

## **Science communication matters: An exploratory study of academic public engagement in Vietnam using Bayesian statistics**

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*The overarching purpose of this study is to examine the current status of academic public engagement in Vietnam. Data were obtained from a survey with 245 university lecturers, and descriptive statistics were used jointly with Bayesian statistics as tools for analysis. This study reveals that a significant proportion of university lecturers are not involved in public engagement, neither through the public press (66.5%) nor social media (49%). Those who have been active in public engagement use the public press and social networks to communicate science, with the latter being more used than the former. In addition, this study also pointed out that experienced scientists tend to engage with the public press, while early-career researchers often choose social networks. The findings of this study provide implications for higher education policymakers and administrators.*

*Keywords: public engagement, science communication, Vietnam, Bayesian, exploratory*

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## Introduction

Science communication is an essential component in cultivating an informed and active society. It links the scientific community with the general public by making complicated scientific ideas clear, accessible, and relevant to non-experts (D'Souza, 2019; Park et al., 2019). According to the National Co-ordinating Centre for Public Engagement (NCCPE) (n.d.), public engagement is central to effective science communication, as it ensures scientific knowledge is accessible, understood, and valued by the general public. By promoting scientific literacy, fostering trust, addressing societal issues, and providing opportunities for participation, public engagement initiatives contribute to a more informed and engaged society. Embracing public engagement in science communication is essential for building a stronger relationship between scientists and the public (Burns et al., 2003; Park et al., 2019), leading to a brighter future through the advancement of science (Fleming, 2009; Perkmann et al., 2021).

Academic public engagement, or simply academic engagement (as these terms may be used interchangeably in this study), has garnered increasing attention from scholars (Mulder & Goedhart, 2009; Poliakoff & Webb, 2007; Taragin-Zeller et al., 2020). In this study, we follow the conceptualization of Perkmann et al. (2021, p1), noting academic (public) engagement refers to “knowledge-related interactions by academic researchers with non-academic organisations, as distinct from teaching and commercialisation”.

The growing body of related work identified this activity as the third mission, apart from two others, i.e. teaching and research. In the first quarter of the 21st century, university faculty members are expected to engage more actively with non-scholar stakeholders, including the government, private sector, and public community. Several motivations that drive a faculty member to engage with the public have been figured out in previous studies, such as learning new knowledge, improving capabilities, gaining a personal reputation or gaining positive perception and support from the community (Davies, 2013; Greenwood & Riordan, 2001; Poliakoff & Webb, 2007; Watermeyer, 2012).

This paper focuses on the situation in Vietnam- a Southeast Asian country. Science communication in Asia has evolved profoundly over recent decades, endowed by increasing governmental emphasis on scientific literacy and the explosion of new media (Lim & Hor, 2014; Tan & Subramaniam, 2014). Various nations initiate diversified methodologies to foster a symbiosis between science and society. The role of both formal (academic curricula) and informal (social media, exhibitions) methods play vital roles in disentangling complex scientific precepts to the lay public. Tan and Subramaniam (2014) note that the unique cultural, social, and political contexts of Asian countries shape the mechanism and outcomes of science communication. Despite the evolution, there is room for improvement, such as in the holistic evaluation of communication effectiveness and the under-utilized potential of informal media.

Despite receiving increasing attention from scholars, it is surprising that there is very little understanding of science communication in general and academic public engagement particularly in the Global South's countries (Nguyen et al., 2021a; Perkmann et al., 2021). Indeed, the existing

literature on such a topic appears to overfocus on developed counterparts (Besley et al., 2018; Davies, 2013; Kano, 2014). To address this research void, this study explores the current situation of academic public involvement in Vietnam. Vietnam is a worthwhile case for further research on academic public engagement among developing countries. During a long period in the past, especially before the US lifted the embargo in 1994, Vietnam followed the former Soviet higher education and research model. Specifically, university faculty were only assigned the teaching task, while other tasks back then, including research and public services, seemed to be neglected. Under this scheme, universities were regarded as teaching-oriented institutions whose primary mission was to prepare the workforce for the public sector. Over the past decades, several higher education reforms have been undertaken in Vietnam (Le, 1991; Pham & London, 2010; Nguyen et al., 2021b; Tran, 2018). A noticeable change among these reforms is that other tasks, rather than teaching, including research and public/community service, have been added as new tasks of university faculty members (Vietnam Ministry of Education and Training, 2020; Vietnam Ministry of Education and Training & Vietnam Ministry of Home Affairs, 2014). However, anecdotal evidence shows that while many Vietnamese universities specifically quantify the workloads of their faculty members in terms of teaching and research, they appear to overlook the third mission, i.e., public/community service, including public engagement. This attitude seemingly corresponds with the top-down approach that Vietnamese higher institutions have recruited to implement their management model, which suggests that academic staff must be assigned to engage with the public instead of actively joining such activities. Pham (2018) notes that in contrast to such tendency, there has been an increasing demand from the public community for university faculty members to be more publicly engaged. In the same vein, we may observe several high-profile faculty members who are very actively engaged with the public in the media (Pham, 2019). It implies that even without top-down requirements, there have been increasing faculty members in Vietnam being aware of the importance and benefits of public engagement.

The paper is broken down into four parts. The literature review touches upon several concepts, including public participation, the mode of public participation, and public participation in Vietnam. This section is followed by a brief presentation of the research questions and a detailed description of the research methods used to conduct this study. The contribution of this paper is mainly found in the section named Findings, while our thoughts and implications will be shown in the Discussion and Conclusions

## **Literature Review**

### **The concept of public engagement**

Several scholars have examined public engagement between academicians and non-academic actors and similar concepts, such as public outreach or public dialogue (Besley et al., 2018; Burns et al., 2003; Perkmann et al., 2021). They have thus suggested several conceptualizations of this term. According to Besley et al. (2018), public engagement refers to any situation in which a member of the academic sector endeavours to engage, mainly through communication, with non-

academic members. In this context, communication is understood as the use of pertinent knowledge, media, activities, and discourse to foster one or more of the individual's awareness, pleasure, interest, formation of opinions, and comprehension of science (Burns et al., 2003, p. 183). In the same vein as Besley et al. (2018), National Co-ordinating Centre for Public Engagement (2021) provided a more specific definition of public engagement. Specifically, NCCPE considers public engagement to be the process in which universities and their staff introduce and exchange their work with the public. Through this process, both involved parties would gain benefits, including mutual understanding, trust, knowledge and skills learning and sharing.

Being aware of the importance of academic public participation, many governmental and institutional efforts have been made to promote public participation. The Beacons for Public Engagement project, launched in 2008 in the UK, is one of the most high-profile initiatives. Under the scheme, several NCCPEs have been established, providing training programs to enhance public engagement skills for scholars (National Co-ordinating Centre for Public Engagement, n.d.). Another notable project was the Dimension of Public Engagement with Science, funded by the US National Science Foundation and implemented by the Museum of Science in Boston to archive and evaluate academic public engagement activities and organize workshops to promote public engagement with science (Bell et al., 2017).

The situation in Asia also sheds some new light on this matter. In Japan, since the late 1990s, the Japanese government and academic sector have begun to recognize the significance of public engagement as a means to foster dialogue between academic scholars and society as a whole. This is particularly crucial in light of the distrust among the Japanese people following the Fukushima nuclear accident in 2011 (Mikami et al., 2014). In the case of China, in spite of the government's increased emphasis on public scientific literacy for the betterment of society as a whole, the Chinese scientific community appears to be mired in a predicament concerning the popularisation of science. Although scientists generally acknowledge science popularisation as a crucial aspect of their profession and a social responsibility in addition to their research, few are enthusiastic about informing the public about their work, even when invited to do so via formal channels such as newspaper articles or television interviews. In order to gain the public's trust, they prefer to serve as communicators in less formal situations such as conversations among acquaintances, neighbours, or fellow travellers. Nonetheless, from the state's perspective, Chinese leaders issued a statement in May 2016 advocating for the equivalent significance to be attributed to science popularisation and technology innovation (Lin & Li, 2020).

Science communication in Malaysia has also seen a significant evolution, particularly highlighted during the COVID-19 pandemic, which underscored the necessity for clear and accurate dissemination of scientific information to the public. The Malaysian government, through initiatives like the YSN-ASM Science Communication Module, has recognized the importance of enhancing science communication skills among scientists, educators, and media practitioners to effectively convey scientific knowledge, especially to the younger generation (Arujanan et al. 2020). Despite these efforts, there is a call for a more coordinated approach, with policy measures to formalize the field of science communication, ensuring it is not just driven by individuals but

supported by a top-down effort from policymakers, especially when Malaysian scholars might feel reluctant when engaging with the public. As pointed out by Arujanan et al. (2020, p.549-550), researchers' reluctance to interact with the media stems from a number of factors, including a lack of proficiency in scientific communication, an atmosphere of mistrust between the two groups (which is understandable since the Islamic context is taken in account), and inherent cultural and informational differences. The second big issue is that scholars' careers are not advanced by engaging the public; instead, the focus is on producing high-impact journal articles that boost a university's worldwide standing. Grants, training, and human resources are not made available by universities and research organizations to facilitate academics' engagement with the public.

### **Mode of public engagement**

Members of the academic sector can choose different modes of engagement with the public community. They can adopt the offline mode of interaction by participating in open science days, science festivals, café talks, or policy makers' consultations (Yuan et al., 2019). They may also engage through media-mediated channels such as television (Smith et al., 2018) and newspapers (Barel-Ben David et al., 2020). Given the increasing impacts of social media, scientists may also select their personal websites on Facebook, Twitter, or Blogspot to communicate with the public audience (Jünger & Fähnrich, 2020). A recent survey conducted by Pew Research Center (2015) with 3,748 scientists residing in the US revealed that 47% of these researchers have used social media to discuss or follow up on updated information about science, and 24% have used personal sites to blog about science. Some recent studies (e.g., Bredbenner & Simon, 2019; Sedgwick et al., 2021; Shailes, 2017) observed a trend among the academic community to use social networks to share their research findings in plain language.

### **Academic public engagement in Vietnam**

As mentioned above, public participation seems to be overlooked in current legislation in Vietnam. Current regulations on the job description of university lecturers in Vietnam only specify workloads regarding teaching and research but not public engagement (Nguyen et al., 2021a). However, anecdotal evidence has shown an increasing demand from the public community to request members of the academic sector to be more engaged in daily activities. For instance, in a commentary article, Le and Tran (2016) urged a closer tie between scientists and journalists, hoping that scientific knowledge would be disseminated more efficiently to the public sphere.

Similarly, we may also represent several high-profile scientists who have become public figures thanks to their active media and social network engagement. In the realm of science communication, scientists who attain celebrity status can play a pivotal role in shaping public discourse and opinion (Zhang & Lu, 2023). Their endorsements carry weight due to their expertise and public trust in their knowledge. Certainly, this influence is a double-edged sword; while it can promote scientific literacy and inspire future generations, it also places a significant responsibility

on these individuals to communicate accurately and responsibly (Krauss, 2015). The celebrity scientist must navigate the fine line between being accessible and maintaining scientific integrity, ensuring that their endorsements are not just heard, but also understood and respected. A couple of father-and-son scientists are well known in Vietnam due to their highly active public engagement: Nguyen Lan Dzung, a biologist, and Nguyen Lan Hieu, a cardiologist. Nguyen Lan Dzung became highly recognized in the mid-1990s when he hosted a television series, namely 'Question and Answer' (Hoi Gi Dap Nay), in which he appeared on a national television channel to answer scientific questions from the public audience (VTV News, 2020). Dzung then became a member of the National Assembly between 1997 – 2011 and continued to engage thoroughly with the public community during this period and afterwards. Hieu has also been a member of the National Assembly since 2016. He is now even more well known than his father, mainly due to his frequent public dialogue to discuss related issues regarding the current COVID-19 pandemic (VnExpress, n.d.). Apart from the couple of father-and-son Dzung and Hieu, notable cases of public figures-scientists include Vu Cong Lap, a physicist (see Phan Dang, 2016) and Tran Xuan Bach, a public health specialist (Thien Dieu, 2020). Figures like them have transcended the confines of academia to become household names, leveraging their status to advocate for science and education. Their ability to distill complex scientific concepts into digestible content has made science more approachable to the public. This democratization of science is crucial in an era where misinformation can spread rapidly. Celebrity scientists not only educate but also inspire, using their platforms to champion the importance of scientific inquiry and rational thought in addressing global challenges (Gagnon, 2018). Their endorsements in science communication serve as a powerful tool to combat anti-intellectualism and foster a society that values and understands scientific progress (Zhang & Lu, 2023)

## **Research Aim and Questions**

From a broad understanding of public engagement seen in the academic world as mentioned above, we understand that scientists can have more than one path to make their work more approachable and help increase their impact if they manage to engage in bidirectional dialogues with the public. To begin a comprehensive, evidence-based discussion on the case of Vietnam, the purpose of this study is to investigate the current status of academic public engagement in Vietnam. Specifically, we developed a set of research questions as follows.

- (1) Which means of communication are chosen by academic members in Vietnam for public participation?'
- (2) How often do academic members in Vietnam conduct public engagement activities?
- (3) How do demographic factors (e.g., gender, age, work experience, qualification and discipline) impact the public engagement of academic members in Vietnam?
- (4) How does the perceived public participation of university lecturers in Vietnam correlate with the actual public participation?

## Research Methods

### Sample and Data Collection

A convenient approach was used to collect data between February and April 2020 to address the four research questions. Specifically, we emailed 1,000 university lecturers in Vietnam, asking them to spend approximately 30 minutes answering our questionnaires. Thus, respondents were invited to click on a link, which resulted in a redirect to the survey. The survey comprises two parts, which will be explained in the following subsection. After three months, we obtained 245 feedbacks, revealing a return rate of 24.5%.

### Variables

The variables used in this study are presented in Table 1. Specifically, there are two outcome variables and five predictor variables, in addition to two variables that serve as both outcome and predictor variables. These variables would be used in four models represented in the Results section.

Table 1

*Details of the variables included in this study*

Variable type	Variable code	Scale	Description
Outcome variable	presstime	Continuous	The average amount of engagement with the public press per year in the past three years.
Outcome variable	socmedtime	Continuous	The average amount of using social media to engage in scientific issues per week in the past three years.
Outcome/Predictor variable	perceivedpress	1 = Never; 2 = Very Rarely; 3 = Rarely; 4 = Frequently; 5 = Very Frequently	The perceived degree of public engagement via the public press.
Outcome/Predictor variable	perceivedscomed	1 = Never; 2 = Very Rarely; 3 = Rarely; 4 = Frequently; 5 = Very Frequently	The perceived degree of public engagement via social media

Predictor variable	discipline2	Social sciences = 1; Natural sciences = 2	Whether a university lecturer works in social sciences or natural sciences.
Predictor variable	age	1 = under or equal to 30 years old; 2 = 31 – 40 years old; 3 = 41 – 50 years old; 4 = 61 years and older.	The age range of the researchers.
Predictor variable	experience	1 = under or equal to 5 years; 2 = 6 – 10 years; 3 = 11 – 15 years; 4 = 16 – 20 years; 5 = over 21 years.	The experience of the researchers.
Predictor variable	qualification	1 = Bachelor; 2 = Master; 3 = Ph.D.	The academic degree of the researchers.
Predictor variable	gender	1 = Male; 2 = Female	The biological sex of the researchers.

## Method

The study uses the Bayesian approach for data analysis. The Bayesian analysis used the `bayesvl` R package (Vuong et al., 2020a; 2020b). Previous applications of the package can be found in (Vuong et al., 2018; 2020c; 2021a; 2021b). Compared to the conventional frequentist approach, Bayesian statistics offer several advantages. First, Bayesian statistics is advantageous in model construction to fit the data. Moreover, since credible Bayesian intervals do not depend on a large sample size, the method is especially suitable for research with a small sample size, such as ours (Vuong et al., 2020c). Finally, the `bayesvl` package with Markov chain Monte Carlo (MCMC) simulation technique allows robust visualizations of the model, technical diagnostics, and posterior distributions of simulation results (Vuong et al., 2020a; 2020b)

## Results

### Descriptive results of demographic and basic information

Among the 245 participants in this study, 120 are men, representing 49%. The respective figures for the female participants are 125 people and 51%. Regarding age, 21 participants (8.6%) are under or equal to 30. The cohorts of 31-40 years old, 41-50 years old, and equal to 51 years old or older constitute 112 people (45.7%), 94 (38.4%), and 18 (7.3%), respectively. In terms of working experience, 41 people (16.7%) have under or equal to 5-year experience; the respective figures for

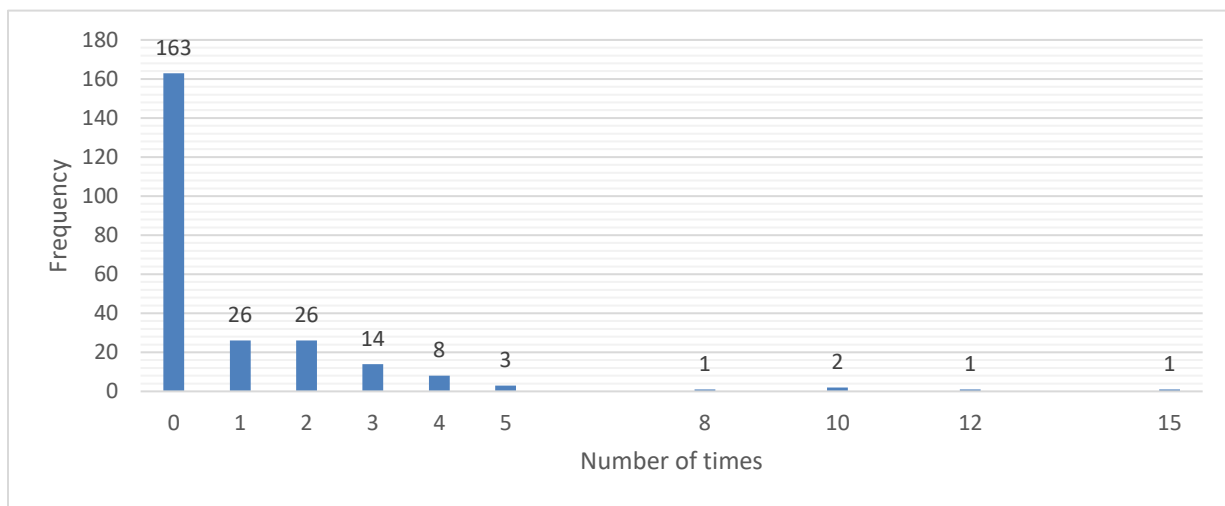


the groups of 6-10 years, 11-15 years, 16-20 years and 20 years or older are 61 (24.9%), 66 (22.4%), 47 (19.2%) and 41 (16.7%). Regarding the participants' disciplines, 123 (50.2%) majored in natural sciences, while the rest (122 people, 49.8%) belonged to social sciences. Last but not least, we considered the qualifications of our participants: there are 139 participants holding PhD degrees (56.7%), 94 participants holding master's degrees (38.4%), and 12 participants holding bachelor's degrees (4.9%).

## Research Questions 1 and 2

This subsection aims to answer the first two research questions: “Which means of communication are chosen by academic members in Vietnam for public engagement? (Research question 1)” and “How often do academic members in Vietnam conduct public engagement activities? (Research question 2)”. Regarding research question 1, our survey revealed that some academic members in Vietnam use both public press and social media (e.g. blog, Facebook or Twitter) to engage with the public on academic matters. Specifically, 82 participants (or 33.5%) have met with the public via the press at least once yearly over the previous three years. The respective figure that uses social media to engage with the public is higher (125 people or 51%).

Regarding Research Question 2, as shown in Figure 1, our survey revealed that most respondents surveyed never engaged with the public via the press in the last three years (163 people or 66.5%). Similarly, 120 participants (49%) never engage with the public through social media. Nevertheless, on the other end of the spectrum, we observe a small number of outliers who have deeply engaged with the public via both public press (four people or 1.6% with at least ten times engaging per year in the recent three years) and social media (four people or 1.6% with at least 30 times engaging per month in the recent three years).



*Figure 1.* Frequency of public engagement through the public press (average times per year in the most recent three years)

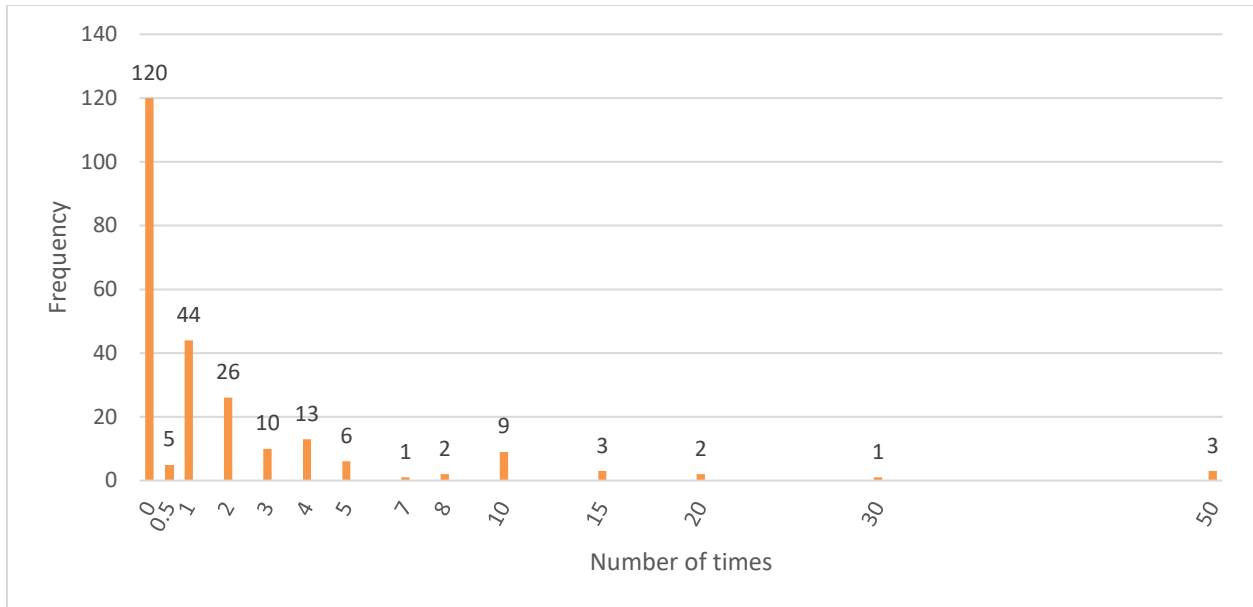


Figure 2. Frequency of public engagement through social media (average times per month in the most recent three years)

### Research Questions 3 and 4

In this sub-section, we represent the findings of the two research questions: 'How do demographic factors (e.g., gender, age, work experience, qualification, and discipline) impact the public participation of academic members in Vietnam?' (Research question 3), and 'How does the perceived public participation of university lecturers in Vietnam correlate with the actual public participation?' (Research question 4). To address these questions, we use four models as follows. First, Model 1 examined how the age and gender of researchers and their working experiences, qualifications, and disciplines correlate with their perception of engagement with the public press. A detailed estimation is shown in Table 2.

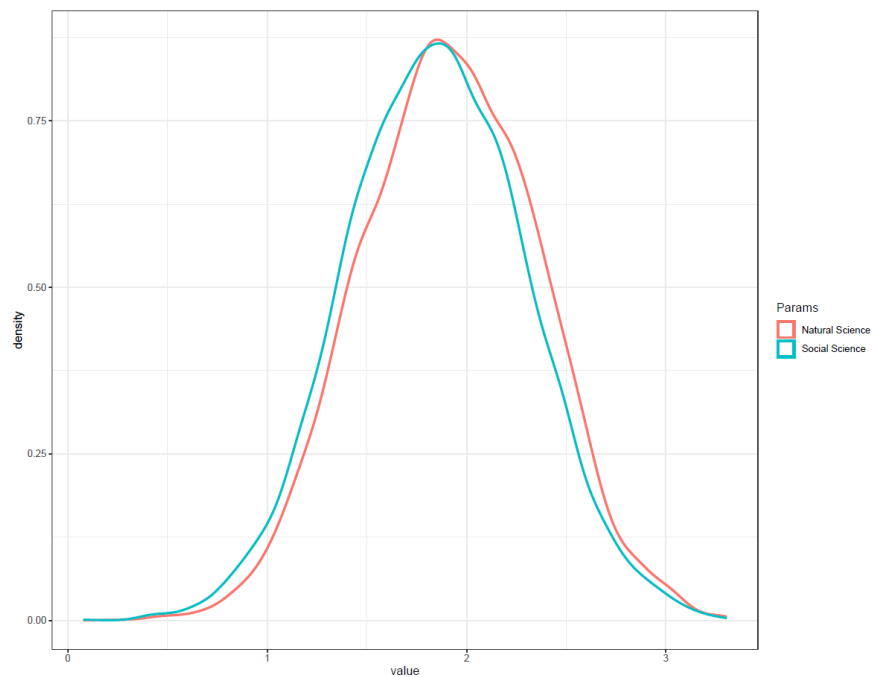
Table 2

*Estimation Results of Model 1*

	Mean	Sd	N_eff	Rhat
a_chuyennganh2[1]	1.91	0.44	3930	1
a_chuyennganh2[2]	1.84	0.45	3582	1
a0_chuyennganh2	1.73	2.64	441	1

sigma_chuyennganh2	2.57	3.71	665	1
b_tuoi_perceivedpress	0.08	0.14	2887	1
b_kinhnghiem_perceivedpress	0.02	0.08	2749	1
b_hocvi_perceivedpress	0.09	0.15	3712	1
b_gioitinh_perceivedpress	-0.25	0.16	3632	1

Regarding the discipline of researchers, the difference between social sciences (mean = 1.84; SD = 0.45) and natural sciences (mean = 1.91; SD = 0.44) is almost identical (See Figure 3).



*Figure 3.* Density plot for Model 1: Social sciences and natural sciences.

Meanwhile, male researchers appeared to think they engaged more with the public press than female researchers. The older the researcher's age, qualification, or experience, the more he perceives to engage more with the public press (see Figure 4).

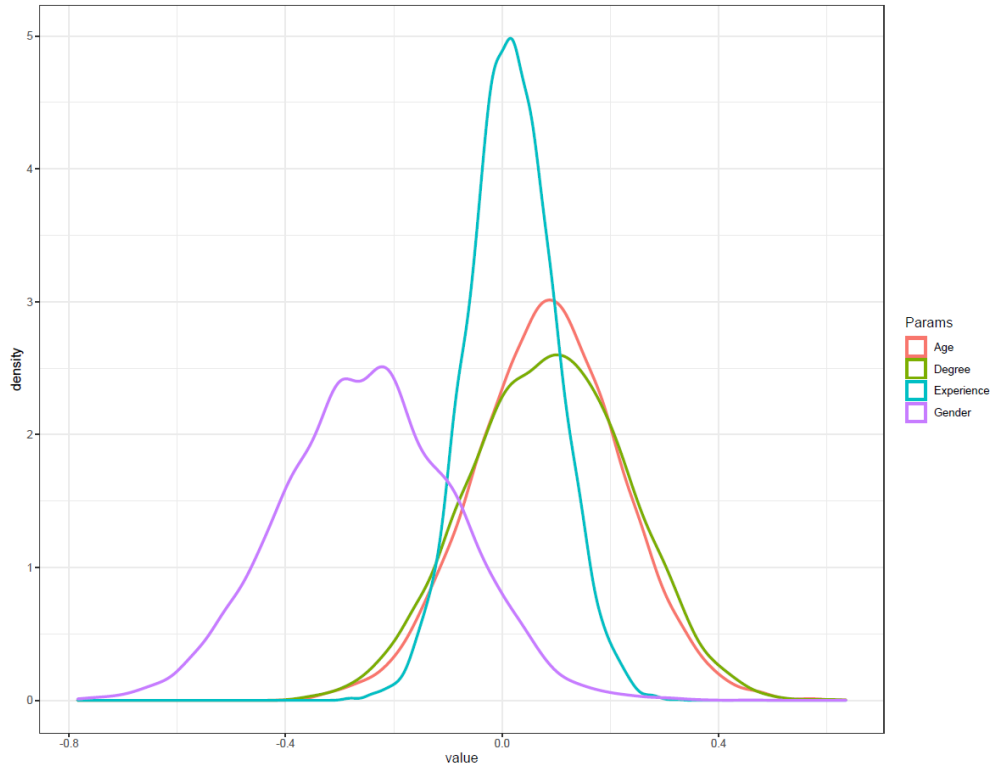


Figure 4. Density plot for Model 1: Age, degree, experience, and gender

Similarly to Model 1, Model 2 examined how the age and sex of researchers, their experiences, qualifications, and disciplines correlate with their perception of engagement with social media. A detailed estimate is shown in Table 3.

Table 3

*Estimation Results of Model 2*

	<b>Mean</b>	<b>Sd</b>	<b>N_eff</b>	<b>Rhat</b>
a_chuyennganh2[1]	3.27	0.47	4150	1
a_chuyennganh2[2]	3.34	0.47	3838	1
a0_chuyennganh2	3.12	2.56	759	1
sigma_chuyennganh2	2.39	3.44	785	1.01
b_tuoi_perceivedpress	0.01	0.14	2719	1
b_kinhnghiem_perceivedpress	-0.06	0.08	2602	1

b_hocvi_perceivedpress	-0.01	0.15	3596	1
b_gioitinh_perceivedpress	-0.50	0.17	3816	1

Unlike Model 1, social scientists (mean = 3.34; SD = 0.47) appeared to perceive their engagement with social media as higher than natural scientists (mean = 3.27; SD = 0.47). However, the difference was negligible (see Figure 5).

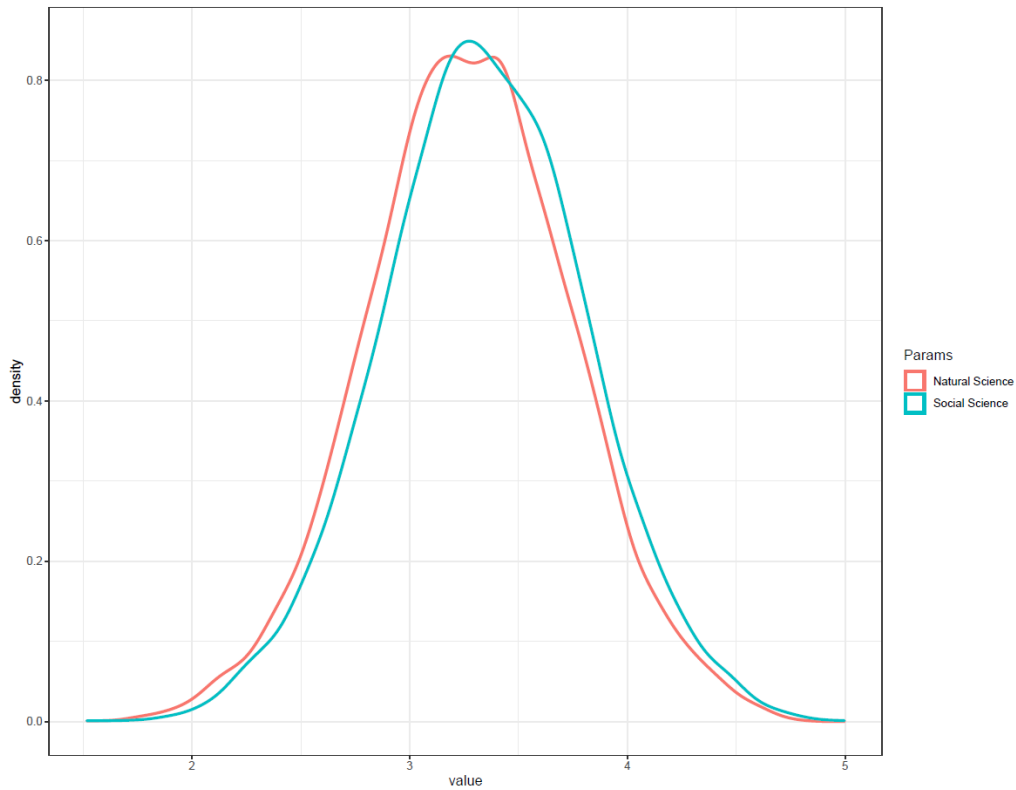


Figure 5. Density plot for Model 2 social sciences and natural sciences

Regarding demographic factors, age appeared to have a slight positive correlation with the perception of social media engagement (mean = 0.01; SD = 0.14). Researchers' experiences, qualifications, and gender negatively correlate with perceived social media engagement (see Figure 6).

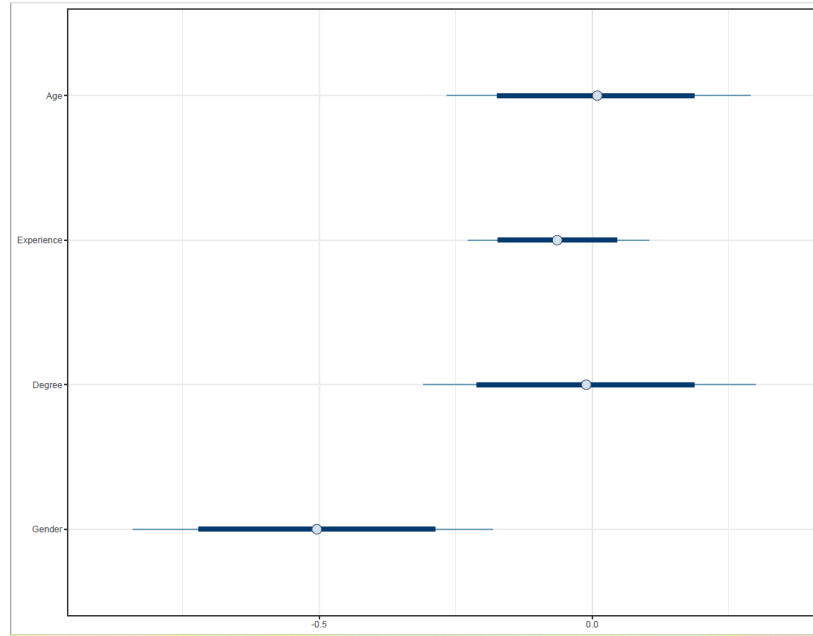


Figure 6. Density plot for Model 2: age, degree, experience, and gender

Models 3 and 4 examined the correlation between the perception of involvement with the press and social networks and the actual amount of using social networks / engaging with the press in the past three years. Model 3 explores the press time, while Model 4 explores the social media time. The estimation results of Model 3 are as follows:

Table 4

Estimation Results of Model 3

	Mean	SD	N_eff	Rhat
a_presstime	-0.94	0.24	3621	1
b_perceivedpress_presstime	1.11	0.10	4469	1
b_perceivedsocmed_presstime	-0.15	0.10	2919	1

Figure 7 shows that the perception of involvement with the public press positively correlates with the amount of time engaged with the press (mean = 1.11; SD = 0.10). Meanwhile, Figure 8 shows that perceived social media engagement negatively correlates with the time spent engaging with the press (mean = -0.15; SD = 0.10).

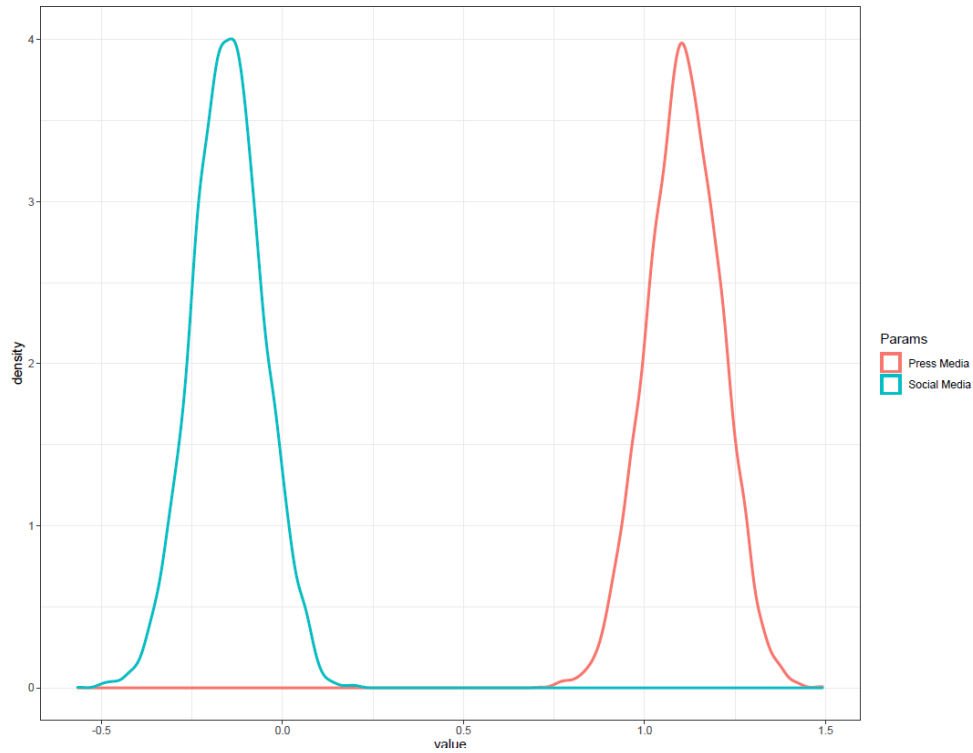


Figure 7. Density plot for Model 3

In contrast, the actual amount of time that the users spend engaging with social networks is positively correlated with the perceived engagement of social networks (Mean = 2.11; SD = 0.33) while negatively correlated with the perceived engagement of the public press (Mean = -0.78; SD = 0.41).

Table 5

Estimation Results of Model 4

	Mean	Sd	N_eff	Rhat
a_socmedtime	-0.99	0.98	3744	1
b_perceivedpress_presstime	-0.78	0.41	3446	1
b_perceivedsocmed_presstime	2.10	0.33	3795	1

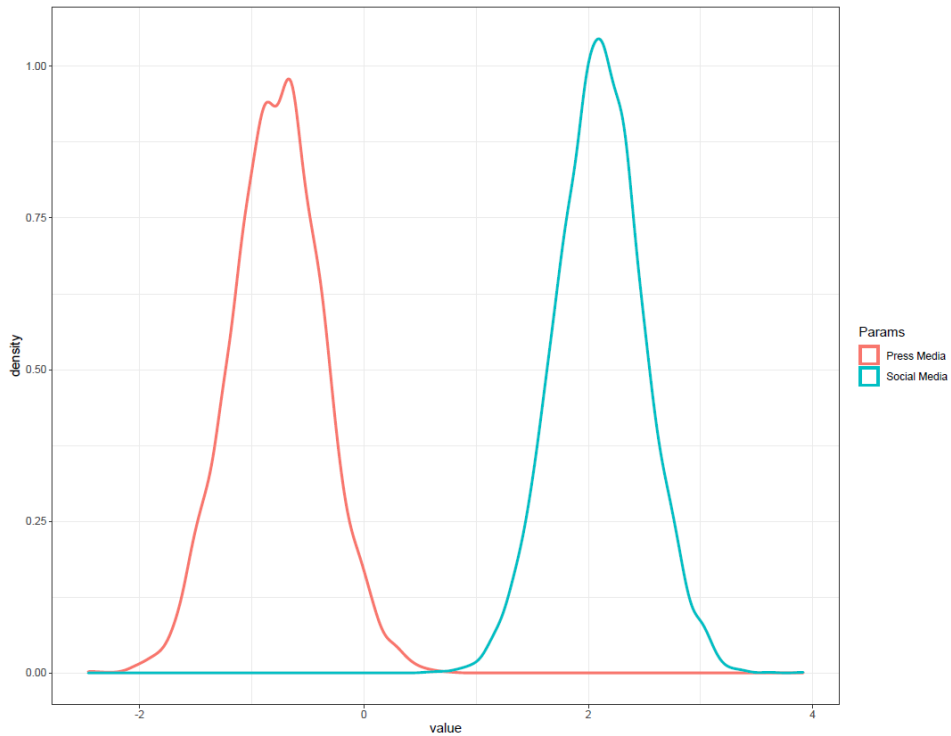


Figure 8. Density plot for Model 4

## Discussion and Conclusion

This study is the first attempt to examine the current status of academic public engagement matters in Vietnam. As mentioned above, Vietnam's higher education system followed the former Soviet model in which the primary mission of university lecturers was to offer lectures. Recently, while research has also been added as the second mission of university lecturers, the third mission, including public engagement, is still in the peripheral position (Nguyen et al., 2021a). In most universities in Vietnam, public participation has rarely been identified as part of a lecturer's job description. Given this, the extent of public involvement highly depends on his/her willingness. This fact might be a plausible explanation for our findings that a significant proportion of surveyed lecturers-participants never engage with the public, neither via the press (66.5 %) nor social networks (49%). Compared to Vietnamese colleagues, peers from other countries tend to have higher levels of public participation. For example, Dudo et al. (2018) found that among 1,111 US-based biologists, only 23% reported that they never interact with the public, neither via face-to-face nor online platforms.

Regarding the use of the public press and social networks as a means of public engagement, our study revealed that Vietnamese lecturers tend to use the latter more than the former. This finding is understandable, given the dominance of social networks in all sectors in general and in the



academic sector in particular (Segado-Boj et al., 2019; Zhu & Procter, 2015).

In this study, we also explored the correlation between the demographic factors of Vietnamese university lecturers and their perceived engagement with the public press / social networks. Furthermore, the correlation between perceived social media/public press engagement and actual social media/public press engagement is also examined. The perceived public participation via social media/public press is similar for both natural and social scientists. Meanwhile, the difference between the public press and social networks is more evident in experience, educational qualification, and age. The findings suggest that age, educational qualification, and experience positively correlate with perceived public press engagement while negatively correlated with perceived social media participation. Older lecturers with better qualifications and more experience are inclined to engage with the public press, a platform traditionally known for having layers of censorship and filters (Nisbet & Markowitz, 2015). Meanwhile, university lecturers with less experience and qualifications tend to engage more with social media. Age is also minimally positive with perceived social media participation. Since social networks allow everyone to share their opinions openly and younger generations might be more tech-savvy, junior researchers might engage with social media more freely (Collins et al., 2016).

## **Practical Implications**

The findings of this study provide several implications in practice. First, given the importance of academic public engagement, higher education policymakers and administrators in Vietnam are recommended to conduct initiatives to promote public engagement between academic members and non-academic counterparts. Thus, lessons drawn from prior initiatives in other countries, such as the Beacons for Public Engagement project (the UK) (National Co-ordinating Centre for Public Engagement, n.d.), or the Dimension of Public Engagement with Science (the US) (Bell et al., 2017) should be considered seriously. Furthermore, public participation legislation of public engagement is indispensable to university lecturers' job descriptions. In other words, public engagement is suggested to be re-positioned from the peripheral as per se to the centre of daily missions of university lecturers as other missions such as teaching and research.

Moreover, scientists might want to adopt new strategies to communicate their science effectively (Ho et al., 2021). As our study unveils the dominance of social network use among Vietnamese academic members for public participation, compared to the use of the public press, we suggest that Vietnamese university administrators continue to boost the use of the social network to benefit from its applications. For example, Vietnam's universities may open separated Facebook Fanpages to spread the latest research findings in plain language (see D'Souza, 2019). Moreover, since internationalization is also essential for universities, effectively using other channels, such as Twitter, or other media, such as podcasts, to communicate science should also be encouraged in Vietnam.

However, promoting public engagement should also be protected with a thoughtful code of

conduct. For example, the press release of scientific findings should be carefully worded to avoid misleading the public. Moreover, scientists should be careful when stating their opinions online.

### **Limitations and Further Studies**

There are several caveats to this study (Vuong, 2020). First, since the surveyed sample is only 245 and the data collection method is convenient, our study may have a problem with representativity. Thus, future studies should avoid this limitation by obtaining a larger sample size and a more random approach to collecting data. Second, this study has not examined factors that impact the willingness to engage with the public of Vietnamese academic members, as the prior study did (see Dudo et al., 2018). In fact, this would be a potential topic for further research to consider. Last, this study has not explored the relationship between the extent of public involvement and the performance of other missions (teaching and research). This would be an option for research in the future.

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