



DEVELOPMENT AND PILOT EVALUATION OF DPJSS: A MAQASID-BASED DATA-DRIVEN PREDATORY JOURNAL SCREENING SYSTEM FOR ETHICAL SCHOLARLY PUBLISHING

Zuriani Ibhrim^{1*}, Zaleha Muda¹, Nuriman Abd Malik², Mohd Iftitah bin Jamil³, Zakaria Mat Zin²

¹Centre for Islamic General and Language Studies, Universiti Poly-Tech Malaysia

²Faculty of Business and Accountancy, Universiti Poly-Tech Malaysia

³Faculty of Computing and Multimedia, Universiti Poly-Tech Malaysia

Abstract

The rapid growth of academic publishing has intensified concerns regarding predatory journals that exploit researchers through misleading indexing claims, weak peer review processes, aggressive publication invitations and non-transparent publishing practices. These practices threaten research integrity and reduce the quality of scholarly communication. This study aimed to develop the Data-Driven Predatory Journal Screening System (DPJSS) as a data-driven and ethically guided decision-support prototype to assist researchers in identifying journal selection risks. A prototype development approach was employed involving indicator construction, dataset development, system configuration, expert validation and pilot user evaluation. The prototype dataset consisted of 12 journal samples equally distributed across three categories: Legitimate, Questionable and Suspected Predatory. The system was developed using Google Forms, Google Sheets and Looker Studio, integrating automated scoring, risk classification and dashboard visualisation. In addition, the study introduced an AI-assisted evidence extraction mechanism to support journal information extraction without generating automated decisions. DPJSS also integrated Maqasid al-Shariah principles, particularly Hifz al- 'Aql and Hifz al-Mal, as an ethical filtering layer. The findings demonstrated that DPJSS successfully differentiated journal risk levels through structured scoring and achieved positive user acceptance during pilot evaluation ($M = 4.27$; $\alpha = 0.916$). This study contributes to the development of a more systematic, transparent and integrity-oriented journal screening system to strengthen scholarly publishing governance.

Keywords: DPJSS; Predatory Journal Screening; Maqasid al-Shariah; Research Integrity; Decision-Support System.

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*Corresponding Author:

Zuriani Ibhrim,
Centre for Islamic General and
Language Studies, Universiti Poly-
Tech Malaysia.

Email: zuriani@uptm.edu.my

INTRODUCTION

The rapid growth of academic publishing has provided wider opportunities for researchers to disseminate their work. However, this development has also increased the risk of predatory journals that exploit researchers through misleading indexing claims, weak peer review processes, spam invitations, unclear publication ethics and unrealistic publication promises. These practices may affect research credibility, cause financial loss and threaten the integrity of scholarly publishing.

Previous studies by Beall (2016), Shamseer et al. (2017) and Grudniewicz et al. (2019) have identified several common indicators of predatory journals, including aggressive solicitation, fake indexing claims, unclear editorial boards, misleading metrics and rapid publication offers. Existing

screening approaches such as checklists, blacklists and whitelist verification are useful; however, they are often manual, fragmented and dependent on individual interpretation.

Despite the availability of these approaches, limited studies have transformed predatory journal indicators into an integrated prototype system that combines automated scoring, risk classification, dashboard monitoring, user evaluation and ethical filtering. This indicates a research gap in the development of a practical decision-support system that can assist researchers in screening journals more systematically, transparently and ethically.

To address this gap, this study developed the Data-Driven Predatory Journal Screening System (DPJSS), a prototype system that integrates structured journal indicators, automated scoring, risk classification and Maqasid al-Shariah ethical filtering. The objective of this study is to develop, validate and evaluate the functionality of DPJSS as a practical decision-support tool for ethical, transparent and systematic journal selection among researchers.

LITERATURE REVIEW

Predatory Journals and Scholarly Publishing

Predatory journals have become a serious concern in scholarly publishing because they often operate through deceptive and non-transparent publication practices. These journals may exploit researchers by offering rapid publication, making misleading indexing claims, providing weak or unclear peer review processes, and sending aggressive publication invitations. Grudniewicz et al. (2019) described predatory journals and publishers as entities that prioritise self-interest at the expense of scholarship through false or misleading information, lack of transparency, and aggressive solicitation. Similarly, Shamseer et al. (2017) identified several characteristics of potential predatory journals, including unclear editorial practices, poor website quality, questionable editorial boards, and misleading publication information.

Existing Journal Screening Approaches

Existing approaches for identifying predatory journals commonly rely on manual checklists, blacklists, whitelists, and indexing verification platforms. These approaches are useful in helping researchers assess journal credibility, but they often require users to interpret multiple indicators independently. Cukier et al. (2020) highlighted that many checklists have been developed to detect potential predatory journals, but their content, structure, and measurement quality vary. This indicates a need for a more structured and systematic screening mechanism that can translate journal indicators into clearer risk classifications.

Table 1 Comparative Literature Matrix of Predatory Journal Screening Approaches

Author / Source	Type of Study / Tool	Main Focus	Method / Approach	Key Output	Gap Identified	Relevance to DPJSS
Grudniewicz et al. (2019)	Consensus definition study	Defines predatory journals and publishers	Delphi consensus approach	Consensus definition of predatory journals	Provides definition but not a screening system	Supports conceptual understanding of predatory publishing
Shamseer et al.	Empirical	Characteristics	Comparative	Identifies	Does not	Provides

Author / Source	Type of Study / Tool	Main Focus	Method / Approach	Key Output	Gap Identified	Relevance to DPJSS
(2017)	comparison study	of predatory and legitimate journals	journal analysis	common predatory journal features	provide automated scoring or risk classification	screening indicators for DPJSS
Cukier et al. (2020)	Checklist review	Evaluation of predatory journal checklists	Systematic review of checklists	Highlights variability in checklist quality	Existing checklists vary in content and measurement quality	Supports the need for a structured scoring mechanism
Chen et al. (2023)	System development / machine learning study	Automated predatory journal detection	Feature extraction and machine learning	AJPC automated detection system	Focuses on detection but lacks ethical filtering	DPJSS extends system development with Maqasid-based ethical layer
Haron et al. (2024)	System development study	Automatic detection of open access predatory journals	Application/system development	Predatory journal detection system	Limited emphasis on expert validation and pilot user evaluation	DPJSS adds expert validation, user evaluation and ethical filtering
Think. Check. Submit.	Checklist-based tool	Guides researchers in selecting trusted journals	Manual self-checking checklist	Awareness and decision guidance	No automated scoring or dashboard output	DPJSS converts screening indicators into automated risk classification
Scopus / Web of Science / DOAJ	Indexing verification platforms	Verifies journal indexing or open access status	Database search	Indexing status / journal record	Does not evaluate broader predatory risk	Used as verification references within DPJSS

Table 1 shows that existing studies and tools have contributed significantly to predatory journal awareness, definition, detection and verification. However, most available approaches remain limited to checklist-based guidance, indexing verification, static databases or technical detection models. Limited attention has been given to a validated decision-support prototype that integrates structured scoring, automated risk classification, dashboard visualisation, expert validation, pilot user evaluation and Maqasid al-Shariah ethical filtering. Therefore, DPJSS addresses this gap by transforming journal screening indicators into a functional, ethically guided and data-driven decision-support system.

Information Asymmetry Theory

Information Asymmetry Theory explains situations where one party possesses more or better information than another in a decision-making process. Akerlof's (1970) "market for lemons" theory provides a useful foundation for understanding how information imbalance can lead to poor-quality decisions. In scholarly publishing, predatory publishers may control or manipulate information related to indexing status, peer review procedures, publication fees, and editorial legitimacy, while researchers may lack sufficient tools to verify these claims. Therefore, DPJSS attempts to reduce this information imbalance by transforming journal indicators into structured scoring and risk classification outputs.

Research Integrity and Ethical Publishing

Research integrity is central to responsible scholarly communication. Steneck (2006) emphasised that research integrity involves responsible conduct, transparency, and accountability throughout the research process. Predatory journals threaten research integrity by weakening publication quality, misleading researchers, and damaging the credibility of academic outputs. Therefore, journal screening systems are important as preventive tools to help researchers make safer and more responsible publication decisions.

Maqasid al-Shariah and Ethical Filtering

This study integrates Maqasid al-Shariah as an ethical filtering layer within DPJSS. Auda (2008) explained Maqasid al-Shariah as a framework that promotes human welfare, justice, and ethical decision-making. In the context of scholarly publishing, two principles are particularly relevant: Hifz al-‘Aql, which refers to the protection of knowledge and intellectual integrity, and Hifz al-Mal, which refers to the protection of wealth from exploitation. These principles strengthen DPJSS by ensuring that journal screening is not only data-driven but also ethically guided.

Conceptual Foundation of DPJSS

Based on previous literature, DPJSS was developed as a prototype decision-support system that transforms predatory journal indicators into automated scoring, risk classification, dashboard monitoring, and ethical filtering outputs. The system builds upon existing journal screening indicators discussed in previous studies but extends them by operationalising these indicators into a functional low-code prototype. Therefore, the novelty of DPJSS lies in integrating behavioural signals, automated scoring, risk classification, dashboard visualisation, and Maqasid al-Shariah ethical filtering within a single journal screening system.

METHODOLOGY

Research Design

This study employed a prototype system development approach to develop, validate and evaluate the functionality of the Data-Driven Predatory Journal Screening System (DPJSS). The study focused on transforming predatory journal indicators into an automated screening workflow through structured scoring, risk classification, dashboard visualisation and ethical filtering. The development process consisted of five main stages: indicator construction, dataset development, prototype system development, expert validation and pilot evaluation.

Dataset Development

The prototype dataset consisted of 12 journal samples used to demonstrate the screening capability of the DPJSS system. The dataset was distributed equally into three categories: Legitimate, Questionable, and Suspected Predatory, with four journal samples in each category.

Journal information was obtained from three main sources:

(i) publicly accessible journal websites,

(ii) indexing verification sources, and

(iii) selected journal invitation emails demonstrating suspicious publishing characteristics.

The invitation emails were used to identify behavioural signals such as aggressive solicitation, rapid publication promises, unclear publication information, and questionable indexing claims. To maintain ethical considerations, journal invitation records were anonymised before being entered into the prototype system.

Indicator Development

DPJSS employed structured screening indicators adapted from previous studies and journal evaluation practices. The indicators included indexing status, peer review transparency, editorial board verification, article processing charge (APC) transparency, publication ethics, spam invitation signals, rapid publication promises, fake indexing claims, and website credibility. These indicators formed the basis for automated journal screening, scoring, and classification.

AI-Assisted Evidence Extraction

To support users in identifying journal information before entering data into DPJSS, an AI-assisted evidence extraction prompt was prepared. The prompt was designed only to extract observable evidence from journal websites, such as journal name, ISSN, publisher, indexing information, editorial board, APC information and publication ethics. It did not assign scores, classify risk levels or determine journal legitimacy. Final scoring and classification remained fully controlled by the DPJSS scoring mechanism.

Prototype System Development

The prototype system was developed using a low-code architecture consisting of Google Forms, Google Sheets, Looker Studio, and automated reporting tools. Google Forms served as the journal data input platform, Google Sheets performed automated scoring and database management, while Looker Studio supported dashboard visualisation and monitoring.

The workflow consisted of the following stages:

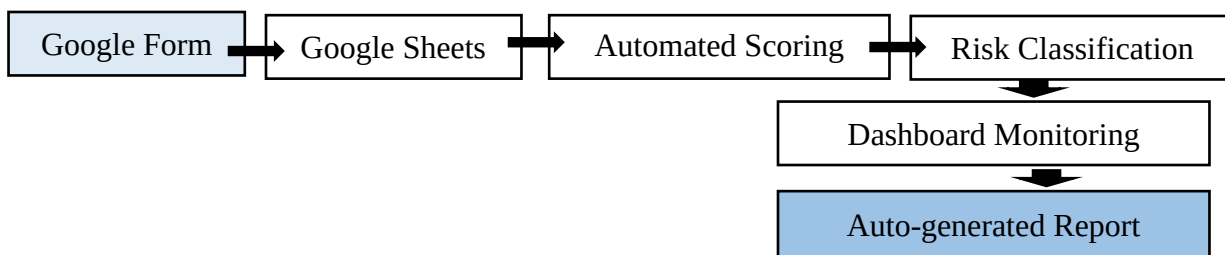


Figure 1: Operational Workflow of the DPJSS Prototype System

Google Forms served as the journal data input platform, Google Sheets performed automated scoring and database management, while Looker Studio supported dashboard visualisation and monitoring.

Scoring and Detection Scale

DPJSS applied a structured detection scale ranging from 1 to 10. Positive indicators were scored directly, whereas negative indicators such as spam invitations and fake indexing claims were reverse-

scored.

The final score was interpreted according to the following classification:

Table 2: DPJSS Scoring Interpretation and Risk Classification Scale

Average Score	Classification	Risk Level
8.0–10.0	Legitimate	Low Risk
5.0–7.9	Questionable	Medium Risk
1.0–4.9	Suspected Predatory	High Risk

Source: Developed by the authors based on interval-based score interpretation.

The final DPJSS score was interpreted using a structured risk classification scale, as shown in Table 2. The scale classifies journals into three categories: Legitimate, Questionable, and Suspected Predatory. Higher scores indicate stronger journal credibility and lower exposure to predatory publishing practices, whereas lower scores indicate higher journal risk and the need for further verification.

Expert Validation

The DPJSS prototype was validated by three expert validators with backgrounds in research methodology, research integrity, Islamic studies, quantitative analysis and system development. Expert validation was conducted to evaluate five dimensions of the prototype, namely usability, functionality, indicator relevance, ethical integration and practical value.

The expert validation instrument used a 10-point rating scale, where 1 indicated the lowest level of agreement and 10 indicated the highest level of agreement. Mean scores were calculated to determine the level of expert agreement for each validation dimension. The interpretation of the expert validation mean score is shown in Table 3.

Table 3: Interpretation of Expert Validation Mean Score

Mean Score Range	Interpretation
1.00–4.00	Low
4.01–6.00	Moderate
6.01–10.00	High

Source: Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage. Boone, H. N., & Boone, D. A. (2012). Analyzing Likert data. *Journal of Extension*, 50(2), 1–5.

Pilot Evaluation

A pilot evaluation was conducted involving 12 users, consisting of lecturers and postgraduate students. The same 12 users used the DPJSS prototype, completed the pilot evaluation instrument and provided open-ended feedback through testimonials.

The pilot evaluation instrument consisted of 20 items measuring five constructs: Ease of Use, Information Clarity, System Usability, Trust and Ethics, and Overall Satisfaction. The instrument used a five-point Likert scale, where 1 represented Strongly Disagree, 2 represented Disagree, 3 represented Neutral, 4 represented Agree and 5 represented Strongly Agree. The use of Likert-type items and mean score interpretation is consistent with common practices in analysing attitude and perception data (Boone & Boone, 2012).

Mean scores were interpreted using the following scale.

Table 4: Interpretation of Pilot Evaluation Mean Score

Mean Score Range	Interpretation
1.00–2.33	Low
2.34–3.66	Moderate
3.67–5.00	High

The mean scores from the pilot evaluation were interpreted based on Table 4. Scores ranging from 1.00 to 2.33 were interpreted as Low, 2.34 to 3.66 as Moderate, and 3.67 to 5.00 as High. Reliability analysis was conducted using Cronbach’s Alpha to examine the internal consistency of the 20-item pilot evaluation instrument, as recommended in scale reliability assessment (Cronbach, 1951; Tavakol & Dennick, 2011). In addition, open-ended testimonials were analysed using thematic grouping to identify recurring themes related to system strengths, limitations and suggested improvements, following Braun and Clarke’s (2006) thematic analysis approach.

Ethical Filtering

The final stage of DPJSS integrated Maqasid al-Shariah principles as an ethical filtering mechanism. This study emphasised Hifz al-‘Aql (protection of knowledge) and Hifz al-Mal (protection of wealth) to support responsible scholarly publishing and strengthen research integrity. This ethical layer ensured that DPJSS was not only developed as a technical screening tool, but also as a decision-support prototype guided by ethical considerations.

Dataset → system → Scoring → Dashboard → Ethical layer → Output

This methodology aligns with a systematic prototype development process consisting of dataset collection, system development, automated scoring, dashboard visualisation, ethical filtering, and final output generation.

FINDINGS

Background Profile of Expert Validators

Table 5: Background Profile of Expert Validators (n = 3)

No.	Category	Option	Percentage (n)
1	Institution	Universiti Poly-Tech Malaysia	100.0% (3)
2	Area of Expertise	Research Methodology / Research Integrity / Islamic Studies	33.3% (1)
		Research Methods / Quantitative Analysis	33.3% (1)
		System Development /	33.3% (1)

No.	Category	Option	Percentage (n)
3	Years of Experience	Programming	
		5–10 years	33.3% (1)
		11–20 years	33.3% (1)
		More than 20 years	33.3% (1)

Table 5 presents the background profile of the three expert validators involved in evaluating the DPJSS prototype. All validators were affiliated with Universiti Poly-Tech Malaysia and represented complementary expertise in research methodology and integrity, quantitative research methods, and system development. Their professional experience ranged from 6 to 24 years, providing balanced perspectives from methodological, technical, and ethical dimensions to support prototype validation.

Expert Validation Results

Table 6: Expert Validation Mean Score of DPJSS Prototype

Dimension	Items	Mean	Interpretation
Usability	3	6.33	High
Functionality	3	5.67	Moderate
Indicator Relevance	3	4.44	Moderate
Ethical Integration	2	4.83	Moderate
Practical Value	2	4.83	Moderate
Overall	13	5.28	Moderate

The expert validation results showed that the DPJSS prototype obtained an overall mean score of 5.28 across 13 validation items, indicating a moderate level of expert agreement. The highest mean score was recorded for Usability ($M = 6.33$), suggesting that the experts generally agreed that the system interface, workflow and dashboard visualisation were clear and user-friendly. Functionality ($M = 5.67$), Indicator Relevance ($M = 4.44$), Ethical Integration ($M = 4.83$) and Practical Value ($M = 4.83$) recorded moderate mean scores, indicating that further refinement is needed, particularly in strengthening system functions, verification mechanisms, risk indicators and ethical filtering.

Background Profile of Pilot Test Respondents

Table 7: Background Profile of Pilot Test Respondents (n = 12)

No.	Category	Option	Percentage (n)
1	Respondent Category	Lecturer	75.0% (9)
		Postgraduate Student	25.0% (3)
2	Previous Journal Screening Experience	Yes	75.0% (9)
		No	25.0% (3)
3	Duration of Using DPJSS	Less than 5 minutes	41.7% (5)
		5–10 minutes	58.3% (7)

Table 7 presents the background profile of the 12 respondents involved in the DPJSS pilot test. The majority of respondents were lecturers, representing 75.0% (n = 9), while postgraduate students represented 25.0% (n = 3). In terms of previous journal screening experience, 75.0% (n = 9) of the respondents had performed journal screening before, whereas 25.0% (n = 3) had no prior experience. Regarding the duration of system use, most respondents used DPJSS for 5–10 minutes, representing 58.3% (n = 7), while 41.7% (n = 5) used the system for less than 5 minutes. Overall, the respondent profile indicates that the pilot test involved users with relevant academic backgrounds and sufficient exposure to evaluate the initial usability of DPJSS.

Descriptive and Reliability Analysis of Pilot Test

Table 8: Pilot Test DPJSS: Descriptive and Reliability Analysis

Construct	Item	Mean	Mean Level	Cronbach's Alpha (α)	Alpha Level
Ease of Use	4	4.19	High	0.347	Low / Item refinement required
Information Clarity	4	4.27	High	0.777	Acceptable
System Usability	4	4.42	High	0.849	Good
Trust and Ethics	4	4.23	High	0.947	Excellent
Overall Satisfaction	4	4.25	High	0.939	Excellent
Overall	20	4.27	High	0.916	Excellent

Table 8 presents the descriptive and reliability analysis of the DPJSS pilot test instrument involving 12 users. The overall mean score was high (M = 4.27), indicating positive user acceptance of the DPJSS system. Among the constructs, System Usability recorded the highest mean score (M = 4.42), followed by Information Clarity (M = 4.27), Overall Satisfaction (M = 4.25), Trust and Ethics (M = 4.23), and Ease of Use (M = 4.19). All constructs were interpreted at a high level.

The overall Cronbach's Alpha value was excellent ($\alpha = 0.916$), indicating strong internal consistency for the 20-item instrument. Trust and Ethics recorded the highest reliability value ($\alpha = 0.947$), followed by Overall Satisfaction ($\alpha = 0.939$), System Usability ($\alpha = 0.849$), and Information Clarity ($\alpha = 0.777$). However, Ease of Use recorded a lower alpha value ($\alpha = 0.347$), suggesting that this construct may require further item refinement in future testing.

DPJSS Risk Classification and Mean Score Output

Table 9: DPJSS Risk Classification and Mean Score Output

Risk Level	Classification	Score Range	Frequency (f)	Percentage (%)	Mean Score	System Output Interpretation	Suggested Improvement
Low Risk	Legitimate	9.55–9.91	4	33.3	9.77	Journals in this category showed strong transparency and credible	Maintain verification features and provide direct links to

Risk Level	Classification	Score Range	Frequency (f)	Percentage (%)	Mean Score	System Output Interpretation	Suggested Improvement
Medium Risk	Questionable	5.00–7.00	4	33.3	5.93	publishing indicators. Journals in this category showed mixed or unclear credibility indicators and require further verification.	official sources. Add clearer explanations and verification guidance for uncertain indicators.
High Risk	Suspected Predatory	1.00–4.36	4	33.3	2.91	Journals in this category showed multiple warning signs, such as suspicious claims or weak transparency.	Add stronger warning messages, red-flag examples and clearer risk explanations.
Overall		1.00–9.91	12	100.0	6.20	DPJSS was able to classify journals into structured risk categories.	Improve result display, automatic score visualisation and user guidance.

Table 9 presents the DPJSS risk classification and mean score output based on 12 journal samples. The results show that four journals (33.3%) were classified as Low Risk, four journals (33.3%) as Medium Risk, and four journals (33.3%) as High Risk. The Low Risk category recorded the highest mean score (M = 9.77), followed by Medium Risk (M = 5.93) and High Risk (M = 2.91). Overall, the DPJSS system recorded a mean score of 6.20 across all journal samples.

These findings indicate that DPJSS was able to differentiate journal risk levels through structured scoring, where higher scores reflected lower journal risk and stronger transparency indicators, while lower scores reflected higher potential predatory risk. The system output also suggests that future improvements should focus on clearer risk explanations, automatic score visualisation, red-flag alerts and direct links to official verification sources.

User Testimonials / Open-Ended Feedback

Table 10: User Testimonials and Open-Ended Feedback (n-12)

Theme	Frequency (f)	Percentage (%)	Sample Feedback	Suggested Improvement
Ease of Use	8	66.7	The system is easy to use and navigate	Maintain current interface
Structured Journal Screening	9	75.0	Helps users screen journals more	Expand screening indicators

Theme	Frequency (f)	Percentage (%)	Sample Feedback	Suggested Improvement
Clearer Result Interpretation	7	58.3	systematically Risk classification should be easier to understand	Add explanation for risk categories
Automated Scoring Display	6	50.0	Display automatic scoring and visual output	Add score dashboard
Verification Support	5	41.7	Add official verification links	Integrate ISSN, Scopus, WoS and DOAJ

Table 10 summarises the user testimonials collected from 12 respondents following the pilot evaluation of DPJSS. The most frequently reported theme was the usefulness of DPJSS in supporting a more structured journal screening process (75.0%), followed by ease of use (66.7%). Several respondents also highlighted the need for clearer interpretation of risk classifications (58.3%) and recommended adding automated scoring visualisation (50.0%).

Users additionally suggested integrating direct verification support through official sources such as ISSN Portal, Scopus, Web of Science and DOAJ (41.7%). Overall, the testimonials demonstrate positive user acceptance while identifying practical opportunities for improving the system interface and decision-support capability.

Comparison Between DPJSS and Existing Journal Screening Systems

Table 11: Comparison Between DPJSS and Existing Journal Screening Systems

Criteria	DPJSS	UPTM Journal Finder	Cabells	Think. Check. Submit	DOAJ	Scopus Source List	Beall's List
Automated Scoring	✓	✓	✗	✗	✗	✗	✗
Risk Classification	✓	✓	Partial	✗	✗	✗	Partial
Multi-Indicator Screening	✓	✓	✓	✓	Limited	Limited	✓
Behavioural Indicators	✓	Partial	Partial	✗	✗	✗	Partial
Ethical Filtering / Maqasid Layer	✓	✗	✗	✗	✗	✗	✗
User Input-Based Evaluation	✓	✓	✗	Partial	✗	✗	✗
Decision-Support Output	✓	✓	Partial	✗	✗	✗	Partial

Criteria	DPJSS	UPTM Journal Finder	Cabells	Think. Check. Submit	DOAJ	Scopus Source List	Beall's List
Dashboard / Report Output	✓	Partial	Limited	✗	✗	✗	✗
Expert Validation Reported	✓	✗	✗	✗	✗	✗	✗
Pilot User Evaluation	✓	✗	✗	✗	✗	✗	✗
Total Feature Score	10/10	5.5/10	2.5/10	1.5/10	0.5/10	0.5/10	2.5/10

Source: Developed by the authors based on publicly available platform features and DPJSS prototype evaluation.

Note: ✓ = available; Partial/Limited = 0.5 point; ✗ = not clearly available. Feature scores were assigned by the authors based on selected comparison criteria and should be interpreted as comparative prototype evaluation only.

Table 11 compares DPJSS with selected existing journal screening systems, including UPTM Journal Finder. The comparison indicates that DPJSS achieved the highest feature score (10/10) based on the selected comparison criteria used in this study. DPJSS integrates automated scoring, risk classification, multi-indicator screening, behavioural indicators, user input evaluation, dashboard output, expert validation and pilot user evaluation. Although UPTM Journal Finder provides useful journal detection functions, DPJSS extends the approach by incorporating a Maqasid al-Shariah ethical layer, validation evidence and pilot evaluation. Therefore, DPJSS may be considered a validated decision-support prototype designed to support more responsible and transparent publication decisions.

DISCUSSION

The development of the Data-Driven Predatory Journal Screening System (DPJSS) successfully addressed the objective of this study by providing a systematic and ethically guided decision-support prototype for journal screening. The findings show that DPJSS was able to differentiate journal risk levels through structured scoring and automated classification. Journals classified as Low Risk recorded the highest mean score ($M = 9.77$), while journals classified as High Risk recorded the lowest mean score ($M = 2.91$). This indicates that the 1–10 detection scale was able to translate journal screening indicators into meaningful risk classifications.

This finding is aligned with Chen et al. (2023), who developed an open automation system for predatory journal detection using data collection, feature extraction and model prediction. Haron et al. (2024) also emphasised the need for a detection system that can guide researchers in evaluating whether a journal or publisher is legitimate. Therefore, DPJSS supports recent developments in automated journal screening by converting journal indicators into structured scoring, classification and dashboard outputs.

The use of structured screening indicators in DPJSS is relevant because predatory journals often involve unclear credibility signals, weak transparency and misleading publishing claims. Chen et al. (2023) showed that feature extraction can be used to identify words and patterns associated with predatory journal websites, while da Silva (2025) cautioned that AI-driven journal detection tools may still produce classification errors if used without proper verification. For this reason, DPJSS is positioned as a decision-support system rather than a final authority.

The integration of Information Asymmetry Theory is particularly useful in explaining the function of DPJSS. In predatory publishing, researchers may face difficulty verifying claims related to indexing, peer review, publication fees and editorial legitimacy. This situation reflects information imbalance between publishers and researchers. DPJSS helps reduce this imbalance by converting journal information into structured scores, risk categories and dashboard outputs.

The integration of Maqasid al-Shariah represents a key contribution of DPJSS. Through *Hifz al-‘Aql*, the system supports the protection of knowledge and intellectual integrity. Through *Hifz al-Mal*, the system supports the protection of researchers from financial exploitation by unethical publishers. This ethical layer positions DPJSS not only as a technical screening tool, but also as an ethical decision-support system for responsible scholarly publishing.

The pilot evaluation further supports the usability and acceptance of DPJSS. The overall pilot mean score was high ($M = 4.27$), indicating positive user acceptance of the system. The Trust and Ethics construct also recorded a high mean score ($M = 4.23$), suggesting that users valued the ethical dimension of the system. However, the expert validation score for Ethical Integration was moderate ($M = 4.83$), indicating that the ethical filtering mechanism still requires further refinement, particularly in terms of practical verification and clearer operational indicators.

Compared with existing tools such as Think. Check. Submit., DOAJ and indexing databases, DPJSS offers additional features by combining automated scoring, risk classification, behavioural indicators, dashboard visualisation, expert validation and pilot user evaluation. Think. Check. Submit. provides checklist-based guidance for journal selection, while DOAJ functions as an index of open access journals committed to quality and freely available scholarly content. DPJSS extends these approaches by integrating multiple screening indicators into a validated decision-support prototype with ethical filtering and dashboard reporting.

The use of AI-assisted evidence extraction also strengthens DPJSS by helping users identify visible journal information before entering data into the system. However, AI was used only as an extraction aid and not as a scoring or decision-making mechanism. This distinction is important because da Silva (2025) and Wan, J. (2025) reported possible classification errors in AI-driven journal detection, indicating the need for verification and human/system-controlled scoring. Therefore, final scoring and risk classification in DPJSS remained controlled by the system’s structured scoring mechanism. Overall, DPJSS has potential as a practical decision-support prototype for strengthening scholarly publishing governance. Future improvements should include direct integration with official verification sources such as ISSN Portal, Scopus, Web of Science and DOAJ. Additional features such as clearer risk explanations, red-flag alerts and automated verification links may further improve the reliability, transparency and user confidence of the system. The use of AI-assisted evidence extraction also

strengthens DPJSS by helping users identify visible journal information before entering data into the system. This feature reduces inaccurate user input and supports evidence-based screening. However, AI was used only as an extraction aid and not as a scoring or decision-making mechanism. This distinction is important because da Silva (2025) reported possible classification errors in AI-driven journal detection, indicating the need for verification and human/system-controlled scoring. Therefore, final scoring and risk classification in DPJSS remained controlled by the system's structured scoring mechanism.

PROTOTYPE ACCESS

A demonstration version of DPJSS is available for academic testing and evaluation purposes. Access is intended for prototype demonstration only and does not represent final journal legitimacy decisions.

<https://forms.gle/P4dMJwYB29vjzBE98>



CONCLUSION

This study successfully developed and evaluated the Data-Driven Predatory Journal Screening System (DPJSS) as a prototype decision-support system for ethical journal screening. DPJSS transforms journal credibility indicators into structured scoring, risk classification and dashboard-based outputs to assist researchers in making more informed publication decisions. The findings show that the system was able to classify journals into Low Risk, Medium Risk and High Risk categories, while the pilot evaluation indicated positive user acceptance and strong overall reliability.

The integration of Maqasid al-Shariah, particularly Hifz al-‘Aql and Hifz al-Mal, strengthens the ethical foundation of DPJSS by promoting knowledge integrity and protecting researchers from exploitative publishing practices. Although the prototype shows promising potential, further refinement is required, especially in strengthening ethical verification, improving result interpretation and integrating official databases such as ISSN Portal, Scopus, Web of Science and DOAJ. Overall, DPJSS contributes to scholarly publishing governance by offering a data-driven, systematic and ethically guided approach to predatory journal screening.

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