News consumption repertoires among Finnish adolescents

Moderate digital traditionalists, minimalist social media stumblers, and frequent omnivores

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Abstract

Young people are perceived as heavy consumers of social media and less avid consumers of news. That notion, however, deserves nuance: Many factors, such as the national context, media system, trust in news, intentionally or incidentally encountering news from different sources, and interest in politics, influence how young people consume news. This study explores news consumption among Finnish adolescents through a representative survey of 15–19-year-olds. We seek to answer two research questions: What are the news repertoires of Finnish adolescents? And what factors predict different news repertoires? Latent profile analysis reveals three distinct news repertoires: 1) moderate digital traditionalists, the largest group, embracing traditional news in digital form; 2) minimalist social media stumblers, the second-largest group, tending to consume news infrequently through passive social media encounters and lacking credible information; and 3) a quite large number of frequent news omnivores, taking an interest in diverse news forms and actively seeking them.

Keywords: adolescents, incidental news, news consumption repertoires, digital news, social media

Introduction

The news media landscape has been transformed through technological innovations, offering people multiple traditional and new outlets and platforms from which to choose their daily digest of news (Geers, 2020; Gil de Zúñiga et al., 2017). Young people are often viewed as a group disconnected from news, or at least as low consumers of news, and who develop news orientations over their lifespans (Elvestad & Shaker, 2017;

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Huang, 2009). Yet, specific news media consumption patterns and repertoires vary across nations (Nielsen, 2016; Schrøder et al., 2020; Vozab, 2019), also among young people.

Geers (2020: 334) uses the term news repertoire to refer to "the combined use of different media platforms to consume news in a hybrid and high-choice media environment", while Hasebrink and Domeyer (2012: 759) define media repertoires as the "entirety of media that a person regularly uses". Media repertoires, according to this definition, can be utilised to group media consumers who share similarities in terms of their frequency of use and favoured news media.

The news consumption of young people is an important research focus because young people are the future consumers and payers of news, their news consumption differs from that of earlier generations (Flamingo, 2018; Huang, 2009), and the stature of news and the acquisition of trustworthy information have consequences for journalism's survival and democracy at large (Boczkowski et al., 2017; Gans, 2003; Nielsen, 2016). Additionally, young people are interesting to study as they are dedicated digital and social media news consumers but often lack news media literacy skills (i.e., the ability to analyse news media messages) to navigate the complex digital and social media news field (Ku et al., 2019; McWhorter, 2019). Despite these merits, few studies have focused on adolescents' news consumption repertoires (Edgerly et al., 2018; Geers, 2020; Sirén et al., 2018). Even fewer have included empirical investigations of varied news sources from traditional media and their digital forms to news flows and consumption patterns on social media (Boczkowski et al., 2018; Edgerly et al., 2018; Purhonen et al., 2021).

This study explores the news repertoires of Finnish adolescents in the contemporary media landscape through a representative survey of Finnish 15–19-year-olds eliciting which news sources they followed and how frequently. The study also investigates how factors such as trust in the news, seeking information, and political activity predict individual news repertoires. The study identifies three news repertoires: moderate digital traditionalists, minimalist social media stumblers, and frequent news omnivores, each associated with different underlying factors. The findings raise concerns about some groups of adolescents while highlighting positive outcomes for others. We were also able to include in the analysis young people's tendency to consume news incidentally while surfing social media. This study makes a significant contribution to past work on young people's news repertoires with a novel profile analysis approach. The context of Finland, as a highly trusting and quite traditional but digital news media environment, is beneficial for comparisons with earlier repertoire studies of young people's news media habits.

Due to the digitalisation of news journalism and the tendency for young people to use social media, online news exposure is increasing among this group. According to the *Reuters Institute Digital News Report 2019*, British and American youth aged 18–24 are likely to turn first to social media and messaging apps for news in the morning (57%), while one-fifth go directly to news sites (Kalogeropoulos, 2019). The *Reuters Institute Digital News Report 2021* (Newman et al., 2021) provides similar findings for all countries studied, where those under 35 are much more likely to access news via social media than news websites and apps. However, Matikainen and colleagues (2020) found the most important news sources for Finns under 25 to be newspapers' websites and mobile apps (over 80% reported using), social media (over 50%), and television (nearly 40%), with less use of print and radio, instant messages, and video-sharing platforms (around 20% each).

Although people intentionally seek news related to their topics of interest, news exposure is also incidental (e.g., encountered unintentionally through social media feeds), resulting from the nature of social networks and by the algorithms of particular apps (Goyanes & Demeter, 2020). This kind of incidental news consumption, occurring when surfing on social media, is particularly common among young people (Boczkowski et al., 2017). In sum, digital and social media have created a "hybrid" and "high-choice" media environment, where people both choose different news formats and incidentally come across news content on social media (Gil de Zúñiga et al., 2017; Strömbäck et al., 2020). This study investigates the news repertoires of young people in the specific national context of Finland.

Finland as the research context

Finland is an interesting context in which to study news consumption and repertoires, as it is one of the Nordic welfare states (relatively wealthy, fairly small income differences; see Heikkilä et al., 2020) and a so-called "media welfare state" (high media access, not significantly affected by class positions; see Syvertsen et al., 2014). From the traditional notion of media systems, Finland belongs to the democratic corporatist model (Hallin & Mancini, 2004). According to Nielsen (2016), the democratic corporatist model is characterised by a developed commercial news market, interpenetration between news media and politics, and a high level of direct state intervention in the media sector. Finland has also been suggested to belong to a specific Nordic news media system (Denmark, Finland, Norway, and Sweden) from an audience news consumption perspective, distinguished from other European media systems concerning 1) the preference for newspapers' online editions as main sources of news (e.g., instead of using social media for news); 2) going directly from the news brand sites to online content instead of search engines and social media; 3) high level of trust in news; and 4) willingness to pay for online news (Schrøder et al., 2020).

Finland has an internationally respected education system that emphasises media literacy education (Ministry of Education and Culture, 2019). According to the OECD PISA (Programme for International Student Assessment) research, Finland has been among the top highest scoring countries concerning adolescents' general literacy skills, including news media texts, such as newspapers (Sirén et al., 2018). Horn and Veermans (2019) found Finnish International Baccalaureate Diploma students to possess significantly better critical thinking and digital media literacy skills than American students in the same diploma programme.

In addition, the Finnish media environment is "characterised by a strong regional press, a strong public service broadcaster (Yle), one widely read national daily (*Helsingin Sanomat*), and two popular evening tabloids, both reaching over half of the adult population" (Newman et al., 2021: 76). According to the *Reuters Institute Digital News Report 2022* (Newman et al., 2022), trust in news has fallen in half of the countries surveyed, but Finland remains highest in levels of overall trust in news. Finland has a strong tradition of publicly financing journalism and of regarding journalists as trustworthy professionals, in spite of Western journalism's crises of newsroom cuts and declining public confidence in journalism (Nielsen, 2016). Also, 95 per cent of Finns aged 15 and older still read newspapers; nearly 90 per cent read newspapers in digital

form, but more than 50 per cent also continue to read print newspapers (News Media Finland, 2021). Finnish people, especially the young, are active digital and social media users: In 2020, every 16–24-year-old had a cell phone, 98 per cent used the Internet daily, and 92 per cent had followed some social networking service within the last three months (Statistics Finland, 2020).

Research on news consumption repertoires

Previous studies around the world have found news repertoires somewhat similar to the youths among the adult population: minimalists (i.e., those who access the news infrequently and from limited sources); traditionalists (i.e., those who prefer mostly print newspapers and television for news); online or new media news consumers (i.e., those who use mainly Internet, mobile apps, and social media for news); and omnivore news consumers (i.e., those who access the news from diverse sources). The news minimalists generally comprise the largest group and omnivores the smallest group (Heikkilä et al., 2020; Lee & Yang, 2014; Purhonen et al., 2021; Vozab, 2019). These studies, however, rarely consider social media as a distinct news source or form of online news consumption.

A few studies specifically address the news repertoires of adolescents. Edgerly and colleagues (2018) studied American youth aged 12–17 and identified 52 per cent as "news avoiders", uninterested in news, regardless of the source, and 19 per cent as having a "traditional-news-only" repertoire, mainly seeking only mainstream national and local television news (regardless of device or source). The "curated-news-only" repertoire consisted of 15 per cent of respondents who were characterised by primarily depending on social and algorithm-based methods for consuming news (both as seekers and stumblers); 14 per cent were considered news omnivores, consuming all types of news media. Similarly, Geers's (2020) study of Dutch adolescents aged 16 and older found that most (48%) were news minimalists, 31 per cent were traditionalists, 12 per cent were online news users, and 9 per cent were news omnivores. Geers identified news minimalists as showing the least interest in media, and omnivores as significant consumers of various kinds of media. Traditionalists consumed traditional news media both offline and online. Online news users mainly used social and interactive media as news sources. Geers further identified that traditionalists specifically preferred news from traditional (legacy) media through websites and news media apps, while online news users (or social news users) favoured social and interactive media apps with entertaining content. Studying the media consumption of Finnish 15-year-olds, Sirén and colleagues (2018) identified seven categories:

- active literature readers (8%),
- print newspaper, magazine, and literature readers (i.e., traditional, 18%),
- active diverse media users (emphasis on Internet news but also comics, magazines etc., 8%),
- overall news followers but avoiders of other kinds of literature (16%),
- active web text users (especially news websites, 11%),
- comic readers (25%),
- and avoiders that refrain from reading in general but are active social media users (14%).

Finally, a qualitative Reuters study, tracking the digital footprints of 20 British and American under-30-year-olds, identified four similar types of news consumers: "heritage news consumers" consume the traditional news brands they witnessed parents and siblings using while growing up; "passive news absorbers" do not follow any specific news brands but are informed of the news through online and offline encounters; "proactive news lovers" actively curate their social media feeds to follow various news brands and sources; and "dedicated news devotees" follow their primary news brand and supplement it with social media (Flamingo, 2018).

Consequently, most studies recognise three to five similar types of news repertoires: omnivores, minimalists, traditionalists, online news consumers, and users of social media for news consumption. The studies focusing specifically on young people do concede the significance of social media in young people's news repertoires. However, they fail to fully account for the difference in news consumption via websites and apps and news consumption via social media.

Intentional and incidental news exposure

While print and digital news media are more connected to purposefully seeking news, the news flow system of social media includes news links mainly appearing on users' platform feeds affected by the users' social networks and algorithms (Goyanes & Demeter, 2020). The news links encountered by the users may be followed to digital media news sites. Social and digital media have thus transformed the news consumption process. According to Boczkowski and colleagues (2017: 1785), in the process of incidental news,

> young users get the news on their mobile devices as part of their constant connection to media platforms; they encounter the news all the time, rather than looking for it; but click on them only sporadically and spend little time engaging with the content.

Many studies have focused on the overall effects of encountering news incidentally on social media compared to purposefully seeking news. Boczkowski and colleagues (2017, 2018) found that people devote comparatively less time to news stories when they are encountered incidentally on social media (compared to if found intentionally in newspapers or on television). Further, news and information incidentally encountered on social media are controlled by algorithms and network recommendations, thus causing the media to lose part of its role of filtering relevant news and information to people. Gil de Zúñiga and colleagues (2017) found that individuals who perceive that "news finds them" on social media (instead of actively seeking news) are more likely to use social media than traditional news sources to get information. Despite perceptions of being well informed through their social networks on social media, persons not actively seeking news themselves were significantly less politically knowledgeable compared with news seekers. Seeking and enjoying news is important for people to learn about politics and acquire information without being influenced, for example, by opinion leaders (Gil de Zúñiga et al., 2017).

Somewhat differently, Valeriani and Vaccarini (2016) found that in Germany, Italy,

and the UK, the relationship between accidental exposure to news and political information on social media and online participation was significantly correlated. Their findings suggest that accidental exposure to political content on social media is likely to reduce the gap in online participation between people with low and high interest in politics.

Consequently, following digital and social media news may widen the variety of young people's sources of news, leading to an omnivore news consumption style (Geers, 2020; Purhonen et al., 2021). Still, relying mainly on social media news flows may lead to a more passive or uninformed young generation (Boczkowski et al., 2017; Gil de Zúñiga et al.; 2017).

Factors explaining news repertoires

Among the factors specifically predicting the news repertoires of adolescents, Edgerly and colleagues (2018) found that compared with the other repertoire participants, news avoiders had low interest in politics, while the participants consuming curated news only were older and had a moderate interest in politics. Compared with the other groups, individuals consuming traditional news only were younger and interested in politics, while the omnivores were most interested in politics. Geers (2020) also found that political knowledge and interest in politics were predictors of all repertoires except minimalists, and further, that being male was a predictor of being a traditionalist news consumer.

According to the "reinforcement effect", interest in politics and political activity are perceived to affect – that is, reinforce – people's media consumption (see Heikkilä et al., 2020). Heikkilä and colleagues (2020) also identified political interest to be a predictor of belonging to the group of adult media consumers with a "wide repertoire". Heikkilä and colleagues (2020) further found that members of this group were mostly female, had higher education and income, and were more urban than members of the two other groups with a "narrow repertoire" and an "Internet repertoire". People with an Internet repertoire were more often male and younger. Last, Sirén and colleagues (2018) found that adolescent readers of traditional media (mainly print news) and diverse media (mainly online news) had a high socioeconomic status, and the diverse media users were mostly male. In contrast, individuals who avoided reading but used social media actively had the lowest socioeconomic status.

Trust in news media also affects news consumption. Research has shown clear linkages between news media trust and selective news media use or non-use (see Strömbäck et al., 2020). Countries where people tend to trust the news, such as Finland, have lower levels of active news avoidance, while countries with low trust in news, such as the US, France, the UK, and Slovakia, have some of the highest levels of news avoidance, disconnection, and declining interest in news (Newman et al., 2022). According to Newman and colleagues (2021), those who trust the news are more likely to pay attention to mainstream news sources, while those with low trust in news are more likely to seek out alternative sources of information, such as social media. Also, Edgerly and colleagues (2018) suggested that one reason why American adolescents categorised as omnivores have such an appetite for diverse news sources is that they have a high level of political interest but little trust in news being unbiased.

Methods and study design

In this study, we investigate news consumption repertoires among Finnish adolescents and the factors underlying news repertoires. The research questions are as follows:

RQ1. What are the news repertoires of Finnish adolescents?
RQ2. What factors predict different news repertoires?

The data derive from a survey of people aged 15–19 collected between December 2019 and January 2020. A company specialised in conducting surveys (IRO Research) carried out structured telephone interviews that took approximately 30 minutes each. The sample was randomly selected from the Finnish Population Register. According to the guidelines of the Finnish National Board on Research Integrity, young people aged 15 or older can participate in surveys without parental consent. The final sample (n = 800) was adjusted to be nationally representative by age, gender, and area of residence. A total of 16,000 adolescents were contacted in order to compensate for the known problem of low response rate in the population and difficulties in reaching adolescents by phone (this is addressed in greater detail later in the Discussion section). The analysis included only those who responded that they used social media, as social media had a significant role in the selected variables (18 people responded that they did not use social media, reducing the maximal sample size from 800 to 782).

Respondents were asked about which news sources they followed and their frequency of news consumption on traditional news media – such as television or print newspapers and digital versions of newspapers – and social media platforms (the most common ways for young people to follow news and consume news incidentally while surfing online) (Boczkowski et al., 2018).

Our main (dependent) variable investigates the favourite sources for following news and frequency of use (Hasebrink & Domeyer, 2012) by asking participants to name the sources they used to follow news and how often (scale: never; a few times a year or more seldom; a few times a month; a few times a week; daily; many times a day). The response options were as follows:

- Television news (e.g., the public service broadcaster Yle, the commercial TV channel MTV)
- Paper versions of newspapers (e.g., *Helsingin Sanomat*, *Aamulehti*)
- Digital (Internet) versions or mobile applications of newspapers (e.g., *iltalehti.fi*, *hs.fi*)
- I find news on social media platforms shared by my networks

The news-following options were evaluated to identify the news sources used by young people in Finland. According to national media research (Matikainen et al., 2020; News Media Finland, 2021), these sources include 1) newspaper websites and mobile apps; 2) social media/social networking services; 3) print newspapers; and 4) television. The objective was also to offer respondents a list of alternatives that balanced between traditional (offline and online) and social media sources. For example, radio was excluded, as it is not among the most important sources for young people. Modern

research on Finnish adolescents' news consumption (Sirén et al., 2018), even among adults (Heikkilä et al., 2020; Purhonen et al., 2021), does not specifically include radio as a significant media source. Furthermore, the survey used umbrella terms instead of presenting specific news outlets or social media platforms as options, which might have put too much weight on specific sources (e.g., ten different social media platforms and few specific newspapers in modelling leads to results mainly describing social media use). Consequently, "television" includes both public and commercial television, "newspapers (print or digital)" comprises local, regional, and national newspapers and tabloids, while "social media" covers all platforms and social networking services. These choices serve the dual purpose of examining young people's news repertoires in general and (incidental) news consumption on social media in comparison with more traditional news sources.

The word choices in the social media option – "I find news on social media platforms shared by my networks" – limits the study to focusing largely on incidentally encountered news on social media feeds rather than active news seeking on social media. Nevertheless, the study was able to (indirectly) account for the intentional and incidental consumption of news on online platforms by allowing residual covariance between indicators.

Independent variables

We included the common sociodemographic variables of age, gender, and whether in full-time education or not. The level of education is not relevant, as physical age tends to determine the educational level in this population; 96 per cent of respondents were in secondary level education or higher. In addition, we included a variable indicating whether the respondents lived in the Uusimaa Capital region of Finland (i.e., the most densely populated part of Finland, including the capital city Helsinki) to ascertain if there were differences in news consumption between rural and urban areas (Heikkilä et al., 2020; Purhonen et al., 2021). The perceived economic situation of the respondents' own family was included to determine if a perceived good economic situation led to different news consumption (Heikkilä et al., 2020; Sirén et al., 2018).

Other factors that earlier studies connected to news consumption were also included to be compared with the news repertoires found in our sample. Political activity on social media (Edgerly et al., 2018; Heikkilä et al., 2020) was assessed through the following question: "Which of the following social media applications have you used for political activity purposes within the last 12 months?" The question included seven platform options (YouTube, WhatsApp, Facebook, Snapchat, Twitter, Jodel, and TikTok), and the response options were "have used" or "have not used". This study evaluated the participants as being politically active if they reported using at least one platform. Trust in traditional media versus social media (Newman et al., 2022) was assessed by asking the following question: "How much do you trust the following as sources for news and information?" The respondents had two options: 1) news from traditional media, such as television and newspapers, and 2) news and information shared on social media (Likert scale, five options from not at all to very much). An additional question was asked: "How often do you seek information on social media?" The response options were "at least daily" or "less than daily" (Gil de Zúñiga et al., 2017).

Profile analysis and modelling

To answer the research questions, we employed latent profile analysis, which is a type of mixture modelling that is flexible and provides information about different subpopulations of news followers (McLachlan & Peel, 2000; Mäkikangas et al., 2018). The analysis was conducted with Mplus software. The robust version of maximum likelihood estimator was used, which is a full-information version of the maximum likelihood estimator and handles possible missing values well in the "missing at random" situation. Additionally, in the prediction phase, Mplus uses listwise deletion concerning covariates (it uses only observations with data on every variable). With different models, our missing value per cent was at most 1 per cent (Muthén & Muthén, 2017).

Our latent profile analysis modelling was done with free variances (i.e., variances of indicator variables are not constrained equally across profiles). With free variances, adequate representation of data and less biased profile structures are received than in a standard case (where variances are fixed equal across profiles), which is why it is recommended in the literature and used in our explanatory modelling (in preference to more confirmatory use of latent profile analysis; e.g., Geers, 2020) (Diallo et al., 2016; Enders & Tofighi, 2008; Mäkikangas et al., 2018).

Based on theoretical reasoning, we freed one specific residual covariance with two indicator variables. Residual covariance with the use of news sites (on the Internet) and the use of social media platforms to find news is estimated freely in the models. When a person finds a news link on social media and opens it, they will thus visit a news website (i.e., there is a logical unmeasured link between social media platforms and news sites on the Internet), and this covariance should be considered. Additionally, information about the link can be used to understand incidental and intentional social media use in the news context.

Lastly, modelling with covariates was done by the Mplus module R3STEP, which solves the possible change in the profile problem when covariates are added (Muthén & Muthén, 2017). Descriptive statistics of the news-following sources and independent variables of the study are shown in Tables 1 and 2.

Table 1 *Descriptive statistics of following news from different source options*

Indicators	Mean*	Variance**	*N****
Television	3.504	1.623	782
Newspapers (print)	2.770	1.763	782
Newspapers (digital/Internet)	4.063	1.509	782
Shared news on social media	3.385	1.811	775

*Scale 1–6: Never/Couple of times a year/Couple of times a month/Couple of times a week/Daily/Many times a day

**To get standard deviation use the formula: Standard Deviation = √ Variance

***Max *N* in study = 782

Table 2 *Descriptive statistics of independent variables*

Covariates	Mean*	Variance**	*N****
Gender (0/1; Women/Men)	0.494	0.250	782
Age (in years)	16.994	1.986	782
At school (0/1; No/Yes)	0.875	0.110	782
Living in Uusimaa/Capital area (0/1; No/Yes)	0.213	0.168	780
Economic situation of family (1–5; Very Bad–Very Good)	3.867	0.578	782
Political activity last 12 months on some platform of social media (0/1; No/Yes)	0.771	0.177	782
Trust in traditional media sources (1–5; Not at all–Very much)	4.180	0.590	782
Trust in shared news on social media (1–5; Not at all–Very much)	2.774	0.619	779
Seek information daily on social media (0/1; No/Yes)	0.707	0.207	782

*Mean in the case of dichotomous variable (0/1) gives proportion how much is answered to option one at the variable

**To get standard deviation use the formula: Standard Deviation = √ Variance

***Max *N* in study = 782

The descriptive statistics show that the gender distribution of the respondents in the sample was equal, and there was an equal number of respondents in all age groups. Most respondents still attended school and perceived their economic situation to be very good. The respondents reported mostly to consume news through online versions of newspapers, followed by television, and subsequently on social media shared by their networks. Print newspapers were the least used news source.

Results

Profiles indicating news repertoires

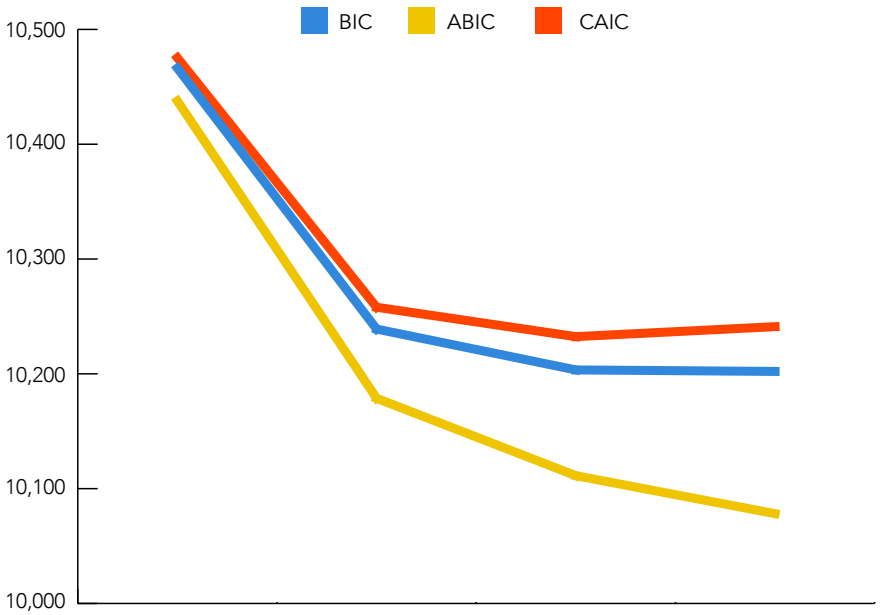
Table 3 presents the fit indices from the modelling. Bayesian information criterion (BIC), sample size-adjusted Bayesian information criterion (ABIC), and corrected version of Akaike's information criterion (CAIC) were used as the main indicators for our decision on the optimal number of profiles. Standard Akaike's information criterion (AIC), which is known for overextraction, is also reported but was not used to evaluate models. Low index values indicate the best model. Lo–Mendell–Rubin test (LMR) was used as a supporting index in the decision. A bootstrapped likelihood ratio test (BLRT) is also reported, but this gave no indication of improvement with the models (Gillet et al., 2021; Morin et al., 2016; Nylund-Gibson et al., 2007). Importantly, interpretability (and parsimony) was also considered as a key criterion for the model selection (Marsh et al., 2009; Masyn, 2013; Morin et al., 2016).

Table 3 *Profile comparison*

Profile	Loglike-lihood	AIC	BIC	ABIC	CAIC	Entropy	LMR	BLRT
1	-5203.163	10424.325	10466.282	10437.702	10475.283	–	–	–
2	-5056.234	10150.469	10239.044	10178.709	10258.043	0.708	0.0837	0.0000
3	-5005.105	10068.209	10203.403	10111.314	10232.404	0.661	0.0184	0.0000
4	-4971.126	10020.252	10202.064	10078.220	10241.064	0.616 *	0.0007	0.0000

*Classification probability 0.53 in the first profile

Figure 1 *Elbow plot showcasing information criteria changes and gain of information when additional profiles are included in the analysis*



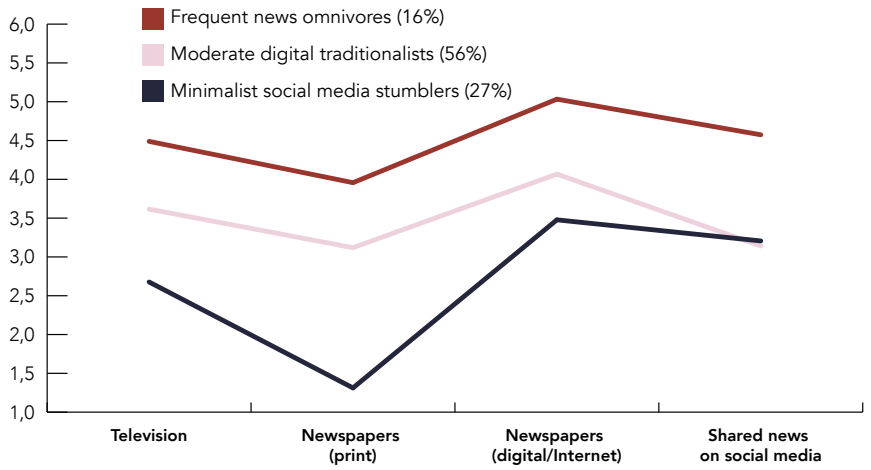
From Table 3 and Figure 1, with lowest values of BIC and CAIC, a model with three profiles is supported (BIC values of the third and fourth models are basically the same). ABIC suggests that a model with four profiles is the best and LMR supports a model with one profile. Based on the information indices, we chose the third model with three profiles. A model with four profiles entails problems with classification probabilities. One additional profile can be accurately classified only at a level 0.53 of probability. Classification probability should be at least 0.7 for every group or profile (Nagin, 2005). A model with three profiles is also meaningful in a theoretical sense and can be easily interpreted in the national media context of the study. The selected model is presented in Table 4 and Figure 2.

Table 4 *Selected model's means, variances, and residual covariances*

	Profile 1	Profile 2	Profile 3
	Minimalist social media stumblers	**Moderate digital traditionalists**	**Frequent news omnivores**
Television	Mean = 2.677 Variance = 1.710	Mean = 3.616 Variance = 1.269	Mean = 4.489 Variance = 0.600
Newspapers (print)	Mean = 1.312 Variance = 0.218	Mean = 3.119 Variance =1.268	Mean = 3.957 Variance = 0.734
Newspapers (digital/ Internet)	Mean = 3.478 Variance = 1.963	Mean = 4.067 Variance = 1.198	Mean = 5.033 Variance = 0.357
Shared news on social media	Mean = 3.206 Variance = 1.846	Mean = 3.141 Variance = 1.703	Mean = 4.574 Variance = 0.457
Residual covariance news sites and shared news social media	0.636 (p = 0.013)	0.056 (p = 0.593)	0.130 (p = 0.070)
N	214 (27%)	439 (56%)	129 (16%)

Comments: All means and variances are significant at the 0.05 level.

Figure 2 *Selected model and profiles indicating news repertoires*



By looking at Table 4 and Figure 2, we can discern the different news consumption repertoires. Profile 1 has the lowest values for almost all indicators compared with the other profiles, and about 27 per cent of respondents belong to the Profile 1 group. This group uses more social media and Internet sites as their news sources (the means are still roughly at the midpoint of 3.5), and their use of television and print newspapers is well below the midpoint. The variances are mainly between 1.71 and 1.96, except for use of print newspapers, which is very low at 0.22. These results demonstrate that the use of different sources of news is distinctly heterogeneous in this group if we do not

consider print newspapers. Residual covariance is positive and significant. We interpret this as a sign that respondents in this group are more incidental news consumers regarding news from Internet sites. They visit news sites and possibly use them as information sources because of their link with social media platforms. Thus, this group is considered to represent the repertoire of minimalist social media stumblers (see Figure 2). This group with low news consumption uses television as a news source only a few times a year and never reads print newspapers. They differ from the minimalist or news avoider repertoires (previously) described in the literature, as they use news websites to follow news and social media to find news shared in their networks a few times a month (roughly weekly). Nevertheless, compared with earlier findings, this group is most likely to incidentally find news on social media sites, and from there, be directed to news websites.

Profile 2 is the most common one, representing 56 per cent of respondents. Means of indicators vary near the midpoint of the scale indicators (between 3 and 4). This group accesses news from all sources measured to an average extent in their average news consumption. Variances are between 1.2 and 1.7, which indicates that there is some heterogeneity regarding sources. Residual covariance is positive but not significant. We interpret this as an indication of a more intentional (compared with the first profile) news-searching procedure, because there is no unmeasured link between social media platforms and news sites (i.e., they are different phenomena and refer to separate news consumption procedures). Thus, the group is considered to consist of moderate digital traditionalists, characterised by average to fairly frequent use of offline and online traditional news media, including television, print newspapers, and news websites. Nevertheless, respondents in this group prefer news in a digital format (news media website or app) several times a week, over print and television (used a few times a month or weekly). They intentionally visit news websites to find news rather than incidentally stumble onto news while on social media. While they also use social media to access news, they do so to a minimal extent, and as a separate process.

Profile 3 is the smallest group, describing 16 per cent of respondents. Means of indicators are between 4 and 5, where news sites have the highest mean value and print newspapers the lowest. Means are clearly over the scales' midpoints and refer to the heavy use of these sources for news consumption. Variances are all less than 1 and vary between 0.36 and 0.73. Low variances indicate that the group is coherent in their news consumption. Residual covariance is positive but not significant. As in profile 2, this indicates that news consumption through news media websites and news consumption via social media are separate procedures. Thus, this repertoire is considered to represent frequent news omnivores. These participants frequently curate their news selection from diverse sources, including television, print newspapers, and social media, although they prefer newspapers' digital formats (websites and apps followed daily). They purposefully visit news websites to find news, as well as social media – but as a separate source of news.

Regarding RQ1, the profiles thus indicate three news consumption repertoires among adolescents: minimalist social media stumblers (27%); moderate digital traditionalists (56%); and frequent news omnivores (16%).

Predicting news repertoires

Our second research question was about predicting different news repertoires using covariates (see Table 2). The covariates are based on factors found in earlier research to relate to news consumption. We estimated with an R3STEP multinomial model to predict repertoires where the first repertoire serves as a reference group. The results are shown in Table 5.

Table 5 *Prediction of news repertoires (multinomial logistic)*

Repertoire	Variable	Coef.*	*P*-value
Moderate digital traditionalists (Ref. minimalist social media stumblers)	Gender (Ref. women)	0.791	0.010
	Age	0.172	0.121
	At school (Ref. no)	0.788	0.079
	Living Uusimaa/Capital area (Ref. no)	-0.758	0.014
	Economic situation family	0.015	0.937
	Political activity on social media in last 12 months (Ref. no)	0.812	0.009
	Trust traditional media	0.592	0.002
	Trust news social media	-0.214	0.266
	Seek information daily social media (Ref. no)	-0.038	0.903
Frequent news omnivores (Ref. minimalist social media stumblers)	Gender (Ref. women)	1.094	0.001
	Age	0.232	0.052
	At school (Ref. no)	0.869	0.117
	Living Uusimaa/Capital area (Ref. no)	-0.865	0.040
	Economic situation family	0.081	0.721
	Political activity on social media in last 12 months (Ref. no)	0.764	0.043
	Trust traditional media	0.514	0.022
	Trust news social media	0.210	0.343
	Seek information daily social media (Ref. no)	1.659	0.008

*To change a reference category with dichotomous variables to the opposite, it suffices to change the sign of the coefficient to the opposite in the interpretation.

When predicting the moderate digital traditionalist profile (compared with the minimalist social media stumblers), significant predictors include gender, living outside the Uusimaa Capital area, political activity on social media, and trust in traditional media. Boys belong to the moderate digital traditionalist profile more frequently than girls (again, when compared with the minimalist social media stumblers). Those living in the Uusimaa Capital area belong more frequently to the minimalist profile. Furthermore, those who are politically active on social media and trust traditional media belong more frequently to the moderate digital traditionalist profile (compared with the minimalists).

Significant predictors for the frequent news omnivore profile (compared with the minimalists) include gender, age, living outside the Uusimaa Capital area, political

activity on social media, trust in traditional media, and frequent information seeking on social media. Boys and older adolescents are more frequently news omnivores than minimalists. Those living in the Uusimaa Capital area are more likely to belong to the news minimalists. Those who are politically active on social media, trust traditional media, and seek information on social media daily are more likely to belong to the frequent news omnivore profile than to the minimalists.

Regarding RQ2, the results thus indicate that being a teenage boy, living outside the Uusimaa Capital area, being politically active on social media, and trusting traditional media are meaningful predictors of being a moderate digital traditionalist and frequent news omnivore. Being an older adolescent and seeking information on social media are predictors of belonging to the news omnivore repertoire.

Discussion

This explorative study focused on the news consumption repertoires of Finnish adolescents (15–19-year-olds) using a nationally representative survey analysed with latent profile analysis modelling. The study was conducted within an age group that is underrepresented in news repertoire research, although adolescents represent the future consumers of news, and news consumption affects both knowledge and participation in society (Boczkowski et al., 2017; Gans, 2003; Nielsen, 2016). This research makes a significant contribution to the existing studies of news repertoires by adding a statistically representative study of Finland, a Nordic welfare state with a specific media environment, marked by a strong regional and national traditional press and public service broadcaster, high trust in these news media, and high digital and social media consumption, access, and skills among the young. A specific contribution of the study is the integration of incidental news consumption on social media into the analysis of news repertoires. This type of stumbling into news is closely related to young people's general news habits (Boczkowski et al., 2017, 2018), but has rarely been studied (Edgerly et al., 2018).

The study found three news repertoires among Finnish adolescents: minimalist social media stumblers (27%), moderate digital traditionalists (56%), and frequent news omnivores (16%). Compared with earlier studies, minimalist social media stumblers resemble a combination of the news minimalist (displaying low interest in any type of news) and the curated-news-only, online news user or social news user repertoires (depending primarily on social and algorithm-based sources for news) (Edgerly et al., 2018; Geers, 2020). Members of this minimalist group were likely to find news incidentally on social media sites and follow it to the news media websites (Boczkowski et al., 2017, 2018). In this sense, the minimalists in this study rely on "news finding them" on social media (Gil de Zúñiga et al., 2017) rather than seeking news from traditional online media sources, although they may occasionally go directly to news websites. Minimalist social media stumblers also resemble passive news absorbers, who are mainly informed of news through incidental online encounters (Flamingo, 2018).

Moderate digital traditionalists are similar to the group named traditionalists in earlier studies (Edgerly et al., 2018; Geers, 2020), with a consistent average traditional news consumption. However, in the Finnish context, the participants were found to prefer digital news websites and apps and to intentionally visit news websites to find news.

When this group accesses news on social media, it is intentional rather than incidental, compared with the first minimalist repertoire (Gil de Zúñiga et al., 2017).

The frequent news omnivore repertoire is similar to the news omnivore repertoire found in earlier research on young people (Edgerly et al., 2018; Geers, 2020). The participants in this repertoire most frequently curate a news digest from various sources (formats ranging from offline to online and social media). They purposefully visit news media websites to look for news, but also seek news on social media (like the traditionalists, although more frequently). Hence, this group has the qualities of dedicated news devotees, intensely following their favourite news sources and supplementing these with news on social media (Flamingo, 2018).

Compared with the findings from earlier research on young people's news repertoires, the results show a clear majority of (moderate digital) traditionalists, while in earlier studies, news avoiders or news minimalists were the largest group and traditionalists the second largest (Edgerly et al., 2018; Geers, 2020; Vozab, 2019). The minimalist social media stumblers appearing in this study amount to only one-third of the participants. There is also a somewhat higher number of (frequent) omnivore news consumers in this study than reported in earlier studies (Edgerly et al., 2018; Geers, 2020). Thus, the results demonstrate how young people in Finland tend to consume news from online versions of traditional news media. This is consistent with findings from other Nordic countries (i.e., the "Nordic news media system"), confirming the relatively strong position of traditional news media organisations (Schrøder et al., 2020; Sirén et al., 2018), compared with news on social media (Ku et al., 2019; Newman et al., 2021). The results are promising for traditional media news outlets, especially newspapers. The digital format enjoys a strong standing, while in the future, the print newspaper is likely to become a habit of very devoted traditionalists or a few omnivores.

Although minimalist social media stumblers are not as plentiful in this sample as in earlier studies, they are the most concerning one. Low news consumers are unlikely to consume traditional news media, risk ending up with significantly less political knowledge, and are susceptible to false information (Gil de Zúñiga et al., 2017). The behaviour of "social media news snacking" is characterised by a quick scanning of news, limiting the time for content evaluation and understanding (Boczkowski et al., 2017; Ku et al., 2019). Further, relying on unchecked online sources and information instead of reliable news media sources is connected to weak news media literacy skills (McWhorter, 2019). Nevertheless, incidentally stumbling into news on social media might increase traditional news following and exposure to political information for those who do not follow any news at all (Boczkowski et al., 2017; Valeriani & Vaccarini, 2016), and news shared by friends and family may be more relevant and interesting to younger adolescents (Ku et al., 2019). Hence, although social media can widen news media repertoires, it can also lead to receiving mostly unverified information.

Regarding the background factors of news repertoires, the study revealed political activity on social media and trust in traditional media to be meaningful predictors of belonging to the moderate digital traditionalist and frequent news omnivore repertoires. Thus, retaining or achieving a high national level of trust in traditional media can increase adolescents' traditional, frequent, and diverse news consumption (Newman et al., 2021, 2022; Strömbäck et al., 2020). The study also confirms that political activity and interest are predictors of adolescents' traditional, frequent, and diverse news consump-

tion, in addition to the outcomes of news consumption as revealed in earlier studies (Edgerly et al., 2018), which should be considered in (media) education to foster news consumption among young people.

The frequent news omnivores were further found to regularly seek information as well as news on social media. The effort to access complementary and varied knowledge and experience is positive, as it may improve critical thinking and understanding of news content (Ku et al., 2019; McWhorter, 2019). Actively using social media to access news and information distinguishes the omnivores from the more passive social media stumblers (Flamingo, 2018; Gil de Zúñiga et al., 2017).

Older news omnivores may serve as an indication that young people's news orientations develop with increasing age (Elvestad & Shaker, 2017) towards more frequent and diverse use. This could be a development from a traditionalist orientation, potentially conditioned by parents' news habits and subscriptions (Edgerly et al., 2018; Geers, 2020), or from a minimalist social media orientation, for example. The findings from global studies of adults show high numbers of news minimalists and generational repertoire patterns (Lee & Yang, 2014; Vozab, 2019), which do not support this notion. However, the Nordic news media system, the traditional (digital) news landscape, Finnish media education, and today's adolescents exposed to digital and social media from an early age may produce a new generation of omnivore news followers.

The study did not find the perceived economic situation of one's family to be a significant predictor of news repertoires as have earlier studies (Sirén et al., 2018). However, the study found that being male and living outside the Uusimaa Capital area were predictors of belonging to the traditionalist and omnivore repertoires. Consequently, those not belonging to the traditionalist and omnivore repertoire groups of this study, but who instead form most of the reference group of minimalist social media stumblers, are adolescent girls living in densely populated (urban) areas. For this group, social media filled with favourite platforms, online peer networks, and entertainment may be more alluring than traditional news (Geers, 2020; Purhonen et al., 2021). Traditional media in particular face the challenge of maintaining the trust and interest of adolescents in the digital and social media era abounding in entertaining online content.

This study reveals adolescents' news consumption repertoires in a Nordic and media welfare state with high trust in news media (Heikkilä et al., 2020; Syvertsen et al., 2014), characterised by wide access to digital and social media and a well-developed (media) education system (Sirén et al., 2018). Even in this context, minimalist news consumers amount to one-third. Consequently, in countries with more socioeconomic inequalities, political polarisation, a greater digital divide, lower trust in media and shortages of education in critical thinking and (digital) media literacy, the risk of adolescents avoiding news or using only social media to inform themselves is much greater (Edgerly et al., 2018; Heikkilä et al., 2020; Horn & Veermans, 2019; Newman et al., 2022). The relationship between news media literacy skills and news repertoires is so far unstudied, but it may be that news literacy education (Ku et al., 2019) increases trust in news media, leading to a more frequent and active news media repertoire.

There are limitations to this study. The news-following options of the survey did not distinguish between private television companies and the Finnish public broadcasting company Yle (or between their analogue and digital formats) and also merged dailies with tabloid newspapers. Our survey questions also did not allow for the alternative

"seeking news actively on social media". For an even more comprehensive study, news aggregators and online-only news could also be added as sources of news. Further, trust in media is a complex issue which can be measured at different levels and between media types (Strömbäck et al., 2020), and this study focused on a rather narrow separation of trust in traditional media versus social media, found adequate for the study. Parents' level of education, media consumption, and trust in news may also be potential predictors of news consumption repertoires that future studies regarding adolescents' news repertoires should include.

Another limitation is related to the sample. Young people aged 15–19 do not participate readily in surveys (whether online, via telephone, or traditional postal surveys), and thus they could be described as a hard-to-survey population (see Tourangeau et al., 2014). We wanted our data to be nationally representative, with population register–based random sampling, adjusting the data by age, gender, and residential area (interviews were conducted in randomly selected subpopulations until representativeness was achieved). To achieve this, we needed 16,000 contacts, which resulted in a computational response rate of 5 per cent. However, as the final sample is representative, we do not consider the computational response rate a major problem.

The study provides novel methodological implications, such as using residual covariance in the modelling to indicate incidental and intentional news consumption, and important findings on adolescents' news consumption for academic discussion, (media) education planning, and media organisations' decision-making. This study also presents many opportunities for further research. Additional (comparative) research on adolescents' news repertoires should be conducted in other countries – both Nordic countries with similar media systems and countries with differing media systems – to ascertain how and why their youth news consumption repertoires differ from the findings of this study. Also, a longitudinal study or a survey of different age groups (adolescents versus young adults) would provide information on how age affects news repertoires among young people; for example, whether adolescents evolve into omnivores or remain digital traditionalists. Further, news media literacy should be studied in relation to specific youth news repertoires, and the active seekers and passive stumblers of news should be studied in greater detail.

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