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Castledown

Team New Zealand-Sweden-Germany: A joint venture exploring language learning in digital spaces

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This paper reports on a study investigating the use of digital devices by language students at universities in New Zealand, Sweden and Germany. The study also examines the use of social media for learning a foreign language in an institutional context, using survey results from language students in the three countries. Based on an online survey (n=156) with foreign language learners in Sweden, Germany and New Zealand, everyday use of devices and applications by students is compared and analysed applying the digital literacies framework described by Pegrum *et al.*, 2018. Focusing on digital tools (including devices and applications) which facilitate informal communication, we attempt to answer the research questions: "How do students interact and communicate digitally / using social networking in educational contexts and beyond?" and "How do students use online tools, devices and applications, for information retrieval and learning?" The results provide a rationale for why students' everyday habits when using such tools should be considered in educational contexts. This exploratory study also describes how devices and applications can facilitate second language acquisition and can be used in a language education context. We recommend guidelines for teacher trainers regarding the development of digital literacies in foreign language teaching.

Keywords: Mobile assisted language learning (MALL), multimodality, teacher education, social media, language teaching and learning

1. Introduction

The widespread use of social networking sites such as Facebook, YouTube and WhatsApp has revolutionised the way people communicate and interact for personal and educational purposes (Statista, 2020). Whereas in the past, traditional literacy was understood as the ability to decode and encode written language, new ways of communication afforded by the social media platforms have redefined the notion of literacies as "social practices that are fluid, sociocultural, multimodal, and dynamic" (Chen, 2013, p.143). The term "digital literacies" builds upon the traditional forms of literacy, such as reading and writing, but expands to include visual literacy, using photos and videos for communication (Kress, 2013; Burmark, 2002).

Educators have recognised for some time that literacies are performed in different modes (The New London Group, 1996; Kalantzis & Cope, 2012; Pegrum, 2011). In light of young people's increasing everyday use of social media to communicate with one another, (Statista, 2020; Gimeno-Sanz, 2016), educators are required to design new learning experiences tailored to the needs of their students and their interests, in line with sound pedagogical purpose (Pegrum, 2017a; Blin & Jalkanen, 2014).

Many social media applications include images, sound, text and videos and challenge students to apply multiple literacies (Stickler *et al.,* 2020). Through participation, interaction and collaboration with social media, youth develop and use additional literacies to communicate; however, these are often not supported in the traditional language classroom, where they are not considered as relevant as the traditional literacies of reading and writing.

Yet digital technologies applied in learning contexts present students with new learning opportunities, including new ways to input and output information. Online internet resources contain multimedia and hyperlinks organised in nonlinear ways. Working with these new resources has changed the process of reading and demands the application of specific digital literacies (Youngs, 2019).

Based on developments in students' daily life regarding literacy requirements, educators are urged to help their students to develop the new literacies and skills required for technology-based learning. These include critical literacies (Pegrum *et al.,* 2018), ethical literacy (Rheingold, 2009a), intercultural literacy (Pegrum *et al.,* 2018), hash-tagging literacies (Leier, 2019) and 21st century skills like collaboration and teamwork, creativity and autonomy (Pegrum *et al.,* 2018).

The current project is an international collaboration by foreign language teacher-researchers, which aims to study language students' use of digital devices and social media platforms[1] for their foreign language learning. The project was envisaged initially to understand which social media platforms students use, and for what purpose. The study then looked at which social media applications students prefer to use to help them learn a foreign language. If teachers have more insight into students' online communication, they can

adapt the curriculum, integrating more authentic and engaging teaching and learning moments.

2. Literature review

The everyday use of technical devices such as laptop computers, mobile phones, e-book readers and the multiple applications created for these devices has been gradually introduced into educational contexts. Digital devices and a variety of applications have become effective learning tools inside and outside the classroom. Studies which have looked at WhatsApp and Facebook have reported positive findings for their use in second language learning (Andujar *et al.,* 2019). Teachers increasingly develop tasks and integrate technology in line with the current trend (Strasser, 2020; Abrams, 2016; Meunier *et al.,* 2019).

2.1. Computer-assisted language learning (CALL) and second language acquisition

Theoretical approaches such as cognitive linguistic and psycholinguistic approaches, as well as human learning theories and language in social context theories, can be used to develop and evaluate CALL materials (see Chapelle, 2009, for an overview). Second language acquisition research has investigated and described the role of input, selective processing (intake), integration and output for language learning (see Gass, 2018), which are relevant for computer-mediated language learning. From a sociocultural perspective, opportunities for active interaction in the target language are beneficial (Smith, 2017). For instance, video-conferencing as a tool can be used to improve students' oral proficiency and mediation skills, and can make oral production more authentic (Burwitz-Melzer, 2019). Therefore, virtual exchange projects with video-conferencing tools, which are typically carried out with groups of learners who engage in intercultural interaction with learners of different cultural backgrounds, can facilitate language development when the learners interact orally and visually, as well as in writing through the chat function. In fact, research has shown that written synchronous chat can help improve learners' foreign language oral proficiency (Payne & Whitney, 2002).

Educators can modify input from the internet to make it more comprehensible for learners, by adding subtitles or decreasing the speed of video or audio materials (Youngs, 2019). Input of learning materials can be facilitated using multimodal means (Sharwood Smith, 1993), for example by using visual support such as videos and photos (Youngs, 2019). YouTube videos used for language learning can develop learners' receptive competencies such as global and selective audio-visual comprehension, helped by authentic texts (Bechtel, 2019). Computer-assisted language learning also enables multi-modal outputs, such as asynchronous posts to a forum site. Producing (authentic) output facilitates foreign language development (see for example, Thwaites, 2014).

2.2. Multimodal communication and social networking sites (SNS)

Multimodal communication and more recently social networking sites serving as platforms for multimodal exchanges, have been discussed as a new, student-centered way of offering authentic learning (Blattner & Fiori, 2011; Abrams, 2016; Reinhardt, 2019). Multimodal communication is seen as a way to enhance students' agency (Belz, 2007; Orsini-Jones *et al.,* 2013) and self-esteem (Kalpidoun *et al.,* 2011; Zourou *et al.,* 2017).

Such online platforms offer a wide variety of meaning-making resources, including verbal and written texts, images, emoticons,[2] symbols and a variety of music and sound. The platforms not only support the consumption of information and entertainment, but also provide opportunities to the user to produce web-related material, suitable for information dissemination and learning.

Research into multimodality originated in communication and media studies but has been adopted in computer-assisted language learning and second language (L2) research (Hampel, 2019; Hampel & Hauck, 2006; Stickler *et al.,* 2020). Kress and van Leeuwen define multimodality as "the use of several semiotic modes in the design of a semiotic product or event, together with the particular way in which these modes are combined – they may for instance reinforce each other ("say the same thing in different ways"), fulfil complementary roles" (Kress & van Leeuwen, 2001, p. 20).

Much real-time communication is multimodal and requires users to be multi-literate. Friends send text messages, often with very little text but with emojis added to support their purpose (Turkle, 2015). Many social networking sites (SNS) allow individuals to explore multiple modes to create meaning and provide ideal opportunities for L2 learners (Kress & van Leeuwen, 2001), since learning is facilitated through authentic communication in the target language (Abrams, 2016). Yet, SNS and websites containing authentic material are often not designed for educational purposes (Leier, 2017). Both SNS and websites include language, visual, and sound information, which reflects communication from the real world. Further, these websites and SNS often encourage their users to share their lives online (González-Lloret & Ortega, 2014; Boyd, 2014).

Different SNS have different affordances; but they can all be used as platforms for informal language use and collaboration in the target language, as in the case of Facebook (Blattner & Fiori, 2011; Wang, 2013; Aydin, 2014; Leier, 2017), Instagram (Gonulal, 2019; Leier, 2019; Fornara & Lomicka, 2019) or Twitter (Lomicka-Anderson, 2017; Rheingold, 2009b). Social networking sites are increasingly linked to one another and their features more synchronised (Norris & Maier, 2014).

Instagram, for instance, can be used to develop multi-literacies and as a platform supporting social presence (Leier, 2019; Fornara & Lomicka, 2019; Gonulal, 2019; Lomicka & Fornara, 2020). Leier (2019) found that students using hash tags in their Instagram posts can connect to information sources different from the common Google search results. Fornara and Lomicka (2019) and Lomicka & Fornara (2020) discussed Instagram as a platform that affords increased social presence and is suitable for learning. They also investigated

whether students using visual images for communication can build a community of inquiry more easily. Their findings showed that Instagram was a valuable instrument to build a community of inquiry. Gonulal (2019) researched Instagram as an "English as a Foreign Language" learning tool. He investigated students' perception when using Instagram for educational purposes and found them believing that Instagram can help teaching practices and support their foreign language learning. By using Instagram, students can reach out to speakers of the target language and improve their vocabulary by exploring target language contents.

With the advent of ever faster internet connections, platforms like YouTube are becoming more popular. YouTube supports sharing using videos, which are often self-produced and published by the users and shared and discussed by their social network. YouTube discourse has sparked interest among researchers as a way to explore student engagement and to support informal and intercultural learning (Benson, 2017; Boyd, 2014).

Students use YouTube as an educational resource, for example, in medical education. Curran *et al.* (2020) investigated the quality of YouTube channels in the medical field, reviewing 31 articles which reported on YouTube use. The results showed that YouTube videos were used as information sources and integrated into teaching and that the users, learners and educators were satisfied. However, Curran *et al.* (2020) caution from a learning point of view against the content value of YouTube videos, because of the lack of editing when videos are posted. YouTube videos are often home-made narrative videos, including inappropriate images and language and bad sound quality. Curran *et al.* recommend that educators who produce videos for teaching purposes should obtain Creative Commons licences[3] to ensure others can freely use them.

Similarly, language learners look for educational videos to find information on specific grammar points. Chorna *et al.* (2019) studied educational YouTube channels providing material for German learners. They compared several sites and listed five favourite YouTube sites: Deutsche Welle, Slow German, Learn German, Deutsch lernen durch Hören and Deutsch mit Marija (p. 305). Chorna *et al.* (2019) appreciated the free access to a range of didactical materials of high quality. Another study by Shariff and Shah (2019) found that their English as Second Language (ESL) students in secondary school used YouTube videos for learning, because it gave them more autonomy in their learning and they could learn at their own pace. Barrot (2021) cautioned against the suitability of YouTube for language learning by pointing out, "although YouTube is one of the well-explored social media platforms for language learning, it has recently slowed down due to its limited communication affordances" (p. 23).

Overall, the trend is towards communication platforms such as WhatsApp and Facebook Messenger, which are message services to send image-supported text messages (Traxler *et al.,* 2019) and which are used in almost synchronous mode (Strasser, 2020). For language classroom use, Barrot (2021) predicts an increase in the popularity of platforms such as face-to-face, audio, chat and text messaging, which allow multiple ways of interacting with one another. Among students aged between 18 and 24, it is still common to use a variety of devices

(mobile phones, tablets and laptops), often at the same time (Kukulska-Hulme, 2020). Using these devices in a pedagogically sound way is worthwhile, but care is recommended, especially in the early stages of L2 learning (Hampel & Hauck, 2006), as such devices can be a distraction.

2.3. The multi-literacies framework

Conversations on social networking sites can be instant or delayed, over long and short distances, and using different modes, such as videos, chats, and voice. Kress (2003) recognised that such multimodality requires new literacies. He pointed out the new literacies required for effective communication on social media platforms as a "revolution in the uses and effects of literacy and of associated means for representing and communicating at every level and in every domain" (Kress, 2003, p.1).

Many years after Kress' statement, Pegrum *et al.* (2018) introduced their new interpretation of the framework and adapted their multi-literacies framework from 2001, which separates literacies into four different categories (communication, information, collaboration, and (re)-designing literacies), with eight sub-categories ranging from less complex to complex.

The most complex communication literacy is code literacy, and the least complex is text literacy. Multimodal literacy is in the middle and is defined as literacy which "prioritises audiovisual input, not to mention audiovisual output, [...] communication takes place with textual, visual, auditory and haptic elements cross-fertilising one another" (Pegrum *et al.*, 2018, p. 6). Table 1 provides a summary of the literacies relevant for this study.

Table 1. Framework of digital literacies (adapted from Pegrum et al., 2018)

Level of complexity	First focus Communication	Second focus Information	Third focus Collaboration	Fourth focus (Re-)design
1 Low		Tagging literacy		
2 Moderate	Multimodal literacy	Search literacy Information literacy Filtering literacy	Personal literacy Network literacy Participatory literacy	
3 High	Mobile literacy		Intercultural literacy	
4 Very high			Ethical literacy	Critical literacy Remix literacy

The design of this study based on the adapted framework above focuses in particular on communication, that is, multimodal literacy, and mobile literacy. Multimodal literacy includes the ability to effectively interpret and create texts in multiple media, using images, sound, and video in particular. Mobile literacy is "the ability to navigate, interpret information from, contribute information to, and communicate through the mobile web" (Pegrum, 2017b).

3. Research questions

Building on the adapted framework of digital literacies (Pegrum *et al.,* 2018), this study is designed to investigate the use of digital devices and applications used by language students. In this study, we focus on the preferences students have in terms of communication modes, their choice of devices for communication and online interaction, and the digital literacies they apply. The research questions are as follows:

Research question 1. How do students interact and communicate digitally / using social networking in educational contexts and beyond?
Research question 2. How do students use online tools, devices and applications, for information retrieval and learning?

To address these questions, teacher-researchers formed a partnership from New Zealand (University of Canterbury), Sweden (University of Uppsala), and Germany (Heilbronn University of Applied Sciences) to examine the local use of social media for learning and to provide an international comparison. We hope to contribute to current research and to help practitioners understand better the digital environment of their students. This will assist practitioners to develop engaging, up-to-date and authentic content which suits their learners' communication behaviour and habits.

4. Methodology

The following sections consider the context and methods used to collect and analyse the data.

4.1. Study design

The study was set up at tertiary institutions in Germany, Sweden and New Zealand. The aim was to compare the social networking habits of language students both in their personal and educational lives. This study also investigated to what extent students employ different literacies (Pegrum *et al.*'s 2018). Language teachers from the three institutions sent out a survey to students to gather data.

4.2. Participants

A total of 156 students participated in the study, aged between 18 and 24, and studying a foreign language. Most students were in their first or second year of study. The New Zealand students (n = 35) studied either Spanish or German, both at B1 proficiency level. Most used English as their first language and were raised in New Zealand. The Swedish students were learners of German (n = 18) and used Swedish as their working language. Their German proficiency level was at A1 of the Common European Framework of Reference (CEFR).

The students in Germany were either international students and learners of German, or students with a migrant background socialised in Germany who studied Spanish or English as a foreign language (n = 103). Their level of proficiency depended on the language they studied and varied from A1 to B2.

4.3. Data collection

The authors developed an anonymous online survey using SoSci Survey[4], a survey tool recommended for use at the German institution involved. The online survey consisted of 15 questions and was piloted with a group of 12 students in New Zealand. Teachers sent an email invitation to students at the beginning of term, inviting them to participate. Included in this invitation was a URL link to the survey. Students were required to give their consent for data use. Each student took an average of 15 minutes to complete the survey, which was in English.

The survey was divided into three sections. The first contained questions about the students' demographic background, the second sought information about preferences for using specific devices and student habits when communicating online and the third section asked more specifically about communication habits and learning habits in an educational context (see Appendix A).

4.4. Analysis

To answer the two research questions, five out of the 15 questions were chosen from the survey for evaluation. These selected survey questions (SQs) listed in Table 2 contained the relevant information to answer the research questions (RQs). The selected questions had a 5-point Likert scale with the options "very often," "often" / "a lot," "sometimes," "rarely" and "never." (See Appendix A).

Table 2. Selected survey questions

SQ1: How do you prefer to communicate?
SQ2: Which app(s) do you predominantly use to communicate?
SQ3: How do you predominantly get information about politics and events?
SQ4: Which applications do you use to support your learning?
SQ5: Which applications do you use to listen to and read the foreign language you are learning?

Excel was used to generate tables for comparison. Two types of presentations were chosen, either individual tables by country or one comprehensive table showing the answers of the three countries.

5. Results and discussion

The results discuss the outcomes from the five selected survey questions. To answer research question 1: "How do students interact and communicate digitally / using social networking in educational contexts and beyond?" we

analysed survey questions 1 and 2, regarding the general use of online communication and types of devices used. To answer research question 2, we analysed survey questions 3, 4, and 5, regarding applications and devices used by students in educational contexts.

Survey question 1 "How do you prefer to communicate?" listed five different modes to communicate, with a five-point Likert scale answer option. Multimodal communication options include writing, photo exchange, writing combined with photo exchange, and video or voice recordings. Figures 1a, 1b and 1c show the preferences of the students regarding their communication online and the use of different modes.

Germany
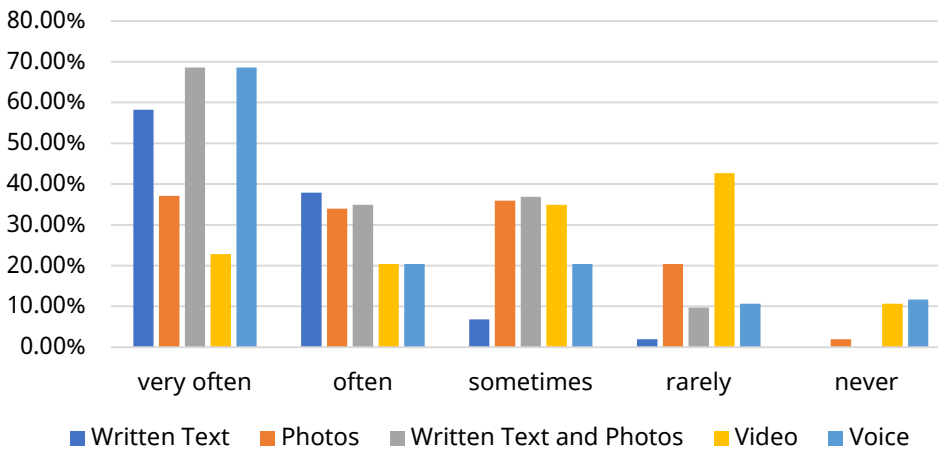
Figure 1a. How do students in Germany prefer to communicate?

Sweden (18)
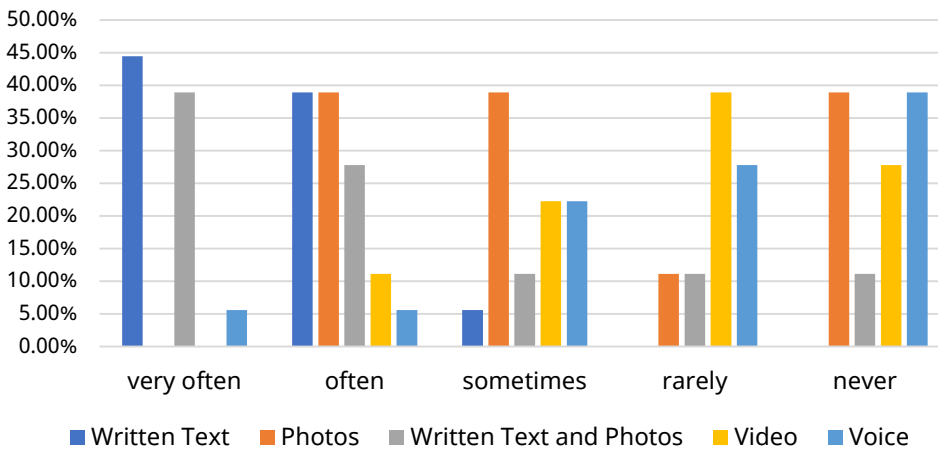
Figure 1b. How do students in Sweden prefer to communicate?
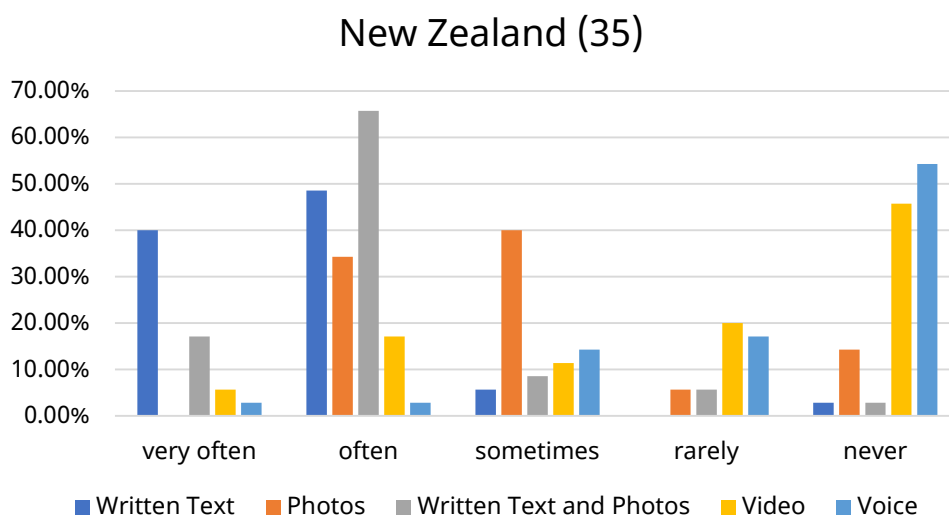
New Zealand (35)

Figure 1c. How do students in New Zealand prefer to communicate?

The findings show that the preferred mode of communication differed in the three countries. The majority of students in Germany prefer combining written text and photos (very often = 67%), whereas only 18% of New Zealand students use this mode very often and 66% use it often. The Swedish students prefer the combination of written text and photos (very often = 39%).

Voice as a communication tool, such as voice recording a message, is not popular in Sweden (rarely, 28% and never 39%) or in New Zealand (never 54%). However, students in Germany seem to enjoy communicating through voice recording (very often = 69%). A possible reason for this is that voice recording is more economical than typing. Most students who participated in this study prefer a combination mode, that is, written text and posting photos to strengthen the content of their message.

Lynell Burmark claimed nearly 20 years ago that it is no longer enough to read and write texts and that students must learn to process both words and pictures. They must be able to move fluently between text and images, between literal and figurative words (Burmark, 2002). This suggests that university students are used to processing words and pictures due to the media they use in their free time. The results above are in line with Barrot (2021) who observed that platforms that allow multiple ways of interacting with one another are more likely to be explored today (p. 23). This suggests that university students are used to processing words and pictures due to the media they use in their free time. Educators therefore should draw on their learners' skill and provide learning materials which are designed in a similar way.

In order to find an answer to research question 1, we looked as well at survey question 2 "Which apps do you predominantly use to communicate?" Students were given the option to choose from Email, Facebook, Facebook Messenger, Instagram, Snapchat, Twitter, and TikTok. Figures 2a, 2b and 2c show the responses from each country separately.
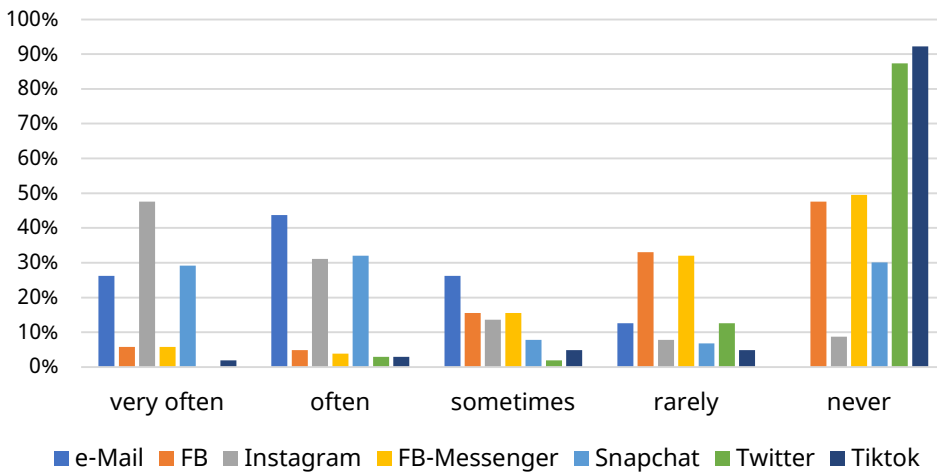
Germany

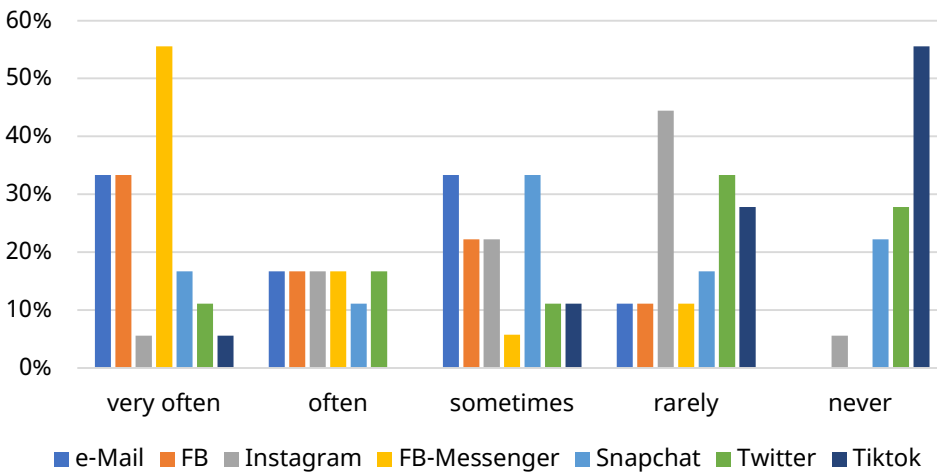**Figure 2a.** Which applications do students in Germany predominantly use to communicate?

Sweden

Figure 2b. Which applications do students in Sweden predominantly use to communicate?
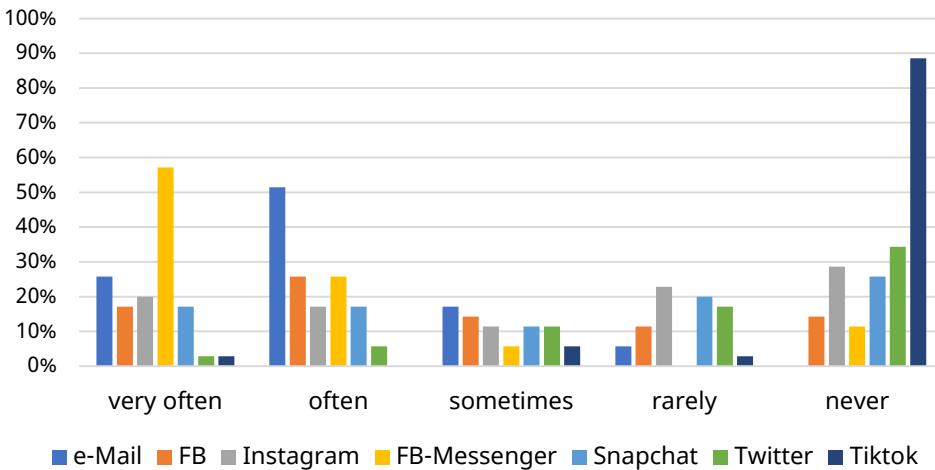
New Zealand

Figure 2c. Which applications do New Zealand students predominantly use to communicate?

The answers to survey question 2 above revealed that the participants in the three countries differed significantly in their use of Facebook Messenger, Instagram and Snapchat. A total of 55% of the Swedish students prefer Facebook Messenger, similar to the 57% of New Zealand students, whereas only 5% of students in Germany use Facebook Messenger as their preferred communication tool, using Instagram instead (47%), in comparison to only 5% of the Swedish students.

Facebook is well established as a communication tool among students, since it has developed into the most commonly used social media site across the globe (Statista, 2020). Facebook enables students to write short paragraphs, with and without added images. It also enables image-only exchange and a wide range of emoticons and emojis to support affective communication (Dresner & Herring, 2010; Beißwenger & Pappert, 2019). The findings show that students in New Zealand and Sweden often use Facebook to communicate with each other. The students in this study are undergraduate students and the findings correspond with the description of Facebook use among teens and young tertiary students by Ellison *et al.* (2007), who examined the relationship between the use of Facebook and the formation and maintenance of social capital. Social capital as a sociological term was expanded by Ellison *et al.* (2007) as "bonding and bridging' social capital, that is, the ability to stay connected, using bridging to maintain social capital with "previously inhabited community" (p.1143). A replication study (Vanden Abeele *et al.,* 2018) confirms the findings of Ellison *et al.* (2007). Interestingly, students in Germany have different habits and do not use Facebook as much for communication. A reason could be that Facebook is perceived as a platform for the older generation and has lost its appeal among the younger generation (Statista, 2021). This is in line with the results from a representative study with 3500 participants, which shows a considerable drop of Facebook use amongst 16- to 29-year-olds in Germany (Faktenkontor, 2020).

Blattner and Fiori (2011) point out that Facebook helps students to bond in class by becoming friends on Facebook, and that they already bring Facebook as a tool into the classroom as it is an integral part of their e-routine (p. 25). Boyd (2014) notes that the profiles on social networking sites are an easy way for the students to get to know each other.

The results show that the platforms TikTok and Twitter are not much used for communication. TikTok, the Chinese video-sharing, social networking platform, is not yet used as an application for communication: only 6% of the Swedish students answered "very often," while most students both in Germany (92%) and in New Zealand (89%) never use the platform.

Students' use of Twitter in Germany and New Zealand showed a similar result: in Sweden, Twitter was used very often by 11% and often by 17%, whereas in New Zealand, it was used very often by 3% and often by 6%, and in Germany, very often by 0% and often by 3%, with 87% answering "never."

To summarise the answers relating to research question 1, the students in all the three countries use written text and images to communicate, and their preferred social network is Facebook, whereas the students in Germany do not make as much use of Facebook as students in New Zealand and Sweden. TikTok and Snapchat are not popular choices among the students in all the three countries. This finding might be related to age among students. Further research is needed to explore the internet behaviour and preferences, ideally in action-research settings.

To answer research question 2, "How do students use online tools, devices and applications, for information retrieval and for learning?" we selected and analysed answers to survey questions 3, 4 and 5 from the selected survey questions (Table 2). First, we examined where the students look for information in general (SQ3), and then more specifically, where they go when searching for information in relation to their language learning (SQ 4 and SQ 5).

The answers to SQ3 in Figure 3 (below) show the sources students use to find information on politics and events.
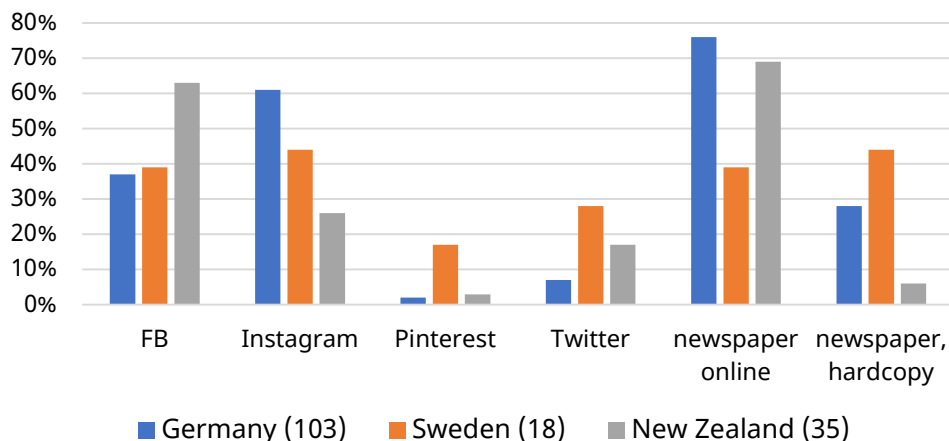
Politics and Events

Figure 3. Students' answers to survey question 3: How do you predominantly get information about politics and events?

The survey choices were Facebook, Instagram, Pinterest and Twitter, newspaper online or hardcopy. The students also had an open answer option to add other tools used for information retrieval.

There are marked differences between the three countries. Hardcopies of newspapers and Instagram (both very often 44%) were the preferred sources of information for the Swedish students, whereas New Zealand students preferred Facebook (very often 63%). The preferred choice of students in Germany was Instagram (very often 61%).

The open answers varied in the three countries, but YouTube was used by all students as a source of information. Students in Sweden and Germany showed a similar preference for general applications, which they did not specify. Students in Sweden also mentioned radio as a source of information. New Zealand students said they also relied on friends and word of mouth communication, and news on television.

The following survey question "Which applications do students use to support their learning?" (SQ4) is looking at applications which are both linked not only to information literacy, Facebook, Twitter and Instagram, but also to communication literacy, namely, Messenger and WhatsApp.

The survey choices were Facebook, Messenger, Twitter, Instagram, WhatsApp and Other (see Figure 4).
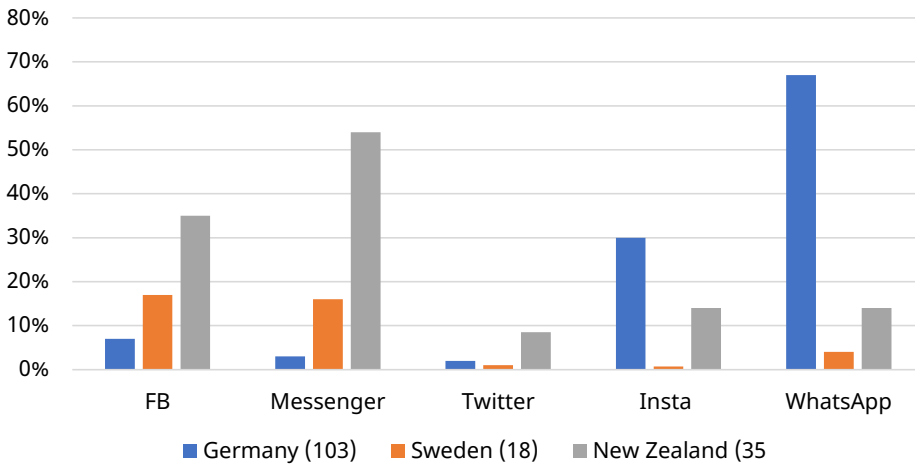
Apps for Learning

Figure 4. Use of applications to support learning.

The most striking difference between the countries was the use of WhatsApp. Students in Germany preferred WhatsApp for their general learning (very often 67%), while the other two countries were less interested in WhatsApp (Sweden only 4% and New Zealand 14%). The most preferred learning application in New Zealand was Facebook (FB) Messenger, with 54% and that in Sweden was Facebook, with 17%. Hardly any of the students in the three countries use Twitter for learning: Sweden 1%, Germany 2% and New Zealand 8.5%.

This survey response highlights the preference of students in Germany for WhatsApp. Strasser (2020) includes WhatsApp in his study on mobile devices in educational settings and reminds educators that messaging services like WhatsApp can be useful applications for student motivation and can support productive and receptive foreign language performance.

Students in New Zealand and Sweden do not use WhatsApp to the same extent as students in Germany; they prefer Facebook Messenger. FB Messenger is very similar to WhatsApp messenger; while both applications are multimodal communication tools, WhatsApp is usually used on mobile devices only, whereas FB Messenger is used on mobile devices and also on laptops and computers. The features and affordances are very similar to instant messaging, with easy and fast picture upload, but they offer a chat function which supports asynchronous and synchronous communication. Leier (2017) showed that students using FB Messenger expect to have an immediate answer to their messages, and consider the platform a tool for near synchronous communication.

To answer research question 2, we also used the answers to survey question 5, "Which applications do you use to listen to and read the foreign language you are learning?" The survey choices were YouTube, Facebook, Instagram, WhatsApp and Other (see Figure 5).
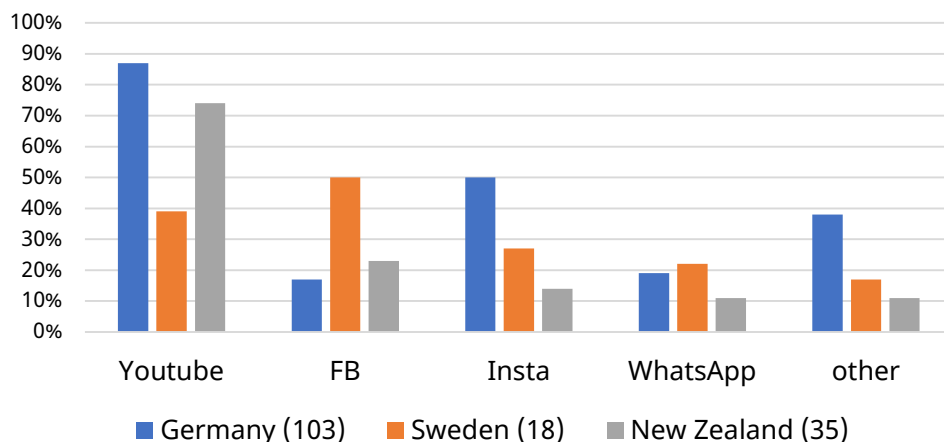
Support of listening and seeing

Figure 5. Which applications do you use to listen to and see the foreign language you are learning?

The choice of platform for language learning differed very much in the three countries. Students in New Zealand and Germany use YouTube for learning (very often 87%), whereas Swedish students prefer Facebook (very often 50%). The answers under "other" showed a variety of other applications being used. New Zealanders favour BBC language courses, the learning management system "Learn" and mobile phone settings such as displays on the phone in German for L2 immersion. Students in Germany prefer the multilingual online dictionary, dict.cc (www.dict.cc) or YouTube vocabulary videos and enjoy sites which help them to learn vocabulary.

The results indicate that students frequently use digital devices and are more likely to retrieve information from internet sources than from non-digital sources. This indicates that students have search and information literacies (Dudeney *et al.*, 2013). The overall results reveal that students mostly consume, rather than produce content from the internet. The challenge for teachers confronted with developing 21st century skills (Dudeney *et al.*, 2013) is to encourage students to produce content themselves, and to develop literacies such as critical literacy, ethical literacy and remixing literacy, which are grouped under the focus of (Re) design, as presented in the adapted digital literacies framework (Pegrum *et al.*, 2018). Overall, students use and prefer multiple modes of communication. The skill of multimodal discourse needs to be acknowledged and supported by language teachers today (Kress & van Leeuwen, 2001; Hampel, 2014). The results of this study indicate that students prefer applications such as Instagram or WhatsApp, which are typically used on mobile devices. This is in line with the finding of Kress and Pachler (2007), who recognise mobile learning as an example of digital learning and remind us that the learner today is accustomed to being mobile and to having immediate access to the world. "Mobile" for learners is "all the world" and all the world has become the curriculum (p. 27).

5. Pedagogical implications

This study investigated the use of social media by language students, including their personal preferences for device use and how they use various social media applications for their learning. As Benson (2015) suggests, learning in digital spaces is something we are just starting to understand, and we currently lack evidence on how learning in internet settings takes place. In her keynote speech, Chapelle (2014) reminds us that students adapt their literacies to use social media, and their literacies will change with newer technology developing. Chapelle urges researchers to extend their research agenda and apply needs analysis.

Our study contributes to understanding students' online behaviour in three countries, which are widely separated geographically, and it highlights some differences between learners. The study aims to support teachers in designing suitable tasks on social media platforms by informing them on learners' preferences regarding networking platform in the three countries.

The study shows that Facebook is a popular platform for information retrieval and learning among the students in all the three countries. Leier (2017) identified Facebook as an informal conversation channel for students and an ideal place to immerse students into foreign language material integrated as part of everyday life. Similarly, Niu's (2019) literature review on the use of Facebook for academic purposes shows that it can be effective for language learning, because it facilitates discussion and collaboration among students.

YouTube as a video platform is very popular in all the three countries but the students in Germany and in New Zealand in particular use YouTube videos for learning. Applications and social networks which support information retrieval can be turned into platforms suitable for posting students' own self-produced content, facilitated by the educator. Educators should encourage students to produce content, applying digital literacies (see Dudeney *et al.,* 2013; Stickler *et al.,* 2020). Producing content themselves may help students to become more critical and ethical when consuming internet content.

Students could make videos about different topics and post them on their class YouTube channel, which requires them to reflect on copyright issues and privacy. For collaborative work in virtual exchange projects, it is worth considering student preferences for devices and the applications they use in their daily life at the start of the project. Learners will perhaps feel more at ease when they use a familiar application to converse with, for example, a partner abroad. The facilitator needs to be aware that students would benefit from additional training if a non-educational platform is used for educational purposes.

Educators need to be aware of fast development and rapidly changing preferences with social networking sites and are urged to closely observe new technological developments. TikTok is an interesting example of a potential change in popularity. This Chinese video sharing social network was listed in this study as an answer option, but the data showed that students do not engage much with TikTok. However, TikTok is preparing to move into the educational sector,

following the trend of micro-teaching, using instructional videos offering small units of learning (Iqbal, 2020). For instance, the Goethe Institute has recently developed short videos for learners of German on TikTok, focusing on cultural aspects and vocabulary. TikTok is currently supporting arts and culture institutions in Germany with the sum of 5 million euros to promote diversity and cultural exchange (Girard, 2021).

In order to keep themselves at the forefront of technology and their teaching relevant, educators are encouraged to engage with professional learning networks which support teaching with technology (Trust *et al.*, 2016). It is not an easy task to keep up to date with digital teaching and new and different types of learning, such as visual learning, individualised learning, and exploratory learning, just to name a few. Applications such as WhatsApp can be used to improve spoken language in real-time voice chats, and the Twitter platform can support students by demanding greater accuracy in their writing.

Learning with digital devices and social media applications supports language acquisition and provides authentic interaction and learning opportunities for students. Students can learn autonomously in a student-centred environment, but teachers still play an important role as facilitators – they understand how to use digital devices and social media applications in the lessons and in the curriculum, even if they often leave the students to apply the tools autonomously to their learning (Bechtel, 2019). Teachers' expertise is also crucial in promoting out-of-class exposure to particular resources, such as videos, depending on the learners' needs (Baranowska, 2020).

Arnold and Ducate (2019) point out that teachers need to offer scaffolding and prepare students for new contexts. From a teacher educator's perspective, Bechtel (2019) suggests that "action research" with a constellation teacher, a trainee teacher and a researcher is a way of introducing new tools and exploring how they affect students' motivation and learning.

The more knowledge that we, as educators, have about students' habits in the digital world, the more we can make use of it. We should encourage students to produce content in digital places by raising their awareness of, for example, internet ethics and we should teach them digital literacies which will lead to a new generation of global citizens.

Despite the problematic situation for education during the COVID-19 pandemic, it is an opportunity for teachers to develop online teaching skills and a deeper understanding of the value of teacher presence. In this context, teachers need to reflect on their presence,[5] in relation to the tools they use, whether in a virtual or a physical classroom. Supportive literature with guidance for online teaching (e.g., Gruber & Bauer, 2020; Stickler *et al.*, 2020) offers insight into online pedagogy and views on teacher presence (Rapanta *et al.*, 2020).

In terms of research, the shift to emergency remote learning and teaching due to the pandemic has triggered a considerable amount of scientific inquiry into different aspects of online teaching and learning. The rapid developments in technology-enhanced education require new literacy skills, for example, machine translation literacy (see Bowker & Ciro, 2019). Both practitioners and students need to develop these skills. Greater efforts are required to ensure

research supports practitioners in digital language learning and teaching contexts. Researchers need to observe trends regarding the usage of new technologies among learners and investigate the possible affordances for language education. By disseminating their finding among practitioners, researchers can support educators in using these tools in their particular contexts.

6. Limitations/future directions

One limitation of the study is the uneven number of students who answered the survey. Germany had 103 participants compared to 18 in Sweden and 35 in New Zealand. It would also be useful to extend the data collection and target a larger number of language students, possibly in more countries and in countries which differ from the ones in this study (which are wealthy and with mostly well-set up infrastructures at tertiary level). Another limitation of the study is the notion of literacies and how the students used them. We designed the study in accordance with the multiliteracies framework, but the students' answers delivered information which did not give us insight into the actual communication patterns of the students. Follow-up studies should explore the use and communication patterns students have and their way of applying multiple literacies when using digital devices. To gain deeper insights in particular into search preferences and attitudes towards ethical issues as well as the students' understanding of critical literacies, in-depth interviews and more detailed surveys would be desirable. In the future, it would be interesting to combine the multiliteracies framework used in this study with a framework that includes semiotic aspects of learning, that is, the Douglas Fir Group's framework (Douglas Fir Group, 2016).

Notes

1. We use the terms social media platform and social media application to describe the same thing.
2. Emoticons go back to 1982 and the most important emoticons are two sets of characters we now recognize as standard emoticons: the smiley face :-) and the frowning face :- (whereas emojis were invented in 1999 by Shigetaka Kurita and were intended for a Japanese user base. The first emoji was very simple – only 12 pixels by 12 pixels – and was inspired by manga art and kanji characters (Grannan, 2020).
3. Creative Commons licences can be obtained through libraries or online, see: http://www.creativecommons.org/licenses
4. https://www.soscisurvey.de/
5. According to Anderson *et al.* (2001) teacher presence consists of three components: design (i.e., create activities for learning), facilitation of discussion (i.e., using verbal cues to support communication) and directive knowledge (i.e., the teacher participates in the discourse and shares their knowledge).

Ethical considerations

This study is based on surveys, which were sent to students enrolled in language courses. The survey was anonymous, voluntary and was not part of the assessment for their course. In a preliminary question, the students' consent was sought before they could proceed to the survey itself.

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Appendix A

Questionnaire

1. How do you prefer to communicate?

	very much	a lot	sometimes	little	never
Written text	○	○	○	○	○
Photos	○	○	○	○	○
Written text and photos	○	○	○	○	○
Video	○	○	○	○	○
Voice messaging	○	○	○	○	○

2. Which app(s) do you predominantly use to communicate?

	very often	often	sometimes	rarely	never
Email	☐	☐	☐	☐	☐
Facebook	☐	☐	☐	☐	☐
Facebook Messenger	☐	☐	☐	☐	☐
Instagram	☐	☐	☐	☐	☐
Snapchat	☐	☐	☐	☐	☐
Twitter	☐	☐	☐	☐	☐
TikTok	☐	☐	☐	☐	☐

3. How do you predominantly get information about politics and events?
(you can tick more than one option)

- ☐ Facebook
- ☐ Instagram
- ☐ Pinterest
- ☐ Twitter
- ☐ Newspaper, online
- ☐ Newspaper, hardcopy
- ☐ Other (please specify)

4. Which applications do you use to support your learning?

- ☐ Facebook
- ☐ Messenger
- ☐ Twitter
- ☐ Instagram
- ☐ WhatsApp
- ☐ Other (please specify)

4. Which applications do you use to listen to and see the foreign language you are learning?

- ☐ Youtube
- ☐ Facebook
- ☐ Instagram
- ☐ WhatsApp
- ☐ Other (please specify)