



## Research Article

# Media Literacy Awareness and Verification Behaviour in Resisting Misinformation and Disinformation Among University Students in Rangpur, Bangladesh

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## Abstract

The rapid growth of digital media has significantly increased university students' exposure to misinformation and disinformation, making media literacy an essential skill for navigating the contemporary digital information environment. However, empirical research on media literacy awareness and verification behavior (skills) among students of Bangladeshi public university, specifically in the Rangpur area, remains inadequate. This research analyzes the influence of technological skills and media literacy education on students' ability to resist misleading information among undergraduate students at Begum Rokeya University, Rangpur. A cross-sectional quantitative design was applied with 200 undergraduate students through a structured questionnaire by using convenient sampling. Composite index scores measuring media literacy awareness (including understanding of misinformation, disinformation, identifying misleading headlines or images, media bias, and verification methods) and information verification behaviour (including cross-checking practices, source reliability assessment, and avoidance of sharing unverified information) were developed from questionnaire responses and analysed using frequency analysis, cross-tabulation, and chi-square tests. The findings showed that 52.5% of respondents fall within the high level of media literacy awareness. However, 63% stated that they share information without verification at least occasionally, highlighting a considerable gap between awareness and actual practice. A Chi-square test confirmed a statistically significant relationship between media literacy awareness and verification or resistant behavior ( $\chi^2 = 12.779$ ,  $p = 0.012$ ). Technological skills showed an even stronger relationship with verification behavior ( $\chi^2 = 27.397$ ,  $p < 0.001$ ) and was associated with both awareness and actual verification practices. Notably, formal media literacy education was almost entirely absent among respondents with 97% reporting no classroom exposure. Although an overwhelming majority (98%) has supported its inclusion in university curricula. As the study contributed the first empirical evidence from the Rangpur region, demonstrating that media literacy awareness alone is not sufficient to ensure responsible online behavior. The findings indicate the importance of promoting practical media literacy education and digital evaluation skills into university curricula to expand students' ability to combat misinformation and disinformation.

## Keywords

Media Literacy, Misinformation, Disinformation, Verification Behavior, Digital Media

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## 1. Introduction

The rapid growth of digital media platforms has significantly transformed how information is produced, distributed, and consumed worldwide. Social media platforms, online news portals, and content-sharing applications have evolved as the dominant primary source of information for most of the people, gradually transforming the traditional gatekeeping mechanisms that once governed public discourse. While this transformation has democratized access to information and enabled participatory communication at an unprecedented scale, it has simultaneously created fertile conditions for the proliferation of misinformation and disinformation. Misinformation refers to false or inaccurate content shared without deliberate intent to deceive, whereas disinformation involves the intentional creation and dissemination of false information to mislead audiences [1]. Both phenomena are now extensively recognized as significant threat to public opinion formation, democratic processes, and individual decision-making [2].

University students occupy a particularly important position within this information landscape. As among the most active consumers and sharers of digital content, they are exposed to high volumes of online information daily much of it unverified. Their familiarity with digital tools may foster a false sense of security: the assumption that technological competence translates automatically into critical evaluation ability. Research consistently challenges this assumption. Hargittai [3] demonstrates that digital skill the capacity to use online tools effectively and critically is distinct from digital access and varies considerably even among young, educated users. Without structured knowledge of how to identify, question, and verify online content, any individual, regardless of education level, remains vulnerable to misleading information.

Media literacy has emerged as the primary framework through which scholars and educators have sought to address this vulnerability. Broadly defined as the ability to access, analyse, evaluate, and create content across media platforms [4], media literacy has expanded in scope to encompass the specific competencies required for navigating digital information environments including source evaluation, lateral reading, and fact-checking. A growing body of empirical evidence supports its effectiveness: meta-analytic findings from 33 experimental studies involving over 36,000 participants indicate that media literacy interventions produce a moderate positive effect on fake news discernment [5]. However, the overwhelming majority of this evidence derives from Western, high-income contexts, leaving a significant empirical gap in developing country settings, particularly South and Southeast Asia.

In Bangladesh, rapid growth in internet connectivity and smartphone adoption has made social media particularly Facebook the dominant channel through which students access news and information [6]. This shift has coincided with documented increases in the spread of politically and religiously motivated misinformation on digital platforms [7]. Yet empirical investigation of media literacy awareness and verification

behaviour among Bangladeshi university students remains limited, and no study had previously examined this relationship within the Rangpur region home to Begum Rokeya University (BRUR), a public institution enrolling students from diverse academic and socioeconomic backgrounds.

This study addresses that gap through three objectives: first, to assess the level of media literacy awareness among undergraduate students at BRUR; second, to examine the relationship between media literacy awareness and students' resistance to misinformation and disinformation; and third, to evaluate whether technological competence and formal media literacy education influence awareness and verification behaviour. Two hypotheses are tested.  $H_1$  proposes that a significant positive relationship exists between media literacy awareness and verification behaviour.  $H_2$  proposes that technological skill has a significant positive influence on verification behaviour. The study contributes the first empirically grounded, regionally specific evidence on student media literacy in Rangpur, with direct implications for curriculum design and information policy in Bangladesh.

## 2. Literature Review

The study of media literacy has gradually shifted away from early "protectionist" ideas, which mainly focused on shielding audiences from harmful media content, toward more empowerment-based approaches that emphasize users' ability to critically engage with media [8]. One of the most influential early contributions in this direction was made by Livingstone [9], who extended the concept of media literacy to the digital environment. She proposed a four-part model consisting of access, analysis, evaluation, and content creation. Although this framework is widely cited, it also highlighted a gap between theory and practice — particularly in terms of how people actually use these skills in everyday digital contexts and in non-Western settings. That gap has still not been fully addressed.

Building on this broader discussion, Bulger and Davison [10] critically examine media literacy as a response to the rise of disinformation, especially in the post-2016 context. They trace how media literacy interventions have moved from protective models to more participatory ones. However, they also point out an ongoing tension: while such interventions can improve people's ability to identify biased or false information, they may also create a sense of overconfidence, where individuals assume that being "aware" of misinformation automatically protects them from it. This idea is particularly relevant to the present study, especially the finding discussed later in Section 6 that awareness does not always translate into verification behaviour.

A number of experimental and quasi-experimental studies provide strong evidence that structured media literacy training can be effective. For example, Al Zou'bi [11] found that a me-

media and information literacy programme significantly improved students' ability to detect fake news among Jordanian undergraduates, shifting their approach from intuition-based judgment to more systematic source checking. Similarly, Lu et al. [5], in a meta-analysis of 33 studies involving over 36,000 participants, reported a moderate overall effect of media literacy interventions on fake news evaluation (Hedges'  $g = 0.53$ ). They also found that game-based learning approaches tend to produce stronger effects than traditional methods. Supporting this, Huang, Jia, and Yu [15] further show that interventions grounded in inoculation theory are more effective when delivered over multiple sessions rather than a single exposure, reinforcing the idea that sustained practice matters more than one-time awareness.

From a more structural perspective, Anthonysamy and Sivakumar [16] proposed a framework separating digital literacy into technical, cognitive, and socio-emotional dimensions. Their findings suggest that technical and cognitive skills are linked to lower vulnerability to misinformation. Interestingly, socio-emotional literacy showed a weaker or even negative relationship in some cases, indicating that different dimensions of literacy do not contribute equally. This supports the present study's decision to treat technological skill as a distinct factor alongside awareness.

In the Bangladeshi context, recent literature and reports suggest that the misinformation environment has become increasingly complex. According to Dismislab's analysis of the 2024 national election, more than 3,000 pieces of misinformation were identified by fact-checking organizations, with political content being the most dominant category [17]. This situation intensified further during the July 2024 mass uprising, where social media platforms played a major role in spreading coordinated narratives that influenced public perception and protest discourse [18]. Rumor Scanner also reports a continued rise in politically motivated misinformation in the post-uprising period and into the 2026 election cycle, with AI-generated and deepfake content becoming increasingly visible alongside traditional forms of misinformation [19]. Taken together, these developments suggest that the information environment faced by Bangladeshi students has become significantly more volatile in recent years.

Earlier work by Islam et al. [6], focusing on university students in Rangpur, found that Facebook was the main source of information and that students' verification practices were mostly informal, usually limited to checking whether a source looked credible rather than doing deeper cross-checks. However, the study did not examine media literacy awareness as a measurable variable or explore its relationship with behaviour, leaving an important gap. Similarly, Muzykant et al. [7] argue that formal media literacy education is still largely absent in Bangladesh's education system, a point that is also reflected in the present study, where almost all respondents reported no formal classroom exposure to media literacy training.

Overall, the literature suggests four main points relevant to this study. First, media literacy awareness is generally linked

to information behaviour, but this relationship is influenced by other factors such as technical skills [16]. Second, awareness alone does not automatically lead to behavioural change, which can be explained through the difference between passive knowledge and active, practice-based learning [10, 15]. Third, the media environment in Bangladesh has become increasingly unstable and politically charged in recent years [17-19]. Finally, there is still a lack of empirical research examining how awareness translates into verification behaviour among university students in regional contexts of Bangladesh. Based on these, the present study positions media literacy awareness as a mediating factor between educational and technological inputs and actual verification behaviour.

### 3. Theoretical Framework

This study is based on two theoretical perspectives: Potter's Cognitive Theory of Media Literacy [4] and Inoculation Theory [15]. These theories help explain how media literacy awareness influences students' ability to resist misinformation and disinformation and provide the theoretical foundation for the study's hypotheses.

Potter's Cognitive Theory of Media Literacy [4] states that media literacy is a process that relies on knowledge and skills. Knowledge is what a person knows about media content, media effects, and information source skills are the abilities to analyse, evaluate and verify information. The theory suggests that just knowing about media will not necessarily lead to the use of that media in real-life situations. Thus, a student might be aware of the difference between misinformation and disinformation, but might not always check information before sharing it. This concept is especially important in regard to the present study because it offers an explanation for the potential discrepancy between media literacy awareness and verification behaviour.

Inoculation Theory [14] is the second theory that is used in this study. This theory suggests that people can become functionally resistant to disinformation and/or persuasion when they are provided information regarding the threat(s) and are taught how to react. Just like a vaccine that gives the body immunity to a disease, exposure to misinformation-related knowledge can make people more resistant to misinformation and false information. But the theory further implies that consciousness might not be sufficient. People must employ verification strategies and critical thinking to be able to successfully counter misinformation.

These two theories can be used together as a useful model to understand the relationship between media literacy awareness and verification behaviour. Potter's theory focuses on the distinction between knowledge and the application of skills, whereas Inoculation Theory focuses on the need for active resistance to false information. For this reason, the present study is based on these perspectives, which assumes that media literacy awareness can play a role in ensuring verification behaviour, but awareness alone can be insufficient in ensuring the responsible use of media. This theory informed the formulation of the

hypotheses of the study and the interpretation of the results.

Based on the theoretical framework and previous research, two hypotheses were developed for this study.

*H<sub>1</sub>: There is a significant positive relationship between media literacy awareness and verification behaviour.*

Students' media literacy awareness is predicted to affect their information evaluation and verification in the internet. Potter's Cognitive Theory of Media Literacy [4] states that people that have more knowledge on what they are seeing and how they are getting the information will think critically about the information they face. The connection between media literacy and discernment in identifying false or misleading information has also been found in previous studies. For instance, Al Zou'bi [11] found that media literacy training raised students' awareness of how to verify the information they are consuming and informed, more systematically, about how to detect fake news. Similarly, Lu et al. [5] found that media literacy interventions positively affect people's ability to assess the credibility of information. The results of this study theoretically and empirically, it is hoped that students who have high media awareness will show verification behavior as well as students with medium media awareness and low media awareness will show verification behavior.

*H<sub>2</sub>: There is a strong positive relationship between technological skill and verification behaviour.*

Students are also expected to use technology in an effective way to check information. Although accessing technology is necessary, Hargittai [3] claims that digital skills are essential as well, because they dictate the ability of people to be effective consumers of online resources. Students who have better technological skills are more likely to employ fact-checking tools, cross-check information, and examine the information online more critically. The findings of the previous research also indicated that digital literacy and technological competence can decrease the susceptibility to misinformation and increase the information evaluation skills among the university students [16]. In Bangladesh, where the formal education of media literacy is still minimal, the technological skills tend to be acquired from the use of digital platforms in everyday life rather than in a structured learning environment. In the context of Bangladesh, where formal education of media literacy is still not prevalent, technological skills are acquired most of the time in the context of everyday use of digital platforms through informal learning without any formal educational program. Technological competence can thus have a major impact on the verification behavior of students.

## 4. Materials and Methods

### 4.1. Research Design

This study adopted a cross-sectional quantitative survey design. A quantitative approach was selected because the study aimed to measure media literacy awareness and verification behaviour among university going students and examine the

statistical significance of relationships between different variables. This cross-sectional design allowed data to be collected at a single point in time, providing a snapshot of students' current levels of awareness and behavioral patterns regarding misinformation and disinformation.

### 4.2. Study Area and Population

The study was conducted at Begum Rokeya University, Rangpur (BRUR), Bangladesh. Begum Rokeya University (BRUR) was selected as the study site for three reasons. First, it is one of the two public university located in Rangpur Division, serving students from all eight districts of the region and therefore providing an appropriate institutional setting for examining media literacy among university students in northern Bangladesh. Second, BRUR enrolls students across four major disciplinary clusters: Social Science, Science, Business Studies, and Humanities, thereby offering disciplinary diversity within a single institutional context. Third, no prior empirical study has specifically examined media literacy among BRUR students, making the university an appropriate setting for addressing the regional research gap identified in the literature review. The target population comprised all currently enrolled undergraduate students at the institution.

### 4.3. Sampling

A sample of 200 undergraduate students, representing approximately 2.5% of the undergraduate population, was selected. This sample size was considered adequate for the exploratory objectives of the study and the statistical analyses employed. A non-probability convenience sampling technique was adopted. Respondents were approached in accessible campus locations and invited to participate voluntarily. Convenience sampling was selected because a complete and up-to-date sampling frame containing the names and contact information of all enrolled undergraduate students was not available, preventing the implementation of probability sampling techniques. In addition, the study was conducted within the time and resource constraints of a single-researcher project, making convenience sampling the most practical approach for achieving an adequate response rate during the data collection period. These practical constraints are consistent with those reported in comparable exploratory media literacy studies conducted in university settings within developing countries [6, 11].

Quota sampling was considered as a more structured alternative because it could have ensured proportional representation across disciplinary and gender groups. However, its implementation would have required reliable population-level enrollment data by discipline and gender, which were not available in a disaggregated form within the study period. Future research with access to institutional enrollment records could employ quota or stratified random sampling to improve representativeness.

The final sample comprised 59% female and 41% male respondents, with 74.5% aged between 21 and 23 years. Students from all four major disciplinary clusters were represented. Although the sample cannot be considered statistically representative of all Bangladeshi university students, its disciplinary and demographic diversity provides a reasonable basis for exploring media literacy awareness and information verification behaviour within the context of Begum Rokeya University. Accordingly, the findings should be interpreted as institution-specific rather than nationally generalizable.

#### 4.4. Data Collection Instrument

Primary data were collected through a structured questionnaire which was administered directly by the researcher. The questionnaire was divided into five sections: (A) socio-demographic information; (B) media usage and information exposure; (C) media literacy awareness; (D) verification and preventive behaviour; and (E) media literacy education and policy attitudes. The questionnaire included binary (yes/no) items, five-point Likert-scale items, and multiple-choice questions. Physical administration by the researcher allowed respondents to seek clarification and this ensured high response rates across all items.

#### 4.5. Variable Operationalization and Measurement

The questionnaire consisted of 25 items divided into five sections. Among these, 10 items were used to construct the two main composite indices of the study: the Media Literacy Awareness Score and the Verification Behaviour Score.

The Media Literacy Awareness Score was developed using five items from Section C of the questionnaire (Items 10–14).

These items measured respondents' understanding of key media literacy concepts, including misinformation, disinformation, misleading headlines and images, media bias, and knowledge of information verification methods. Each correct or positive response was assigned a score of 1, while each incorrect or negative response was assigned a score of 0. The scores from the five items were then added together to create a composite awareness score ranging from 0 to 5.

Similarly, the Verification Behaviour Score was constructed using five items from Section D of the questionnaire (Items 16–20). These items measured respondents' information verification practices, including checking information before sharing, cross-checking information from multiple sources, relying on credible sources, avoiding the sharing of unverified information, and previous experience of sharing information without verification. The last item was reverse-coded so that higher scores represented more responsible verification behaviour. Using the same scoring procedure, a composite behaviour score ranging from 0 to 5 was calculated.

To facilitate data analysis, both composite scores were categorized into three levels. Scores between 0 and 2 were classified as Low, scores between 3 and 4 were classified as Medium, and a score of 5 was classified as High. This categorization allowed easier comparison between groups and was used for cross-tabulation and chi-square analysis.

Technological competence was measured using a five-point Likert-scale item that assessed respondents' perceptions of whether technology and internet access improve their ability to verify information. Response options ranged from Strongly Disagree (1) to Strongly Agree (5).

Media literacy education was measured using two binary-response questions. The first asked whether respondents had previously studied media literacy in a classroom setting, while the second asked whether they had participated in any media literacy related training, workshop, seminar, or course.

*Table 1. Variable operationalization Summary.*

| Variable                 | Role & Indicators                                                                                                                                                                                                                                | Measurement                                                            |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Media Literacy Awareness | Independent / Mediating variable. Five indicators: correct identification of misinformation; correct identification of disinformation; awareness of misleading headlines and images; awareness of media bias; knowledge of verification methods. | Additive index (0–5). Categorized: Low (0–2), Medium (3–4), High (5).  |
| Verification Behaviour   | Dependent variable. Five indicators: verifying before sharing; cross-checking from multiple sources; relying on credible sources; avoiding sharing unverified content; self-reported tendency to share without verification (reverse-coded).     | Additive index (0–5). Categorized: Low (0–2), Medium (3–4), High (5).  |
| Technological Skill      | Independent variable. Perceived impact of technology access and internet use on information verification ability.                                                                                                                                | Five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). |
| Media Literacy Education | Independent variable. Formal and informal learning exposure: classroom instruction; participation in training, seminars, or courses related to media literacy.                                                                                   | Binary items (Yes/No). Used descriptively and in cross-tabulation.     |

Note. All composite scores constructed using the additive index method; each correct or positive response scored 1, each incorrect or negative response scored 0.

## 4.6. Reliability Testing

To assess the internal consistency of the composite indices used in this study, Cronbach's Alpha was calculated for both the Media Literacy Awareness Index and the Verification Behaviour Index using the raw item-level responses. The Media Literacy Awareness Index, consisting of five items, produced a Cronbach's Alpha value of 0.16, while the Verification Behaviour Index, also consisting of five items, produced a value of 0.29. Both values fall below the commonly accepted threshold of 0.70 for internally consistent scales.

Several factors may explain these relatively low reliability coefficients. First, a number of awareness indicators demonstrated highly skewed response distributions. For example, items measuring awareness of misleading headlines and images and media bias received correct responses from almost all participants. Such limited variation reduces inter-item correlations and can substantially lower Cronbach's Alpha despite the items measuring relevant aspects of the same construct. This phenomenon is known as ceiling effects, where respondents achieve similarly high scores across particular indicators [20].

Second, the Verification Behaviour Index combined multiple dimensions of verification practices. While most items measured routine verification activities such as source checking and cross-referencing information, the item related to sharing information without verification captured a different behavioural tendency. Examination of the reliability statistics showed that removing this item increased the alpha coefficient from 0.29 to 0.62, suggesting that it may represent a distinct aspect of online behaviour rather than the same underlying verification practice measured by the remaining indicators.

**Table 2.** Internal Consistency Reliability of Composite Indices.

| Index                                     | No. of Items | Cronbach's $\alpha$ |
|-------------------------------------------|--------------|---------------------|
| Media Literacy Awareness                  | 5            | 0.16                |
| Verification Behaviour                    | 5            | 0.29                |
| Verification Behaviour (excl. lapse item) | 4            | 0.62                |

Note. N = 200. Conventional threshold:  $\alpha \geq 0.70$ . Low values for awareness items are primarily attributable to ceiling effects (base rates 73–99%).

Given these characteristics, the two indices were used as additive composite measures rather than as psychometrically unified scales. The purpose of the indices was to summarize

respondents' overall levels of awareness and verification behaviour across several related indicators and to facilitate classification into low, medium, and high categories for subsequent cross-tabulation and chi-square analysis. Similar approaches have been adopted in previous media literacy studies that employed composite index construction to capture multi-dimensional concepts [6, 11].

Therefore, although the reliability coefficients were lower than conventional standards, the indices remain useful for descriptive and exploratory analysis within the context of this study. Nevertheless, these reliability limitations should be considered when interpreting the findings, and future research may benefit from refining the measurement items and incorporating a larger set of indicators to improve internal consistency.

## 4.7. Ethical Considerations

Throughout the whole process of collecting data from the respondents, ethical considerations were maintained. Participation in the survey was voluntary,

every respondents were requested humbly, and purpose of the study were also informed. Everyone was ensured that the collected data would only be used for research purpose.

## 5. Results

### 5.1. Sample Characteristics and Digital Media Exposure

The study was conducted with 200 undergraduate students of Begum Rokeya University, Rangpur. The majority of respondents (74.5%) aged between 21 and 23 years. The numbers of female and male students were 59% and 41% respectively. Respondents were selected from four academic disciplines: Social Science (29%), Science (28.5%), Businesses Studies (23.5%) and Humanities (19%). Access to technology was available to all participants as all respondents owned a personal digital device (Table 3).

The results indicate that students use a considerable amount of time on digital media. Almost half of the respondents (49.5%) said they spent 3–5 hours a day on digital platforms, and 37.5% spent more than five hours on the platforms daily. This means that 87% of the respondents spent at least 3 hours per day consuming online content. Social media was identified as the main source of information by 74% of respondents, followed by online news portal (43%) and Youtube (22.5%). Facebook was the most widely used source of information (79%) of the social media platforms. Due to this high level of exposure, most students reported encountering misinformation and disinformation online. Indeed, 95.5% of respondents reported seeing misleading information on digital platforms, while 92% believed that such content spreads online rapidly.

**Table 3.** Sample Demographic Characteristics (*N* = 200).

| Variable         | Category          | Frequency (n) | Percentage (%) |
|------------------|-------------------|---------------|----------------|
| Age              | 18–20 years       | 20            | 10.0           |
|                  | 21–23 years       | 149           | 74.5           |
|                  | 24–26 years       | 31            | 15.5           |
| Gender           | Male              | 82            | 41.0           |
|                  | Female            | 118           | 59.0           |
| Field of Study   | Social Science    | 58            | 29.0           |
|                  | Science           | 57            | 28.5           |
|                  | Business Studies  | 47            | 23.5           |
|                  | Humanities        | 38            | 19.0           |
| Device Ownership | Yes (owns device) | 200           | 100.0          |

## 5.2. Media Literacy Awareness and Verification Behaviour

The findings show that students generally possess a good understanding of media literacy related concepts. 89% of the respondents correctly defined disinformation as 'false information that is deliberately spread', and 73.5% correctly defined misinformation as 'false information that is not intentionally spread'. This indicates that while students are aware of these concepts, there is continued confusion or mistranslation

of what the difference between misinformation and disinformation is. Awareness of misleading headlines and images was also very high (99%) as was media bias (97%). Of this total, 78.5% said they are familiar with the methods for verifying information.

Five indicators were used for each variable to develop composite indices of overall awareness and verification behaviour. The scores were categorized as Low (0–2), Medium (3–4) and High (5) and ranged from 0 to 5. The results of this distribution are shown in Table 4.

**Table 4.** Distribution of Media Literacy Awareness and Verification Behaviour Levels (*N* = 200).

| Level  | Awareness (n) | Awareness (%) | Behaviour (n) | Behaviour (%) |
|--------|---------------|---------------|---------------|---------------|
| Low    | 3             | 1.5           | 21            | 10.5          |
| Medium | 92            | 46.0          | 137           | 68.5          |
| High   | 105           | 52.5          | 39            | 19.5          |
| Total  | 200           | 100.0         | 200           | 100.0         |

Note. Awareness scoring: Low = 0–2, Medium = 3–4, High = 5. Identical scale applied to behaviour.

The findings show a noticeable difference between awareness and behaviour levels. The highest awareness score was gained by more than half of the respondents (52.5%), which means that these had a high level of understanding of the concepts of media literacy. Yet, only 19.5% were at the high level for verification behaviour and majority of respondents were in the medium level. This observation is supported by the behavioural indicators.

Although 90% reported verifying information before sharing and 77.5% stated that they cross-check information from

multiple sources, 63% also admitted that they sometimes share information without verification. This suggests that having knowledge about misinformation does not always lead to consistent verification practices..

## 5.3. Relationship Between Awareness and Verification Behaviour

To examine how awareness levels map onto behavioural

patterns, a cross-tabulation of awareness level against behaviour level was conducted (Table 5).

**Table 5.** Cross-Tabulation: Media Literacy Awareness Level by Verification Behaviour Level (N = 200).

| Awareness Level | Behaviour: Low | Behaviour: Medium | Behaviour: High | Row Total |
|-----------------|----------------|-------------------|-----------------|-----------|
| Low             | 1              | 0                 | 2               | 3         |
| Medium          | 9              | 58                | 24              | 92        |
| High            | 11             | 79                | 13              | 103       |
| Total           | 21             | 137               | 39              | 200       |

The results show a generally positive relationship between awareness and verification behaviour. Students with medium awareness demonstrated better verification behaviour than those with low awareness. However, an interesting pattern was observed among students with the highest awareness levels. Out of 105 respondents in the high-awareness category, most (79 or 75.2%) were classified in the medium behaviour category, while only 13 or 12.4% achieved high verification behaviour. In comparison, 24 or 26.1% of respondents in the medium-awareness category reached the high behaviour level. These findings suggest that a high level of awareness alone does not necessarily guarantee responsible online behaviour. While students may understand misinformation and verifica-

tion methods, they do not always apply this knowledge consistently when interacting with online information.

#### 5.4. Role of Technological Skill and Media Literacy Education

The influence of perceived technological skill on verification behaviour was examined through a five-point Likert item on whether technology improves the ability to verify information. The majority agreed (61.5%) or strongly agreed (15.5%), while only 7% disagreed. The cross-tabulation of this variable against behaviour level is presented in Table 6.

**Table 6.** Cross-Tabulation: Perceived Technological Skill by Verification Behaviour Level (N = 197).

| Perceived Tech. Skill | Behaviour: Low | Behaviour: Medium | Behaviour: High | Row Total |
|-----------------------|----------------|-------------------|-----------------|-----------|
| Strongly Disagree     | 2              | 1                 | 6               | 9         |
| Disagree              | 0              | 1                 | 3               | 4         |
| Neutral               | 3              | 26                | 2               | 31        |
| Agree                 | 13             | 86                | 23              | 122       |
| Strongly Agree        | 3              | 23                | 5               | 31        |
| Total                 | 21             | 137               | 39              | 197       |

Note. Three respondents with missing Likert responses are excluded; behaviour column totals reflect full N = 200.

The cross-tabulation results that were presented in Table 5 indicate a positive relationship between technological competence and verification behaviour. Respondents who agreed or strongly agreed that technology improves their verification ability were more likely to fall into the medium and high behaviour categories. In contrast, respondents with neutral opinions were to be seen mostly concentrated in the medium behaviour category, with very few achieving high behaviour levels. These findings suggest that the use of technology plays an

important role in encouraging information verification practices.

The results also reveal that formal media literacy education is largely absent among the respondents. About 97% reported that they had never studied media literacy in a classroom setting, while 95.5% had never attended any media literacy-related training or workshop. Since only nine respondents had received such training, it was not possible to statistically test the effect of formal education. However, the available data

show that trained students generally demonstrated stronger verification behaviour. Furthermore, 98% of respondents supported the inclusion of media literacy education in the formal curriculum, indicating strong student demand for educational initiatives in this area.

## 5.5. Hypothesis Testing

Two chi-square tests were conducted to formally evaluate the study's hypotheses. Results are presented in Table 7.

**Table 7.** Chi-Square Test Results with Effect Size (Cramer's V).

| Hypothesis     | Relationship                          | $\chi^2$ Value | p-Value | Cramer's V |
|----------------|---------------------------------------|----------------|---------|------------|
| H <sub>1</sub> | Awareness level → Behaviour level     | 12.779         | 0.012   | 0.18       |
| H <sub>2</sub> | Technological skill → Behaviour level | 27.397         | < 0.001 | 0.27       |

Note. Significance threshold  $\alpha = 0.05$ . Cramer's V interpretation for a 3×3 table: ~0.07 negligible, ~0.21 small, ~0.35 medium. H<sub>1</sub> represents a small effect; H<sub>2</sub> a small-to-medium effect.

For H<sub>1</sub>, the chi-square test yielded  $\chi^2(4) = 12.779$ ,  $p = 0.012$ . Since  $p < 0.05$ , the null hypothesis was rejected, confirming a statistically significant positive relationship between media literacy awareness and verification behaviour. Students with higher awareness levels were significantly more likely to engage in verification practices.

For H<sub>2</sub>, the result was considerably stronger:  $\chi^2(8) = 27.397$ ,  $p < 0.001$ , leading to rejection of the null hypothesis with high confidence. The substantially larger chi-square value relative to H<sub>1</sub> indicates that perceived technological competence functions as a more powerful direct influencer of verification behaviour than conceptual awareness alone. Together, both confirmed hypotheses support the study's conceptual framework, in which awareness and technological skill converge as independent determinants of student resistance to misinformation and disinformation.

## 6. Discussion

### 6.1. High Awareness Does Not Guarantee Responsible Behaviour

The most important finding of this study is the documented gap between what students know and what they consistently do. More than half of the respondents (52.5%) achieved the maximum awareness score, showing that they have a strong conceptual understanding of misinformation, disinformation, media bias and verification method. However, 63% simultaneously admitted that they share information without verification at least sometimes. This contradiction suggests that having knowledge always does not ensure responsible behaviour online.

This pattern is consistent with what Bulger and Davison [10] identified as a structural weakness of awareness focused media literacy models: learners may develop overconfidence, believing that simply knowing about misinformation is enough

to protect them, even though they do not apply such practices into real world situations. In psychological terms, this reflects the broader intention-behaviour gap discussed in behavioural research, where positive attitudes and intentions do not always end in actual behaviour [13]. Students may genuinely intend to verify information but fail to do so because of some factors such as fast moving social media feeds, peer sharing pressure or contents that confirms their prior beliefs.

The cross tabulation result presented in Table 4 provide further evidence of this issue. Among the 105 high awareness respondents, 75.2% fell into the medium behaviour category, while only 12.4% achieved a high behaviour level. Interestingly, medium awareness students performed comparatively better, with 26.1% reaching the high behaviour level. This unexpected result indicates that conceptual knowledge such as correctly identifying misinformation, recognising misleading headlines or knowing that verification methods exists - does not mean a student habitually applies that knowledge. Knowledge and habitual behaviour are therefore different competencies, so future research should treat them separately when measuring media literacy.

These patterns can be further interpreted through the theoretical framework presented in Section 3. Potter's cognitive model [4] distinguishes between the acquisition of knowledge structures and the development of practical media literacy skills. While knowledge structures enable individuals to recognize misinformation, disinformation, media bias, and verification methods, responsible verification behaviour requires the consistent application of these competencies in real-world information environments. The present findings support this distinction. Although many respondents demonstrated high levels of media literacy awareness, a substantial proportion still reported sharing information without verification, suggesting that conceptual knowledge alone does not necessarily translate into consistent verification behaviour.

This interpretation is also consistent with inoculation theory

[14], which proposes that resistance to misinformation develops through repeated exposure to and active engagement with refutational practices rather than through awareness alone. Students who understand misinformation conceptually may therefore possess the knowledge required to identify misleading content but may not consistently apply verification strategies in everyday online interactions. One possible explanation is that greater confidence in one's media literacy knowledge does not always correspond to equally strong verification habits, although this mechanism was not directly examined in the present study. Together, these findings suggest that media literacy awareness provides a necessary foundation for responsible information verification but is insufficient on its own to ensure consistent verification behaviour. Consequently, media literacy interventions should combine conceptual knowledge with repeated, skills-based verification exercises that encourage students to apply verification practices routinely in digital environments.

The findings have important implications for media literacy education. Programmes that focus primarily on definitions, lectures and examples of fake news may increase awareness but may not significantly improved habitual behaviour. Effective interventions must go further, building habitual verification practices through structure exercises, repeated behavioural reinforcement and scenerio-based activities that stimulates real social media environments. Such approaches may help students develop verification habits that can be applied consistently in everyday digital interactions.

## 6.2. Technological Competence as the Stronger Predictor

The second major finding is that perceived technological competence appears to have a stronger influence on verification behaviour than media literacy awareness alone. The chi-square value for technological skill was considerably higher than that of media literacy awareness. This suggests that students' confidence and ability in using digital technologies play a more important role in shaping their verification practices than simply having knowledge about misinformation and disinformation.

This finding aligns with Hargittai's [4] argument that digital skill is more important than mere access to technology in determining how effectively individuals engage online. Essentially, universal device ownership in this sample (100%) confirms that access is no longer that meaningful barrier. Instead, the ability to use digital tools effectively appears to be the key factor influencing whether students verify information before accepting or sharing it. Students who considers themselves as technologically capable are more likely to actively use fact checking websites, compare information from multiple sources and evaluate the credibility of online content.

The cross-tabulation results further support this observation. Most respondents who expressed a neutral opinion regarding

their technological skills were concentrated in the medium behaviour category (26 of 31). Very few of them achieved a high level of verification behaviour. This suggests that uncertainty about one's technological competence may reduce the likelihood of actively engaging in verification practices, even when access to digital devices is available. Therefore, improving students' practical digital skills, particularly those related to information verification and fact-checking, may help strengthen responsible online behaviour.

However, one interesting pattern was observed in the data. Among the respondents who strongly disagreed that technology improves their skills, a relatively high proportion still showed strong verification behaviour. Although this group was very small and should be interpreted cautiously, it may indicate that some students rely on alternative methods of verification rather than digital tools. For example, consulting trusted individuals, traditional media sources, or personal judgement when evaluating information. Further research with a larger sample size could explore this issue in greater detail and determine whether alternative verification practices represent a distinct approach to resisting misinformation and disinformation.

## 6.3. The Structural Absence of Media Literacy Education

Perhaps the clearest description of the study is the fact that 97% of respondents reported that they never studied media literacy in any classroom setting and 95.5% of respondents reported that they never attended media training. It implies that the skills and awareness observed in this sample – albeit flawed – have been acquired as a result of individual experience with digital platforms, without any formal educational training. This contextualises the results in an important way. Despite the absence of formal media literacy education, more than half of the respondents (52.5%) were categorized as having a high level of media literacy awareness. This indicates that frequent exposure to social media and digital platforms may help students develop a basic understanding of misinformation, disinformation, and misleading online content. Through their daily interactions with digital media, students may gradually learn to recognize unreliable information and become familiar with common verification practices.

But this unofficial pathway clearly has its bounds. It does not lead to consistent behavioural habits, as indicated in Table 3. In contrast, it has been demonstrated that structured education can result in a change from intuitive to systematic verification which informal learning cannot [11]. There is no need to blame the students for the lack of that education in the BRUR sample, it's a failure of structure. Another important finding is the strong support for media literacy education among the respondents. Almost all participants (98%) expressed support for including media literacy in the formal curriculum. This encompasses that students themselves recognize the importance of developing media literacy skills and believe

that such education would be beneficial.

The result also suggests that introducing media literacy courses or training programs is likely to receive positive acceptance from students. Similar recommendations have been highlighted in previous studies, which emphasize the importance of integrating media literacy education into higher education institutions [10, 12]. But the education variable was not statistically testable because the number of individuals in the trained subgroup was very small ( $n = 9$ ). It is not a design defect, but represents the current landscape of media literacy education in Bangladesh; the scoring pattern of trained respondents (proportionally higher behaviour scores) is corroborated by Al Zou'bi's [11] experimental results and Lu et al.'s [6] meta-analytical conclusions on the effectiveness of interventions. The study with larger number of trained participants, or experimental design would be suitable to establish conclusive evidence on this relationship in the context of Bangladesh.

## 7. Conclusions

This study set out to assess media literacy awareness among undergraduate students at Begum Rokeya University, Rangpur, examine its relationship with verification behaviour, and evaluate the roles of technological competence and formal media literacy education in shaping both constructs. The findings converge around three conclusions that carry theoretical, empirical, and practical significance.

Overall the study provides the first empirical investigation of the relationship between media literacy awareness and information verification behaviour among undergraduate students in the Rangpur region, addressing an important gap in both Bangladeshi and international scholarship. Nevertheless, several limitations should be considered when interpreting the findings. The study employed a convenience sampling technique and was conducted at a single public university with a sample of 200 undergraduate students; therefore, the findings may not be generalizable to all university students in Bangladesh. Although participants were drawn from different academic disciplines, the relatively modest sample size and cross-sectional design may not fully capture the diversity of media literacy experiences and behaviours across the country's higher education sector, nor do they permit conclusions regarding causal relationships or changes over time.

Future research should extend this work by including participants from multiple public and private universities using more representative sampling techniques, such as stratified or quota sampling where feasible, together with larger sample sizes and performance-based measures of media literacy and verification behaviour. Furthermore, experimental or pre-post intervention studies evaluating structured media and information literacy (MIL) programmes would provide stronger evidence of the effectiveness of formal media literacy education in improving students' verification practices. The present study provides an important empirical baseline from which such future research can proceed.

## Abbreviations

|      |                                             |
|------|---------------------------------------------|
| BRUR | Begum Rokeya University, Rangpur            |
| MIL  | Media and Information Literacy              |
| SPSS | Statistical Package for the Social Sciences |

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## Author Contributions

**Bristy Khatun:** Data curation, Formal Analysis, Investigation, Methodology, Software, Visualization, Writing – original draft, Writing – review & editing

**Mahamudul Haque:** Conceptualization, Project administration, Resources, Writing – review & editing

**Mst. Dil Afroza Khatun:** Funding acquisition, Supervision, Writing – review & editing

**Shahin Alam:** Funding acquisition, Validation, Visualization, Writing – review & editing

## Data Availability Statement

The data supporting the outcome of this research work has been reported in this manuscript. The data is available from the corresponding author upon reasonable request.

## Conflicts of Interest

The authors declare no conflicts of interest.

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