Older people's Online Information Search During the Pandemic

Snehasish Banerjee, Ariadne Beatrice Kapetanaki and
Lauren Dempsey

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Snehasish Banerjee
The York Management School
University of York
York, UK
snehasish.banerjee@york.ac.uk

Ariadne Beatrice Kapetanaki
The York Management School
University of York
York, UK
ariadne.kapetanaki@york.ac.uk

Lauren Dempsey
The York Management School
University of York
York, UK
laurie.dempsey@york.ac.uk

Abstract—As the world continues to grapple with the pandemic, how competently people search and process COVID-19-related information online has serious ramifications. In this vein, a demographic segment that is particularly research-worthy includes older people, who are usually slower in technology adoption and use compared with younger people. For these reasons, the objective of this paper is to explore how people aged 65+ search and process online information related to COVID-19. Fifteen semi-structured, in-depth interviews were conducted in the UK. The older people were found to maintain varied and broad information portfolios. Many found the internet to be an efficient avenue to seek and share information. The participants generally dismissed social media but deemed authoritative information sources (e.g., the WHO website) to be reliable. They were cautious about scams and misinformation online, and were likely to adopt an 'if in doubt, avoid' approach to unfamiliar sites. The study shows that older people in their effort to avoid misinformation may limit their information consumption journeys; nevertheless, this practice keeps them safe. Based on these findings, several implications for theory and practice are discussed.

Keywords—COVID-19, e-health, infodemic, information behaviour, older people, online health information, social media

I. INTRODUCTION

Most people who face health-related uncertainty go online to seek medical information [1]. Expectedly, to cope with the uncertainty engendered by the current COVID-19 pandemic, the internet has been a popular information source [2]. Meanwhile, the cyberspace contains fake news in abundance, camouflaged amid authentic news, making the two difficult to separate from each other [3]. Worryingly, there is recent evidence that people are quite likely to follow health-related hoaxes available online [4]. If they mistake misinformation as the truth, it could impair their healthcare decision-making.

As the world continues to grapple with the pandemic, how competently people search and process COVID-19-related information online has serious ramifications, and hence needs to be studied. In this vein, a demographic segment that is particularly research-worthy includes older people. For one, they are usually slower in technology adoption and use compared with younger people [5]. For example, in the US, 75% of people aged 65+ use the internet in comparison to 99% of 18-29 year-olds, 98% of 30-49 year-olds, and 96% of 50-64 year-olds [6]. A similar pattern exists in the UK where only 54% of adults over 75 years old use the internet; however, the number of older people who have recently started to use the internet is growing rapidly [7].

Furthermore, from the start of the pandemic, people aged 65+ have been at high risk from the coronavirus [8], and hence are quite likely to look for information online to allay their health concerns [1, 2]. However, they are not always well-positioned to take advantage of the internet as many of them are new users. Stringent social distancing measures would mean that they may not even have sufficient support available to deal with the challenges that they are likely to face online [9].

For these reasons, the objective of this paper is to explore how people aged 65+ search and process online information related to COVID-19. Fifteen semi-structured, in-depth interviews were conducted to address the research objective. The study was carried out in the UK. Specifically, the UK was chosen because people aged 65+ represent a growing segment of the population. By 2050, it is estimated that there will be 17.7 million people of this age group in the UK, representing 24.8% of the population [10]. Also, the UK has been hit hard from the coronavirus pandemic [11], leading people— particularly those most at risk—to search for information from various sources. Hence, it is important to understand not only how this segment of the population uses the internet to deal with COVID-19 but also how they can be better prepared to tackle online challenges such as misinformation and scams in the post-pandemic world.

The paper is significant for both theory and practice. On the theoretical front, studies on how people aged 65+ search and process health-related online information during a medical crisis are far and few. Particularly related to COVID-19, [12] recently showed how older adults process online information and misinformation about the pandemic. Older adults are often defined in these studies as individuals aged 50 years and above. But such an age group includes those who are still part of the workforce, may have access to technology due to their job requirements, and can be tech-savvy. To get a better representation of the older person – as in those who are more likely to be in retirement and have experienced a change of lifestyle – this paper focuses on those aged 65 years or above.

On the practical front, the paper has implications for website developers so that webpages can be developed in a way that is more accessible and user-friendly for older people. The paper has implications for organisations, such as the World Health Organization (WHO) that aim to disseminate accurate and timely information in an effective way for this demographic. It can also provide avenues for better support to protect older people while they navigate online.

The rest of the paper is organized as follows. Section II offers a broad overview of the literature. This is followed by

the research methods in Section III and the findings in Section IV. Section V discusses the findings while Section VI offers a conclusion.

II. Literature Review

The term "infodemic" refers to "an overabundance of information, both online and offline. It includes deliberate attempts to disseminate wrong information to undermine the public health response and advance alternative agendas of groups or individuals" [13: para. 2]. In [14], an infodemic is compared to "a contagious disease infecting our information culture" (p. 1806).

This phenomenon has escalated during the COVID-19 pandemic to such a degree that the WHO [13] along with other international organisations have issued joint statements and dedicated pages with guidance on how to tackle misinformation and disinformation. Inaccurate information online could undermine the measures in place to control the pandemic, and in turn jeopardise the health and wellbeing of the public. Social media and the widespread use of the internet have been the main enablers of this infodemic [15]. At the same time, the internet has been viewed as a medium of democratic discourse where people can share their views and keep governments and organisations accountable [16]. Its role in disseminating timely and credible information cannot be overlooked. Misinformation is also spreading through traditional mass media, and hence the interaction of the two should be considered [15]. This raises the importance of understanding how people receive, process and potentially disseminate information from various sources and how they distinguish between facts and hoaxes.

The digital infoscape can be challenging for most users but particularly for those who are less experienced, such as older people. One of the most prominent theories that explains people's technology use is the Unified Theory of Acceptance and Use of Technology (UTAUT). It posits that the intention to engage with technology is determined by performance expectancy, effort expectancy, social influence, and facilitating conditions, but the relationships are moderated by gender, age, voluntariness and experience [17]. While a discussion of the UTAUT theory is omitted here for brevity (see [18] for a recent meta-analysis), it is pertinent to note that age has been one of the strongest moderators [19]. There exists consistent evidence that older people are relatively less confident in using digital technologies compared with those who are young [9, 20, 21]. This points to the need to study older people's use of the internet, particularly during crises such as the current pandemic.

Research suggests that people in general are quite likely to follow health-related hoaxes available online [4, 5]. It could be disastrous if older people are deceived by health-related online misinformation during the pandemic. Thus, it is imperative to understand how people aged 65+ search and process information online and go about ascertaining the information veracity. Recent works have shed light on older people's information processing behaviours in the aftermath of natural disasters [22]. Building on such works, we study how older people search and process information online in the wake of the COVID-19 outbreak.

A related study [23], conducted in March-April 2020 across six countries, used quantitative research to capture COVID-19-related information access, trustworthiness of sources, and the amount of misinformation people encountered. However, little is known about how people differentiate between fake and real news amid the infodemic as well as how and why they use online information to make COVID-19-related decisions. Extending the current literature, this paper aims to answer these questions using a qualitative methodology.

III. Research Methods

To meet the research objectives and achieve an in-depth exploration of older people's online information searching and processing journeys, a qualitative methodology was adopted. Qualitative methods provide opportunities to investigate unexplored (or relatively little explored) areas, in depth [24]. They allow researchers to capture the "voice" of the research subjects including their feelings, perceptions, attitudes and experiences along with how these are constructed [25].

Semi-structured, in-depth interviews were conducted as they combine structure and flexibility, while providing greater breadth than other types of interviews; and hence are best suited to capture experiences [24, 26]. An interview guide was developed based on the literature review and the research objectives. The interview guide included the following discussion areas: (i) how older people use the internet along with other media; (ii) how COVID-19-related online information is perceived, analysed, acted upon, and potentially shared; (iii) what is the overall experience of finding COVID-19-related information online; (iv) what do they find easy; (v) what are the challenges; and (vi) how do they spot fake news.

Participants were recruited through the authors' professional networks. The sampling was purposive to help gain relevant insights [27]. The screening criteria included people aged 65+ who were internet users. Fifteen interviews took place between 10th February and 1st April 2021. This period included times of strict lockdown as well as vaccination rollout in the UK, and hence provided ample opportunities for discussion. The sample details are presented in Table I.

After recruitment, participants received the information sheet and the consent form. In addition, they were given opportunities to discuss the implications of participating in the study with the authors. Informed consent was obtained before each interview.

The interviews lasted between 57 minutes and 1 hour 45 minutes. They were audio-recorded and then transcribed for the purpose of the analysis. On completion of the interviews, the participants received a £20 supermarket voucher each as a compensation for their time and effort. The study was approved by the authors' university ethics committee.

The data were analysed using thematic analysis. The themes were informed by the literature as well as the participants' experiences [28]. Two of the authors coded the transcripts independently. For conflicting views, there was a discussion between them to reach an agreement. This process ensures the reliability of the coding. The final themes that emerged from the data analysis are presented in the next section.

	Pseudonym	Age (years)	Gender	Location
1	Samantha	71	Female	Yorkshire
2	Kerry	72	Female	Yorkshire
3	Bianca	71	Female	Yorkshire
4	Paul	83	Male	Cambridge
5	Isabelle	86	Female	London
6	Primrose	71	Female	Lancashire
7	Julia	83	Female	Yorkshire
8	Pat	67	Male	Yorkshire
9	Alexa	68	Female	Yorkshire
10	Adrian	68	Male	Yorkshire
11	Harriett	66	Female	London
12	Jacob	80	Male	London
13	Carol	73	Female	London
14	Josie	75	Female	Hertfordshire
15	Jackie	70	Female	London

IV. FINDINGS

This section is divided into three sub-sections based on the identified themes and sub-themes. The first theme provides a contextual insight into how the participants typically engaged with the internet versus other information sources. The second theme includes the benefits of seeking information through the internet, as experienced by the participants over the past year. The final theme is about how these individuals processed the information they found online by considering the cues and techniques they used to decipher 'truthful' from 'false' information online.

A. Role of the Internet Versus Other Information Sources

The participants typically maintained varied and broad information portfolios. They watched TV news regularly, tuned into the radio, or purchased newspapers. They also relied heavily on their personal networks, finding out new information through word-of-mouth and discussing that with friends and family. However, the pandemic motivated a shift in how frequently they used these sources and the format in which they were encountered, with one participant noting, "*I'm doing far more online than ever before*" (Primrose).

This was to a certain degree 'enforced', where these participants found themselves actively striving to keep up with other people so that they did not feel isolated during the pandemic:

"*I had to stop telling myself that I couldn't do it and making excuses. Someone in my age group, you're constantly running behind everybody else with things that you particularly want to learn*" (Julia).

However, the participants also noted benefits to adapting their information processing behaviour during the pandemic. For instance, many participants relished the opportunity to have access to a whole wealth of information online, especially as they were able to research at their own convenience: "*It's really awe-inspiring, and wonderfully useful, there is no excuse for not knowing anything about anything now*" (Jacob). In fact, the pandemic had caused them to cease their habitual purchase of newspapers:

"*I read the Guardian online of course and other papers, but it saves me £2.20 a day [not buying the physical paper]*" (Paul).

Furthermore, while the radio and TV were still regularly used, they were no longer fundamental parts of these older people's daily routines. This was for two reasons. First, numerous participants reported feeling information inertia during the pandemic. They had grown tired of the news focusing on COVID-19, and felt it could be inescapable: "*I'm heartily tired of everything on every news being always about COVID. You get quite enough of it in a way*" (Samantha). This sense of "*information overload*" (Bianca) was exacerbated by a concern that information was often unclear and complicated, causing a decrease in confidence – especially in public service broadcasting:

"*I used to watch BBC News every morning from, it would be on as soon as I woke up, the telly in the bedroom went on and BBC News was on. [...] I don't watch it now [...] I found myself shouting at the television too often*" (Primrose).

Second, most of the participants noted that their internet usage had increased during the pandemic for social, practical and information purposes. Hence, it was not always necessary to engage with daily news broadcasts, as accessing information online was useful to fill in their knowledge gaps:

"*I'm looking for I suppose a stage back if you're researching things, not simply looking at what's being said on the telly [...] If I'm really interested in something and want to get more detailed information, then I'd go [via the internet] and that would generally speaking reaffirm what I already know and what I've already picked up from listening to Radio 4 and the BBC News or Channel 4 News*" (Adrian).

In the lives of the participants, the internet changed from one of the many information sources to the most prominent information source due to the pandemic. This indicates a crucial shift in their information seeking behaviour, one that was motivated by perceived autonomy, information freedom and personalisation opportunities.

B. Benefits of the Internet in Information Seeking

While no participant reported to only use the internet for information on COVID-19, many noted that they found this a more efficient and less stressful means for seeking information. This was for numerous reasons. First of all, the freedom presented by the numerous discoverability options online encouraged many participants to further research information they encountered through traditional means:

"*When I read something in the newspaper about something that's happened, I have this immediate instinctive need to go and see it online myself. [...] I'm looking for the references within that newspaper that I might find online, and from that I might find something else, and something else*" (Harriet).

This was often motivated by a frustration with sensationalist news headlines being utilised to grab attention, where instead these participants desired straight-forward clear facts, which they believed they could find through reputable sources online:

"*I would certainly trust something like the British Medical Association [and BMJ online] over, say, a report in the Daily Mirror [...] Because I don't think the British Medical Association goes for crowd-pulling headlines or goes for exaggeration of truth or picking out juicy items or misinterpretation. I think it's a much more robust and a much more serious approach*" (Samantha).

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Their need for 'facts' rather than opinions led to them seeking information from authorities they respected, such as the Office of National Statistics (ONS) or the UK government reports: "*I sometimes go onto ONS too because they're supposed to be the experts in statistics, and I should be able to trust them*" (Isabelle).

Furthermore, these participants valued the more personalised, targeted information that could be retrieved online. For example, participants used the internet to seek information on their local lockdown rules and COVID-related statistics in the locality:

"*[When I Google search for COVID-19, it's to do with my local area] because that's what I don't get from the national media, I suppose. Because I listen to the radio a lot, I know nationally. I watch the news every evening. But you don't always get local news*" (Kerry).

Some participants regularly frequented these sites to explore visualisations of trends and interactive maps, which allowed them to keep abreast of changes over time easily. When a participant was asked why she liked visuals and graphics, she responded:

"*Because I don't have to do a lot of reading [...] I'm not working. I don't need the in-depth [...] it's the top line stuff I'm looking at. I'm looking at trends. I'm looking at variances. Is it going in the right direction as well?*" (Primrose).

Finally, some participants used regular online communication platforms to receive and share information on the pandemic. For instance, Isabelle signed up to local and Government mailing lists, where she regularly received new updates on the pandemic: "*I am subscribed to GOV.UK for sort of health things and Coronavirus. They send me at least one - sometimes two, sometimes three - a day: things which I then go through and decide whether or not I'm going to keep them. For example [an article titled] 'Characteristics of people testing positive'. Then it may very well be that if there is a document I can click on it and I can read the document itself which I can then save if I feel that it's going to be useful*" (Isabelle).

This became a key source of information for her, where she would receive these regular updates, read through them to determine what information was relevant for her, and then share it with friends and family if she felt it were pertinent for them: "*a lot of the information I get I will pass on to my friend just in case she hasn't seen it*" (Isabelle).

Such a tendency to share information in this manner was common with the participants. As face-to-face communication was hindered due to the lockdown, most of the participants relied heavily on the instant messaging application WhatsApp and video-calling platforms, such as Zoom, to communicate with friends and family. While these were primarily for socialising, they also became vessels for sharing information on COVID-19. For instance, Adrian reported that he often shared links to news stories within his friends and family group chats on WhatsApp:

"*I use WhatsApp quite a lot, so there's a lot of WhatsApp chat groups and a lot of things get shared around within those. One thing appears in one group and if it's me for instance and I like it [...] I forward it on to the family group or to a group of people I used to go down the pub with quite regularly or things like that. I get things shared that way*" (Adrian).

Thus the internet offered this age group new and varied means through which to seek and share information.

C. Discerning the Truth from Misinformation

While these participants reported that they grew more confident seeking information during the pandemic, they were also aware of the potential risks and dangers of searching online. Many were concerned about falling foul to scams and misinformation online, and put a number of mechanisms in place to help them cope with these concerns.

For example, most installed anti-virus protection and ad-blockers to help them navigate new sites more confidently. They reported to only enter information into sites they felt familiar with, and a few noted that they would ask younger (supposedly more internet-literate) members of their family for guidance when they were unsure. They had also developed their own 'rules' for ascertaining whether or not information was safe, for example through following habitual search patterns, looking for the padlock symbol on new sites, only opening emails from known senders, or through considering the language and format on different sites to determine if they were reliable:

"*My email [security] is filtered, so I don't get many emails that are a scam. [...] I wouldn't open anything, unless I knew it was safe. [...] I don't open any attachments, unless I know the person who's sending it to me*" (Alexa).

Despite having such safety measures in place to protect themselves from outright scams, these participants noted that it was often much more challenging to confidently determine the 'truth' from misinformation online. They were all aware that misinformation and 'fake news' was abundant online, and consciously tried to avoid encountering such information. This led to them regularly engaging with some sources while avoiding other sites. For instance, all participants in the sample considered government sites and health organisations to be trusted sources of information. This was partly due to familiarity. They were accustomed to hearing about the WHO from the news and were well acquainted with the NHS (the National Health Service of the UK), and thus deemed these information sources reliable. They also considered the WHO, GOV.UK and the NHS to provide the most up-to-date information. In an ever-changing situation such as the pandemic, this meant these official sites became key for regular re-visits: "*I could trust it because it's a government website and if they put something on that was totally wrong, they would have to answer to that [...] I would trust the site because they at least are accountable*" (Julia).

Another participant explained, "*I am an NHS website bore. If anybody has got a problem at hospital in waiting rooms, I say 'forget Dr Google, go on to the NHS website, it's all there'. I think the NHS website is absolutely fantastic, there is virtually nothing you can't find on that website and everybody, I think, should be comforted by the fact that this is an official NHS website, it is not social media, it's not false news.[...] It's usually quite fast to load, it doesn't waffle on, it's pretty brief and succinct, it's a good site, and I rarely go elsewhere*" (Jacob). As also evidenced by Jacob here, visual cues were imperative for inspiring trust. A well laid-out, clearly presented and succinct site complete with references and links to further reputable sources inspired confidence and allowed these participants to feel safe in believing the content they received.

Conversely, the participants were sceptical about sites with highly subjective content. Social media sites such as Facebook were believed to epitomise this, where participants felt misinformation was able to thrive:

"There's a hell of a lot of people who are more influenced perhaps by social media, listening to other people who have listened to somebody and spreading stuff about. God knows where it comes from, but spreading stuff that in my view, you'd have to work pretty hard to find a basis of real evidential fact that would prove what they were saying was correct" (Adrian).

As such, all dismissed social media as a viable information source, with some avoiding it altogether through fear of encountering misinformation.

Finally, there was evidence that these participants were fearful of engaging with information they were unsure about. Hence, they were likely to adopt an 'if in doubt, avoid' approach to unfamiliar sites where they could not indisputably verify the legitimacy of the information. While this cautious approach meant that these participants were able to protect themselves from potentially harmful misinformation online, there is perhaps also a risk of it leading to limited information engagement online.

V. DISCUSSION

Three major findings are gleaned from the research. First, it was evident that the older people in our sample made use of broad information portfolios, where they actively engaged with numerous sources to glean as much information on the pandemic as possible. They watched TV news, listened to the radio and participated in regular discussions with family and friends. They also increased their use of the internet during the lockdown, considering it to be a key source of information on COVID-19. This was especially the case in the initial months of the outbreak, where their new-found reliance on the internet continued to shape their use months later. The online information as well as the online platforms provided opportunities for socialisation which is crucial for healthy ageing [29] by maintaining or increasing older people's social capital [30].

Second, this research identified unique characteristics of the internet that caused older people to consider it a more useful source of information than traditional avenues. For instance, these participants noted that the internet was easier to navigate than mainstream outlets, both with regards to the ability to locate relevant information and the time it took to reach it. They also reported that targeted searches could provide more personalised information, relevant to the individuals' needs (such as through local sites). Also, these participants showed a preference for facts and figures that could be located online, avoiding subjectively written journalistic pieces and homing in on information that they believed represented the truth. Through this increased use, they grew familiar with certain sites, regularly revisiting resources they trusted such as the NHS, the WHO and GOV.UK. Therefore, trust in the source was one of the main elements that influenced their online navigation to consume reliable information [31]. These official bodies were often already known to participants, thus motivating a sense that the information here represented the truth. This in turn led to them continuously returning to these sites.

Finally, while this routine use meant that older people's confidence with using the internet grew, their habitual reliance on familiar sites may mean that they minimise their ability to encounter potentially worthwhile debates on the pandemic, as well as the opportunity to broaden their online information sources further. The fatigue caused by a year of COVID-19 news meant most were only after the 'facts' and were disinterested in engaging with nuanced discussions, instead only considering polarised news sources, accepting those on one end of the scale while rejecting those on the other. It also meant that rather than learning clear skills regarding how to determine and handle fake news online (as they have done with online scams), they simply avoided sites where they felt they might encounter any misinformation. Apart from habitual research patterns, asking younger family members was also a mechanism that older people adopted to feel safe online.

Overall, the participants' behaviours could be explained in light of the UTAUT [17, 18]. Older people refrained from engaging with social media, which they thought would not perform well in providing them with facts (performance expectancy). They avoided unfamiliar sites because assessing the credibility of such platforms calls for substantial cognitive efforts (effort expectancy). Nonetheless, they relied on family support (social influence) while limiting themselves to authoritative information sources that readily facilitate the perceptions of credibility and trust (facilitating conditions).

VI. CONCLUSION

This paper has offered a unique perspective of how older people aged 65+ in the UK sought and processed COVID-19-related information online. Theoretically, it contributes to the scholarly understanding of how acceptance and use of technology works for older people during a pandemic in relation to issues of trust, credibility, socialisation, freedom, autonomy, support and personalisation. We show that it is possible to explain the online behaviours of this segment by adopting the UTAUT as a theoretical lens [17, 18]. A counter-intuitive finding is also uncovered. While the literature has suggested that people can be easily deceived by online hoaxes [4, 5, 12], such a tendency was not prevalent among the older people in this study. This is because they made a conscious decision to avoid all dubious sites and social media content, and hence, there was little scope of being deceived.

Practically, the paper highlights the support that is needed to better familiarise older people with the use of the internet. While their overly cautious approach meant that could not be misled by misinformation, it begs the question of the extent to which older people could be limiting themselves online in pursuit of safety, and in turn missing out on potentially worthwhile sources of information. Internet literacy should be an ongoing and constantly evolving process. The participants seem to run the risk of stunting their internet literacy in their efforts to avoid doing anything 'wrong' or 'unsafe' online. This shows the need for policymakers to further support older people to achieve their maximum potential in using the internet. Furthermore, older people valued opportunities for personalisation when searching for content online. Hence, websites need to offer a tailored experience to this demographic segment. They should be accessible and user-friendly. The paper also has implications for social media companies. Older people were not found to be confident in using such platforms. Companies such as Facebook need to rethink their strategy if they are to target older people and bring them on board. This could be useful for health

authorities too. For example, the NHS has a dedicated Facebook page. If older people were more confident in using Facebook as a trusted source for information, this could have created another avenue for the NHS to reach out to this demographic segment.

There are some limitations in this paper that could be built on in future research. The necessity of completing this study within a time-sensitive period meant that a snowball sampling methodology was beneficial here, as social groups could share the research and motivate participation. However, this recruitment strategy limits the extent to which a demographically representative sample could be recruited. While every effort was made to attract participants from different backgrounds, socio-economic groups, races and genders, there was little diversity in the sample. Thus, future research would benefit from accessing a more diverse sample from this age group.

Next, this paper focused on the UK citizens' use of the internet, where the experiences noted were often shaped by participant perceptions of the UK government and the NHS. While this acted as a highly valuable context for this research, it would also be beneficial to conduct similar research in different countries, where perhaps authoritative responses to the pandemic differed and citizens may be reliant on alternative sources of information online.

Finally, this remains an ever-developing situation, where the UK lockdown periods continue, and we are likely to see the impact of COVID-19 for years to come. Even within this research it was apparent that participants had already changed their online searching behaviour since March 2020, growing fatigued and editing down their searching by the time of our interviews. It would therefore be beneficial to keep abreast of how people in this age group continue to alter their usage of the internet over time, researching the extent to which they may maintain or alter their routines, develop greater confidence and respond to misinformation and social media content.

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