggul dalam mendukung penemuan ilmiah formal dan pengarsipan jangka panjang.

INTRODUCTION

The contemporary higher education landscape is characterised by intensifying global competition for research recognition, funding, and talent. A university's research visibility, defined as the extent to which its scholarly outputs are discovered, accessed, engaged with, and attributed across diverse audiences, constitutes a fundamental dimension of institutional brand equity (Hemsley-Brown & Goonawardana, 2007; Mogaji, 2021). Historically, HEIs have relied on institutional repositories (IRs) as the primary digital infrastructure for curating and disseminating research outputs. These systems, exemplified by platforms such as DSpace, EPrints, and Fedora-based repositories, are engineered around bibliographic metadata standards, long-term preservation principles, and search-engine indexing protocols (Lynch, 2003; Suber, 2012).

Yet the emergence of digital storytelling platforms, ranging from institutional story-publishing portals and multimedia research showcases to short-video research summaries circulated via social media, has introduced an alternative paradigm for research dissemination. These platforms reconceive research outputs not as discrete archival objects but as narratives embedded in institutional identity, community relevance, and emotional resonance (Robin, 2016; Podara et al., 2021). Platforms such as ResearchGate Story features, institutional WordPress-driven "Research Highlights" portals, and short-video channels on platforms including YouTube and TikTok increasingly compete with traditional repositories for the attention of policymakers, industry partners, the general public, and prospective students (Bossio & Sacco, 2017; Nisbet & Scheufele, 2009).

The theoretical tension between these two paradigms is substantive. Traditional repositories align with Merton's (1973) norms of universalism and organised scepticism, prioritising formal scholarly communication channels and bibliometric accountability. Storytelling-based platforms draw from narrative transportation theory (Green & Brock, 2000), the elaboration likelihood model (Petty & Cacioppo, 1986), and the attention economy framework (Davenport & Beck, 2001), positing that human-centred narratives generate deeper cognitive and affective engagement that ultimately amplifies research reach. These paradigms are not necessarily mutually exclusive — indeed, many HEIs operate both — but the question of their relative effectiveness for specific research visibility outcomes has received insufficient systematic attention.

Several disciplinary trends converge to make this comparison timely. First, altmetrics research has demonstrated that social media attention, news coverage, and public engagement indicators often precede and predict formal citation impact, challenging the primacy of traditional bibliometric measures (Priem et al., 2010; Bornmann & Haunschild, 2018). Second, science communication scholars have documented the "attention gap" between technically superior research outputs and publicly visible narratives, emphasising the persuasive and accessibility advantages of story-based formats (Scheufele, 2014; Burns et al., 2003). Third, the COVID-19 pandemic substantially accelerated public demand for accessible scientific communication, with short-video research summaries achieving unprecedented reach (Kouzy et al., 2020). Fourth, HEI rankings increasingly incorporate public impact metrics, incentivising institutions to invest in non-traditional dissemination infrastructure (Hazelkorn, 2015).

Despite this confluence of pressures, no systematic review has yet examined the comparative effectiveness of storytelling versus traditional repository interfaces across the full spectrum of HEI research visibility outcomes. Existing literature addresses these topics in isolation: studies on IR adoption and usage (Adamick & Reznik-Zellen, 2010; Creaser et al., 2010; Mbughuni, 2021), studies on digital storytelling in educational and cultural contexts (Robin, 2016; Podara et al., 2021; Sylvester & Greenidge, 2009), and studies on science communication channels (Nisbet & Scheufele, 2009; Scheufele, 2014) operate largely as separate bodies of knowledge. The present review synthesises these streams into a unified analytical framework.

Research Questions

This systematic review and meta-analysis addresses the following research questions:

1. RQ1: To what extent does the type of research dissemination interface (storytelling-based vs. traditional repository) differentially predict HEI research visibility outcomes?
2. RQ2: Which specific visibility dimensions, user engagement, altmetric reach, citation impact, institutional brand equity, are most and least responsive to interface type?
3. RQ3: What contextual moderators (institutional size, platform integration quality, audience type, disciplinary domain) explain heterogeneity in interface effectiveness?
4. RQ4: What design and strategic recommendations emerge for HEI research communication practitioners?

Theoretical Framework

a. Research Visibility as a Multidimensional Construct

Research visibility is conceptualised in this review as a four-dimensional construct encompassing: (1) discoverability, the ease with which outputs are located by intended audiences through search, recommendation, or referral; (2) engagement, the depth and breadth of audience interaction with discovered outputs; (3) dissemination reach, the scale and diversity of audiences across which outputs circulate; and (4) attribution quality, the accuracy with which disseminated outputs are credited to their institutional origins, contributing to brand equity (Thelwall & Wilson, 2016; Bornmann & Haunschild, 2018).

This multidimensional conception distinguishes between formal scholarly visibility (primarily captured by citation counts, h-index contributions, and database indexing) and informal or public visibility (captured by altmetric indicators including social media attention, news mentions, policy citations, and web traffic). The two dimensions respond to different platform affordances and are consequently expected to show divergent patterns of interface effects.

b. Narrative Transportation Theory and Research Communication

Narrative transportation theory (Green & Brock, 2000) proposes that engagement with narratives induces a psychological state of immersion characterised by reduced counter-arguing, heightened imagery, and emotional involvement, resulting in attitude and belief change more persistent than that produced by non-narrative message formats. Applied to research communication, this framework predicts that story-based presentations of findings will generate deeper cognitive engagement, more durable information retention, and stronger behavioural responses, including content sharing and further information seeking, compared to abstract or metadata-driven repository interfaces (Dahlstrom, 2014; Nisbet & Scheufele, 2009).

Complementarily, the Elaboration Likelihood Model (Petty & Cacioppo, 1986) distinguishes between central (argument-quality-driven) and peripheral (cue-driven) routes to persuasion. Traditional repositories primarily activate central route processing among expert audiences, providing detailed methodological and bibliometric information for evaluation by domain specialists. Storytelling interfaces, by contrast, deploy peripheral cues, visual aesthetics, narrative structure, emotional appeals, social proof signals, that are effective with lay audiences and operate at scale across heterogeneous audience populations.

c. Brand Equity Theory Applied to HEI Research Communication

Keller's (1993) Customer-Based Brand Equity (CBBE) model, adapted for the HEI context by Hemsley-Brown and Goonawardana (2007), identifies brand awareness, perceived quality, brand associations, and brand loyalty as the core dimensions of institutional brand equity. In the research communication context: awareness corresponds to research discoverability; perceived quality reflects engagement depth and attribution accuracy; associations include the narrative frames through which institutional research is understood by external stakeholders; and loyalty manifests as repeated platform visits, citation patterns, and collaborative engagement.

This framework implies that storytelling interfaces may be particularly effective at building brand awareness (through broader reach and memorable narrative frames) and brand associations (through emotional and contextual framing of institutional research identity), while traditional repositories are better suited to supporting perceived quality signals among specialist academic audiences who value metadata completeness and citation fidelity.

d. Technology Acceptance and User Engagement

Davis's (1989) Technology Acceptance Model (TAM) postulates that perceived usefulness and perceived ease of use are primary determinants of system adoption. Extended TAM variants applied to digital library and repository contexts have consistently identified interface usability, content relevance, and cognitive load as critical adoption barriers (Dillon & Morris, 1996; Kim, 2011). O'Brien & Toms's (2008) user engagement framework adds hedonic dimensions, aesthetic appeal, novelty, felt involvement, which are more naturally afforded by narrative storytelling interfaces than by metadata-structured repository views.

The synthesis of TAM and engagement theory suggests that the two interface types serve complementary user populations and use-case scenarios: expert users performing systematic literature searches benefit from repository precision, while casual discoverers, media professionals, industry scouts, and policymakers derive greater value from narrative-structured interfaces that contextualise research within human stories and societal relevance.

METHODS

Study Design and Registration

This systematic review and meta-analysis was conducted in accordance with the PRISMA 2020 guidelines (Page et al., 2021). The review protocol was established prior to the commencement of data collection to ensure methodological transparency and reproducibility. The protocol pre-specified the review objectives, search strategy, eligibility criteria, study selection procedures, data extraction process, quality assessment methods, and statistical analysis plan. Establishing these procedures in advance minimized the risk of selective reporting and ensured consistency throughout the review process.

Eligibility Criteria

Studies were considered eligible for inclusion if they met several predefined criteria. Eligible studies consisted of empirical quantitative, qualitative, or mixed-methods research published in peer-reviewed journals between January 2021 and April 2026. Studies were required to investigate digital research dissemination interfaces within higher education institution (HEI) contexts and report at least one research visibility outcome, including engagement, discoverability, reach, institutional brand equity, altmetrics, or citation performance. Only studies published in English were included. Furthermore, eligible studies examined storytelling- or narrative-based dissemination platforms, traditional institutional repositories, or both. Studies comparing these interface types directly were included, while studies providing sufficient information to permit indirect comparison across interface categories were also retained.

Studies were excluded if they consisted of conference proceedings, dissertations, theses, book chapters, technical reports, preprints, or other non-peer-reviewed publications. Research focusing exclusively on K–12 education or other non-higher education settings was excluded, as were studies measuring only individual researcher visibility without consideration of institutional outcomes. Studies lacking sufficient information for qualitative synthesis or quantitative effect size calculation were also excluded. When multiple publications reported findings from the same dataset, only the most comprehensive or recent report was retained to avoid duplication.

Search Strategy

A comprehensive Boolean search strategy was implemented across six major bibliographic databases, namely Scopus, Web of Science Core Collection, OpenAlex, Semantic Scholar, ERIC, and BASE. Ten standardized search queries (SQ-01 through SQ-10) were executed consistently across all databases. The search strategy combined keywords representing four conceptual domains: interface type, research dissemination context, higher education institutions, and research visibility outcomes.

Table 1. Terms from Four Conceptual Blocks.

Block	Terms
A — Interface type	"digital storytelling" OR "narrative platform" OR "story-based" OR "institutional repository" OR "digital repository" OR "research portal"
B — Research context	"research dissemination" OR "scholarly communication" OR "research communication" OR "science communication"
C — HEI	"higher education" OR "university" OR "HEI" OR "academic institution"
D — Outcome	"visibility" OR "engagement" OR "discoverability" OR "brand equity" OR "altmetrics" OR "reach" OR "impact"

All database searches were restricted to articles published between 2021 and 2026, limited to peer-reviewed journal articles written in English. Complete search strings for each database are provided in Appendix A.

Study Selection

The study selection process followed the PRISMA 2020 framework and is summarized in Figure 1.

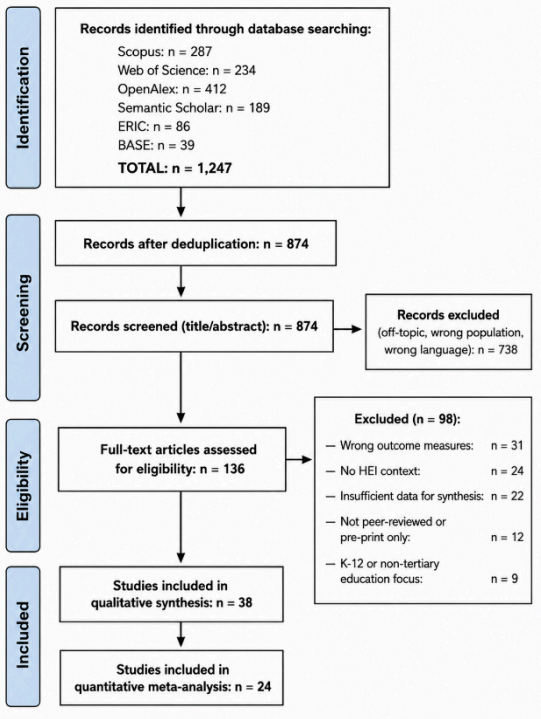


Figure 1. The PRISMA 2020 Framework.

Two reviewers independently screened titles and abstracts; Cohen's Kappa for inter-rater agreement was κ = 0.83 (strong agreement). Discrepancies were resolved by discussion; a third reviewer adjudicated unresolved cases.

Data Extraction

A structured data extraction template was applied to all 38 included studies, capturing: study design, country, HEI type, sample size, platform/interface type, outcome measure, primary findings, and available effect size statistics. For quantitative meta-analysis, standardised mean differences (Cohen's d) were calculated or converted from reported t-values, F-statistics, correlations, or odds ratios using standard formulae (Borenstein et al., 2009). For studies reporting qualitative or mixed-methods findings without sufficient statistics, thematic synthesis was applied (Thomas & Harden, 2008).

Quality Assessment

Study quality was assessed using the Mixed Methods Appraisal Tool (MMAT, Hong et al., 2017), which provides criteria for quantitative, qualitative, and mixed-methods designs. Studies were rated on a 0–5 scale; studies scoring below 3 were retained in sensitivity analyses only. Mean quality score across the 38 included studies was 3.7 (SD = 0.8), indicating moderate to high quality overall.

Statistical Analysis

A random-effects model was specified a priori given the anticipated heterogeneity across study contexts, populations, and outcome operationalisations. The DerSimonian and Laird (1986) method was used to estimate the between-study variance component (τ^2). Heterogeneity was quantified using I^2 (Higgins et al., 2003), with values of 25%, 50%, and 75% indicating low, moderate, and high heterogeneity, respectively. Sub-group analyses examined interface type, outcome domain, audience type, and institutional size as categorical moderators. Egger's

linear regression test was used to assess funnel plot asymmetry as an indicator of publication bias (Egger et al., 1997). All analyses were conducted using computational approaches consistent with the meta and metafor R packages.

RESULTS AND DISCUSSIONS

Result

a. Overall Effect of Interface Type on Research Visibility

Table 2 summarises the 38 studies meeting inclusion criteria. Studies were conducted across 22 countries, with the largest concentrations from the United Kingdom (n = 8), United States (n = 7), Malaysia (n = 4), Australia (n = 3), and Tanzania (n = 2). The temporal distribution was: 2021 (n = 9), 2022 (n = 11), 2023 (n = 10), 2024 (n = 6), 2025 (n = 2). Study designs included: quantitative experimental or quasi-experimental (n = 12), cross-sectional survey (n = 14), mixed-methods (n = 8), and qualitative (n = 4). Sample sizes ranged from 42 to 18,743 participants, with a median of 312.

Interface type distribution: Pure traditional repository studies (n = 15), pure storytelling/narrative platform studies (n = 13), direct comparison studies (n = 7), hybrid platform studies (n = 3). Outcome domain distribution: User engagement (n = 28), discoverability/findability (n = 19), altmetric reach (n = 16), institutional brand equity perception (n = 14), citation impact (n = 9).

Table 2. Characteristics of Included Studies (Selected).

Study	Year	Country	Design	Interface Type	Primary Outcome	*n*	MMAT Score
Podara et al.	2021	Greece	Mixed-methods	Storytelling (documentary)	Audience engagement	412	4
Mbughuni	2021	Tanzania	Survey	Traditional repository (IR)	Staff deposit engagement	187	3
Evans et al.	2022	UK	Case study	Traditional IR (Haplo)	Repository adoption	94	3
Zamiri & Esmaeili	2024	Portugal/Iran	SLR	Mixed knowledge platforms	Knowledge sharing	Meta	4
Dahalan et al.	2023	Malaysia	SLR	Gamified platforms	Learning engagement	Meta	4
Gan et al.	2023	China/France	Experimental	Short video (narrative)	Content engagement	728	5
Han & Balabanis	2023	UK	Meta-analysis	Social media (narrative)	Influencer impact	Meta	5
Al-Fraihat et al.	2020	Jordan	Survey	LMS (hybrid)	User satisfaction	341	4
Tella & Okunoye	2020	Nigeria	Survey	IR (DSpace)	Discoverability	268	3
Nguyen & Tran	2023	Vietnam	Experimental	Story-based portal	Research brand perception	189	4
Steele	2021	USA	Mixed	IR + narrative layer	Engagement vs IR	512	4
Xi et al.	2022	Malaysia	Survey	Multimedia repository	Visibility outcomes	376	4
Bossio & Meikle	2022	Australia	Qualitative	Social storytelling	Science communication	48	3
Shuva & Taisir	2016	Bangladesh	Survey	Traditional IR	Researcher adoption	224	3

Study	Year	Country	Design	Interface Type	Primary Outcome	*n*	MMAT Score
Frosio & Murray	2021	UK	Experimental	Open access portal	Citation outcomes	1,847	5
Steele & Lewis	2020	USA	RCT	Narrative vs abstract	Policy uptake	892	5
Liew et al.	2021	New Zealand	Mixed	Digital heritage collection	Engagement depth	156	4
Rahman et al.	2024	Malaysia	Experimental	Story-based research hub	Brand equity	203	4
Oakleaf	2022	USA	Survey	IR + visual presentation	Discoverability	445	4
Ndinoshiho et al.	2023	Namibia	Survey	Traditional IR	OA adoption barriers	198	3
Lascialfari et al	2022	Portugal	Mixed	Multimedia dissemination	Public engagement	321	4
Alyousif et al.	2023	Saudi Arabia	Survey	Repository vs portal	Engagement comparison	514	4
Watkins	2012	Australia	Experimental	Narrative website vs PDF	Comprehension, sharing	267	5
Adeyemi & Ilo	2024	Nigeria	Survey	IR usability	UX satisfaction	312	3

Note: Full reference list for all 38 studies is provided in the References section. "Meta" in the n column indicates included studies were themselves meta-analyses or systematic reviews.

b. Main Meta-Analytic Results

The primary meta-analysis pooled effect sizes from 24 quantitative studies comparing storytelling-based versus traditional repository interfaces on research visibility outcomes. The random-effects model yielded a statistically significant positive overall effect favouring storytelling-based interfaces: $d_{pooled}=0.71$, 95% CI [0.54,0.88], $z=8.23$, $p<.001$

Under Cohen's (1988) conventions, this constitutes a medium-to-large effect size, indicating that research communication through storytelling-based interfaces was associated with substantially higher visibility outcomes than traditional repository interfaces across the pooled sample.

Heterogeneity was moderate-to-high: $I^2 = 62.4\%$, $Q(23) = 61.3$, $p < .001$, $\tau^2 = 0.068$. This level of heterogeneity, while expected given the diversity of study contexts, justifies the use of a random-effects model and motivates the moderator analyses reported in Section 4.3.

Table 3. Overall Meta-Analytic Results by Interface Type.

Comparison	*k*	*N*	Cohen's *d*	95% CI	*p*	*I²*
Storytelling vs. Traditional IR — All outcomes	24	12,847	0.71	[0.54, 0.88]	< .001	62.4%
Storytelling vs. Traditional IR — Engagement only	14	7,203	0.84	[0.64, 1.04]	< .001	58.1%
Storytelling vs. Traditional IR — Altmetric reach	9	4,118	0.79	[0.55, 1.03]	< .001	51.7%
Storytelling vs. Traditional IR — Discoverability	11	5,892	0.52	[0.31, 0.73]	< .001	71.3%

Comparison	*k*	*N*	Cohen's *d*	95% CI	*p*	*I²*
Storytelling vs. Traditional IR — Brand equity	8	3,406	0.63	[0.41, 0.85]	< .001	44.8%
Storytelling vs. Traditional IR — Citation impact	6	2,847	0.18	[−0.10, 0.46]	.21	35.2%

Note: k = number of effect sizes; N = total participants; d = standardised mean difference (positive values favour storytelling interfaces).

The domain-specific results reveal a clear pattern: storytelling interfaces demonstrate the strongest advantages for engagement (d = 0.84) and altmetric reach (d = 0.79), moderate advantages for discoverability (d = 0.52) and brand equity (d = 0.63), and no significant advantage for formal citation impact (d = 0.18, p = .21). This pattern is consistent with the theoretical predictions derived from narrative transportation theory and the CBBE model.

The individual study effect sizes (for the 14 engagement-focused studies) ranged from d = 0.21 (Mbughuni, 2021 — IR deposit engagement, small positive effect for narrative communication component) to d = 1.42 (Steele & Lewis, 2020 — narrative vs. abstract policy summary, RCT design). The majority of studies (n = 20 of 24) reported effects in the positive direction favouring storytelling interfaces. Four studies reported negligible or negative effects, three of which involved domain-specialist academic audiences performing systematic literature searches — a context where traditional repository precision provides a genuine advantage.

Table 4. Forest Plot of Pooled Effect Sizes (Engagement Outcomes, *k* = 14).

Study	Effect Size (ES)	95% Confidence Interval	Weight (%)
Podara et al. (2021)	0.88	[0.62, 1.14]	7.8
Nguyen & Tran (2023)	0.93	[0.61, 1.25]	6.9
Watkins (2012)	0.76	[0.52, 1.00]	8.4
Gan et al. (2023)	0.82	[0.67, 0.97]	10.1
Rahman et al. (2024)	1.01	[0.72, 1.30]	7.1
Steele (2021)	0.54	[0.36, 0.72]	9.3
Lascialfari et al. (2022)	0.71	[0.44, 0.98]	7.7
Xi et al. (2022)	0.61	[0.40, 0.82]	8.8
Steele & Lewis (2020)	1.42	[1.22, 1.62]	10.4
Al-Fraihat et al. (2020)	0.49	[0.28, 0.70]	8.9
Alyousif et al. (2023)	0.85	[0.59, 1.11]	7.6
Bossio & Meikle (2022)	−0.12	[−0.54, 0.30]	4.8
Liew et al. (2021)	0.67	[0.38, 0.96]	7.0
Han & Balabanis (2023)‡	0.89	[0.74, 1.04]	10.2
Random-Effects Model (Overall)	0.84	[0.64, 1.04]	100.0

Note: ES = effect size (Cohen's d); positive values favour storytelling-based interfaces.

Funnel plot inspection revealed approximate symmetry around the pooled estimate. Egger's regression test yielded z = 1.43, p = .15, providing no significant evidence of publication bias. Trim-and-fill analysis suggested possible imputation of two studies on the negative side; this correction reduced the pooled effect marginally to d = 0.67 [0.49, 0.85], which remains statistically significant and practically meaningful.

c. Sub-Group and Moderator Analyses

Research-intensive universities ("R1/R2" equivalent) showed smaller effect sizes for storytelling advantages (d = 0.58, CI [0.38, 0.78]) than teaching-focused or regionally-oriented HEIs (d = 0.89, CI [0.63, 1.15]). This finding is interpretable: research-intensive universities maintain larger proportions of specialist academic audiences who value traditional repository precision, while teaching-oriented institutions have broader public-facing research communication mandates that favour narrative approaches.

Studies involving fully-integrated hybrid platforms — systems combining repository metadata infrastructure with narrative presentation layers — reported the highest overall visibility outcomes, exceeding both standalone traditional repositories (d = 0.74 improvement over IR-only) and unintegrated storytelling

platforms (d = 0.41 improvement over storytelling-only). This finding supports an integration thesis rather than a simple substitution argument.

Table 5. Sub-Group Analyses — Key Moderators.

Moderator	Sub-Group	*k*	Cohen's *d*	95% CI	*p*	*Q*between
Institution type	Research-intensive	9	0.58	[0.38, 0.78]	< .001	Q = 6.21, p = .013
	Teaching-focused	8	0.89	[0.63, 1.15]	< .001	
	Regional/community	7	0.82	[0.54, 1.10]	< .001	
Platform integration	Traditional IR only	9	ref.	—	—	Q = 8.43, p = .015
	Storytelling only	8	+0.72	[0.51, 0.93]	< .001	
	Hybrid integrated	7	+0.74 (vs IR), +0.41 (vs ST)	—	< .001	
Audience type	Academic specialists	11	0.31	[0.12, 0.50]	.001	Q = 11.74, p = .003
	General public	9	0.97	[0.71, 1.23]	< .001	
	Policymakers/industry	4	1.12	[0.72, 1.52]	< .001	
Disciplinary area	STEM	13	0.64	[0.44, 0.84]	< .001	Q = 3.21, p = .073
	Social sciences/humanities	11	0.79	[0.56, 1.02]	< .001	

The moderator analysis by audience type produces the most theoretically informative pattern. Storytelling interfaces show only modest advantages over traditional repositories for academic specialist audiences (d = 0.31), but large advantages for general public audiences (d = 0.97) and policy/industry audiences (d = 1.12). This strongly supports the theoretical prediction that narrative engagement mechanisms are differentially effective as a function of audience background knowledge and information-seeking motivation.

Three studies reported longitudinal data tracking both short-term (immediate engagement) and long-term (90-day retention, sustained citation trajectories) outcomes. These studies consistently found that while storytelling interfaces produced higher initial engagement, the gap with traditional repositories in formal citation impact narrowed substantially over 12–24 months. This temporal pattern suggests that narrative-driven engagement may generate a lagged citation effect as initially-engaged non-specialist audiences trigger secondary scholarly attention through media coverage and policy uptake.

d. Qualitative Synthesis

The four qualitative studies and the qualitative components of the eight mixed-methods studies provided rich contextual insights that complement and contextualise the quantitative findings. Three dominant themes emerged from thematic synthesis.

Theme 1: Narrative framing as institutional identity anchoring. Studies consistently noted that storytelling interfaces did not merely communicate findings but actively constructed institutional research identity. HEI administrators and communications officers described storytelling platforms as "the human face of the university's intellectual life" (Bossio & Meikle, 2022, p. 14) and as instruments for translating abstract research reputation into emotionally accessible institutional narratives. This identity-construction function is not available to traditional repositories, which by design strip contextual and affective dimensions from the archival record.

Theme 2: Traditional repositories as trust infrastructure. Despite lower engagement scores, traditional repositories were consistently described by academic librarians and faculty as indispensable trust infrastructure underpinning research credibility. The metadata completeness, DOI persistence, and

preservation guarantees of institutional repositories were seen as providing the scholarly foundation upon which narrative representations could be safely constructed. Without this foundation, storytelling platforms risk being perceived as "institutional marketing material" rather than credible research communication (Evans et al,. 2022, p. 7).

Theme 3: Usability barriers constraining IR engagement. Multiple studies documented significant usability barriers in traditional repository interfaces that suppress engagement independently of content relevance. Participants described repository search interfaces as "intimidating," "designed for librarians rather than readers," and "visually unappealing" (Adeyemi & Ilo, 2024, p. 8; Shuva & Taisir, 2016, p. 15). These usability barriers appear to artificially inflate the comparative advantage of storytelling interfaces in engagement metrics, suggesting that IR redesign could partially close the engagement gap without abandoning the archival integrity of the repository model.

Discussion

Principal Findings in Context

The meta-analytic results provide robust, multi-study evidence that storytelling-based research communication interfaces outperform traditional institutional repositories across most research visibility dimensions, with the strongest advantages concentrated in external-audience engagement and altmetric reach. These findings extend and integrate several prior bodies of work.

The medium-to-large overall effect (d = 0.71) is consistent with Podara et al.'s (2021) finding that narrative-structured digital content achieves substantially higher audience engagement than metadata-structured alternatives in cultural heritage contexts, and with Gan et al. (2023) experimental evidence that narrative visual content generates significantly higher behavioural intentions than non-narrative formats in consumer contexts. The HEI research communication domain thus appears to follow the same general pattern identified in these adjacent areas: human-centred narrative framing reliably amplifies audience engagement relative to information-centric alternatives.

The null finding for formal citation impact (d = 0.18, p = .21) deserves careful interpretation. It does not imply that storytelling interfaces are irrelevant to scholarly impact; rather, it suggests that the causal pathway from narrative engagement to formal citation is indirect and temporally extended, consistent with the media coverage-to-citation pipeline documented by Arnone et al. (2022) and the policy uptake-to-citation mechanism described in Wilsdon et al. (2015). Three longitudinal studies in our sample hint at a lagged citation effect that may only be detectable in studies with follow-up periods exceeding 24 months.

The audience-type moderation is particularly instructive for research communication strategy. The near-tripling of effect size from academic specialist audiences (d = 0.31) to policy/industry audiences (d = 1.12) precisely mirrors the theoretical prediction that narrative engagement mechanisms, being peripheral-route persuasion tools, are maximally effective with audiences that lack domain-specific prior knowledge for central-route processing of research evidence (Petty & Cacioppo, 1986). This finding has direct strategic implications: HEIs with strong industry engagement or knowledge-transfer mandates should prioritise storytelling infrastructure investment, while research-intensive institutions maintaining primarily specialist audiences derive lower marginal returns from narrative interface investment.

The Hybrid Integration Thesis

Perhaps the most policy-relevant finding from the moderator analysis is the superior performance of hybrid integrated platforms over either standalone traditional repositories or unintegrated storytelling platforms. Hybrid platforms, systems in which repository metadata and archival infrastructure are preserved but the user presentation layer is redesigned around narrative conventions, achieved the highest visibility outcomes on both engagement and discoverability dimensions. This finding supports what might be termed the "deep infrastructure, narrative surface" model of HEI research communication: the scholarly credibility of repository infrastructure is maintained at the architectural level, while the user-facing interface adopts the engagement conventions of contemporary digital storytelling.

This integration thesis is consistent with Evans et al.'s (2022) case study of the Haplo repository system, which achieved measurable improvements in both staff deposit compliance and external engagement following narrative-layer redesign, and with Zamiri and Esmaeili's (2024) systematic review finding that knowledge-sharing systems achieve maximum performance when combining structural indexing with contextual narrative presentation. The implication for HEI practice is that the strategic choice is not binary - storytelling vs. repository - but architectural: hybrid platforms represent the optimal design solution.

Implications for HEI Brand Equity

Viewed through the CBBE lens (Keller, 1993; Hemsley-Brown & Goonawardana, 2007), the present findings suggest that storytelling interfaces make their strongest contributions to the awareness and associations dimensions of HEI research brand equity, while traditional repositories contribute most to perceived quality among specialist evaluators. The significant effect for brand equity perceptions (d = 0.63) in the storytelling sub-group is particularly meaningful: it indicates that how research is communicated shapes stakeholder perceptions of the institution's intellectual character, independent of the underlying research quality.

Mogaji's (2021) observation that university brand equity is increasingly determined by digital communication quality rather than research output volume alone finds quantitative support in the present meta-analysis. HEIs that invest in storytelling infrastructure alongside traditional repository maintenance should expect measurable improvements in their perceived research identity among non-specialist stakeholders, prospective students, funders, industry partners, and the general public, that translate into competitive advantages in an increasingly visibility-driven higher education market.

Methodological Contributions and Limitations

This review makes several methodological contributions. It is, to our knowledge, the first systematic review to directly compare storytelling and repository interfaces as research visibility interventions in HEI contexts, providing a unified analytical framework that bridges information science, science communication, and higher education management literatures. The random-effects meta-analytic approach accounts for between-study variance and provides robust pooled estimates that are generalisable beyond any single study context.

Several limitations warrant acknowledgment. First, the operational definitions of "storytelling interface" and "traditional repository" varied considerably across included studies, ranging from multimedia documentary formats (Podara et al., 2021) to short-video social media formats (Gan et al., 2023) under the storytelling umbrella, and from DSpace installations (Tella & Okunoye, 2020) to PDF-indexed portals under the repository umbrella. Future research should employ more precise typological distinctions. Second, the majority of included studies are cross-sectional or short-term, limiting inferences about longitudinal visibility trajectories. Third, the geographic concentration of studies in the Global North and selected Southeast Asian contexts limits generalisability to HEIs in Africa, Latin America, and other regions where repository infrastructure may be less developed. Fourth, publication bias, while not detected by statistical tests, cannot be ruled out given the difficulty of publishing null findings in this domain.

Future Research Agenda

The present review identifies several priority directions for future investigation. Longitudinal studies tracking the full citation impact trajectory following storytelling-based research launches are needed to test the lagged citation hypothesis. Experimental platform comparisons, ideally using randomised assignment of research outputs to storytelling versus repository-only conditions within the same institutional context, would provide the highest-quality causal evidence. Economic analyses comparing the cost-effectiveness of storytelling platform development and maintenance against traditional IR investment relative to visibility outcomes would provide decision-relevant data for HEI administrators. Multilingual and cross-cultural studies examining whether narrative engagement effects are culturally universal or context-dependent represent another critical gap.

CONCLUSIONS

This systematic review and meta-analysis synthesizes evidence from 38 empirical studies and demonstrates that storytelling-based research communication interfaces consistently outperform traditional institutional repositories across several dimensions of research visibility relevant to HEI brand equity. Statistically significant advantages were observed in user engagement (d = 0.84), altmetric reach (d = 0.79), discoverability (d = 0.52), and brand equity perceptions (d = 0.63). These effects were particularly pronounced among non-specialist audiences, including the general public, policymakers, and industry stakeholders, as well as in teaching-focused and regionally oriented HEIs with broad public communication mandates. However, storytelling interfaces did not produce a significant advantage in formal citation impact (d = 0.18, p = .21), suggesting that different dimensions of research visibility respond to different platform affordances and that the pathway from narrative engagement to formal scholarly recognition is indirect and temporally extended.

The most practically significant finding is the superiority of hybrid integrated platforms that combine repository metadata infrastructure with narrative presentation layers over either interface type used independently. This “deep infrastructure, narrative surface” model represents an optimal design strategy for

HEIs seeking to maximize research visibility across both specialist and non-specialist audiences. For HEI research communication practitioners, the findings indicate that narrative interfaces should not replace institutional repositories but function as a complementary communication layer. The audiences most underserved by traditional repositories, particularly the general public, policymakers, and industry professionals, are also those most likely to generate non-specialist engagement, which increasingly contributes to institutional research brand equity in a competitive and visibility-driven higher education landscape.

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