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YouTube *Itak*: a description of Ainu-related videos

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The Ainu are an Indigenous group currently living primarily in Japan. Following the cultural revitalisation of laws and social movements and the appropriation of new technologies, Ainu communities are increasingly using social media to disseminate their culture. However, research on the Ainu people has rarely discussed their communication strategies in current media. In this study, a total of 428 Ainu-related videos uploaded on YouTube were analysed. Basic information about the videos was obtained through the YouTube application programming interface and additional information was acquired by watching them. The videos were categorised into three groups: those produced only by Ainu people, with Ainu people, or without Ainu collaborators. Statistical and qualitative differences between release and upload dates, keywords, categories, conceptualisers, producers, presenters, YouTube metrics, tags, and video descriptions were used to uncover the different types of content created and/or endorsed by Ainu people and the communication strategies used by them and their allies. The combination of quantitative and qualitative methods based on Indigenous communication approaches adopted in this study proved to be useful in understanding Indigenous media in online contexts.

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Introduction

Indigenous communication and media. Humans have developed diverse communication systems to disseminate information to others. In our current world, where internet adoption increases in volume and speed every year and related tools are adopted, a plethora of media from all corners of the globe has emerged. Despite the apparent hegemony of some forms of such media, alternatives called contra-flows exist. Based on Thussu (2007), contra-flows can be considered as media objects emanating from a wide range of actors with a special focus on creative and cultural industries, divided into two types: transnational flows dependent on private and state sponsors such as the Bollywood film industry in India, and Geo-cultural flows that cater to specific cultural-linguistic audiences who may be scattered around the world, such as the Baidu internet-based service company in China. Some of the most relevant implications of media contra-flows are knowledge and economic benefits from abroad pouring to a specific region, with this region potentially becoming a noted part of the dynamics of power relations at a global level.

A post-colonial perspective of contraflows defines them as semantic referents for the institutional, cultural, and political matrix of spaces framed by power and negotiations dynamics, where national, cultural, and individual identities are contested in terms of local, national and global citizenships (Kavoori, 2007). If we consider this definition of contra-flows, one of them can be Indigenous communication, which focuses on the knowledge transfer systems and tools used and/or adapted by First Nations. Communication is perceived as an immaterial, collective, patrimonial right. However, individuals and sometimes entire Indigenous communities have become more mobile, with differences between them deepening due to migration, access to higher education, and relations with states. Indigenous migration has been exacerbated by the COVID-19 pandemic, influencing ontological variations (e.g., relationships with their hometown) and cultural practices among those with migration experiences (Kahambing, 2022). In this techno-sociocultural context, communication is also more diversified, challenging Indigenous people and their allies to identify shared aspects.

Knowledge embodied and transferred through multiple senses can generate more integrated experiences and reconstruct a more authentic reality. This is particularly relevant for the study of multimedia objects that involve multiple senses. Thus, Indigenous media, as a subset of Indigenous communication, can be understood as media conceptualised, produced, and circulated by Indigenous people to preserve their knowledge, communicate, express themselves, reaffirm sovereignty, and exert political influence (Wilson et al., 2014).

Within the fields of Indigenous communication and Indigenous media, the Ainu have received limited research attention. The world of the Ainu, known as *Ainu Mosir*, is currently used as an ambiguous concept for the geographical demarcation of the activities of the Ainu people, although some conceptualise it as a set of knowledge, epistemologies, and behaviours. For example, *tesagari* (searching by hand) in Ainu crafts sparks contact with memory, the past, heritage praxis, and an ancestral vision described as *Ainu no seishin* (intention or spirit; Lewallen, 2017). Our study argues that *Ainu Mosir*, as a set of living, diverse knowledges and practices, also exists in online spaces. Therefore, it is relevant to examine openly available Ainu-related multimedia to identify the diversity and similarity of their discourses, contributing to enhanced accountability, reciprocity, and multiple knowledge among Ainu and other Indigenous communities.

The rest of this paper is organised as follows: First, we review studies on Indigenous and Ainu media, identifying research gaps and theories that underlie our methods described in the 'Methods' section. Next, we report our results, followed by an in-depth discussion. Finally, we conclude this study by outlining its strengths and limitations.

Indigenous media

Non-web-based Indigenous media. Some of the first Indigenous media studies unpacked how to transfer Indigenous communication methods to mass media in Nigeria (Ugboajah, 1979). Subsequently, research expanded to examine Indigenous film and television in Australia (Ginsburg, 1994) and Indigenous videos in Latin America (Córdoba, 2011) and Ecuador (León Mantilla, 2015). Political filmmaking in Bolivia (Zamorano Villarreal, 2017) and Indigenous film as a decolonising tool in Ecuador (Torres Idrovo, 2018) were also analysed, with newspapers and print media such as the Mapuche press coverage in Chile (Salazar, 2004) being among the most explored topics by researchers.

Studies explored the representations of Indigenous people in the Swedish and Canadian press coverage of climate change (Roosvall and Tegelberg, 2013) and in newspapers from Germany, India, South Africa, and the United States (Wozniak et al., 2015). In addition, they examined the Mapuche conflict with corporations in Chile (del Valle Rojas et al., 2019) and similar Indigenous issues in the United States (Bacon, 2020), as well as how the silence of print media contributed to Indigenous economic exclusion in Peru (Palacios and Illarec, 2020).

Research with more general purposes included investigating the impact of media on young Indigenous people in Latin America (Perez Ruiz, 2008), journalism and Indigenous health in Australia (McCallum, 2011), and global mobilisation in the Americas and Australia (Mako, 2012). Succeeding studies examined Indigenous radio stations in Mexico (Gasparello, 2012), Colombia and Latin America (Cuesta Moreno, 2012), and Argentina (Doyle, 2018).

Indigenous internet and social media. General studies focused on the translation of Indigenous communication to new media in Africa (Okigbo, 1995; Nyamnjoh, 1996), including the limitations of copyright in South Africa (Moahi, 2007). Scholars documented the transition of Indigenous media into new media in Australia (Ginsburg, 2016), social and digital media adoption in Australia (Rice et al., 2016), and futuristic Indigenous media (Lempert, 2018). Arcila Calderón and colleagues (2018) identified four analytical approaches to Indigenous media in Latin America, which we believe can be applied elsewhere: (1) Media and information and communication technology appropriation, (2) policies and regulation, (3) Indigenous media, and (4) communication from *Buen Vivir*. Further, they argued that media may serve the following three functions:

- Inwards: self-expression and reaffirmation of group history and culture;
- Outwards: connect to other Indigenous communities, create solidarity networks, combat misguided representations, and project themselves to the world;
- The border (the frontier): hybrid practices based on modernity.

Among Indigenous media frameworks, the *Asociación de Cabildos Indígenas del Norte del Cauca* (ACIN) documented in Almendra (2010) articulated the communication and adoption of new media among the Nasa community in Colombia through the *Tejido de Comunicación para la Verdad y la Vida* (Weave Communication for Life and Truth). The communication process is weaved by threads (media tools), internal knots (Indigenous people), external knots (allies), and holes (topics and their active communication processes). This approach seeks to contribute to

the construction of other possible worlds, an aspect that coincides with *Buen Vivir* (Good living) communication frameworks. *Buen Vivir* was born from Andean Quechua and Aymara, seeking to construct ethical and culturally rooted practical knowledge that challenge the Westernised tendency to universalise and separate theory, practice, knowledge, and values, constructing multiple epistemologies resulting from cultural diversity (Gudynas, 2011).

Regarding social media, studies examined Diaguitas' use of radio, Facebook, and Twitter in Argentina (Toulemont, 2013), as well as Indigenous webpages and blogs in Mexico and Latin America (Sandoval Forero, 2013); Maori digital storytelling (Beltrán and Begun, 2014); dissemination of knowledge and skills through social media in East Africa (Owiny et al., 2014); and social media practices in Southwestern Amazonia (Virtanen, 2015). Scholars documented online engagement of Indigenous tour operators with tourists in Australia (Mkono, 2016), the Sami anti-mining protests on Twitter (Lindgren and Cocq, 2017), hashtag activism in Canada (Moscato, 2016), and Native American performativity in old videos posted on YouTube (Berglund, 2016). Furthermore, studies explored Australian-based racism on Facebook, Twitter, and YouTube (Matamoros Fernández, 2017) and found collective Indigenous trauma on social media (Carlson et al., 2017).

The research observed political social media use in Mexico (Duarte, 2017) and documented the Igorot diaspora on Facebook groups (Botangen et al., 2018). Studies examined Mayan rap on YouTube (Cru, 2018), health information on Australian social media (Hefler et al., 2019), Nepali Indigenous dance on YouTube (Wettstein, 2019), politics of hope on Australian social media (Carlson and Frazer, 2020) and an Indigenous Peruvian music video on YouTube (Aguiló, 2020). Scholars explored formats of Indigenous multimedia and internet media in Mexico and Central America (Gómez Menjívar et al., 2019) and compiled Indigenous and Afro-American media across Latin America (Orobitg and Canals, 2020). Varied interests and concerns related to artificial intelligence (AI) were found on the internet and in multimedia spaces among Indigenous people (Lewis et al., 2020), which overlap with the needs of other groups, such as women and disability communities.

Conclusions on Indigenous media research. Since the mid-2000s, feminist and decolonial perspectives have been employed to analyse media for and by Indigenous people. Little attention was paid to age, ethnicity, class, and disability inequalities, with most studies being focused on local and regional Indigenous media to detriment of international dialogues.

Indigenous social media studies are a recent trend, with research dating back to 2013 and mostly focussing on Oceania and the Americas. The few studies related to YouTube examined the content and comments of only one or two videos. The plurality of heterogeneous knowledge and the interconnections of that knowledge must be recognised without forgetting Indigenous autonomy. We thus uncovered Ainu communication strategies across regional and international multimedia based on Weave Communication (ACIN in Almendra, 2010) and Indigenous media functions (Arcila Calderón et al., 2018). However, Ainu perspectives must be incorporated, which are identified in the following section.

Ainu Media. Researchers have analysed early Ainu movies by European filmmakers and scholars (e.g., Okada, 1999; Centeno Martin, 2017). Kayano mentioned his painstaking efforts to document Ainu customs on audio tape and film in his memoir (Kayano et al., 1994), collaborating in the production of the first documentaries made with and for Ainu in the 1970s. Recent politicised documentaries, such as those related to ancestor remains, have also been examined (Dollin, 2020); however, these studies focus on one or two audio-visual materials from an ethnographic perspective.

Investigations examining numerous media include Uni (2014), who compiled a database of Ainu-related documentaries made by the Japan Broadcasting Corporation (*Nippon Hoso Kyokai* [NHK]). Because such materials are difficult to access, further research on a big data scale has not yet been conducted. Radio programmes and documentaries have been a fundamental way of preserving and teaching the Ainu language, while most Ainu people obtain information about their culture through newspapers and television (Onai, 2016). Moreover, Ainu materials related to pop culture have rarely been discussed in depth. Notable exceptions include the role of pop culture in stereotyping the Ainu people (Chupuchisekor, 1999), analysis of the *Golden Kamuy* manga (Ruiz Flores, 2020; Edwards, 2020), and Ainu characters in *Samurai Spirits* video games (Spiker, 2020).

Hayashi-Simpliciano (2020) addressed the transnational, multicultural, and spiritual diversity of Ainu in the Diaspora who have been generationally removed from the physical *Ainu Mosir* through the *Ainu Neno An Ainu* (to be a truly humane human) framework of spiritual affinity. Academic research has the capability of exacerbating the divide in power between researcher and participant, as "Indigenous people have been in many ways oppressed by theory" (Smith, 2000, p. 38). Therefore, it is suggested that a researcher could craft a theoretical lens specific to the distinct needs of Ainu in Diaspora who are descendants of historically oppressed people attempting to reclaim their identity through multimedia documentation of their community and familial stories.

Ainu Neno An Ainu was pulled from ideas consistent with a postcolonialism and neocolonialism theoretical framework, postmodernist definitions of diaspora (Safran, 2007), and the transformative paradigm (Mertens, 2010), to address the unique needs of a multimedia and art-based community-driven research project seeking to empower Ainu in Diaspora. Such a framework aids in understanding that the Ainu in Diaspora conceptualisation of identity is tied to a worldview that braids together historical, physical, and spiritual connections. This enables the researcher to contextualise the trauma of Ainu's *kotan* (village) rift and the healing found in community building and affinity. Thus, the *Ainu Neno An Ainu* framework highlights the ways that an Ainu in Diaspora can strengthen or weaken their connection to their own Ainuness (humaneness).

Next, we are going to discuss Hayashi-Simpliciano's (2020) Moshiri/Mosir model. From a Western perspective, the model is comparable to grounded theory in that both are qualitative strategies (Creswell, 2007). Such an approach is appropriate when researchers cannot determine where they are going in the research process until they have done a significant analysis of the data, which is grounded in the views and perspectives of the participants (Creswell, 2007). The Ainu worldview can be framed in complex interweaving and intersectional layers, where the physical plain is woven in layered relationships with the metaphysical realms (Yamada, 2002). Time is thus a continuum in which the ancestors and the divine are constantly interacting with the environment of this realm to influence the expression of knowledge. It is important to note that the Mosir or layered planes simultaneously interact with the Ainu as a conduit for knowledge through creativity, the process of storying self, and in the expression of stories.

To dismiss the storying of experiences through the act of creation would be to dismiss the distinct Ainu paradigm that guides the understanding of how Ainu shares knowledge. Therein lies the premise of a research methodology rooted in the Ainu

worldview. In the Ainu worldview, artistic practices, and the acknowledgement of spiritual or divine sources of knowledge, are all important aspects of data collection. For this research, the Mosir model stands out as an Indigenous-based and uniquely Ainu methodology which helps researchers identify when the subtle nuances of the traditional Ainu worldview surface in video and digital story sharing.

The model comprises Pokna Mosir (ancestral plane), Kamuy Mosir (future plane), and Ainu Mosir (human/creativity plane), where time is a continuum in which the ancestors and deities (Kamuy) are constantly interacting with the human environment, influencing creative expression. Through multimedia platforms which include Ainu practices, visual imagery, fashion, music, lyrical delivery, and technology; the stories of Ainu ascend through the Mosir Model to become narratives of resistance (Denzin, 2001) on the YouTube platform.

- Pokna Mosir: In the account of the oral traditions of the Horebitsu region of Hokkaido/Yaun Mosir in Japan, Yamada (2002) identified Pokna Mosir as "the world where the souls of the dead are destined to go" (p. 25). Despite Pokna Mosir having a negative connotation due to misuse by Christian missionaries to describe hell, "there is no hell" (p. 25) in precolonial Ainu oral traditions, and morality is not associated with death. In the Mosir model, Pokna Mosir serves as a metaphorical base where Ainu builds a relationship with the past through learning ancestral knowledge, while the viewer develops an appreciation of the revitalisation of Ainu cultural practices. The Pokna Mosir phase thus entails delving into the histories, languages, and practices of the generations before.
- Ainu Mosir. This is the realm in which humans, plants, and animals exist along with certain kamuy (Yamada, 2002). In the context of YouTube videos, Ainu Mosir is a metaphorical plane with multiple realities pertaining race, class, economics, gender, age, religion, and ability. Creativity and performance in this plane are the results of metaphysical influence from the plains of Pokna and Kamuy Mosir, leading the re-storying of the self and the Indigenous identity. A key element in this plane is the reconnection of the Indigenous person to the living planet. Within the Ainu worldview, this would mean that those of Ainu heritage must have hands-on experiences to process and reflect on their relationship with the kamuy. However, in modern times, YouTube is serving as a tool to help Ainu learn about their ancestral homeland, and further reflect on how other Ainu have remained in relationship with their ancestral homeland.
- Kamuy Mosir. This is a physical place above Ainu Mosir, in the upper part of heaven called *Rinkin Kanto* (Yamada, 2002). In the Ainu cosmogony, heaven is regarded as a place with several layers, intersecting the Ainu worldview of time, space, and potential, with Kamuy Mosir at the highest part of heaven. This plane involves producing actionable steps in advocacy, awareness, politics, and education, as the process of re-storying the presence of the marginalised creates change in the future realm. YouTube videos can not only hold important knowledge for the audience watching the video but can help to identify areas of opportunity and create change for the benefit of future generations. It is in the realm of Kamuy Mosir that the Ainu viewer can re-imagine and re-story their existence in a place where colonisation, illegal occupation, and the social aftermath of oppression are non-existent, or at least, a non-barrier to achieving social justice.

Unfortunately, research remains scant on projects involving contemporary technology and Ainu people, such as project
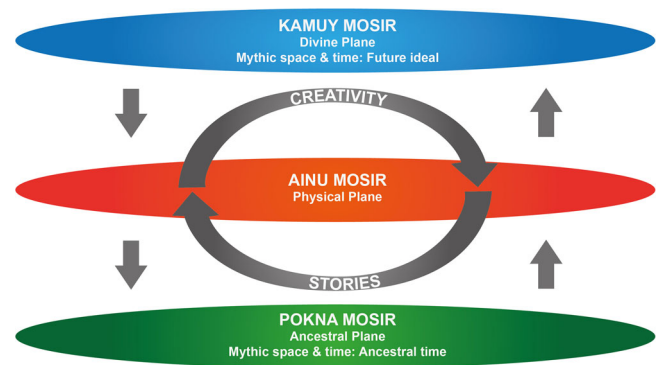

Fig. 1 Mosir model.

mapping (Akan Ainu Kotan, 2019), interactive media (Akan Adventure Tourism, 2019), and AI (Okuyama et al., 2018). Mertens explained that transformative researchers would "consciously and explicitly position themselves side by side with the less powerful in a joint effort to bring about social transformation" (2019, p. 21). In centering the needs and experiences of the most marginalised, the transformative paradigm indicates the necessity to re-story the Ainu experience (Fig. 1).

Through the act of viewing Ainu stories on YouTube and carving out space for Ainu to process the information on the videos, and then visualise a future where the information on the videos can be applied, the uniquely Ainu cultural aspects of the Mosir model and social justice elements of the transformative paradigm serve to humanise and indigenise the methodological approach in the research. Such aspects correspond to the inwards function of Indigenous communication. Therefore, these frameworks can be adopted in our study to examine multiple Ainu-related audio-visual materials in online spaces from plural and transnational perspectives, describing their Itak ('language' in Ainu).

Research questions and objectives. Our research questions are as follows:

1. Which types of Ainu-related multimedia content are created?
2. Who produces Ainu-related multimedia content and to which degree Ainu participate in the production of such content?
3. Which Ainu-related communication strategies are present on social networking sites (SNS)?

Based on our research questions, the objectives of the present study are:

1. To determine the types of Ainu-related multimedia content created, based on our theoretical/epistemological frameworks.
2. To elucidate who produces Ainu-related multimedia content and the degree of Ainu participation in the production of such content, mainly by considering the ethnicity and gender of the knots.
3. To identify Ainu-related communication strategies on social networking sites (SNS), based on our theoretical/epistemological frameworks.

Methods
Data collection. Figure 2 summarises the criteria for data collection. We first chose the threads, that is, the media tools. Given that television and documentaries are crucial for Ainu people to
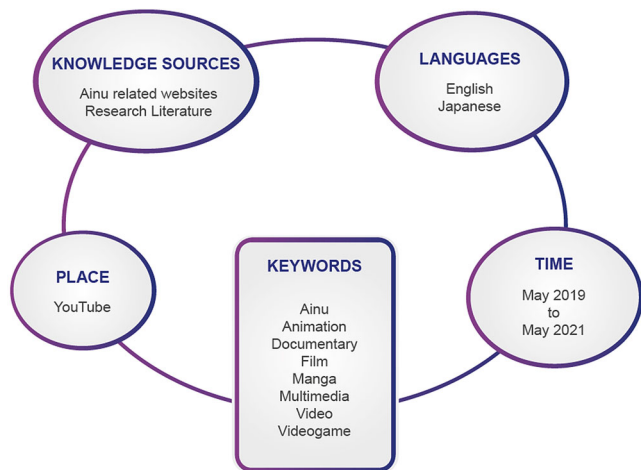
Fig. 2 Criteria for data collection.

Table 1 Data obtained with the YouTube application programming interface.

Data name	Description
Published Date	Date that a video first appeared on the YouTube feed
Video Title	Title that appears below the video
Video Description	Description that appears below the title (if provided)
Tags	Keywords written by whoever uploaded the video (if provided)
Video Category Label	Provided by YouTube and chosen by video uploader
Duration	Video duration in seconds
Definition	Whether the video is in Standard (SD) or High Definition (HD)
Caption	Whether the video includes captions
View Count	Number of views

Table 2 Data verified by humans.

Data name	Description
Release Date	Date that the media was released to the public
Conceptualisers	Those who had the original idea and/or the materials for the media
Producers	Those who produced and/or paid the media
Presenters	People appearing/heard in the media
Place	Place where the media was recorded

foster their culture and that such media overlap with video-based social media such as YouTube, we explored this thread. YouTube was founded in 2005 as a platform for video-sharing mainly among artists and creatives. Its recommendation algorithm is likely based on neural networks (Covington et al., 2016) and collaborative filtering (Airoldi et al., 2016), which provide fresh, time-consuming content on a large scale while aggregating users' video-viewing practices. The increasing commercialisation of this platform has led to an expansion of video-making and distribution rules, impacting perceived opportunities for the open sharing and creative exploration of personal and social messages (Lange, 2019). Nevertheless, academics have noted the platform's capability to host culture and knowledge (Burgess and Green, 2009; Vargas Meza and Yamanaka, 2017).

In this study, one researcher curated YouTube video lists with a user account, prompting its recommendation algorithm to suggest similar items. Through this gradual collection process, we found a considerable number of videos recommended by Ainu people or posted by the creator/endorser channels. In contrast, the YouTube application programming interface (API) was not capable of detecting many Ainu-related videos and those that were indeed related, were made and uploaded by users hard to identify, while the video content tended to include fragments of old footage combined with English text and without citation of sources.

For this study, we excluded most live videos (which tend to be recorded without explicit permission and whose origin is difficult to determine) and videos where Ainu people or their voices were not displayed. If more than one format of the project existed (e.g., comics and animation), we chose items related to the most interactive version. In addition, if a video was available with the same content and length but with language subtitles, only the subtitled version in English was chosen to emphasise the transnational nature of the media. In total, 428 Ainu-related videos were analysed.

Next, we extracted related data (Table 1) using YouTube data tools (Rieder, 2015; Arthurs et al., 2018), which employ the YouTube API. To answer Research Question 1, we considered the Mosir model and Weave Communication through the Published date (time dimension), category (holes), and duration and definition (characteristics of threads). To answer Research Question 3, we focused on descriptions and tags to complement the information on holes.

Classification of data. Four researchers watched the videos to clarify the aspects listed in Table 2, which engage the Mosir model

and characteristics of the knots that can help answer Question 2. Regarding the release date, we considered cases where a video was recorded on one date and made available on YouTube at a later date. The knots were based on the video creation process, considering how internal and external knots interact in a mostly Japanese context. Therefore, conceptualisers, producers, and presenters were classified into four categories: Ainu, Japanese, foreign, and unclear. Ainu identity was considered in three cases: those who self-identified as Ainu in the video content, those who were married/adopted into an Ainu family, and those who were recognised by an Ainu association. Press releases and materials from Ainu associations featuring this person were considered proof of recognition.

We classified those talking in Japanese, living in Japan, with a Japanese name and/or who clarified their Japanese nationality as Japanese. Foreigners spoke in English, had a foreign name, and/or clarified their nationality in the video content. These cases were not considered simultaneously (e.g., 'Japanese' and 'Ainu'). Furthermore, because social meaning is ascribed to specific bodies and voices (Criado Perez, 2019), we also categorised the knots according to three perceived genders: man, woman, and unclear.

After deciding on the classification scheme, four authors coded the videos independently, with a final agreement negotiated among each pair of coders. Next, the videos were divided into three main groups: those produced only by Ainu people, those produced with Ainu people, and those produced without Ainu people.

Data analysis. For Research Question 1, published date, category, duration, definition, tag usage, caption usage, number of views, and place were quantified. The differences between groups of videos were measured through non-parametric tests and pairwise comparisons using SPSS (Frey, 2017) as most of our variables did not satisfy parametric assumptions. For Research Question 2, the

variables of ethnicity (Ainu, Japanese, foreign, and unclear) and perceived gender (male, female, and unclear) were quantified. The differences between the video groups were measured using the same method used for Research Question 1, as these variables did not satisfy parametric assumptions.

For Research Question 3, one researcher conducted word frequency analyses on video tags and video descriptions using Context (Diesner, 2014), a software package focused on words that provide quantitative results (see Diesner et al., 2014; Ferguson, 2016). A word-counting software called the Japanese Text Analysis Tool (Brochtrup, 2015) was employed for Japanese. Next, the researcher constructed graphs using Gephi (Bastian et al., 2009) to map the differences in the usage of common tags and words among the three video groups. We complemented the analysis with observations made on the videos watched through our compound theoretical/epistemological framework.

Results
Types of Ainu-related multimedia
Ainu multimedia across time. Figure 3 shows YouTube videos published in a given year on the right and media projects that were released on the left. This figure reflects the progression of Ainu-related matters in Japan. The Law for the Promotion of the Ainu Culture and for the Dissemination and Advocacy for the Traditions of the Ainu and the Ainu Culture was passed in 1997. In June 2007, the National Diet declared the Ainu the Indigenous people of Japan, and the Indigenous People Summit was celebrated in Hokkaido/Yaunmosir the next year. These events coincided with the first release peak of media produced with Ainu between 1993 and 2008 in the figure. The first publishing peak on YouTube was in 2011, dominated by documentaries and music-related videos produced without Ainu. It was not until the Irankarapte campaign (a tourism campaign promoted in Hokkaido/Yaunmosir by multiple agents) in 2013 that videos produced with Ainu people peaked in terms of publishing on YouTube for the first time.

The first peak of videos produced by Ainu was observed in 2015 and comprised documentaries and open lectures by Ainu experts. The same year also saw a peak of videos produced with them, corresponding mostly to child-oriented content released by the Ainu Museum 'Poroto Kotan' (now 'Upopoy') and the Foundation for Ainu Culture—both education-oriented identities based in Hokkaido/Yaunmosir. In 2018, a new name for the National Ainu Museum and Park, 'Upopoy', was announced, and released videos peaked in all groups. Finally, the new Ainu Law was passed in 2019 just in time to tie Ainu culture promotion with the Olympics to be hosted in Japan. The aforementioned year had the highest peak for videos produced by Ainu people,

while 2020 was the highest for the other two groups, as can be seen in Fig. 3.

Video categories. A Kruskal–Wallis test showed a statistical difference between the video groups ($H(2) = 28.52$, $d = 2$, $p = 0.000$) in terms of categories. Pairwise comparisons indicated no differences between videos produced with Ainu and by non-Ainu ($N = 172$, 159, $M = 193.01$, 202.65, $SD = 8.41$, 7.01, $p = 0.220$); differences between videos produced by Ainu and with Ainu ($N = 97$, 172, $M = 272.03$, 193.01, $SD = 5.68$, 8.41, $p = 0.009$); and videos produced by Ainu and non-Ainu ($N = 97$, 159, $M = 272.03$, 202.65, $SD = 5.68$, 7.01, $p = 0.001$). This suggests that the most different group in terms of content was the one that included videos produced by Ainu people. Table 3 demonstrates that most of these videos were categorised as education, while videos produced by other groups were mostly categorised as non-profits and activism, and people and blogs.

Other characteristics of video groups. Table 4 details other differences and coincidences across video groups. The duration was moderately statistically different ($H(2) = 6.97$, $d = 2$, $p = 0.031$). Pairwise comparisons showed no differences between videos produced with Ainu and non-Ainu ($N = 172$, 159, $M = 196.37$, 221.29, $SD = 658.9$, 407.75, $p = 0.201$) and between those produced by Ainu and non-Ainu ($N = 97$, 159, $M = 235.52$, 221.29, $SD = 505.02$, 407.75, $p = 1$), whereas moderate statistical differences existed between videos produced by Ainu and with Ainu ($N = 97$, 172, $M = 235.52$, 196.37, $SD = 505.02$, 658.9, $p = 0.038$). The average length of videos produced by Ainu was 439.97 s, while it was 403.51 s for videos produced with Ainu and 399.76 s for videos produced by non-Ainu collaborators.

Table 3 YouTube categories of Ainu-related videos.

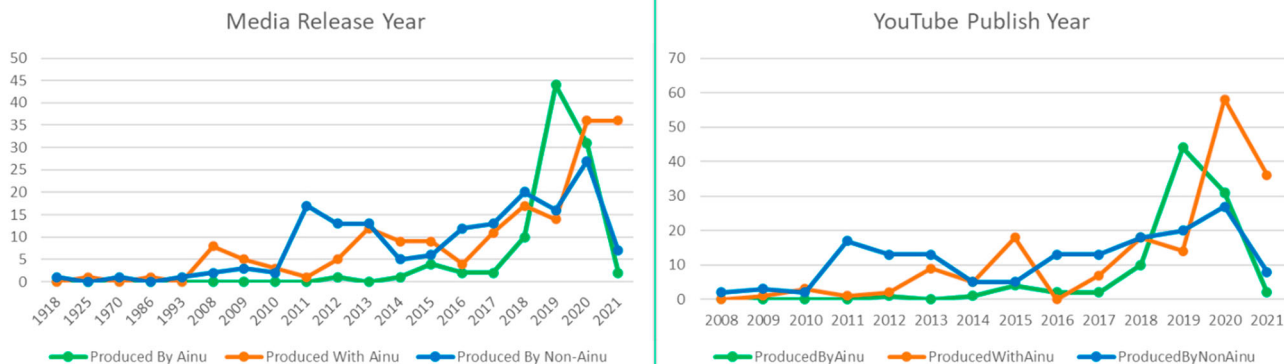| Category	Prod. by Ainu	Prod. with Ainu	Prod. by non-Ainu
Education	69	13	27
Entertainment	1	39	10
Film and Animation	2	16	9
Gaming	0	0	2
How to and Style	0	1	0
Music	6	18	9
News and Politics	0	1	23
Non-profits and Activism	19	41	29
People and Blogs	7	39	32
Science and Technology	0	0	2
Travel and Events	0	4	16

Fig. 3 Release and publication year of Ainu-related YouTube videos.

Table 4 Kruskal–Wallis test.

Variable	Group	Mean rank	Std. dev.	Test stat.	Sig.
Published year	By Ainu	242.30	1.48	54.42	0.000
	With Ainu	250.93	2.87		
	By non-Ainu	158.13	3.57		
Duration in seconds	By Ainu	235.52	505.02	6.97	0.031
	With Ainu	196.37	658.90		
	By non-Ainu	221.29	407.75		
Definition	By Ainu	224.85	0.27	29.56	0.000
	With Ainu	231.30	0.22		
	By non-Ainu	190.01	0.43		
Place	By Ainu	297.22	2.17	80.50	0.000
	With Ainu	192.21	1.72		
	By non-Ainu	188.14	1.91		
No. of tags	By Ainu	213.18	10.20	4.45	0.108
	With Ainu	201.36	5.86		
	By non-Ainu	229.52	11.24		
No. of views	By Ainu	225.47	10290.00	3.87	0.144
	With Ainu	222.40	77639.58		
	By non-Ainu	199.26	127255.87		
Caption usage	By Ainu	230.39	0.46	3.86	0.145
	With Ainu	208.03	0.41		
	By non-Ainu	211.80	0.42		

Table 5 Most viewed Ainu-related videos.

Channel	Year	Video title	Views	Place
MINE	2020	Future is MINE. Ainu, watashi no koe	1073175	Canada, Hokkaido, United States
SNK OFFICIAL	2018	SAMURAI SHODOWN/SAMURAI SPIRITS Teaser trailer 1	894769	Japan
National AINU Museum and Park official channel	2018	FEEL KAMUY	881850	Hokkaido
TRY! UPOPOY!	2021	TRY! UPOPOY! Nacs gekijo digest WEB koukoku hen	441057	Hokkaido
Hokkaido	2012	Ainu Mosir. Ainu minzoku no hokori	413285	Unclear
Life Where I'm From	2020	Making Cloth from Tree Bark with Ainu in Japan	386626	Hokkaido, Kanto
NBCU Universal Anime/Music	2020	TV Anime Golden Kamuy Sandaiki PV Dai ni	342817	Unclear
KADOKAWA anime	2016	PV TV Anime Kumamiko PV Dai ni	290668	Tohoku
K.I. Peeler	2016	Have You Heard About The Ainu? Elders of Japan's Indigenous People Speak	266340	Hokkaido
TITVWeekly	2008	Ainu's new identity	190863	Japan, Taiwan

Regarding video quality, we detected significant differences across groups (H(2) = 29.56, d = 2, p = 0.000). Pairwise comparisons showed differences between videos produced by Ainu and non-Ainu (N = 97, 159, M = 224.85, 190.01, SD = 0.27, 0.43, p = 0.01) and between productions with Ainu and by non-Ainu (N = 172, 159, M = 231.30, 190.01, SD = 0.22, 0.43, p = 0.000), while no differences were found between videos produced by Ainu and with Ainu (N = 97, 172, M = 224.85, 231.30, SD = 0.27, 0.22, p = 1). This was probably because most standard definition videos were produced by non-Ainu.

As the usage of tags and captions across video groups and the number of views showed no significant differences (p = 0.108, 0.145, and 0.144, respectively), we have listed the most viewed videos in Table 5. They are a mix of recent and old content ranging from documentaries and news to tourism promotion, animation, and video games. Two videos promoting the new Ainu museum (Upopoy) were among the most viewed; furthermore, the locations of the videos spanned overseas and several regions of Japan.

Locations of videos. Statistical differences (H(2) = 80.50, d = 2, p = 0.000) were observed regarding place. Pairwise comparisons

revealed that productions with and without Ainu were not significant (p = 1), while productions by Ainu and with Ainu (N = 97, 172, M = 297.22, 192.21, SD = 2.17, 1.72, p = 0.000) and those by Ainu and non-Ainu (N = 97, 159, M = 297.22, 188.14, SD = 2.17, 1.91, p = 0.000) were. Some videos were recorded in multiple locations, and some were shot in Japan without specifying the region. Nevertheless, Table 6 shows that most productions were localised in Japan, although 10 were in New Zealand/Aotearoa. As for regions within Japan, most videos were localised in Hokkaido/Yaunmosir, although several productions mostly by Ainu people were also located in the Kanto region.

Participation of Ainu people in their related multimedia

Conceptualisers, presenters, and producers. The Kruskal–Wallis tests detailed in Table 7 suggest significant differences between video groups in terms of collaborators (N = 97, 172, 159, d = 2, p = 0.000–0.003). The exceptions were a slight difference for unclear presenters (H(2) = 6.22, d = 2, p = 0.045) and no difference for unclear producers (H(2) = 3.39, d = 2, p = 0.183). Pairwise comparisons showed differences in terms of Ainu conceptualisers between videos produced by Ainu and non-Ainu

($M = 282.00$, 113.76, SD = 0.00, 0.41, $p = 0.000$), and between videos with Ainu and non-Ainu ($M = 269.56$, 113.76, SD = 0.23, 0.41, $p = 0.000$). Differences were also found in terms of Japanese conceptualisers between productions by Ainu and with Ainu ($M = 135.21$, 255.07, SD = 0.10, 0.49, $p = 0.000$), and by Ainu and non-Ainu ($M = 135.21$, 251.44, SD = 0.10, 0.49, $p = 0.000$).

In terms of foreign conceptualisers, statistical differences were found between videos by Ainu and non-Ainu ($M = 201.50$, 236.49, SD = 0.00, 0.37, $p = 0.000$) and between those with and by non-Ainu ($M = 201.50$, 236.49, SD = 0.00, 0.37, $p = 0.000$). As for unclear conceptualisers, differences were distinctive between productions by Ainu and non-Ainu ($M = 198.00$, 239.72, SD = 0.00, 0.39, $p = 0.000$), and between those with Ainu and by non-Ainu ($M = 200.49$, 239.72, SD = 0.10, 0.39, $p = 0.000$). Pairwise comparisons in terms of Ainu producers showed differences between videos produced by Ainu and non-Ainu ($M = 294.00$, 80.00, SD = 0.00, 0.00, $p = 0.000$), and between those with Ainu and by non-Ainu ($M = 294.00$, 80.00, SD = 0.00, 0.00, $p = 0.000$). Differences in Japanese producers were also found between productions by Ainu and with Ainu ($M = 61.50$, 275.50, SD = 0.00, 0.00, $p = 0.000$), by Ainu and non-Ainu ($M = 61.50$, 241.85, SD = 0.00, 0.00, $p = 0.000$), and with Ainu and non-Ainu ($M = 275.50$, 241.85, SD = 0.00, 0.00, $p = 0.005$). Differences in terms of foreign producers were noted between videos produced by Ainu and non-Ainu ($M = 195.00$, 238.07, SD = 0.00, 0.00, $p = 0.000$), and between those produced with Ainu and by non-Ainu ($M = 203.71$, 238.07, SD = 0.00, 0.00, $p = 0.000$).

Differences in terms of Ainu presenters were also noted in pairwise comparisons between videos produced by Ainu and with Ainu ($M = 229.79$, 204.63, SD = 0.10, 0.33, $p = 0.002$). Significant differences in Japanese presenters between productions by Ainu and with Ainu ($M = 251.88$, 203.93, SD = 0.40, 0.49, $p = 0.001$) and by Ainu and non-Ainu ($M = 251.88$, 203.13, SD = 0.40, 0.49, $p = 0.001$) were found. Differences in terms of foreign presenters were found between videos by Ainu and non-Ainu ($M = 193.62$,

Table 6 Places identified in Ainu-related videos.			
Country/Region	By Ainu	With Ainu	By non-Ainu
Canada	0	1	1
Germany	0	0	1
Italy	0	0	1
Japan	104	174	158
Chubu	0	0	1
Hokkaido	46	140	136
Kansai	0	0	4
Kanto	56	5	7
Tohoku	0	0	1
New Zealand	0	0	10
Singapore	0	1	0
Taiwan	0	0	1
United States	0	0	4

Table 7 Conceptualisers, producers, and presenters in Ainu-related videos.					
Variable	Group	Mean rank	Std. dev.	Test stat.	Sig.
Ainu conceptualizer	By Ainu	282.00	0.00	259.98	0.000
	With Ainu	269.56	0.23		
	By non-Ainu	113.76	0.41		
Japanese conceptualizer	By Ainu	135.21	0.10	78.16	0.000
	With Ainu	255.07	0.49		
	By non-Ainu	251.44	0.49		
Foreign conceptualizer	By Ainu	201.50	0.00	46.72	0.000
	With Ainu	201.50	0.00		
	By non-Ainu	236.49	0.37		
Unclear conceptualizer	By Ainu	198.00	0.00	49.39	0.000
	With Ainu	200.49	0.10		
	By non-Ainu	239.72	0.39		
Ainu producer	By Ainu	294.00	0.00	427.00	0.000
	With Ainu	294.00	0.00		
	By non-Ainu	80.00	0.00		
Japanese producer	By Ainu	61.50	0.00	323.85	0.000
	With Ainu	275.50	0.00		
	By non-Ainu	241.85	0.36		
Foreign producer	By Ainu	195.00	0.00	38.20	0.000
	With Ainu	203.71	0.00		
	By non-Ainu	238.07	0.00		
Unclear producer	By Ainu	213.50	0.00	3.39	0.183
	With Ainu	213.50	0.00		
	By non-Ainu	216.19	0.11		
Ainu presenter	By Ainu	229.79	0.10	11.53	0.003
	With Ainu	204.63	0.33		
	By non-Ainu	215.85	0.26		
Japanese presenter	By Ainu	251.88	0.40	16.19	0.000
	With Ainu	203.93	0.49		
	By non-Ainu	203.13	0.49		
Foreign presenter	By Ainu	193.62	0.17	26.21	0.000
	With Ainu	205.66	0.28		
	By non-Ainu	236.80	0.42		
Unclear presenter	By Ainu	210.71	0.10	6.22	0.045
	With Ainu	219.70	0.22		
	By non-Ainu	211.19	0.11		

Table 8 Conceptualisers, producers, and presenters in terms of perceived gender.

Variable	Group	Mean Rank	Std. Dev.	Test Stat.	Sig.
Man conceptualizer	By Ainu	182.07	0.45	117.87	0.000
	With Ainu	281.76	0.43		
	By non-Ainu	161.53	0.38		
Woman conceptualizer	By Ainu	278.56	0.26	227.95	0.000
	With Ainu	269.12	0.32		
	By non-Ainu	116.34	0.37		
Unclear conceptualizer	By Ainu	149.21	0.10	214.79	0.000
	With Ainu	166.91	0.29		
	By non-Ainu	305.82	0.43		
Man producer	By Ainu	163.07	0.45	212.90	0.000
	With Ainu	306.30	0.22		
	By non-Ainu	146.57	0.40		
Woman producer	By Ainu	281.56	0.26	295.26	0.000
	With Ainu	280.83	0.26		
	By non-Ainu	101.84	0.28		
Unclear producer	By Ainu	149.91	0.14	223.47	0.000
	With Ainu	164.16	0.28		
	By non-Ainu	308.36	0.42		
Man presenter	By Ainu	213.26	0.42	20.80	0.000
	With Ainu	236.63	0.33		
	By non-Ainu	191.32	0.47		
Woman presenter	By Ainu	234.88	0.17	14.92	0.001
	With Ainu	200.44	0.39		
	By non-Ainu	217.27	0.31		
Unclear presenter	By Ainu	210.00	0.00	2.74	0.253
	With Ainu	216.22	0.16		
	By non-Ainu	215.38	0.15		

236.80, SD = 0.17, 0.42, $p = 0.000$), and with Ainu and by non-Ainu ($M = 205.66$, 236.80, SD = 0.28, 0.42, $p = 0.000$). In summary, the most similar video groups in terms of collaborators, were those produced by Ainu and with Ainu. The video group produced by non-Ainu had more foreign participation than other groups. Further, Ainu conceptualisers were few in videos produced by non-Ainu, and the participation of collaborators identified as Japanese was prominent across video groups.

Perceived gender of collaborators. Table 8 shows no significant difference in unclear presenter (H(2) = 2.74, $d = 2$, $p = 0.253$). Pairwise comparisons of conceptualisers perceived as men showed significant differences in videos produced by Ainu and with Ainu ($M = 182.07$, 281.76, SD = 0.45, 0.43, $p = 0.000$), and with Ainu and by non-Ainu ($M = 281.76$, 161.53, SD = 0.43, 0.38, $p = 0.000$). Conceptualisers perceived as women were statistically different in productions by Ainu and non-Ainu ($M = 278.56$, 116.34, SD = 0.26, 0.37, $p = 0.000$), and in productions with Ainu and by non-Ainu ($M = 269.12$, 116.34, SD = 0.32, 0.37, $p = 0.000$). Conceptualisers with unclear perceived gender were also different in videos produced by Ainu and non-Ainu ($M = 149.21$, 305.82, SD = 0.10, 0.43, $p = 0.000$), and those produced with Ainu and by non-Ainu ($M = 166.91$, 305.82, SD = 0.29, 0.43, $p = 0.000$).

As for producers, those perceived as men were statistically different in productions by Ainu and with Ainu ($M = 163.07$, 306.30, SD = 0.45, 0.22, $p = 0.000$), and in productions with Ainu and by non-Ainu ($M = 306.30$, 146.57, SD = 0.45, 0.40, $p = 0.000$). Producers perceived as women showed significant differences in productions by Ainu and non-Ainu ($M = 281.56$, 101.84, SD = 0.26, 0.28, $p = 0.000$), and in productions with Ainu and by non-Ainu ($M = 280.83$, 101.84, SD = 0.26, 0.28, $p = 0.000$). Pairwise comparisons of producers with unclear perceived gender noted differences in productions by Ainu and non-Ainu ($M = 149.91$, 308.36, SD = 0.14, 0.42, $p = 0.000$), and in productions with Ainu and by non-Ainu ($M = 164.16$, 308.36, SD = 0.28, 0.42, $p = 0.000$).

In addition, pairwise comparisons in terms of presenters perceived as men showed statistical differences in videos produced with Ainu and by non-Ainu ($M = 236.63$, 191.32, SD = 0.33, 0.47, $p = 0.000$). Presenters perceived as women showed differences in productions by Ainu and with Ainu ($M = 234.88$, 200.44, SD = 0.17, 0.39, $p = 0.000$). In summary, the most different video groups in terms of the perceived gender of collaborators were with Ainu and by non-Ainu; therefore, videos produced by non-Ainu had more participation from collaborators with unclear perceived gender than the rest of the groups. The high participation of collaborators perceived as female across most collaborator categories in the video groups was noted.

Communication strategies in Ainu-related YouTube videos
Tag analysis. The relationships between the most frequent tags across the video groups are shown in Fig. 4. These 63 words ranged from 12 to 197 in frequency and were coloured according to language: green for Ainu (regardless of the writing system used), orange for Japanese, and blue for English. The most frequent tags were related to language, traditional culture, music, and tourism. Words in productions by Ainu were in Japanese and included terms related to the Ainu language and daily life. In contrast, videos produced in Ainu used some tags in the Ainu language, such as the name of the new Ainu Museum (*Upopoy*), a traditional stringed instrument (*tonkori*), the name of a music band with an Ainu member (*Imeruat*), and the word used for deities (*Kamuy*). Japanese terms in this group were related to traditional crafts and touristic activities ('embroidery', 'engraving', 'tour', 'town', etc.). The word *marimo* refers to round algae. Some interactive productions ('anime' and 'illustrated books') and the names of members of TeamNacs (Ken Yasuda, Hiroyuki Morizaki, Takuma Outo, and Hideyuki Totsugi), celebrities who promoted Upopoy, were constantly mentioned. *Kinobori* (wood carving) and *kibori* (woodcraft) have a similar meaning but were included separately. English words in this group were mostly
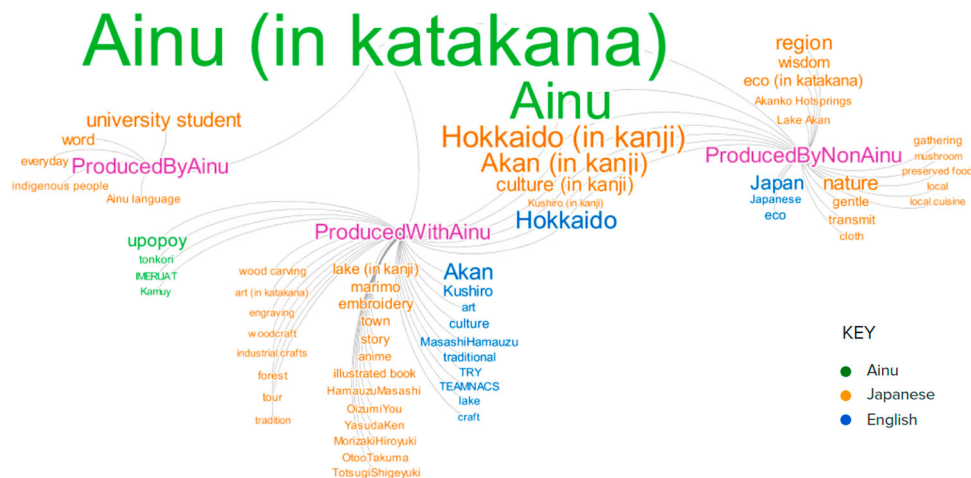
Fig. 4 Semantic network of top tags found in Ainu-related YouTube videos.

related to Akan in the Kushiro region, which is an Ainu arts and crafts centre and a tourist destination. The name of a member of the Imeruat band (Masashi Hamauzu) was also present in English, as well as 'TeamNacs' and the word 'Try' from their campaign with Upopoy.

The group of videos produced without Ainu used tags in Japanese and English, depicting Akan-related words, nature, and ecology, as well as a group of words about cooking ('gathering', 'mushroom', 'preserved food', 'local', and 'local cuisine'). Textile-related activities were also presented using the term 'cloth', and English words included 'Japan', 'Japanese', and 'eco'. Regarding coincidences on tag usage among groups, productions with Ainu and by non-Ainu frequently used names of places in Yaunmosir (Akan, Kushiro, Hokkaido). The only word used by the three groups was 'Ainu', written in the Japanese katakana alphabet. Among the less used terms, one video had tags in Arab, Bengali, French, Hindi, and Thai related to history, film, monochrome, and colouring. The tag 'Iomante' was used in English, which is the traditional festival where an animal, usually a bear, is sent to *Kamuy Mosir* with gifts. Further, 'dance', 'delicious', 'salmon' as well as crafts from Kyoto and Okinawa were mentioned in Japanese.

Description analysis. Tags are an effective way for search engines inside and outside YouTube to identify and recommend videos. However, owing to their short nature, they can omit nuances about the content that they are promoting. In the case of Ainu-related videos, descriptions were more frequently available than tags; therefore, to complement the findings based on tags, we also analysed the descriptions. Figure 5 summarises the most frequent words, ranging from 20 to 429, and coloured according to language: green for Ainu, orange for Japanese, and blue for English.

In productions by Ainu, most frequent words were related to linguistics, including Ainu phrases. This confirms not only an interest in the language but also the variety of reputed academic sources employed to teach it through YouTube videos. Shigeru Kayano, Hiroshi Nakagawa, and Suzuko Tamura (names frequently mentioned) were experts who published dictionaries and treatises on the Ainu language and its dialects, whereas Kayano is an Ainu ancestor himself. Further, words in English were hashtags related to SNS such as Twitter and Instagram, suggesting a cross-platform support structure to the diffusion of Ainu-produced videos on the internet.

Videos produced with Ainu only had the major term 'story'. As for productions by non-Ainu, their descriptions employed words such as 'culture', 'Japan', and 'people' in English, with locations such as 'Shiraoi' and 'town' in Japanese. Regarding word coincidences between groups, videos produced by Ainu and with Ainu frequently used the term 'Indigenous people'. Productions with Ainu and by non-Ainu used the words 'Ainu' and 'year', and all groups employed the terms 'Ainu' in katakana and 'Hokkaido' and 'person' in Japanese. This suggests that Japanese-based diffusion is frequent for Ainu-related videos on YouTube.

Less employed words. In the case of English, terms related to creation, technology, internet, design, and copyright were mentioned. Some SNS and websites mentioned were LinkedIn, Pinterest, TikTok, Twitter, Vimeo, YouTube, and Wikipedia. In contrast to tags, environment- and textile-related words were not often used in descriptions. Instead, descriptions included words related to the senses, such as 'experience', 'flavour', 'sound', 'touch', and 'watch'.

Less employed words in Japanese included 'data', 'online shop', 'CG', and 'digital arts', and there were some mentions of 'corona' (COVID-19), 'dance', and 'Iomante'. Sense-related words such as 'delicious', 'flavour', 'good feeling', 'listen', 'sound', 'taste', 'touch', and 'watch' were used. Moreover, white meat ('salmon' seven times in Japanese and four times in English, and 'fish' six times in Japanese and three times in English) was mentioned more frequently than venison meat (eight times in Japanese) and beef (one time in Japanese and one time in English), probably because salmon and venison are employed in traditional Ainu meals. In particular, salmon is considered as a crucial source of food and materials.

Discussion
Threads, Knots, and Holes in Ainu Mosir: the *Itak* of video-based social media
Ainu productions. Content versed in the Ainu culture was abundant. In the case of Ainu language recovery, videos depicted everyday dialogues and cited reputed scholarly sources. The will of some members of the community (particularly women) can be traced to ancestors such as Peramonkoro Sunazawa, who viewed and defended cultural manifestations as educational endeavours that the Ainu people had to undertake (O'Dubreuil, 2005), while highlighting the crucial role that women play in cultural preservation. Given that Ainu women face double discrimination based on ethnicity and gender (Tahara, 2018), playing a visible cultural role reaffirms their identity and becomes a source of pride.

With the increasing number of Ainu individuals pursuing professional education supported by scholarships in recent years, it

Fig. 5 Semantic network of top description words in Ainu-related YouTube videos.

can be expected that cultural manifestations based on solid research and diffused on social media will continue. Thus, most of such media functions inwards, while additionally having some outwards and border functions. These roles of the internal knots can also be noted in Almendra (2012, p. 59), who states that the community uses "technological tools to get out of the shadows, to emerge, to let ourselves be seen and see ourselves in and with others".

The border function of the media connects us to the possibility of creating new futures, that is, the *Kamuy Mosir* layer of the Mosir model. We have an example in a YouTube video filmed in an office of the Shiraoi Town government, where an Ainu Knowledge Keeper interviews the Ainu language teaching staff in a bustling Japanese office environment. In the video, the Ainu language is normalised and used in conversations between Ainu, Japanese, and a foreigner regarding the possible futures of the said Ainu language.

Productions by and with Ainu. Despite the small number of videos classified in the news and politics category, some productions featured political content, ranging from documentaries to entertainment. These political assertions were sometimes clear and direct, such as in the matter of repatriation of ancestral remains or in assertions of autonomy. These assertions which involve complex feelings of Ainuness can be encompassed in the *Ainu Neno An Ainu* framework.

Politics was also manifested in subtle ways, with scenes where the Ainu people sang and danced in cities, foreign countries, or even on the path that was used for forced migration in the 1940s from what is now Russian territory, implying that Ainu are not always immersed in nature, that Ainu exist beyond Hokkaido/ Yaunmosir and Japan, and that historical memories of their past prevail, pointing to *Pokna Mosir* from the Mosir model. Indeed, dance records in YouTube videos have been confirmed as an effective political statement for other Indigenous communities (see Wettstein, 2019), while we can note the outwards and border functions of media in this subset of videos.

Although less present, we can also identify *Ainu Mosir* of the Mosir model in videos such as the trailer for the film "Ainu Mosir", where a young boy of Ainu ancestry explores Akan in Hokkaido, the stories, traditions, and practices of the place. There are scenes where the young boy exerts his artistic energy out on the guitar, drawing a parallel of connecting to the living planet, to self-identity and creativity in the present.

Productions with and without Ainu. A relevant subset of videos focused on tourism ventures. Akan was predominant in the tags, and Shiraoi in the descriptions. Shiraoi has been portrayed since the times of black-and-white cinematography, and there is evidence of Ainu communities aiding ethnographic documentaries by directors Tetsuo Inukai and Neil Gordon Munro in the 1930s (Centeno Martin, 2017). Munro was acquainted with Seitaro Kayano, Shigeru Kayano's father. Fragments of Shigeru Kayano's works were also found in the YouTube data, pointing to *Pokna Mosir*.

Another example of *Pokna Mosir* in this subset is a video pertaining to a campaign called "Touch the Ainu Culture", released in partnership with Upopoy and the Agency of Cultural Affairs of Japan. The video features an Ainu Knowledge Keeper as she introduces the viewer to traditional Ainu textiles and needlework. It is important to highlight that this practice can often be rooted in a belief that the textile protects the wearer from spiritual attack which could manifest in illness. In this video, the Ainu Knowledge Keeper teaches how to make a mask to protect the wearer from illness. Such acts link the present to past beliefs, but also to practices that have been perfected throughout multiple generations of Indigenous women. The communication process thus becomes an educative process where the weave can be shaped by a variety of threads (media tools), and when a knot (person) is in danger of breaking, the collective wisdom may address the pertinent holes (topics) to defend life (Almendra, 2012 p. 59).

Shiraoi is one of the most Ainu-populated regions in Japan, where some museums specifically about their culture were built. In such places, Ainu communities have some degree of agency in their creative production. For example, a set of animated videos called *ehon* (picture books in Japanese) was produced based on recordings of oral traditions recited by *Huci* (Ainu women elders) ancestors. Despite their names, they were conceived as animations from the beginning (Vargas Meza, 2021), and many were illustrated by Ainu individuals.

It is partly because of the new Ainu policy and the interest in developing tourism in Shiraoi that Upopoy has been displaying multiple campaigns at an unprecedented scale in Japan. Therefore, it is not surprising that many videos and multimedia projects found on YouTube are related to this museum. Furthermore, some of these materials target international markets, including Chinese and South Asian tourists, suggesting

an outward function of the media as the projection of Ainu culture to the world.

Akan, located in the east of Hokkaido/Yaunmosir, was a settlement mostly of merchants before becoming an Ainu tourism hub, with a regionally diverse population (O'Dubreuil, 2007). The involvement of Ainu people from Akan in new media since 2008, according to the YouTube data, highlights their drive to adopt new technologies. The more recent videos can be divided into two types. The first is centred on the design processes of Ainu—a window into the interaction with their natural and social environment—which in turn influence their outputs, ranging from sewing and woodcraft to interactive and SNS-based projects. The second type is the tourism experience, which mostly encompasses crafts, forest walks, and food, according to our analysis of holes based on tags and descriptions.

The multi-faceted stories uploaded across several YouTube channels owned by multiple collaborator types and by Ainu themselves are noted case studies of how Indigenous communities use video SNS consciously and how they document their design processes through social media with a double inwards and outwards function.

Productions without Ainu. Another group of videos frequently employed words such as 'eco' and 'nature' in tags, suggesting that Ainu people were linked to ecological aspects in these videos. The environment is tightly linked to the Ainu way of living, as it is elsewhere in other Indigenous nations. Ainu communities have trained environmental research groups and conducted investigations aligned with their culture, particularly in the Saru river (e.g., Kaizawa, 2018). However, Ainu do not use the words 'eco' and 'nature' to tag their own productions, in contrast with this group.

Another aspect of non-Ainu productions was the predominance of vlogging content. Although the origin of this practice can be traced to writing diary entries, it was not until internet forums and reality television combined that the vlog format was born, eventually becoming a relevant subset of YouTube content. Vlogging also has antecedents in camgirl culture, which made livestreaming possible (Shields, 2008). What differs in our results is that the conceptualisers and producers of this video subset were mostly men, while several other videos produced with Ainu were also classified as blogs, and such content was usually conceptualised and produced by women. With the current high quality and speed of real-time videos, plus the handy equipment at the reach of an increasing audience, it was expected that a subset of Ainu-related videos would also have the techno-social characteristics of blog and vlog practices, which functions as inwards and outwards communication.

What could not be discerned. We only found mention of Russia in one video that used it as a hashtag and was created by a research institute in Hawaii. This might be partly because most videos were focussed on Hokkaido/Yaunmosir and other regions of Japan but also because we did not employ keywords in the Russian language.

The presence of other Indigenous groups only from the global North in Ainu-related content might suggest language barriers as such groups interact in English. Although Ainu historically had contact with First Nations in the periphery of their territories, recent scholarship and interchanges have mostly involved Maori people from New Zealand/Aotearoa; hence, a relevant group of videos in the data was produced by the Maori.

Furthermore, there is a reduced presence of consolidated Japanese media, such as the NHK, on video social media. Numerous documentaries related to the Ainu have been produced since the 1950s in Hokkaido/Yaunmosir (Uni, 2014),

and new ones are aired by national and local broadcasters every year. However, traces of such documentaries and programmes were scarce in the data. This might be partly due to (a) strict copyright laws in Japan, (b) some TV broadcasters that migrated online having their own streaming platforms, and (c) such content being available online for a limited time. Although most of the content generated by Japanese broadcasters targets the national public, tight sharing mechanisms stunt the diffusion of media through online channels, which is especially problematic in the case of content related to vulnerable communities. Therefore, while most Japanese public reported acquiring knowledge about Ainu culture through classes or workshops, only 4% reported using YouTube (Ohashi, 2018).

The border function of Indigenous media: cosmopolitan indigeneity in the Digital *Mosir*. The border function of Indigenous media is manifested in transnational hybrid practices. Despite the apparently low attention received by YouTube in terms of Ainu cultural diffusion, we can compare the YouTube metrics found in our video sample with those of other studies. Cru (2018) considered 170 thousand views as a high rate for Indigenous videos, while Aguiló (2020) reported 19 million views for an Andean production. We can note that the most viewed videos related to Ainu surpassed Cru's estimation, and although they still have not reached the number reported by Aguiló, their views continue to increase over time.

Another relevant aspect of the border function in YouTube productions by and with Ainu is the redefinition of what modernity is on its own terms. This has ties to Indigenous cosmopolitanism. Originally described as negotiations to bring together disparate discourses by First Nations in Bolivia (Goodale, 2006), Indigenous cosmopolitanism was documented among Ainu before (Watson, 2014). By adding the social media layer, some Ainu people document their processes of becoming Ainu in the present day in real-time through blogging or vlogging techniques, interviewing elders, praying, singing, dancing, or interacting with others, often in urban spaces. Westernised urban planning has largely been ecologically and socially devastating, segregating people in terms of gender, race, and economic capacity. It is thus not surprising that cities are inaccessible and unwelcoming to Indigenous, foreigners, LGBTQIA+, mentally and/or physically disabled humans, wildlife, and others.

Therefore, any intervention to reclaim and redefine lifestyles in urban settings is the first step to fostering diversity and enhancing human capacities to imagine alternatives to being modern. By using the same social media platforms that prioritise Westernised, white, cisgender, and abled content, Ainu people can create online pockets ('small worlds' in network science) to resist platformed discrimination (described in Matamoros Fernández, 2017) and to reclaim their humanness, pointing to the *Ainu Neno An Ainu* framework. In this way, Ainu people and communities become a type of micro-celebrity with diverse and often simultaneous objectives of commerce and activism in YouTube spaces (see Raun, 2018), this being a part of their multiple strategies to communicate what matters to them and to organise themselves and their allies.

Conclusions
Based on our findings and analyses, we conclude that:

1. Videos produced by Ainu focussed on education, while other groups focused on the YouTube categories of people and blogs, and non-profits and activism.
2. Numerous and diversified efforts have been made by Ainu people (particularly women) to create, produce, and appear in contemporary media.

3. Communication strategies found across groups included the promotion of traditional culture and music.

31. Videos produced by Ainu promoted language and an image of daily life, largely focusing on their own versions of modernity and prioritising inwards media.
32. Videos produced with Ainu promoted tourism using ambassadors, prioritising outwards and border media. While Akan-related videos utilised reflections of Ainu's creative processes and tourist experiences, Upopoy employed famous Japanese individuals.
33. Videos produced by non-Ainu mostly employed vlogging practices and an ecological frame.

One of the strengths of the present study is a large amount of SNS video data analysed, which allowed us to cover a wide range of Indigenous new media (e.g., interactive media and projection mapping) for the first time. We were able to identify the media endorsed and/or controlled by the Ainu people and their allies, as well as its characteristics by applying the combined frameworks of *Weave Communication* (ACIN in Almendra, 2010), Indigenous media functions (Arcila Calderón et al., 2018), and *Ainu Neno An Ainu* and the Mosir model (Hayashi-Simpliciano, 2020).

Regarding limitations, we did not include live recordings, which we recognise as a significant omission because Ainu communities value oral traditions and live performances. Furthermore, during data classification, we did not consider that some categories, such as ethnicity and nationality, could be simultaneous, which is an important aspect for future studies. Other explorations include mapping of collaboration networks, comparison of different versions of the same video, comparison of different formats of the same project (e.g., comics and animation), and keywords in Russian.

We do not have the exact numbers of how many Ainu people have access to the internet or how they interact with online environments. However, our findings indicate that at least a portion of Ainu communities are rapidly adopting online spaces to diffuse their culture—some reaffirming their identity, others targeting people like them, others targeting tourists, and others, the general public. What is clear is that the Ainu people, as is evident in the case of other Indigenous groups, occupy an increasing space of the digital Mosir, providing diversified and transnational points of view through their *Itak*.

Data availability

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Author contributions

VMX conceptualised the experiment, determined part of the methods, collected the data, verified, classified, and interpreted part of the data, conducted the statistical analysis, wrote the first draft of the manuscript, and provided part of the funding for the study. HSRS determined part of the methods, interpreted part of the data, and wrote parts of the manuscript. YT, NC, and NR verified, classified, and interpreted part of the data. OY provided part of the funding and overviewed the study. All authors revised and approved the manuscript and agreed to be accountable for the study.

Competing interests

The authors declare no competing interests.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors. As this study focused on publicly available data diffused through social media and not on personal data, the Ethics Review Board of the University of Tsukuba concluded that it did not require ethics approval.

Informed consent

This study used videos from users who consented to YouTube's public disclosure of their data, respecting their privacy settings. It was concluded that further informed consent was not necessary by the Ethics Review Board at the University of Tsukuba. Standards to conduct the present study were based on Internet-research ethical guidelines (available at https://ahrecs.com/resources/internet-research-ethical-guidelines-3-0-association-of-internet-researchers-aoir-october-2019).

Additional information

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