Distance Learning during Covid-19 Pandemic: Chances and Challenges for the Heritage Language Classroom in the German Context

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In der ersten Welle der Covid-19-Pandemie wurde der herkunftssprachliche Unterricht (HSU) in Nordrhein-Westfalen (NRW), einem der fortschrittlichsten Bundesländer in Bezug auf die HSU-Didaktik, auf Fernunterricht umgestellt. Technologievermittelter Unterricht wurde von vielen Lehrkräften als unmittelbare und scheinbar naheliegende Reaktion angesehen. Der Einsatz digitaler Ressourcen zur Unterstützung des Fernunterrichts könnte aber auch eine langfristige Lösung für den heterogen zusammengesetzten und logistisch schwierigen HSU darstellen. Mit Hilfe einer Online-Querschnittsbefragung und einer qualitativen Datenanalyse wurde untersucht, wie der Fernunterricht in der Praxis umgesetzt wurde und welche didaktischen Anpassungen anschließend vorgenommen wurden. Die Ergebnisse belegen ein deutliches Missverhältnis zwischen einer Minderheit von Lehrkräften, die von den Potenzialen digitaler Medien profitieren konnten, und einer großen Mehrheit, die nicht in der Lage war, die gewohnten interaktiven Ziele zu verfolgen. Strukturelle institutionelle Isolation und fehlende Netzwerke trugen zu einem weitgehend negativen didaktischen Einfluss auf den Unterricht bei.

1. Introduction

Recent technological enhancement offers innovative instructional design possibilities in Heritage Language (HL) classrooms (Carreira & Kagan 2018), such as the possibility to tailor lessons to each learner with diverse online material or bypass logistical hindrances with virtual exchanges. Technology-enhanced curricula, however, are still rare, even after the harsh impact of the current pandemic that forced teachers to embrace technology practically overnight. This article investigates the didactical changes related to the use of technology in HL teaching during the first wave of the Covid-19 pandemic. The research was conducted by means of a web-based survey directed at a group of 156 HL teachers based in Cologne and Arnsberg, two districts in North Rhine-Westphalia (NRW), a German state that is particularly avant-garde in terms of HL pedagogy (Ayten & Atanasoska 2020). The survey focused on the utilisation of media and the types of activities and methods used before and during distance learning as well as on learning outcomes of the students and investigates whether these (technological)

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adaptations were able to substitute and possibly enhance the traditional in-person HL lesson.

The structure of the paper is as follows: Section 2 is a review of the literature regarding the use of technology in the HL classroom (§2.1), the effects of distance learning (§2.2), the readiness to transition to online teaching during the pandemic (§2.3), and (§2.4) the organisation of heritage language classes in Germany. Section 3 describes the research question and the construction of the survey. Section 4 presents the data analysis: sections 4.1 and 4.2 describe the data collection and the informants; sections 4.3 and 4.4, respectively, show the quantitative and qualitative results of the survey based on descriptive and inferential statistics (*t*-test) and qualitative content analysis (Mayring 2005). The discussion (§5) outlines the insights gained about learning settings in distance learning and reflects on opportunities and limits of technology-mediated language teaching in HL learning groups. By elucidating the extensive adoption of online teaching technologies for distance learning, the article has an explorative aim and examines the opportunity to extend technology-enhanced HL pedagogy beyond the pandemic timeframe.

2. Theoretical Background

2.1 Technologies in the HL Classroom

The idea that HL pedagogy needs specific training has been groving up over the last decades (Kagan & Dillon 2008: 1244). If the HL is taught in a foreign language classroom, such as Spanish in the US, HL learners often represent a minority in the classroom and meeting their needs tends to be more difficult (Reimann, Cantone, Venus, Haller & Di Venanzio 2018). Classes directed exclusively at HL learners may offer a more tailored training; however, setting an adequate curriculum remains challenging even in such constellations. First, in contrast to foreign language learners, HL learners often constitute a much more heterogeneous group concerning their individual language skills, their level of personal motivation and their relationship with the language (Henshaw 2016b: 238-239). Thus, HL pedagogy requires a particular sensibility for diversity and a careful tailoring of teachers' input to students' individual needs. Second, HL learners are naturally more exposed to authentic linguistic setting than is the case for foreign language learners. This input can range from contact to the HL community in the country of residence to temporally limited immersions in the HL through stays in the family's former homeland or the exposure to media. Such input is beneficial both for language development and for the relationships with community members as well as

for the preservation of culture but extend the variation in language proficiency of the HL groups. Therefore, HL pedagogy must always consider the requirements and potentials caused by the exposition to HL inputs outside the classroom. Third, a challenge particularly associated with rural areas and less commonly spoken languages is the logistic difficulty of composing classes to reach the minimum number of students required. All these issues can be addressed by digital technologies: they offer a curriculum tailored to each learner (Sipka 2004). They can also favour the use of authentic communication settings (as in virtual exchange with native speakers). Finally, technologies can bypass physical distances to form a sufficiently large learning group (Henshaw 2016a).

The potential benefits offered by digital innovation in HL classes have been investigated with increasing interest. Yang and Xie (2013), Torres (2016, 2020), and Torres and Cung (2019) all show how group size and physical presence in HL classes lose their importance by means of peer work on iPads, the flipped-classroom model, or computer-mediated written interaction. Other scholars show how technologies allow activities to be tailored to the individual needs of HL learners, even if not used in a distance-setting. Palladino and Guardado (2018) analyse how digital tools like Wikis and blogs enhance the input and output opportunities of community HL schools. Data from their small-scale interview study shows that by implementing the aforementioned technologies, teachers engage students in a creative way. Among the greatest benefits are the extension of the learning practice beyond the school context and the enhancement of learners' independence. In the German context, Brocca (2020b) displays how an audio-visual input encourages learners to interact more with each other than its textual counterpart. In this way videos are able to be tailored more easily to the needs of HL learners. One should not be misled by the rapid proliferation of studies in recent years: technology-enhanced HL classes remain an exception (Yanguas 2018). Indeed, research on both HL teachers' attitudes about technology and its actual use is lacking. However, the forced switch to distance learning due to the pandemic has moved many teachers to embrace digital solutions in the last couple of years.

2.2 Effects of Distance Learning

Although distance learning was first adopted on a massive scale in the spring of 2020, numerous earlier experiences are available for evaluation (Passey 2000: 46). Hattie's (2009) meta-analysis shows a low impact ($d = 0.11$) of distance learning on learning outcomes. Jahng, Krug and Zhang's (2007) meta-analysis indi-

cates a similarly low average value (d = 0.023), but proves that students' achievement in online distance education can vary greatly (d = -0.8, +0.8), which shows that effective didactics in distance learning are potentially possible.

More recent studies conducted during the pandemic do not falsify these findings. Students' performance in distance learning can differ depending on their socio-economic status: Engzell, Frey and Verhagen (2021) show that students from working-class families in the Netherlands showed a significant drop in performance compared to the previous year and to the control group. A similar pattern has also been detected in the German context: Unger, Krämer and Wacker (2020) confirm an increase in educational disparity during distance learning due to different conditions at home. A quasi-experiment conducted by Tomasik, Helbling and Moser (2021) observes effects of distance learning in relation to age. While secondary school students are hardly affected by distance learning in terms of learning growth, the learning process slows down for elementary school students, and at the same time the interindividual variance in learning growth increases. Another point underlined by recent research in Germany (JIM Studie 2020; Unger et al. 2020) is that students struggle to manage different learning platforms and are not particularly attentive during online learning. Given the circumstances of the pandemic, recent results do not allow for a fair discussion of distance learning in non-pandemic times (Eickelmann & Gerick 2020). It must also be noted that, while there is a wealth of research on the effects of distance learning on secondary school and especially on higher education, few studies have been conducted in primary education and none have focused on the special case of HL lessons.

2.3 Teachers' readiness to transition to online teaching

As teaching was set to distance learning in NRW, teachers were free to choose how they wanted to continue their lessons (König, Jäger-Biela & Glutsch 2020). For some teachers in regular classes, providing the students with paper-based self-learning material may have been an option (Morgan 2020), but for many HL teachers, the distribution of students over a wide area and their employment in multiple schools did not leave many choices apart from online schooling. Thus, beside the mention of the technology divide between students (§2.2), it is worth mentioning the readiness of teachers in implementing online teaching.

In Germany teachers are not favourably inclined toward using digital media (Eichelmann et al. 2019): teaching and learning of digital competences result inadequate in international comparation (European Commission 2019: 11). Between all university students in Germany, students aiming to become teachers

(pre-service teachers) are less likely to adopt digital tools (Schmid, Goertz, Radomski, Thom, & Behrens 2017). Many potential reasons have been advanced to explain this national peculiarity, including pedagogical tradition, shortcomings in teacher education, disciplinary silos, time constraints, limited opportunities to engage teachers in professional communities of practice, scarce incentives to experiment new methods, and even the federal organisation of education (Drossel & Eickelmann 2018; Mayer & Girwidz 2019; Kerres 2020). Other scholars (Kommer & Biermann 2012; Blume 2020) examine the situation through the lens of Bourdieu's habitus-theory: although teachers use digital technologies both in private live and in lesson preparation, they exclude them from teaching and learning activities because it doesn't fit into their professional understanding. In respect to HL teachers' approach to technologies, data are missing it is not known whether they share the same characteristics as the regular teachers.

A number of studies have focused on what factors influence teachers' readiness to teach online during the pandemic most. The survey by Alea, Fabrea, Roldan and Farooqi (2020), distributed to teachers in the Philippines, shows that the length of teaching experience and specialization is strongly correlated to the readiness to implement technology-mediated teaching during the pandemic: the authors explain this correlation with the fact that, contrary to what one might think, older teachers had more opportunities to take training courses, and had ready-made materials. In Germany, however, the situation may be different: Data based on early-career teachers in NRW show that teachers' digital skills and technological pedagogical knowledge acquired as teacher-students are critical to adapt to online teaching during school closures (König et al. 2020). Especially the technological pedagogical knowledge influences the teachers' self-efficiency, i.e. teachers' beliefs about their abilities to succeed in specific situations. The perception of the digital technologies' effectiveness determines whether or not the teachers choose to invest effort in adapting the lesson to the digital format. Grounded on different methods but leading to similar conclusions, the meta-study by Carillo and Flores (2020) displays the importance of the understanding of pedagogical possibility offered by technologies: the study, encompassing 161 pre-pandemic papers, highlights that the readiness to embrace technologies requires not only mastering digital skills, but also understanding how online tools can suit teachers' own teaching purposes.

2.4 Heritage Language Classes in Germany

HL education research is a fast-growing and global research topic (Kagan, Carreira & Hitchens Chik 2017). However, national differentiations are needed since local sociolinguistic and educational environments influence the learning setting (Guijarro-Fuentes & Schmitz 2015: 241). Germany is a country marked by historical as well as recent migration, especially in the industrial state of North Rhine-Westphalia (NRW), where students with an immigration background made up 38.2%[2] of the total number of students in the 2019/20 school year. In Germany, HL education is an elective pedagogical offer directed at students with a migration background from 1st to 10th grade (Mehlhorn 2017a), promoted and managed by 12 of 16 federal states. In NRW, HL classes are led by the Education Ministry with more than four decades of experience (Woerfel, Küppers & Schroeder 2020: 208) and offer 26 different HLs. In 2020/21, about 1,000 teachers were teaching 104,358 students.[3] No German state has a more diverse languages portfolio nor a higher number of teachers and students in HL classes and no other state offers academic-level instruction for HL teachers (in NRW, Turkish HL pedagogy is offered at the University of Duisburg-Essen, cf. Woerfel et al. 2020: 209). Officially, a HL class of up to five hours per week takes place with a group of at least 15 students in elementary and 18 students in secondary schools[4], but typically, school students taking an HL course are taught two hours per week. Usually, the HL lesson takes place in an after-school setting so as to meet the prerequisites of the minimum students' number and permit students from different schools to join the class. If the number of students in a school is too small to form a class, HL learning groups are built by students from different grades and school types. This is especially the case of high-school classes since the number of students decreases with advancing age. Such arrangements contribute to an increased heterogeneity in the composition of HL classes (Mehlhorn 2017b) and cause a logistical difficulty for students and their families in moving from their school to the school where the HL lessons take place.

HL lessons are not only challenged because of logistical settings, but they also often fall short in research and teachers' instruction. In the first stage of their existence (from the post-war time until the late 1970s), HL classes in Germany were neglected by language education research, since they were offered by foreign consulates to the children of guest-workers who were supposed to eventually return

2 www.it.nrw/anteil-der-schuelerinnen-und-schueler-mit-zuwanderungsgeschichte-nrw-auf-382-prozent-gestiegen (07.01.2023).
3 www.schulministerium.nrw/herkunftssprachlicher-unterricht (07.01.2023).
4 According to the decree "Herkunftssprachlicher Unterricht" of September 20, 2021 (BASS 13 - 61 No. 2).

to their home country. However, public interest in promoting multilingualism in schools has grown over the last decades, and several research projects have been conducted on HL learners in Germany (Reimann 2016; Flores, Kupisch & Rinke 2018; Olfert & Schmitz 2019; Rinke & Flores 2021). Despite this progress in research, HL teachers' education still does not adhere to the traditional track of professionalisation. Instead, it is provided by education boards (Bezirksregierung) and takes place parallel to working (except for Turkish at University of Duisburg-Essen, as mentioned above). HL teachers' qualification is considered lower in value and teachers are normally paid less than colleagues in regular classes (Woerfel et al. 2020: 210). Moreover, scheduling many HL classes in the afternoon, in numerous different schools, contributes to HL teachers' physical isolation from colleagues and complicates their professional socialisation and the exchange of professional information and knowledge.

3. Research Design: Research Questions and Research Methods

3.1 Research Questions

As described in the previous sections the goals and challenges of HL teaching have no similarities in regular subjects (§ 2.1) and the effectiveness of distance learning for students (§2.2) varies as much as the teachers themselves. Further. the readiness to implement the online teaching (§2.3) depends on the population examined. Put together, this means that findings on distance learning in regular classes must carefully be generalized and even more carefully be exported to HL contexts, HL contexts themselves being far from be homogeneous. Given the limited data on HL teachers in Germany, it is necessary to identify characteristics and habits of this group and observe how the teaching changed during the transfer to distance learning: thus, the research questions are as follows:

How did distance learning affect (RQ1) the use of technologies, (RQ2) the teaching settings in HL classes, (RQ3) and the student-student and student-teacher interaction in the first wave of Covid-19 pandemic?

These questions are particularly interesting in HL classes, since the effective distance learning in HL classes had the potential to overcome

(1) didactical challenges related to the heterogenic proficiency levels and composition of HL classes,
(2) the difficulty to find authentic and adequate communication opportunity, and
(3) logistics difficulties related to reaching small groups of HL learners (§ 2.1).

To answer the research questions, it is necessary to investigate the changes that have occurred in the transition from the traditional setting to online pedagogy and then to observe which transformations have been accompanied by technology. Those issues can be elaborated on by surveying teachers' workload, technical infrastructure, and quality and quantity of interactions with and between learners, as well as didactical approaches adopted before and during distance learning. Teachers are uniquely qualified to describe the status quo, assess benefits and challenges, and ultimately implement change. Due to the heterogeneity in the HL landscape, this research exclusively focuses on the situation in NRW, given its pioneering policy on multilingualism, and collects data for a broad base via a survey.

3.2 Research Methods: Theoretical Foundations of the Online Survey and Data Evaluation

The research instrument is a online survey with 26 questions.[5] The survey's language was German. The reply options in the survey included numerical values, multiple-choice replies based on nominal scalar values, and short open-ended questions. The questions include a comparison between the period before and during distance learning. The first set of questions (questions 1-6 as well as 19 and 20) elicits biographical data, working experiences, and information on the teaching setting (RQ2). The second set of questions (8-13) contrasts the technological infrastructure available in the schools and at teachers' homes (Maksimović, Osmanović & Mamutović 2020) (RQ1). The third set of questions (14-17) aims to elicit the medium in which teachers communicate with students in the distance learning setting and whether and how students interact with each other (RQ1, RQ3). Students' interactions, both with teachers and with each other, have been seen as an indicator of the teaching method adopted, as well as a predictor of the improvement of speaking skills by students (Fulford & Zhang 1993; Reinke, Herman & Newcomer 2016). The fourth set of questions (21-24) inquires how much time is dedicated to training different skills or to independent work in distance learning versus in-person learning (RQ2). Finally, three open questions (18, 25, 26) collect teachers' rationales about their didactical choices and investigate aspects of distance learning that are considered particularly challenging or favourable for HL classes (RQ1, RQ2, RQ3).

5 The survey and the data that support the findings of this study are openly available at https://doi.org/10.6084/m9.figshare.19091855.v1.

The closed questions are evaluated according to a descriptive and inferential statistical analysis. The open-ended questions are evaluated with an inductive qualitative analysis (Mayring & Gläser-Zikuda 2008) underpinning the quantitative results.

4. Data Analysis

4.1 Data Collection

The survey was hosted on the online platform *Limesurvey*. The survey's link and a brief cover letter were sent to 415 HL teachers in schools in Cologne and in Arnsberg via email through the corresponding school offices at the end of June 2020, a week before the summer break. To ensure a larger return rate, a follow-up reminder was sent in September, four weeks after the start of the new school year. Cologne and Arnsberg were chosen because of the author's previous work experience in these regions, which facilitated the distribution of the questionnaires among teachers. The first collection yielded 79 responses, the second 92. In total, 156 teachers completed the survey, corresponding to a response rate of 37.5%. Data protection was ensured following the General Data Protection Regulation (GDPR) of the European Union (n. 2016/679). There were no statistically significant differences in sex ($\chi^2 = 2.38$; $df = 1$; $N = 156$; $p = 0.122$), age[6] ($\chi^2 = 2.03$; df = 3; $N = 156$; $p = 0.566$), language of instruction ($\chi^2 = 2.04$; $df = 4$; $N=156$; $p = 0.729$), years of service[5] ($\chi^2 = 2.58$; $df = 4$; $N=156$; $p = 0.631$) or working time (in Cologne: $M = 23.05$, $SE=0.169$; in Arnsberg: $M=22.08$, $SE=1,528$) ($t = 0.5$; $df = 202.27$; $p = 0.615$) between teachers in Cologne and Arnsberg.[7] Therefore, the two data sets were aggregated. In addition, the data in the first and in the follow-up collection were tested for significant differences. The questions 11 (media availability) and 14 (student reachability) were selected because they were presumed to be more sensible for a change during the time interval due to technical improvement or to emotional variation. Since the differences between the responses from the first and the second collection were not significant (question 11: $\chi^2 = 0.18$; $df = 3$; $N = 156$, $p = 0.99$; question 14: *Fisher's Exact Test*[8]*, two-sided;*

6 The variable age and years of service were categorial, so χ^2-test (and not *t*-test) was chosen.

7 The native stats package in R (*R Core Team 2021*) was used for the conduction of χ^2-test, *t*-test, the calculation of Cramér's *V* and the creation of the figures.

8 The Fisher's Exact Test was used instead of the χ^2-test because one expected value in the contingency table is smaller than 5.

p = 0.182) the null hypothesis can be rejected. Consequently, the data collected in June and September were aggregated.

4.2 Participants[9]

The following section describes respondents' biographical data and teaching settings. The sample is composed mostly of women (62% female, 36% male, 2% no answer). 24% of the participants have more than 20 years' experience and 23% between 11 and 20 years, while 51% have less than 10 years' experience. Middle-aged and older teachers make up the majority of the sample: 56% of respondents are older than 50, 29% are aged between 40 and 49 years, and only 15% are younger than 40. The most represented HL is Turkish, taught by 42% of respondents. Italian, Arabic and Polish are represented with 11%, 10% and 7% of respondents respectively. 11 more languages (sorted according to the number of responses: Albanian, Russian, Kurdish, Greek, Spanish, Farsi, Portuguese, Bulgarian, Twi, Bosnian, Serbian-Croatian) are registered in the survey and together represent about 30% of the sample. This biographical data epitomizes the entire HL teachers' population and the weight of migrant communities in NRW (Bezirksregierung Arnsberg 2018); thus, the sample can be considered balanced.

4.3 Quantitative Results

4.3.1 Workload

To measure workload, teachers were asked to state their weekly work time. The answers collected show a consistency of the mean work hours before (time 1) *(M = 23.22; SD=15.48; SEM=1.28, N=147)* and during distance learning (time 2) *(M = 22.26; SD=13.72; SEM= 1.48; N=86) (Figure 1)*. A *t*-test between the means of time 1 and time 2 was conducted *(t*=0.428; *df*=231; *p*= 0.668 one-tailed). Since the *p*-value is higher than the significance level, one can assume the null hypothesis of no differences between the means. The teachers devoted on average an equal amount of time for the in-person setting as for the distance learning:

9 I am very grateful to all the HL teachers who made this project possible among whom I want to personally name Ilaria Stocchi and Julliane Rüdisser for their insightful feedbacks and reports. Heartfelt thanks also to the staff of the Bezirksregierung Arnsberg and of the Zentrums für Mehrsprachigkeit und Integration Köln (in particular to Rosella Benati) for the support.

included in this count is not only time with students (as video conferencing) but also preparation and follow-ups. However, several outliers can be observed in the distance-learning setting, with some respondents working more than sixty hours per week. The circumstance of "working at the limit" has been confirmed in the qualitative analysis and is also evident in a survey conducted on teachers in Frankfurt during the same period (Mußmann, Hardwig, Riethmüller & Klötzer 2021). The workload variation indicates how much time was invested to adapt to the new setting. Contrary to expectations, the majority of respondents did not declare spending more time on their work during distance learning. A reason can be found in the particular situation of the pandemic, which challenged teachers also in their private lives and did not leave additional time to explore and experiment with new media.

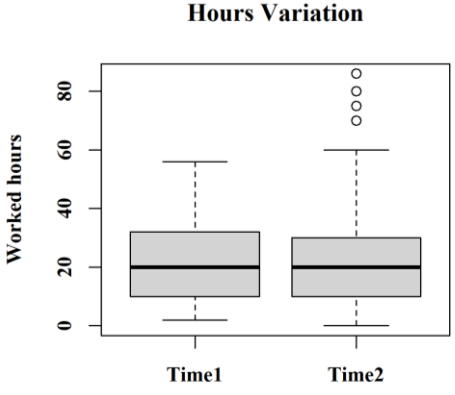

Figure 1: Working hours during the in-person setting (time 1) vs. working hours during the distance learning setting (time 2)

4.3.2 Attendance

According to respondents, the number of students who regularly participated in distance learning decreased in average dramatically from *M*= 82 to *M*= 44.17. This difference is considered statistically significant (*t*=3.936; *df*=195; *p*<.001 one-tailed). However, a high value of standard deviation is observed in the samples (time 1: *SD* = 86.56; *SEM*=8.86; *N*=100; time 2: *SD*=38.84; *SEM*=3.94; *N*=97), and there are several outliers.

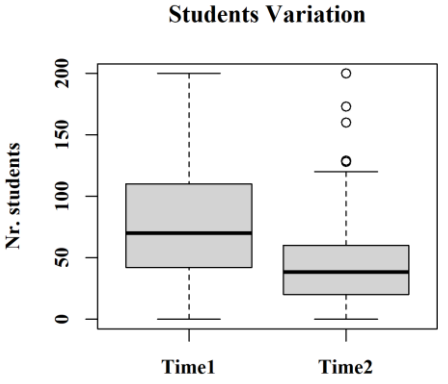

Figure 2: Attendance during the in-person setting (time 1) vs. attendance during the distance learning setting (time 2)

In particular, attendance collapses for nearly half of respondents, while the other half of respondents maintain approximately the same level of student attendance. It is possible that students did not attend the online class because the lesson was asynchronous and attendance in classical understanding could not be registered. To verify this hypothesis, the variable "attendance reduction" was tested for possible associations with the use of synchronous and asynchronous media. The χ^2-test of independence did not show any significant association either between attendance reduction and the use of synchronous media (χ^2= 4.339; *df* = 1; *N*= 42; *p* = .037) or between the attendance reduction and the use of asynchronous media (χ^2= 3.493; *df* = 1; *N*= 42; *p* = .061). The null hypothesis cannot be refused and the difference in the attendance at time 1 and 2 could be due to chance. Therefore, the hypothesis that students did not attend the online class because the lesson was asynchronous can not be verified.

4.3.3 Technical Infrastructure and Type of Technology Used

Questions 8-12 of the survey show that most respondents are technically able to teach in an online setting. In fact, teachers' households are much better equipped than schools regarding any type of technology. For example, while about 80% of respondents' households have at least a satisfactory internet connection and hardware, only half of the schools provide similar conditions.

As one can see in the table 1, respondents can resort to multiple communication channels in the distance learning. The most common tool for the communication with students is instant messaging (IM). In most cases, respondents increased communication via a pre-existing group in an IM app (e.g. WhatsApp), confirming a trend during the pandemic also detected by Zarzycka, Krasodomska, Mazurczak-Mąka & Turek-Radwan (2021) in social media. Telephone calls and emails are commonly used channels of communication as well. Communication via web-conference is used far less: only 50% of respondents used video-communication one or more times, although this medium can quite faithfully reconstruct the in-person setting (Langela-Bickenbach & Wampfler 2021: 96) in supporting working synchronically, enabling multimodal parallel interactions between teachers and students, and allowing group activities. Respondents also occasionally use traditional mail for communication. Indeed, this is the official way to communicate with the families, but it is neither suitable for rapid communication nor teaching. Learning platforms (e.g. Moodle), social networks, and collaboration software (e.g. Google Sheets, Padlet) play only a marginal role.

Table 1: Percent values (N=156) of the media used during the distance learning

	Regularly	Occasionally	Rarely	Never	No answer
Instant Messaging	40	21	5	4	28
Telephone	29	37	10	1	22
Email	30	23	10	10	26
Web conference	21	17	11	19	32
Post	5	18	21	23	32
Learning platform	5	18	21	23	32
Social network	1	3	3	49	42
Collaboration software	1	4	6	40	47
Other	8	8	4	6	74

This data shows that, despite teachers' doubts related to data security, media of everyday communication (such as WhatsApp) are preferred to media created specifically for teaching purposes (such as Moodle). On the other hand, media developed for teaching needs, such as learning platforms and collaboration software, are partially neglected (Padlet is used for teacher-centred communication; see §4.4). The data confirm results on students in curricular classes aged 12 to 13 in the same period (Rathgeb 2020): a minority of the respondents used a Cloud (13%) or videoconference (10%).

Regarding the chosen media, parents play a key role in managing the contact with teachers and schoolmates, as they control the media at least for students in elementary school: sending and receiving WhatsApp messages is a significative practice for pupils as young as eleven to twelve years old, and only 25% of the 6

to 13 years old students in Germany use email (Feierabend, Rathgeb & Reutter 2019). Moreover, some of the most used media do not involve student-to-student interaction: while IM, email and telephone are used as communication tools with the mediation of parents, the simultaneous interaction of several students with each other under the guidance of the teacher is complicated or impossible with these media. The open responses (question 18) deliver more information to understand the teachers' media preference: teachers are aware of the privacy risks of internet usage and avoid social networks. They also express the need for dedicated media services for teaching, but show concerns over the personal data security, possible costs of the service and students' technical difficulties. They also find it complicated to introduce web conference tools, because not all students (or parents) have access to the infrastructure or have enough technological awareness. It should be noted that WhatsApp, certainly inadequate for security, is accepted by teachers and families because they are familiar with its use. Some respondents declared (question 25) to have conducted some telephone calls with students; however, the scope was to transmit information and empower students, not to develop students' oral production.

In general, the online setting made it more difficult to reach students (question 14). 42% of respondents declared that they could reach and communicate with students less effectively during distance learning than before. For 25% of respondents, communication worked equally as well as in the in-person setting. Interestingly, for about 6%, communication worked better in the online setting than in school. The latter (10 teachers) believed they could reach students better due to the incorporation of multimedia in their lessons, whereas in the traditional setting they are limited to blackboard and chalk.

4.3.4 Didactical Changes

This section investigates in more detail how teaching has been influenced by the switch to distance learning. There were various changes in instructional activities before and during distance learning: the change in the time dedicated to activities supporting interactional skills is the most impressive shift. A large majority of respondents (72%) promoted interaction in classroom activities between students before the pandemic, while only 5% did not (question 16). However, the same question in reference to the distance setting displays a different scenario (question 17): only 31% of respondents promote interaction in distance learning, while the majority (39%) do not and 30% did not reply. The variation in interaction between students in time 1 and 2 (question 16 and 17) has been tested for association with the variation in reachability of students in time 1 and 2 (question 14) by mean of

the *Fisher's Exact Test*. The association is significative (*Fisher's Exact Test, two sided*, $p<.001$) but the effect size is small (*Cramér's V*=0.278).

The association shows that, if the teachers were able to reach the students, they were successful in promoting interaction between students. In other words, teachers fail to promote student interaction through activities where themself are not present, for example, by promoting virtual meetings, chats or telephone calls in which students have to solve a task by interacting with each other, without teacher's presence.

The teaching of other skills has a similar fall-off. Figure 3 shows those cases in which a skill was trained for more than 15 minutes per week (including homework) in-person and during distance learning (questions 21-24). While 92% of respondents declare that their students dedicate more than 15 minutes per week to activities that engage them in oral production during the in-person setting, only 51% declare the same for the distance learning setting. Time dedicated to enhancing grammar knowledge diminished drastically as well: 86% of respondents consider their students to spend at least 15 minutes per week doing grammar exercises before the distance-learning period. During distance learning, the ratio sank to 50%. Such a decrease in the time dedicated to oral skills and grammar exercises is not compensated by additional time in other skills: written production and written reception also registered a moderate reduction in terms of time. In other words, the time dedicated to HL learning decreased significantly in distance learning, independently of whether a skill can be trained online or not. The general fall-off is possible because the chosen teaching setting did not allow for direct contact with teachers and school mates nor for interactions between students. Although the decline in lesson time is found in all areas of the language, some areas are sacrificed more than others. This can be better illustrated analysing the percentage of the total time studying dedicated to each skill. From the following figure 3, it is clear that, besides the general reduction (compare the area of the right chart with the left chart), proportionally more writing and reading (written reception),

as well as working alone, are done in the distance setting (pie diagram on the left), while the proportion of speaking and grammar decreases.

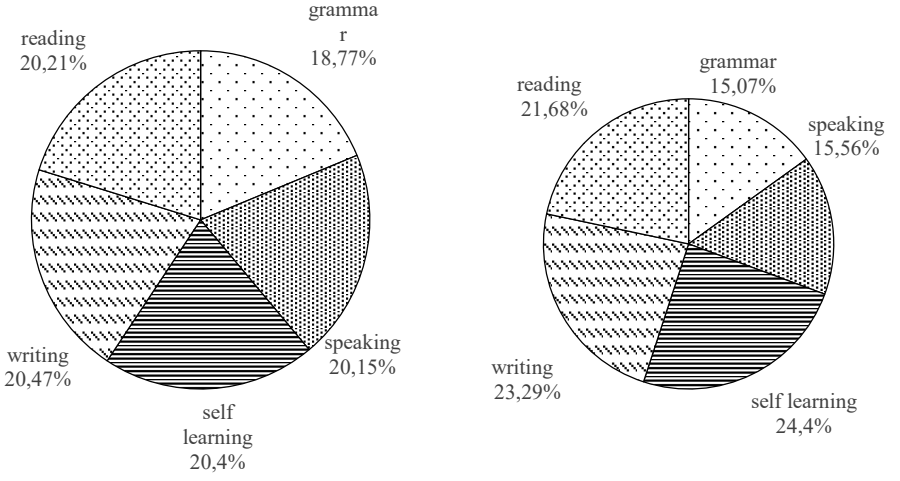

Figure 3: Percentage of time dedicated to different activities before and during the pandemic

4.4 Qualitative Results

4.4.1 Major Issues with Technology-Mediated Communication

For a deeper understanding of the use of technologies and its relation to the training of communicative skills, the questionnaire contains some open-ended questions aiming to elicit a closer insight of the teachers' opinions and needs. The results from two questions are outlined in this section: question 18 investigates the major issues in distance learning according to respondents. Question 25 elicits teachers' opinions about arrangements that are working particularly well in distance education. The observations provided by respondents are tagged with NVivo 11 and analysed according to a qualitative content analysis (Mayring 2005). The responses to question 18 originated 65 statements, which are tagged

with 10 inductive categories. Figure 4 ranks these categories from the most frequently to the less frequently mentioned.

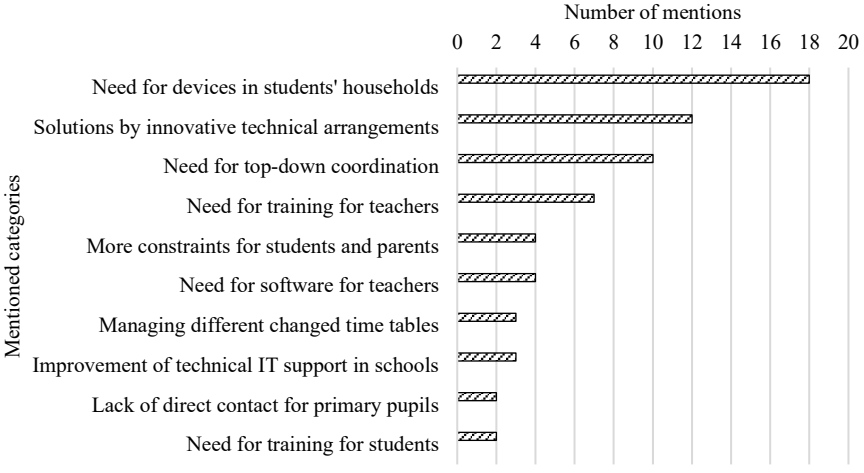

Figure 4: Major issues in distance learning (N= 65)

The most frequently mentioned category call for more devices and a stable internet connection in students' households: it is not common for families with young children to have the technological capacity to support online learning. Surprisingly, the expected use of the device included also printers, since many teachers plan materials to be printed and completed offline: some teachers motivate this choice with the young age of some students and their habit to pencil and paper assignment, others with the missing media competences in some households. The online completion of homework, for example per smartphone or tablet, is not mentioned by teachers. Linked to this topic is students' dependency on the parents, as the following example shows: "When the students don't have their own terminal device and the family did not cooperate, it was not possible to work. Some families simply ignored my e-mail" (t31).

The second most frequently mentioned category does not highlight issues but provides details about the way respondents were able to bypass the difficulties of distance learning: IM, highly widespread and accepted also by students and families, allowed the assignment of activities based on multifunctionality and technical convergence (Strasser 2020: 30): "[Students can learn in distance setting] sending video or audio recordings of reading samples or photos or edited assignments on WhatsApp" (t42).

Some teachers mentioned their experiences with self-created pages in web 2.0 sites: one teacher shared the link to a *Padlet* (an online wall for coworking), where she assigned different tasks according to proficiency levels and skills to be trained. Teachers assigned homework in Padlet weekly to students avoiding synchronous lessons. Since homework can be performed asynchronously, learners can follow their own path at their own speed and according to their technical possibilities. Students were invited to freely complete the Padlet according to their expertise and interest. The activities consisted of reacting to the task by adding written comments, pictures, videos or audio files. The result digitally recreated a classroom atmosphere in which each pupil showed the others what they had achieved.

Still others teachers praise the chance of multimodality and synchronous communication with various students simultaneously through web-conference tools (§ 4.4.2).

The third category is the wish for more top-down coordination. Respondents believe that some issues cannot be individually solved and recognise that important steps of digitalisation must be decided at school office level. In particular, respondents miss a common learning platform shared by all students, which would be particularly important in cases in which students coming from different schools join the same HL class. In other cases, respondents demand training for digital competences, or they are concerned about the safety and privacy of the software. Others wish for a list of apps and software certified by the school offices or ministry which families can download for free and without risks.

The fourth category by frequency represents the demand for more support for teachers in the form of training in digital competences for distance learning: one teacher states that she received instructions from the principal who informed her about possible strategies. This information came very late.

The demand for more constrains for students and families represents the fifth category. Four respondents believe that parents underestimate the benefits of the lesson in distance learning and that making HL a mandatory lesson would improve the students' and families' approach to HL education. This last argument, being a recurrent topic in HL teachers' beliefs, shows that HL teachers consider the HL lesson to be misjudged and highlights the wish of stronger integration into the educational system (Woerfel et al. 2020: 210).

Further minor categories relate to the demand for software support both in the contingent situation and as a long-term reaction, or report about difficulties in the changed timetable during distance learning. A less frequent category highlights gaps in students' media competence. Especially in elementary school, students seldom have the capacity to manage a device and the software requested for dis-

tance learning independently (when it is available). Other respondents are concerned about the appropriateness to teach pupils in primary school in an online setting.

4.4.2 Effective Learning and Teaching Settings

The second open-ended question (25) focuses on teachers' opinions on the most effective learning settings in distance learning. The qualitative analysis coded 90 statements according five categories: (i) setting supporting autonomous and individual asynchronous learning, (ii) teacher-centred setting, (iii) setting with no technology involved, (iv) communicative environment, (v) parents' involvement. Figure 5 shows the frequency of the mentioned categories.

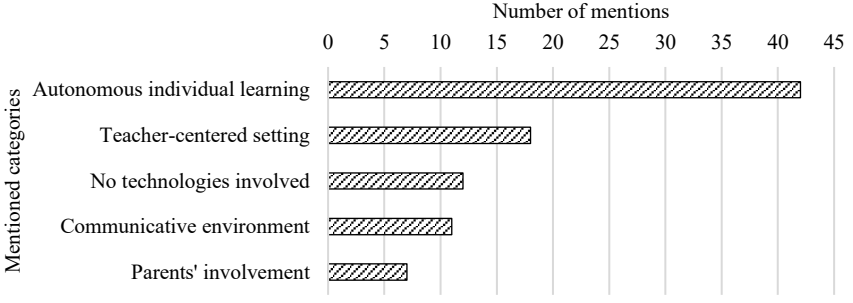

Figure 5: Most effective learning arrangements in distance learning (N= 90)

As settings that support autonomous and individual asynchronous learning (i), respondents mostly mention the establishment of shared online-learning plans. Students are supposed to complete the tasks autonomously, offline and without time constraints. The teacher collects the results and gives feedback individually. The media involved do not allow synchronous communication. For instance, a page in a web 2.0 site created by the teacher, commonly via Padlet (§4.4.1), is distributed to share the exercises, and the students email or IM to turn in the solved exercises. The skills trained in this setting cover all areas. Activities range from extensive reading and comprehension exercises sent via email to the production of free monologues transmitted via IM and include free writing, pattern drills, video clip comprehension, vocabulary exercises, and web search. However, some respondents note that this setting prevents rapid feedback from the instructor.

Contrary to expectations, teachers do not criticise the lack of interaction in this context.

An example for a "teacher-centred setting" (ii) is the lecture, given by a teacher to the class with low or no interaction at all. Communication could be synchronous using web-conferencing tools or asynchronous using, for example, audio messages.

The category "no technology involved" (iii) describes arrangements without digital technologies: some teachers experienced learning settings based on paper-centred exercises and supported by telephone calls or personal meetings: "Many parents do not have a computer or laptop at home. During home-schooling I prepared worksheets and on certain days I invited parents to school" (t18). The category "communicative environment" (iv) collects assertions describing a didactical setting that promotes interaction between students. Among such activities, the most common one (6 occurrences) is the act of cooperative writing as the following exemplary statement shows: "Padlet was also a good solution [in the 5th to 10th grades]. The pupils have to post a photo taken from their window and write a short text. The others could pose questions or write comments" (t157). In addition, dialogical speaking belongs to the category "communicative environment" and was mentioned in four occurrences. The media used are web-conference tools (Zoom, Facetime, Jitsi, MS Teams, Skype, DFN-Konferenz) under supervision of the teacher. During distance learning, dialogical activities focused on real-life daily issues were open to private aspects of the students' lives and were considered important for motivation and class cohesion. In general, activities promoted in a communicative environment deal with students' personal situation in the pandemic and the teachers appreciated the chance to empower the group:

> What is especially good about web-conferencing is that the students had regularity even during this difficult time. We could talk together and continue our lessons. They had tasks to do and they took the lessons seriously and the group community remained. They could ask questions, we could read together ... and have fun. They have not felt alone with the school difficulties (t15).

Finally, seven assertions focus on the favourable learning arrangement created thanks to the inclusion of parents not only in technical support but also in the learning activities, confirming that, more than in other disciplines, in HL the engagement and beliefs of families are an important factor for successful learning (Lengyel & Neumann 2017; Gogonas & Maligkoudi 2020).

4.4.3 Suggestions for Distance Learning

Finally, in question 26, teachers were asked to provide suggestions in case of extension of the distance learning.

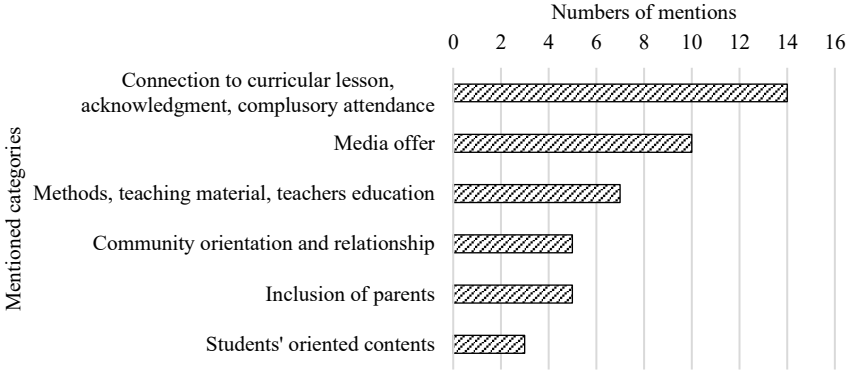

Figure 6: Suggestions in case of extension of the distance learning (N= 44)

Out of 44 statements, 14 express the need for more coordination with the curricular subjects, especially with the German lessons: "Parallel topics and arrangements with German lessons. For example, sentence, sentence structure, tenses, parts of speech, form and structure of a story […]" (t36). The connection with other subjects would improve learning skills and would also contribute to a greater standing of HL lesson. Five of the 14 statements voice the need of more constraints on students or parents (§4.4.1) as the introduction of compulsory attendance. The missing connection to school pedagogical plans and to colleagues lead to personal frustration and loss of vision and meaning in teaching: "Usually no one cares what I teach and how, I am exotic doing something weird, my work is not recognized, or taken first. My colleagues (??) [sic] do not want to understand that I am a teacher […]" (t31). The second most mentioned suggestion refers to the need for a better media offer as learning platforms or data cloud or a list of GDPR compliant apps (§4.4.1) or personal device (t30) to be coordinated by the school offices: "In view of the social and economic situation of most parents from a migrant background, the state must take over and pay for the equipment of children with electronic media" (t30). The third most mentioned category suggests up-to-date methods, HL-tailored teaching materials and more teacher trainings. The fourth category "community orientation and relationship" includes the importance of a positive relation with students and the maintenance of the network with the HL community getting attention to the particular social and educational

condition of the families: "Communication with parents and students with a migration background proved more difficult […]" (t16). Five more statements building the category "inclusion of parents" suggest to dedicate time to parents' involvement: "Parental work must be strengthened in all respects. Parents should be made more aware of the importance of their involvement in their children's education […]" (t30). Lastly, three statements focus on lesson topics which should be tailored to HL classes and personalised according to students' interests. This issue is likely reported by teachers given that commercially available teaching materials for HL classes are rare and the teacher/pupil ratio sometimes allows for customization of materials.

5. Discussion

Given the rapid adoption of technologies during distance learning in the first wave of the Covid-19 pandemic, this study was conducted to investigate the transformation processes in didactical settings in HL classes. The teachers' voice, elicited through a questionnaire, was chosen to unpack the many faces of a heterogeneous and under-explored landscape such as the HL classroom.

Following the research questions, the article analyses how distance learning affects the adoption of technologies (RQ1). The results of the quantitative analysis (§ 4.3.3) show that most of the respondents embraced a teaching approach enhanced by digital media at least once. It is a high result considering that, in a comparable sample of teachers in non-HL classes, 70% declared they did not use digital instruments to provide lessons during distance learning (König et al. 2020). No technology-adverse habitus (Blume 2020) can be referred to the responding teachers. However, faced with a reality check, teachers must compromise their teaching habits with unexpected challenges as:

(1) inadequate media availability in the families, in particular, no direct control of the devices by the students
(2) missing top-down coordination: missing guidelines, scarce training, or restricted exchange with colleagues increased teachers' concerns about students' data security and slow down the adoption of technologies for communicative settings. It should be noted that the structural isolation of HL teachers prevents rapid and sufficient information flow.
(3) insufficient time to adapt to the new situation

Eventually, the most largely adopted media – IM, telephone and email – are not much different from the ones they would have used even during the in-person class to coordinate the different learning groups. These media can relay information about contingencies, but mostly address parents and are not designed for

teaching. Consequently, teaching settings undergo a radical change during distance learning (RQ2): while most respondents were used to sustained student interaction before the pandemic, they were no longer able to embrace a communicative approach during distance learning. Autonomous individual learning with learning plans was a practice adopted by many respondents, since it can be conducted asynchronously and partially offline, computer- or paper-based. However, given the lack of personalised scaffolding and immediate feedback from the teacher, autonomous learning reduces motivation and eventually causes the abandonment of HL classes altogether. Even when synchronous teaching by web-conferencing was – albeit rarely – adopted (§4.3.3), the interaction potential was not fully maximised, since many teachers embraced a teacher-centred didactics (§4.4.2). Opportunities to promote the student/student interaction (RQ3) and to practice HL skills were drastically reduced (§4.3.4). Consequently, attendance and the overall time dedicated to learning the HL decreased, although classes were never officially cancelled by school offices and just took place remotely. Negative implications on learning outcomes can be easily deduced. However, the overall changes in students' daily life also may have affected learning performances negatively (Hammerstein, König, Dreisörner & Frey 2021) and respondents' replies must be read in the light of the emergency situation.

Surprisingly, few respondents benefitted from distance learning and were able to improve teaching by overcoming the limitations of the poor infrastructure available in school buildings. For this minority, the extension of distance learning in the HL context could be an opportunity to be pursued beyond the pandemic to tackle didactical challenges related to the diversity within HL classes, and to bypass logistical constrains (§ 3.1). The adequate use of technical terms and the depth of reflection in some responses (question 13, 26) suggests that the ability to manage the distance learning was not acquired overnight: several teachers who reported positive experiences in distance-learning also showed competences giving constructive feedback and disclosed previous proficiency in digital media-based pedagogy. Consequently, the chance to enhance HL by distance learning is real and worthy of further investigation but cannot be expanded without a strong investment in teachers' education. Research could assist this professional development by collecting specific needs of HL pedagogy and sharing best practices observed among those instructors who were able to utilise digital technologies successfully. Along these lines, the results of the present research are particularly interesting because they show the perspective of a group of burdened educators faced with tough challenges, some of which – like isolation – extend into the emergency situation.

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