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Is Fear Born of Ignorance?
Associations Between Journalists' AI Attitudes, Knowledge, and Use

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ABSTRACT

The increasing implementation of AI in journalism is prompting both positive and negative reactions among practitioners. Some studies suggest that these attitudes might be linked to journalists' AI use. However, because such conclusions are based mostly on qualitative data, it is difficult to determine the direct relationship between AI attitudes and use. Therefore, using a broadly representative sample of UK journalists and drawing on the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM), this study investigates how journalists' AI knowledge, personality trait of openness, and extent of AI integration in their newsroom are associated with their perceptions of AI as both an opportunity and a threat. Conversely, we also investigate to what extent these perceptions about AI are associated with individual AI adoption. The findings show that both AI knowledge and the extent of newsroom AI integration significantly and positively predict journalists' perception of AI as an opportunity. Newsroom integration is also associated with a reduction in the perception of AI as a threat. Openness was not significantly associated with attitudes towards AI. Furthermore, perceiving AI as an opportunity strongly and positively predicts individual AI adoption. The findings highlight journalists' dialectical thinking about AI and underscore the importance of exposure and education in fostering positive perceptions and further AI integration in journalism.

CCS CONCEPTS

• Human-centered computing • Human computer interaction (HCI) • Empirical studies in HCI

KEYWORDS

AI Adoption, Attitudes, Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Survey

1 INTRODUCTION

Advancements in artificial intelligence (AI) are transforming journalistic practices, making AI a more central component of modern newsrooms [16]. While computational journalism dates back to the 1980s [3], recent advancements in machine learning have enabled journalists to better automate more complex tasks such as text summarization [13]. Despite such benefits, the integration of AI presents challenges, including concerns about ethical standards, transparency, and the potential loss of essential journalistic skills [27]. Prior research into journalists' use of – and attitudes towards – AI has relied largely on qualitative methods and non-representative samples, limiting our understanding of whether and why AI is adopted across the profession, and with what effects [see, e.g., 5]. Furthermore, the interplay between individual journalists' use of AI, the broader integration of AI in newsroom processes, and their attitudes towards these technologies remains underexplored. To address these gaps, this study uses a quantitative survey with a broadly representative sample of UK journalists (n = 1004). Based on the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM), this study investigates 1) how journalists' perceptions of the extent of AI integration in their main employers' newsroom processes affect their attitudes towards AI and 2) how these attitudes, in turn, relate to journalists' individual AI adoption in the professional context. In addition to the use of AI at the personal and organisational level, openness and AI knowledge are also considered in the study as they have been discussed in the literature as useful to analyse in connection with attitudes towards AI [e.g., 8, 25]. The findings reveal some of the possible influences on journalists' adoption of AI technologies, suggesting how the further integration of AI in journalism could be facilitated.

2 THEORETICAL FRAMEWORK

As artificial intelligence becomes increasingly integrated into journalistic practice, understanding the factors that influence its adoption is essential. To this end, the present study draws on two theoretical frameworks: the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM). TPB explains behaviour through the interplay of attitudes, social norms, and the

perceived effort required to adopt the behaviour [1]. TAM predicts technology acceptance by emphasising the roles of attitudes and ease-of-use [7]. According to the TPB [1], both individual characteristics (e.g., personality traits) and situational variables (such as technology use and social norms in the workplace) [20] can influence attitudes.

Following the TPB and the TAM, in this study, we use journalists' attitudes towards AI as a predictor of their use of the technology. Inspired by the TPB, in order to investigate how attitudes are formed, we examine whether newsroom AI integration – as well as journalists' level of AI knowledge and the extent to which they exhibit the personality trait of openness – predict attitudes towards AI.

3 LITERATURE REVIEW

Research suggests that journalists' perceptions of AI can be mixed. Positive attitudes can arise from perceptions that automation can reduce tedious and repetitive tasks [2]. Negative attitudes can be caused by worries about job displacement, creativity loss, algorithmic bias, intransparency [27], and loss of meaningfulness of their profession [4]. Such attitudes are generally considered to be linked to people's AI use, but these links have yet to be empirically investigated in the journalism context [see 5].

Attitudes in general – and about AI in particular – can be shaped by individual characteristics and situational variables.

3.1 Individual characteristics

Familiarity with AI via theoretical knowledge and practical exposure can lead to the technology being perceived as beneficial [21]. Several qualitative studies have explored how AI is being implemented in newsrooms and how journalists perceive the technology. A recurring theme in these studies is journalists' limited understanding of AI. For instance, Jones et al. [2022] found that many journalists could only speculate about what AI is, where it is used, and what role it plays in journalism, often unaware that it is already part of their field. De Haan et al. [2022] showed that many journalists rely on folk theories when interpreting AI applications. Noain Sánchez [2022] has suggested that a lack of technical understanding can lead journalists to view AI as a threat. Given the potential role of AI knowledge in shaping journalists' perceptions of AI, questions on journalists' knowledge about AI were included in the survey and the answers were analysed as an independent variable.

General character traits can also play a role in attitude formation. Personality traits determine how individuals respond to various stimuli and experiences [11] and can influence people's attitudes and perceptions [20]. For example, people high in openness tend to react positively to novel experiences and are more likely to accept new technologies [9, 18, 25]. Consequently, those individuals also may have more favourable attitudes toward AI and be more likely

to use AI tools. In this context, respondents' openness was measured in the survey and analysed as an independent variable.

3.2 Situational variables

The implementation of new technologies at the organisational level can affect the extent to which people perceive them as an opportunity and a threat [28]. In general, researchers argue that positive attitudes towards AI at the organisational level and AI-related knowledge dissemination within organisations can assist with the acceptance of AI by individuals in professional contexts, including in journalism [5, 10]. The extent of AI integration in the main employers' newsroom processes was therefore considered a potential determinant of journalists' attitudes towards AI.
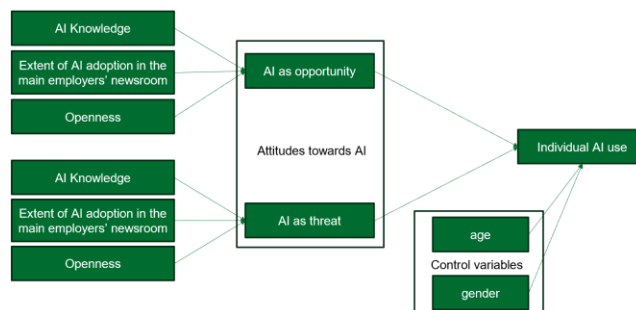

Figure 1: Study design with variables

Overall, research suggests that AI is seen as both an opportunity and a challenge in journalism for various reasons, and that these attitudes, in turn, may help determine journalists' willingness to use the technology. Therefore, the present study poses two research questions:

1) How do individual and situational factors shape journalists' perceptions of AI as an opportunity and as a threat?

2) How do journalists' perceptions of AI as an opportunity and as a threat affect their individual professional AI use?

To answer the research questions, a quantitative survey of UK journalists was designed, fielded, and analysed. In the next section, we present the variables that were chosen and describe how they were operationalised.

4 METHODOLOGY

Data was collected using a self-administered quantitative online survey, which was scripted and fielded using the Qualtrics survey platform. Approximately 19,000 UK journalists were invited to participate via email, with the invitation list compiled from the Roxhill media database, which includes journalists from various UK outlet types. The field phase ran from 29th August to 31st October 2024. The target population for this survey consists of professional UK journalists who are at least 18 years old. We define a professional journalist as an individual who earns at least 50% of their total income from journalism-related work or/and works a

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minimum of 18 hours per week in journalism, a definition adopted from the Worlds of Journalism Study [12].

4.1 Scale development

4.1.1 Attitudes towards AI

A bipolar question on journalists' attitude towards AI would not have done justice to reality, as it is possible to perceive AI as both an opportunity and a threat [22]. For this reason, two questions asked respondents to what extent they perceive AI as an opportunity and as a threat to journalism, with answers ranging from "To no extent" to "To a very large extent" on a five-point Likert scale.

4.1.2 AI Integration in the Main Employers' Newsroom Processes

Respondents were asked, "To what extent is AI technology integrated into the newsroom processes at your main employer's news outlet?". Respondents could answer from "not integrated" to "fully integrated" (five-point Likert scale). A "don't know" option was also provided.

4.1.3 AI Knowledge

Most existing scales used to measure AI knowledge do not directly assess the respondent's actual knowledge of AI. Instead, they primarily inquire about the individual's perceived knowledge or self-reported skills related to AI [26]. There are only a few studies that directly test AI knowledge. For the purpose of this study, we adapted the questionnaire developed by Soto-Sanfiel et al. [2024] that aims to assess adults' actual knowledge about AI. Six questions were selected that were considered suitable to measure AI knowledge in the context of our survey of UK journalists.

4.1.4 Openness

To measure openness, we used the open-mindedness subscale of the well-tested Big Five Inventory-2 (BFI-2) [23]. The complete BFI-2 questionnaire contains 60 statements, which are answered using a five-point Likert scale. The 60 statements can be divided into 5 different subscales (each with 12 statements): extraversion, agreeableness, conscientiousness, negative emotionality, and open-mindedness. These five subscales can in turn be divided into three facet scales each. The construct of open-mindedness comprises the facet scales of intellectual curiosity, aesthetic sensitivity, and creative imagination, all of which were assessed in the present survey ($\alpha = .77$).

4.1.5 Individual AI Adoption in the Professional Setting

Respondents were asked to indicate the frequency of their individual AI use in a professional context. The possible answers were "daily", "2–4 times a week", "once a week", "2–3 times a month", "once a month", "every few months", "once a year", and "never". Responses were recoded on a scale from zero to seven, with 'never' coded as zero.

4.2 Control Variables

The survey included various sociodemographic variables, of which two – age and gender – were added as controls in one of the analyses.

4.3 Pretest

To reduce measurement errors, pretesting was carried out, specifically expert reviewing and cognitive interviews with journalists. Some questions were modified as a result.

4.4 Data Cleaning

Respondents who did not meet the study's definition of a journalist or showed response patterns indicative of straightlining [17] were excluded from the analysis. To facilitate statistical analysis, a mean value index for openness was created. The AI knowledge variable was recoded into a score for further analysis: The respondents received one point for each correctly answered statement. Based on their answers to the six questions, the respondents could achieve a score from zero ("not at all knowledgeable") to six (very knowledgeable").

4.5 Sample Description

The final dataset included 1004 cases. The average age of the participants was 47 (M = 47.14; SD = 12.39). The sample comprised 55.0% men, 44.3% women, and 0.2% respondents of an 'other' gender. The average number of years working in journalism was 22 (M = 21.76; SD = 11.88). Looking at the attitude of the journalists towards AI, they see AI more as a threat (M = 3.81; SD = .97) than as an opportunity (M = 2.69; SD = .96). With a mean value of 3.36 (SD = 1.61), the journalists correctly assessed over half of the statements testing their AI knowledge. The mean value of the respondents' openness is 4.32 (SD = .52), which means that journalists generally have a very open attitude. From the journalists' perspective, AI is integrated into UK news outlets' newsroom processes only to a limited extent (M = 1.80; SD = .832). On an individual level, journalists generally use AI in a professional context once a month on average (M = 2.84; SD = 2.627).

5 RESULTS

To investigate correlations between journalists' attitudes towards AI and their connection to the extent of AI use in their main employers' newsroom processes and journalists' individual use of AI, three regression analyses were conducted: two with attitudes towards AI as the dependent variable and one with attitudes towards AI as the independent variable.

5.1 Predictors of the Perception of AI as an Opportunity

The first regression model included the perception of AI as an opportunity as the dependent variable and AI knowledge, the extent of AI integration in the main employers' newsroom, and openness as independent variables. The regression model proved to be

significant ($F (3,641) = 33.879$; $p < .001$). The adjusted R^2 for the overall model was .133, indicative of a moderate goodness-of-fit according to Cohen [1988]. Both AI knowledge ($\beta = .165$; $t(644) = 4.419$; $p < .001$) and the extent of AI integration in the main employers' newsroom processes ($\beta = .316$; $t(644) = 8.579$; $p < .001$) were significantly and positively associated with the perception of AI as an opportunity, with the association with AI integration having a stronger effect. Thus, the more knowledgeable journalists were about AI and the higher they perceived the extent of AI integration in their main employers' newsroom processes, the more they saw AI as an opportunity. Openness, on the other hand, did not show a significant association with the perception of AI as an opportunity.

5.2 Predictors of the Perception of AI as a Threat

In this regression model, the dependent variable was the perception of AI as a threat. The model contained the same independent variables as the first one and proved to be significant ($F (3,641) = 7.461$; $p < .001$). The regression model explained a small proportion of variance in the perception of AI as a threat (adjusted $R^2 = .029$), indicating a small effect size [6]. Only perceived extent of AI integration in the main employers' newsroom processes was a significant predictor of journalists' perception of AI as a threat ($\beta = −.159$; $t(644) = −4.069$; $p < .001$). Thus, the higher the extent of AI integration into the main employers' newsroom processes, the less journalists perceive it as a threat.

5.3 Predictors of Individual AI Adoption

This model included perception of AI as an opportunity and perception of AI as a threat as predictors, age and gender as control variables, and journalists' individual AI adoption as the dependent variable. The regression model was significant ($F (4,919) = 63.710$; $p < .001$). The results showed that perception of AI as an opportunity ($\beta = .421$; $t(923) = 13.526$; $p < .001$) and age ($\beta = −.175$; $t(923) = −5.902$; $p < .001$) were significantly associated with individual AI use. This indicates that the stronger the perception of AI as an opportunity and the younger the journalist, the greater their individual AI use. The overall model explained 21% (adjusted $R^2 = .214$) of the variance in individual AI adoption in the professional context, indicating a medium effect size [6].

6 DISCUSSION

This study sheds light on the factors shaping UK journalists' attitudes towards artificial intelligence (AI) and their individual adoption of AI in the professional context.

The first regression analysis demonstrated that both AI knowledge and the extent of perceived AI integration within the main employers' newsroom processes are significantly associated with journalists' perceptions of AI as an opportunity. This finding supports the hypothesis that increased familiarity with AI – both in terms of knowledge and practical exposure – leads journalists to view AI more positively. Notably, the association between the extent of AI integration in the main employers' newsroom and the perception of AI as an opportunity was stronger than the association

between theoretical knowledge and the perception of AI as an opportunity, suggesting that first- or second-hand experience with AI technologies plays a more pivotal role in fostering positive attitudes than knowledge alone. This aligns with previous research indicating that exposure and familiarity can alleviate apprehension and enhance perceived usefulness [14]. Contrary to expectations, openness was not significantly associated with journalists' perception of AI as an opportunity, indicating that knowledge and exposure are more critical factors in shaping attitudes toward AI in a journalistic context.

The second regression analysis, which focused on the perception of AI as a threat, revealed a slightly different pattern. Here, only the perceived extent of AI integration in the main employers' newsroom processes emerged as a significant predictor, associated with a reduction in perceived threat. This suggests that exposure to a newsroom culture actively using AI helps normalize the technology and reduce negative perceptions. However, neither AI knowledge nor openness was significantly associated with the perception of AI as a threat. This suggests that the perception of AI as a threat is not as easily mitigated, which is not necessarily a bad thing, as it may foster responsible AI use.

Overall, these findings highlight the central role of AI integration in the newsroom in shaping both positive and negative attitudes towards AI among journalists. Increased integration not only appears to enhance the perception of AI as an opportunity but also reduces the perception of it as a threat.

The third regression analysis explored what predicts individual AI adoption among journalists. The results showed that perceiving AI as an opportunity was significantly associated with individual adoption, suggesting the potential importance of positive attitudes in encouraging technology uptake – an idea aligned with the Technology Acceptance Model. Interestingly, perceiving AI as a threat was not significantly associated with individual adoption, suggesting that negative attitudes may not prevent adoption, perhaps due to professional demands or industry trends. It was also found that individual AI adoption declines with increasing age.

Overall, these findings point to the need for future research to consider the multifaceted nature of AI adoption involving both individual and organisational factors.

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