Thomas Strasser

App, app 'n' away

How social messaging tools like WhatsApp support mobile language learning and teaching

Abstract. Social messaging services such as WhatsApp have become popular vehicles for mainly synchronous informal and colloquial discourse in various life domains. In order to approach these digital messaging tools from a language-learning/teaching perspective, a conceptual framework for didactic applicative scenarios is of relevance. This paper investigates the effects of micro-learning/teaching tasks in a blended learning context focusing on productive and receptive skills in the EFL classroom. Using lesson simulation tasks from ELT methodology seminars for pre-service teachers at the Vienna University College of Teacher Education, a subject-oriented analysis of ELT methodologies and L2-acquisition performances was carried out. The findings propose that the use of multimodal and ubiquitous social messaging services, embedded into an EFL micro-teaching context, may lead to motivating phases of L2-acquisition among learners.

Keywords. Social messaging, ELT methodology, mobile language learning, motivation in language learning, ARCS, blended learning, seamless learning, ubiquitous learning

App, app 'n' away

Wie soziale Nachrichtendienste das mobile Sprachenlernen und -lehren unterstützen

Zusammenfassung. Soziale Nachrichtendienste sind mittlerweile beliebte Technologien für einen hauptsächlich synchronen, informellen und umgangssprachlichen Diskurs in unterschiedlichen Lebensbereichen. Um sich diesen digitalen Nachrichtenanwendungen aus einer Sprachlehr-/lernperspektive zu

Thomas Strasser

nähern, braucht es ein konzeptuelles Grundgerüst für didaktische Szenarien. Der vorliegende Beitrag untersucht die Effekte von Micro-Learning/Teaching-Aufgaben in einem Blended-Learning-Kontext, wobei der Schwerpunkt auf produktiven und rezeptiven Fähigkeiten im Englischunterricht gelegt wird. Die Untersuchung zieht Unterrichtssimulationen aus Fachdidaktikseminaren für Lehramtsstudierende an der Pädagogischen Hochschule Wien heran, um eine fachdidaktische Analyse (mit fachwissenschaftlichen Implikationen) des L2-Erwerbs durchzuführen, die eine Diskussion aktueller Literatur einschließt, um bestimmte interpretative Stränge im Kontext der Lerneffekte (L2) zu verifizieren bzw. zu falsifizieren. Die Einsichten geben Grund zur Annahme, dass bestimmte Mikro-Didaktisierungsszenarien unterrichtlicher Sequenzen (Englischunterricht) – eingebettet in die ubiquitären und multisensorischen Umwelten sozialer Nachrichtendienste – zu erhöhter Lernmotivation in bestimmten Domänen (z. B. schriftliche/mündliche Produktion digitaler Artefakte) bei den Lernenden führen können.

Schlüsselwörter. Soziale Nachrichtendienste, Fremdsprachenunterricht, englische Fachdidaktik, Mobiles Lernen, Motivation, ARCS, Blended Learning, technologieunterstütztes Lehren/Lernen

1 Introduction and basic considerations

The world of education is experiencing an evident transformation "as a result of the digital revolution" (Collins, Halverson 2009, p. 1). This statement by Collins and Halverson from their 2009 publication is even more relevant ten years later. Digital technologies, such as mobile and/or educational applications, have become popular, especially within the context of teaching and learning (foreign) languages. The computer-assisted language learning approach (CALL) has rapidly developed from a technocratic, rather software-based idea (cf. behavioristic CALL; Ahmad, Corbett, Rogers, Sussex 1985) to an interactive concept supported by cutting-edge technology or simple (mobile) apps that enhance the use of multi-sensory media for language learning purposes (cf. Bachmair, Pachler 2014; Buchem 2018; Kress, Pachler, Norbert 2007; Park 2011). More and more educational applications (cf. Schmidt, Strasser 2018; Strasser 2012; Strasser, Pachler 2014) are appearing on the educational language learning/teaching landscape, promising a rich and versatile learning experience (cf. Hirsh-Pasek et al. 2015). However, even though quite a considerable number of educational technologists and tech magazines label specific tools and apps to be "the next big thing" (Patel 2017), language teaching professionals should critically reflect on

certain hypes referring to recent academic methodological strings of discourse (cf. Barberi, Berger, Strasser 2016; Himpsl-Gutermann, Strasser 2014) that explicitly de-emphasize the relevance of a specific technological determinism.

Academic discourse considers mobile learning "as any educational provision where the sole or dominant technologies are handheld or palmtop devices" (Traxler 2005, p. 262). Still, due to the rapid technological developments, definitions of mobile learning (will) vary. Such definitions of mobile learning "are perhaps rather technocentric, not very stable and based around a set of hardware devices" (ibid.). The focus should instead be on "promoting its [i.e. mobile learning's] unique pedagogic advantages and characteristics" (ibid.). Mobile devices, such as smartphones, have become "cross-technologies platforms" for all domains of life, based on an "always-in-touch" approach (Heinemann, Gaiser 2016, p. 64). Recent academic (e.g. Witt, Gloerfeld 2018) but also tabloid discourse (e.g. Flynn 2015) has revealed the delicate discursive impact of the societal and/or pedagogic use of 'new' technologies such as the smartphone. In some instances, academics draw an apocalyptic scenario, referring to our young learners who have turned into "smombies" (a blend for smartphone and zombies) using their mobile devices (Spitzer 2016, p. 16). It is relevant not to neglect these negative lines of argumentation *a priori* but rather understand why specific fears concerning the use of digital media are implicitly and explicitly manifested in the public and academic discourse. Apart from several studies and publications why people and especially educationalists are afraid of change and innovation (cf. Bitner 2002; Margaryan, Littlejohn, Vojt 2011), Douglas Adams' approach for explaining a person's general *a-priori-fear* concerning the introduction of something new in their personal and professional environment might clear things up a little:

1. everything that's already in the world when you're born is just normal;
2. anything that gets invented between then and before you turn thirty is incredibly exciting and creative and with any luck you can make a career out of it;
3. anything that gets invented after you're thirty is against the natural order of things and the beginning of the end of civilization as we know it until it's been around for about ten years when it gradually turns out to be alright really. (Adams 1999)

Taking this quotation into consideration, one can argue that "what makes technology as frightening as it is exciting is that it is so unknown" (Jarvis 2011, p. 68).

2   Efforts to make the unknown known

In order to understand certain tendencies of insecurity concerning the use of educational technologies, especially among teachers, Pachler and Turvey (2016) set out the genealogy of a conceptual framework for the critical analysis of learning technologies in a formal educational context with a particular emphasis on schools. The purposes of education within the context of (new) learning technologies are in a state of "perpetual flux, where boundary-blurring takes place and where society and culture are experiencing the delimitation of mass communication." (Bachmair, Pachler 2014, p. 53). Due to their non-linear and partially constructivist characteristics (cf. Hirsh-Pasek et al. 2015; Park 2011; Strasser 2012, 2015), educational applications and/or technologies can contribute to a specific paradigmatic and performative change within language learning contexts (Schmidt, Strasser 2018; Strasser, Pachler 2014), which might lead to this aforementioned perpetual flux that can well be

> described with the term *Entgrenzung* (delimitation, boundary-blurring), i.e. the removal of systemic demarcations. This boundary blurring […] is part of a new constellation of mass communication as well as of learning (Bachmair, Pachler 2014, p. 54).

The illustration in figure 1 summarizes the phenomenon of this "world in flux" (Bachmair, Pachler 2014, p. 71) within the process of learning using (digital) mass technologies. Here, the purposes of education consider three segments, i.e. pedagogy & learning design, teacher professional development & research, and Web 2.0 & school cultures, which, seen from a performative point of view, are interdependent. The graph suggests that especially in the intersecting space between the three segments, tensions and opportunities in the ongoing process of modernization happen, which correspond to a changing constellation for learning (Bachmair, Pachler 2014, p. 71).

3   The screen as a game-changer in language learning. Basic considerations

Rowsell and Walsh suggest that the process of learning within the context of literacies and digital technologies has changed with regard to knowledge reception and that especially teaching professionals should consider "[a]n acknowledgement of the screen as our dominant text structure" (2011, p. 55) . This means that screen technologies, such as computers, tablets and smartphones, govern "our understanding of the world and curricula need to reflect this dramatic shift

in our ideological and interpretative frame" (ibid., p. 56). Especially mobile technologies with their non-linear synchronicity have influenced the way we learn (a language) and the acquisition of information and knowledge is "increasingly associated with mobile technology" (Schmidt, Strasser 2018, p. 226). Foreign language learning and teaching methodology offers a wide range of tools and applications that enhance the language learning experience on a multi-dimensional and multi-sensory level.

Whether programmes for mind mapping and designing learning plans, electronic dictionaries, podcast software and video platforms, programmes for images, audio and video recording, editing multimedia content as supplementary to print textbooks – smartphones and their applications [or functions] offer almost infinite opportunities for a diverse, location-independent, receptive and productive use of a foreign language (ibid.).

A world in flux

Instability

Provisionality

Pedagogy and learning design

Web 2.0 and school cultures

Tensions

Teacher professional development and research

Opportunities

Purposes of education
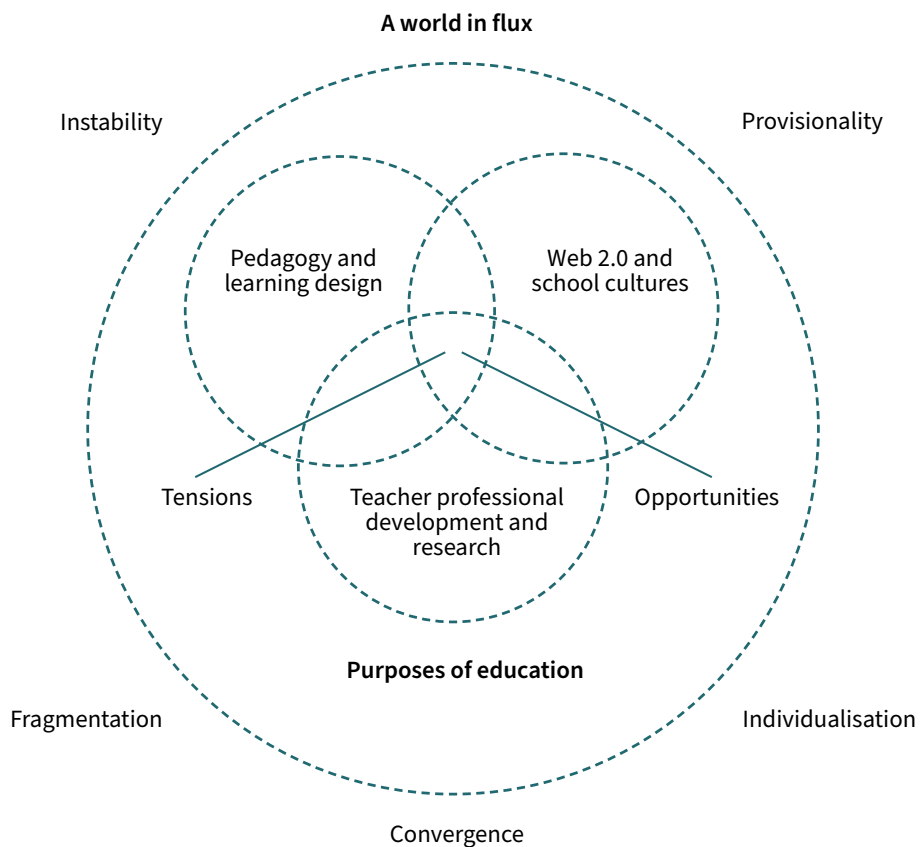
Fragmentation

Individualisation

Convergence

Figure 1: A world in flux (Bachmair, Pachler 2014, p. 71).

Therefore, the concept of mobility (e.g. learning in a formal/informal context without temporal and spatial limitations) can be considered as the individual's habitus by "immediate access to the world (to be) framed; an expectation of ubiquitous availability of cultural resources for learning and a constant readiness to be a 'learner'" (Kress, Pachler 2007, p. 28).

Digital technologies, especially mobile devices, offer ubiquitous access to materials that the learner produced in order to show what they have learned, so-called learning artefacts (such as vocabulary, grammar, language prompts, chunks of speech, etc.). In comparison to analogue learning scenarios, mobile-assisted (language) learning includes:

> **flexibility and portability:** digital technologies are characterized by their relatively small size, which makes them readily portable and, therefore, usable anywhere anytime. Increasingly they offer connectivity and networking. Being digital, they allow resources to be easily modified, presented and re-presented according to changing needs and user groups.

> **multifunctionality and technical convergence:** mobile devices now normally bring together more than one function[:] [we use them to] listen to music, look at images and watch a video, maintain a calendar and contact list, view computer files created by different software packages, read e-mails, view webpages, etc., these functions are now readily available at affordable prices as single small devices. This characteristic includes availability on-demand as well as the creation of content 'on the fly', i.e. in real-time.

> **multimodality:** digital technologies allow content to be presented using a diverse range of systems of representation and a combination of different semiotic means of meaning-making. Digital video, for example, allows learners to create representations of themselves and the way they see and interact with the world, for example in the form of narratives or documentaries that are not based on traditional notions of textuality.

> **nonlinearity:** hyperlinking, i.e. the ability to break up the sequential ordering of information/pages/screens and allow lateral connections intra- and intertextually, between related as well as unrelated documents/artefacts, allows for unprecedented levels of interconnectedness and possible synergies.

> **interactivity and communicative potential:** mobile devices allow for new forms of creative relations between people on the basis of reciprocity and negotiation, in writing and in speech, in real-time (synchronously) or delayed (asynchronously). Exchanges can be recorded, stored and analysed post hoc; […] Communication between a number of interlocutors can occur concurrently and multi-directionally, with different conversational fragments being interwoven. (Kress, Pachler 2007, p. 11–13)

In their mobile learning study, Szucsich et al. (2018) emphasize the potentials of mobile devices to support creative, enthusiastic and individual learning (ibid., p. 14), especially within the context of second-language acquisition (ibid., p. 25, 42, 44, 60, 64) (e.g. children with migrational background, refugees). Furthermore, they postulate that through project-based lessons with mobile devices (e.g. creating a radio show in the EFL-lesson with a podcasting app), spatial and temporal limits are being extended because lessons are not exclusively embedded into a 50-minute sequence. This is due to the fact that many project-based mobile learning scenarios enable meaningful intervals for breaks within the dynamics of transdisciplinary learning (ibid., p. 53). These game-changing learning paradigms are linked to various spaces where learning and teaching happens. The learning process is not exclusively limited to the classroom, but also takes place in different rooms, such as the corridor or the school library, or is being transferred into entirely different spaces like museums or parks. Another insight was that traditional perceptions of the teacher role (instructivist knowledge conveyor) (ibid., p. 18, 23, 27) could be reframed by using mobile devices: In many situations, it is the case that the student knows more than the teacher, and, quite frequently, teachers find this problematic. In order to initiate a change of paradigm here, the learning culture needs to be changed, and mobile devices should not be pressed into old structures (ibid., p. 67). The study shows that mobile devices worked best where innovative concepts and lessons are a regular part of the school's agenda. Mobile learning has changed the way we learn (a language) through apps with audio and video formats that support communication beyond language barriers. Learning a language often takes place within a highly motivational context, where inhibitory thresholds are frequently reduced and individualized so as to enable differentiated learning. Depending on the task and methodological setting, the mobile device can help students take over responsibility for their own learning. Smartphones and tablet computers can act as a lever for inclusion, social learning and the support of multilingualism (ibid., p. 6, 18, 24, 30, 32, 42, 56, 60).

4 Mobile learning strategies and the teacher role. A snapshot at Vienna University College of Teacher Education

Mobile learning scenarios may have a particularly positive impact on specific learning / teaching scenarios. In order to support highly participatory and collaborative lessons with certain temporal and spatial delimitations, the potentials of digital technologies, especially mobile learning, need to be practically and scientifically promoted in (pre-service) teacher training. Recent research has emphasized a change in the roles of learners and teachers within mobile learning scenarios: Especially in formal environments such as schools or universities, learners increasingly take on the role of actively performing subjects, having been addressed as consumers and recipients within (other?) pre-defined settings; content is not automatically provided by the teacher, learners create meaning themselves and gain knowledge autonomously, defining their own goals and curating their own resources (cf. Seipold 2011, p. 201). Mobile learning technologies have an impact on the teachers' roles as well (cf. Makoe 2012, p. 98) as these "become designers and facilitators of learning" (ibid.). Teachers are not only knowledge providers but also mobile learning facilitators, who are expected to have skills in the following areas (cf. ibid.):

— Skills for instructional design for mobile learning
— Facilitating skills for authentic context-specific learning
— Situated learning instruction
— Student-centred instruction
— Management of data on the small screen
— Assessment design for mobile learning
— Educational technology skills
— Knowledge of learning theories

Taking these characteristics and analyses into consideration, one can state that "the nature of the mobile technology is such that the role of the lecturer shifts from being primarily a content expert to being a learning process design expert" (ibid., p. 101).

Since 2016 the Vienna University College of Teacher Education and the University of Vienna have shared a common pre-service teacher education curriculum in secondary education. Due to the fact that various experts from different disciplines have for a long time now demanded the implementation of (digital) media literacy and learning technologies in teacher training curricula (cf. Seipold 2011), there is a need to curate and adapt scientific insights concerning the relevance of digital technologies within the academic discourse and for (school-)practical

applicative contexts (cf. Heil et al. 2016; Heinz 2018; Pachler 2007; Strasser, Knecht 2012, 2013; Toh et al. 2013; Witt, Gloerfeld 2018). Moreover, convincing lines of argumentation for stakeholders need to be developed so that they consecutively draft and pass pre-service teacher curricula which display holistic, interdisciplinary approaches focussing on digital technologies and their societal and pedagogic potentials.

For the Vienna University College of Teacher Education, learning with digital technologies – especially mobile learning – acts as a dynamic catalyst for a change of paradigm in pre-teacher education curricular design, where the teacher's role resembles that of a facilitator or scaffolder following the non-linear, participatory, and collaborative aspects of modern digital literacy (cf. Ottenbreit-Leftwich et al. 2010; Rienties, Brouwer, Lygo-Baker 2013; Strasser 2011). The multi-faceted, temporally and spatially de-limited dimension of mobile learning/teaching (cf. Strasser, Greller 2015), where learners (or student teachers) can be experts as well and professors may act as facilitators and not as the only source of knowledge (cf. chapter 3), might be a first step away from the reception of the 'classic' teacher as a knowledge-conveyor. Our student teachers are given input and methodological expertise (e.g. in methodology seminars or introductory lectures) in order to understand that a mobile device (e.g. a smartphone) is a universal and motivational medium that can be used as a vehicle to transport/teach various curricular objectives. Student teachers are invited to use their mobile devices in the seminars, lectures but, even more importantly, also in informal contexts. They are given topic- and subject-related tasks that can be carried out outside the lecture hall or classroom. Therefore, student teachers are likely to recognize mobile learning not as an act of learning/teaching exclusively taking place in the seminar but as an act that fluidly combines formal and informal contexts (cf. Toh et al. 2013).

5 Recognising mobile learners. Seamless (language) learning and learning spaces

By implementing various mobile learning/teaching scenarios in the curricula of initial teacher education but also in various teacher training courses, we want to motivate our students/participants to actively include mobile (language) learning in their conceptual, pedagogical and methodological repertoire. Future and experienced teachers alike should realize that mobile learners can be more self-organized and themselves become curators of their data with the help of many digital artefact curation/archiving tools (Dropbox, Evernote, OneNote but also social networks and messaging services, etc.). Moreover, due to the respon-

sive design of many mobile apps (e. g. Twitter, Instagram, blogs, ePortfolio apps), they are used to comment/feedback the discursive behaviour of their peers/colleagues in specific teaching/learning scenarios (cf. Strasser, Knecht 2011). Especially within the context of foreign language learning, Sharples, Taylor, and Vavoula's (2007) definition seems to be of relevance: Mobile learning comprises "the processes of coming to know through conversations across multiple contexts among people and personal interactive technologies" (Sharples, Taylor, Vavoula 2007, p. 222). The London Mobile Learning Group (2019) believes "it is about understanding and knowing how to utilize our everyday life-worlds as learning spaces". Mobile learning involves not only the mere sharing of artefacts and focus on apps but also the active and productive curation, adaptation, modification or creation of new products (e. g. mindmaps, video production, collages on the go, etc.) (cf. Heinz 2018; Toh et al. 2013).

In order to design our seminars and lectures on theoretically solid grounds that meet the demands of ubiquitous, non-linear and temporally & spatially-delimited learning which does not exclusively take place within the formal environment of the classroom, the English department and the Centre of Learning Technologies and Innovation at the Vienna University College of Teacher Education employed the matrix of learning spaces (cf. Toh et al. 2013, p. 303) and adapted this matrix to the methodological framework of our lessons and modules. Toh et al.'s (ibid.) model focuses on the concept of seamless learning as an integral part of the matrix of learning spaces. Seamless learning can be defined in different ways. Definitions range from "the seamless integration of technologies into classrooms" to marking "the border between formal and informal learning or individual and social learning" (Snijders 2013). Furthermore, seamless learning can be seen as the act of "learning wherever, whenever and whatever" (Chan et al. 2006, p. 4). Despite the conceptual and terminological versatility of the concept, its various definitions have a semantic intersection: With seamless learning

> [t]he aim [is] to support continuous, fluid learning experiences – mainly driven by the learner's desire to inquire or to investigate. The concept of seamless learning is to make the transitions between the different learning situations and context[s] as smooth as possible (Strasser, Greller 2015, p. 53).

Therefore, where learning spaces are based on two factors, "physical setting and learning process" (cf. Toh et al. 2013, p. 303, see figure 2), the temporal and spatial aspects of seamless, technology-enhanced learning within the matrix of learning spaces need to be discussed:
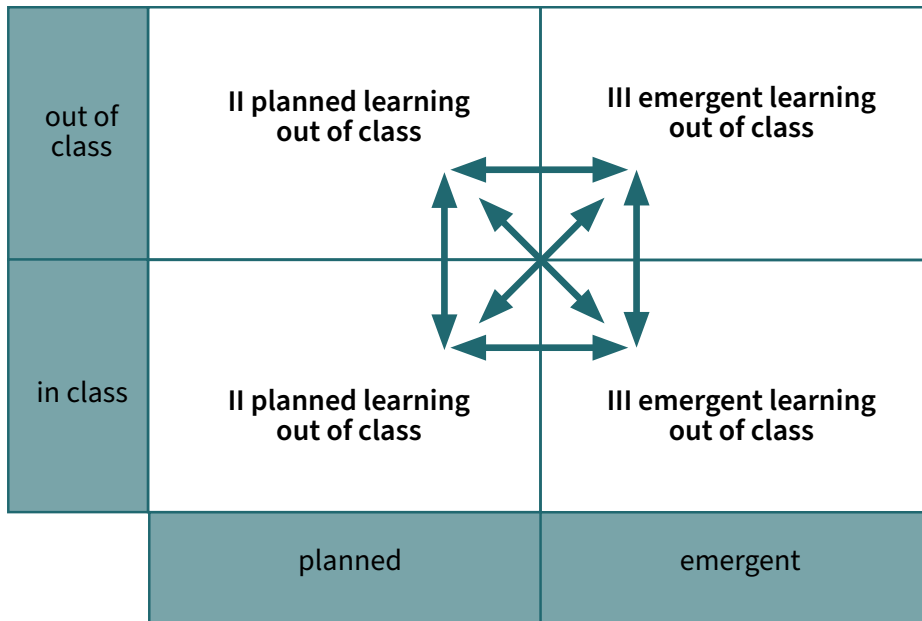
	planned	emergent
out of class	**II planned learning out of class**	**III emergent learning out of class**
in class	**II planned learning out of class**	**III emergent learning out of class**
	planned	emergent

Figure 2: Matrix of learning spaces (Toh et al. 2013, p. 303).

At the Vienna University College of Teacher Education, 'planned learning in class (type I)'[1] often takes place in the seminars (for example, EFL methodology seminars). Since most of our students own smartphones, we methodologically exploit the collaborative, dynamic and synchronous potential of these devices in order to initiate processes of collective intelligence when we brainstorm about various subject-related issues. Students in these EFL methodology seminars do not only collaborate within a digital setting but also use the discursive potentials of face-to-face-interaction in order to approach the learning goal (cf. figure 3: here, students design the structure of their ePortfolio view for their practical studies in the seminar "Principles of media pedagogy").

In order to support type II of mobile/seamless (language) learning scenarios ('planned learning out of class'), lecturers at the Vienna University College of Teacher Education frequently organize field trips or excursions where students can use their mobile devices outside the classroom. In the case presented here, EFL- and Erasmus+ students visit an art exhibition in Vienna. The task was to combine the provided (lexical) input from the seminar (prompts to describe objects

---

1 Type I: When learning scenarios designed by the educator are carried out in the physical classroom, see figure 2.
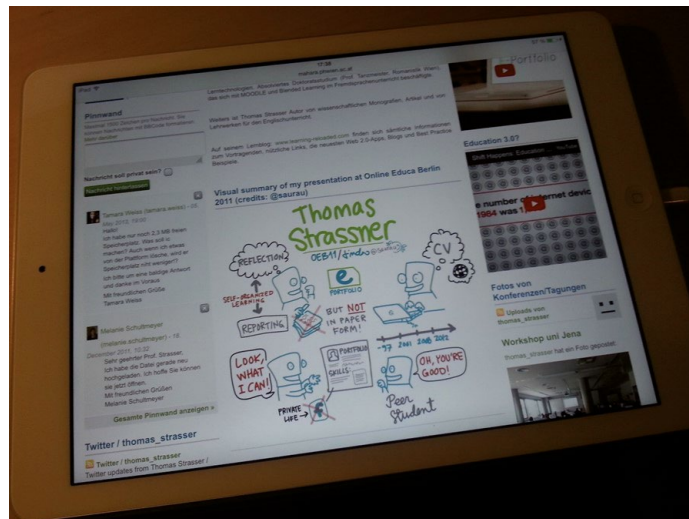
Figure 3: Planned learning in class (type I).

of art) with their self-organized performance of content-collection and curation (cf. figure 4). The students did not only take pictures of the analogue artefacts but also tried to immediately reflect on various subject-specific issues such as shape, colour, name of the designer, material used, etc. For this, the students used the cloud-based note-taking software Evernote for their portfolio. Evernote and similar cloud-based backchannels have the significant advantage that they can be used with a PC or laptop as well as with mobile phones and tablets. So again, the previously discussed aspect of fluid, seamless and ubiquitous mobile learning is evident. Since mobile devices can be their omnipresent portfolio for their personal learning biography and within their life-long learning continuum, it is quite likely that these future teachers will apply such scenarios in their own teaching (cf. Szucsich et al. 2018). As a result, the practical applicative potentials of mobile learning / teaching are made visible within the student teachers' personal professional contexts. If type II is conceptually manifested in a future teacher's teaching concept when using their authentic 'cultural-access device' (i.e. mobile phone) (cf. Brandhofer 2019), one can assume that chances are reasonably high that s/he will inductively apply type III (i.e. emergent / unplanned / unconscious learning outside the classroom) scenarios as well. It is the ubiquitous character of a smartphone that supports the production of multi-sensory digital artefacts (YouTube videos, blog entries, Instastories, etc.) which are immersed in their cultural context (cf. Strasser, Greller 2015). The choice of tools for planned learning activities outside the classroom is not the priority in such learning scenarios. If we want to 'convince' student teachers to include mobile learning scenarios within their pro-

fessional continuum, we have to make sure that the given tasks are 'authentic' for them (e. g. through use of devices that meet the zeitgeist or observation of positive effects when doing the task, cf. Buchem 2018). In order to manifest mobile learning in the student teachers' performative mindsets, they need to become curators of knowledge, storing, archiving and labelling the digital artefacts (online exercises, videos, blog entries, forum posts, etc.) for their professional development (cf. Bachmair, Pachler 2014; Szucsich et al. 2018). Therefore, one of the most essential skills of future teachers in the context of mobile learning is to know how to quickly get relevant data and information for their lectures or seminars of future teaching scenarios.

6   Messaging services in language teaching and learning. Practical examples

In general, digital messaging services or applications are networking tools that allow people to meet, interact and share ideas and artefacts virtually. Digital messaging applications make content and topics accessible to a larger target group. They can act as a dynamic discourse system that supports the idea of democratizing knowl-
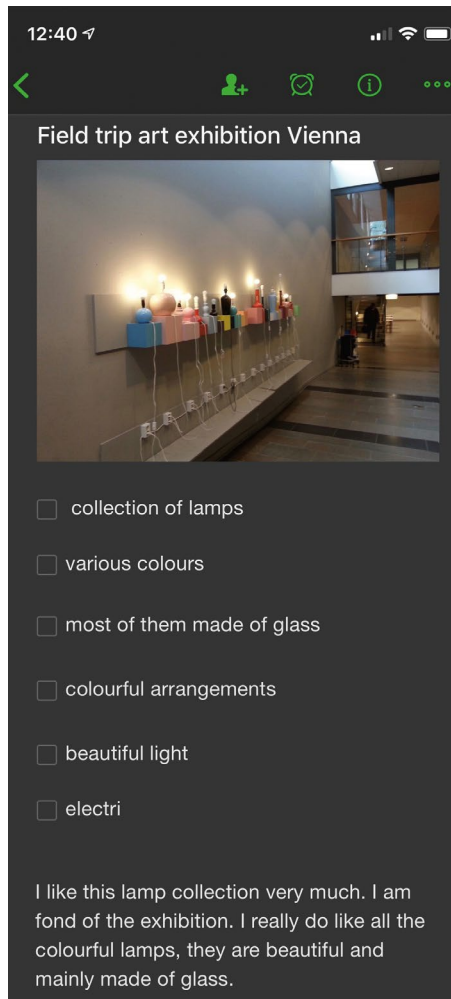
Figure 4: Planned learning outside the classroom (type II). Task (target group Erasmus+ students): Go to the museum, take a picture of your favourite object and lexically annotate it using a ubiquitous tool of your choice.

edge and opinions. The digital era is an evident transformation that pivots on the medial construction and dissemination of communicative processes and realities (cf. Schade 2004, p. 115–116). Social messaging services like WhatsApp, Threema or Telegram are discursive vehicles to organize, save, archive and share specific learning scenarios of mainly bi- or multi-lateral turn-taking sequences. Apart from their primary function to act as a prominent tool for informal com-

munication (cf. Montag et al. 2015), these messaging services can also be considered as potential learning and teaching tools. Recent research identifies a particular need to communicate and interact in and outside the classroom using digital technologies like smartphones and corresponding applications (cf. Rushby, Surry 2016; Heckmann, Strasser 2012). Various studies (cf. Heinz 2018; Witt, Gloerfeld 2018; Schmidt, Strasser 2018), especially in foreign language teaching contexts, suggest an academic and practical discourse concerning the methodological exploitation of instant messaging services that also takes into account the 4-skills-perspective (speaking, listening, reading, writing). The following practical examples mainly focus on the receptive skill of reading and the productive skill of writing among EFL student teachers and Erasmus+ students at the Vienna University College of Teacher Education during lesson simulation tasks in EFL-methodology seminars.

a. Turn-taking

In this example (cf. figure 5: Turn-taking sequences in WhatsApp), Erasmus+ students (B2 level of English) carry out a planned learning sequence outside the classroom (here: the Museum of Natural History in Vienna). The task is to take a picture of a museum artefact, join a WhatsApp group with three to four peers and talk about the visual input. Here, it can be seen how topically (nature / fauna) and lexically (specific lexical items and prompts describing the topic) coherent turn-taking scenarios including fillers and backchannelling are practised.

Potentials of the messaging service in turn-taking sequences:

— Ubiquitous communication: discursive threads can be prolonged even after the actual seminar or task (i. e. dynamic continuity of discourse).
— Use of multi-media artefacts (videos, photos, emoticons).
— The whole discursive thread is stored and can be read in order to provide coherent answers (turn-taking practice session).
— Students' posts are visible; therefore, possible infelicities are more easily detected and self-corrected (e. g. *weich museum, see figure 5).

b. Formulating emojis

In this lesson simulation task, the target group (pre-service EFL teachers) learns in peer groups (one-on-one). The students provide emojis which deal with the unit's lexical focus, and the other student tries to produce coherent and meaningful sentences in order to show that they have understood the semantic scope
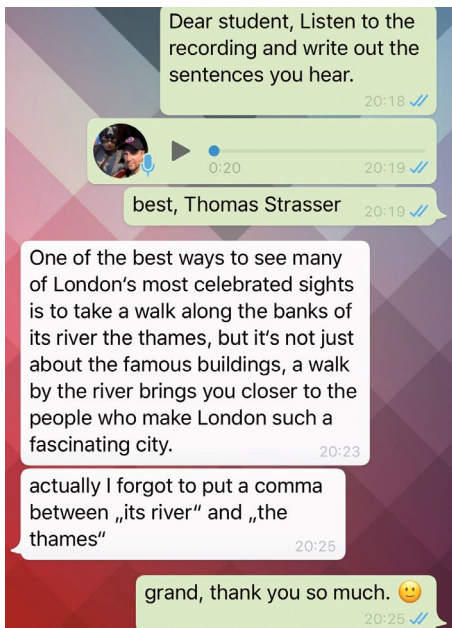
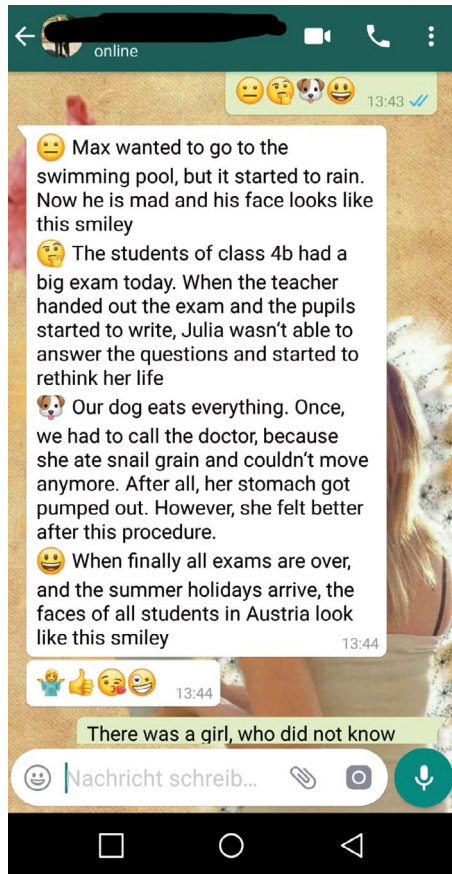Figure 5: Turn-taking sequences in WhatsApp.

Figure 6: Working with emojis.
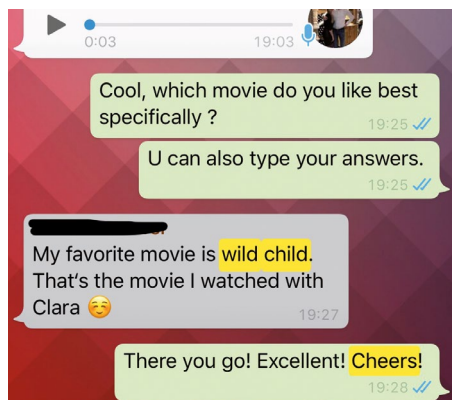

Figure 8: Audio dictation.

Figure 7: Mixed-mode activity.

of the various lexical fields producing coherent, topic-related lexical items / utterances based on visually-associative input.

Potentials of the messaging service using multimodal artefacts:

— Wide range of emojis that cover certain lexical items treated in corresponding curricula.
— Multimodal use of emojis and GIFs that address aesthetic dimensions of learning.
— Teacher or participant of this activity can fully exploit the immediacy of feedback, i. e. feedback on coherence, lexis and grammar can be provided in no time wherever the peers are (cf. ubiquitous learning).
— Most messaging services offer multimodal emojis. These emojis are affiliative strategies that participants use to build rapport (cf. Vandergriff 2014).

c. Mixed-mode activities

In this mixed-mode sequence (i. e. combining written texts with audio), the students interacted with each other through written text sequences and recorded voice messages, combining productive and receptive skills. Here, the interactive turn-taking consists of formulating questions ("talking and asking about favourite films") and providing appreciative backchannelling (supportive feedback, e. g. "Excellent!").

Potentials of the messaging service in mixed-mode activities:

— Messaging services can embed various multimodal artefacts (choice of various discursive channels, e. g. image, audio, spoken / written word).
— Due to these multimodal artefacts, the participants have a wide range of ways to express themselves.
— Supports intertextuality (chats in messaging services are no longer monolithic semantic units; chat culture allows a multitude of texts, i. e. written / spoken, with emojis, images, audio, etc.) (cf. Hallet, Königs 2013).

d. Audio dictation

This task is based on phonetic input. The teacher provides an audio file which contains various topical, (lexico-)grammatical specifics (here: the topic is London, lexical focus on sight-seeing, grammar focus on present simple and adjectives). The students then transcribe the text reproducing the unit's focus on lexi-

cal and grammatical items including self-correction dynamics ("actually, I forgot to put a comma…").

Potentials of the messaging service using audio:

— Due to the multimodal potentials of embedding digital artefacts and due to their ubiquity, peers can immediately provide feedback on the written production.
— Learners can listen to the audio file wherever and whenever they want, can start and stop the dictation whenever it suits them best.
— Due to its ubiquitous character, messaging services enable the learner to comment on linguistic infelicities or to add/edit their written product (i.e. dictation).

e. Picture dictionary

In this scenario, the teacher provides a visual input consisting of a lexical artefact that has been taught in the classroom. In order to support the lexical remedial process, students should recapitulate these items by lexically annotating or paraphrasing them.

These activities are embedded in a micro-didactic setting, i.e. all the scenarios are short, intuitive activities that focus on linguistic performance rather than technological gadgets. In order to successfully implement various mobile learning strategies in the EFL-classroom in a way that is convincing also for 'techno-sceptical teachers', the emphasis should be put on simple, holistic easily-digestible digital micro-learning with substantial intrinsic motivational implications:

No matter if learning refers to the process of building up and organizing knowledge, to the change
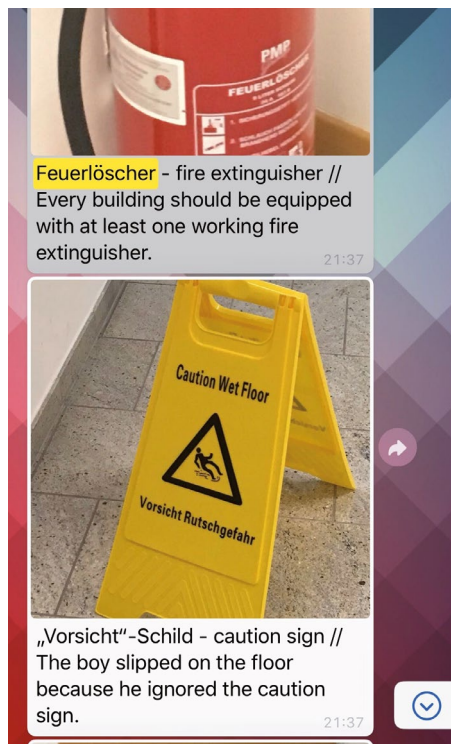

Figure 9: Picture dictionary.

of behaviour, of attitudes, of values, of mental abilities, of cognitive struc-
tures, of emotional reactions, of action patterns or of societal dimensions, in
all cases we have the possibility to consider micro, meso and macro aspects
of the various views on more or less persisting changes and sustainable
alterations of performances (Hug 2005, p. 5).

Potentials of the messaging service using visual aids:

— Ubiquitous multi-sensory connotational reference of lexical items (use of
images, videos, audio files to support productive lexical skills).
— The immediacy of multimodal dialogic productive skills. Mobile messaging
services can be used to support ad-hoc interaction (e. g. learner sees image
s/he can relate to, lexically connotates it into the discursive thread).

7 Motivation and digital technologies

There is no doubt that mobile digital technologies (quiz apps, audience response
systems, etc.) have initiated a vivid discourse among academics and practition-
ers concerning motivating scenarios that enhance the language learning experi-
ence (cf. Schmidt, Strasser 2018; Witt, Gloerfeld 2018):

This is an exciting time for instructional designers and instructors because
of the broad variety of technology applications that are available to assist
in creating interesting lessons and activities. These affordances, or resource
opportunities, include such things as productivity software, help systems,
data bases, expert systems, wireless communications, e-mail, Facebook,
Skype, LinkedIn, smart phones, YouTube, and QR codes to mention only a
few. (Keller 2016, p. 2)

However, the potential of motivation within blended language learning scenar-
ios needs to be specified. In the context of digital technologies in general, but
also with social networks and (mobile) messaging tools, the ARCS model of moti-
vational design developed by John Keller (2010), which is based on social learn-
ing theories and humanistic psychology, can be adapted to the foreign language
classroom (cf. Jacobson, Xu 2004). This model is used by educational technolo-
gists as it has a significant impact on the field of computer-based instruction (cf.
McMahon 2014) but also mobile (language) learning scenarios when it comes to
a more precise coinage of motivational potentials of digital learning technolo-
gies (in language teaching). It consists of four factors, and each factor is divided
into three essential components for motivating instruction. According to Keller

Attention	Relevance	Confidence	Satisfaction
Perceptual arousal	**Goal orientation**	**Learning requirements**	**Intrinsic reinforcement**
Provide novelty and surprise	Present objectives and useful purpose of instruction and specific methods for successful achievement	Inform students about learning and performance requirements and assessment criteria	Encourage and support intrinsic enjoyment of the learning experience
Inquiry arousal	**Motive matching**	**Successful opportunities**	**Extrinsic rewards**
Stimulate curiosity by posing questions or problems to solve	Match objectives to student needs and motives	Provide challenging and meaningful opportunities for successful learning	Provide positive reinforcement and motivational feedback
Variability	**Familiarity**	**Personal responsibility**	**Equity**
Incorporate a range of methods and media to meet students' varying needs	Present content in ways that are understandable and that relate to the learners' experiences and values	Link learning success to students' personal effort and ability	Maintain consistent standards and consequences for success

Figure 10: The ARCS model according to Keller (Nicoguaro 2018).

(2010, p. 3), attention, relevance, confidence and satisfaction are important factors for promoting and sustaining motivation in the learning process.

The practical tasks with social messaging services discussed in figures 3–9 can be applied to Keller's original model (see figure 10) in the following adapted way (see also Astleitner 2006; Astleitner, Hufnagl 2013 for a further discussion of the ARCS-model within digital learning / teaching settings):

Motivational factors of messaging services		
Attention		
Perceptual arousal	can be triggered by	— audio-visual effects (e.g. multi-modal items) — unconventional / current teaching content (e.g. audio dictation, emojis).
The use of messaging services in the foreign language classroom in general can still be considered as something new (cf. Heinz 2018; Hockly 2011).		
Inquiry arousal	can be triggered by	— active response to questions (dynamic and immediate nature of messaging services).
Discursive turn-taking sequences about your hobbies (posing questions) (cf. figure 7) may initiate dynamic discursive threads.		
Variability	is characterized by	— short instructional sequences (micro-tasks like emoji story) — variation of screen design (messaging services can change fonts, wallpapers, backgrounds but also spelling setting, AE / BE).
Mixed-mode activities using multi-sensory artefacts (audio, video, text) to meet students' varying needs (cf. figure 7).		
Relevance		
Goal orientation	is characterized by	— importance and relevance.
Clear objectives are given within the tasks (e.g. remedial work on lexical items, discursive coherence performances, e.g., figure 8: audio dictation: practise the listening skill and orthography).		
Motive matching	is characterized by	— multiple participation (messaging services allow a practically unlimited number of users within a discursive thread; groups can be installed based on the learner's language level).
Scenarios are always adapted to students' needs (improve reading / writing skills, improve mental dictionary, use topic-specific vocab within coherent turn-taking sequences).		

| Familiarity | is characterized by | — familiar examples and contexts. |

Topics and contents are known to students (also in the digital channels) and reflect the syllabus (cf. figures 6, 8, 9).

Confidence

| Learning requirements | are characterized by | — feedback criteria (messaging services have the potential to allow immediate feedback). |

Students are informed about their discursive performance by the teacher giving constructive feedback within the digital channels (cf. figure 7: appreciate feedback).

| Successful opportunities | are characterized by | — adequate and variable levels (in the discursive channels of messaging services, the teacher can immediately react to performative developments of the learner and easily and quickly adapt instructions and task levels). |

Meaningful opportunities are created by offering the students to do the task within a ubiquitous context which meets the general zeitgeist (cf. Zimmermann 1984) of younger learners (e.g. learning on the go) (cf. Montag et al. 2015; Bachmair, Pachler 2014).

| Personal responsibility | is characterized by | — exit strategies (the learner can choose to easily quit a group or thread within the messaging service; needs to be negotiated with the teacher)
 — control of learning pace (due to its ubiquitous character, the learner can listen to audio files as often as s/he wants and post discursive threads whenever s/he wants at her/his own pace). |

The more active and discursively present the students are within the digital channels, the more of their discursive digital artefacts are visible and recorded (archive of a learning path, cf. Strasser, Knecht 2012).

Satisfaction

| Intrinsic reinforcement | can be triggered by | — applicative tasks (e.g. tasks practising a specific lexical field using multi-sensory artefacts and authentic communication icons such as emojis, etc.). |

Encourage intrinsic enjoyment of the learning experience by using an application (e.g. WhatsApp) that is immersed in their applicative everyday life context.

Extrinsic rewards	are characterized by	— appreciate feedback or badges for correct answers/ task fulfilment (e. g. signs, emojis, icons, symbols offered by teacher/peers).

Positive reinforcement and motivational feedback are provided within digital discursive channels (cf. figures 7, 8).

Equity	can be triggered by	— consistency of practise and feedback.

Due to the evident role of the teacher as the expert and constructive feedback provider (cf. figures 7–9), consistent standards for a success or positive learning atmosphere are established.

Figure 11: The ARCS model applied to messaging services within a language learning/teaching context.

Keller's ARCS-model displays various performative congruencies within the context of social messaging services and language learning/teaching sequences:

— Relevance and multiple learning strategies
The use of digital discursive channels can be considered as useful, especially when (analogue) learning materials are seen as somewhat irrelevant by learners (cf. Astleitner 2006). Due to the use of multimodal artefacts (audio, video, etc.) within the dynamic and immediate discursive channel of social messaging services, a certain level of modularity and adaptivity (e. g. learners can interact at their own pace choosing their discursive contributions) can be noted.
— Motivational feedback/messages
Peers and/or teacher can utter ad-hoc motivational and constructive feedback based on the produced items using multi-sensory artefacts (emojis, audio, video, GIFs, text, etc.). The dynamics of multi-sensory items and discursive channels (e. g. social messaging services) can be a motivation for the learning process (cf. Astleitner 2006).

Apart from the motivational aspects of digital learning technologies, it seems to be legitimate to analyse language-acquisition processes when using social messaging services. Therefore, the model of Educational Applications[2] will be discussed in order to emphasize the language learning potential of discursive backchannelling applications.

2 For a detailed discussion of Educational Applications, see Schmidt, Strasser (2016, 2018), Strasser, Paechler (2014), Strasser (2015).

8 Analysis

Social messaging services with their non-linear, synchronous characteristics can act as a supportive catalyst for various language learning processes. To a certain extent and depending on the applicative context, social messaging services like WhatsApp, Threema or Telegram can be seen as an Educational Application (cf. Schmidt, Strasser 2016, 2018; Strasser, Pachler 2014) since "the focus is put on didactic / methodological versatility" (Strasser, Pachler 2014, p. 102). The Edu-App aspect of *reflection* can be noted here since students and teachers come up with their own thoughts, opinions, statements and feedback (cf. e.g. figures 4, 5, 7; motivational feedback, error detection, etc.) within the discursive setting of a social messaging service. Furthermore, they are invited to provide feedback and responsive turn-taking segments in a discursive thread (cf. e.g. figures 5, 7). The learners can also modify (cf. domain of *modification*) their written input based on their peers' or teachers' input and feedback (cf. e.g. figures 5–8). Depending on the given task, students and teachers are invited to collaboratively produce a discursive artefact in the discursive thread of a social messaging channel (cf. e.g. figures 5–8). Therefore, the aspect of *collaboration* is evident when properly using messaging services.

It should be underlined that the methodological focus of the presented WhatsApp tasks is not on linguistic perfection but preferably on collaborative fluency (see parallels to the communicative language teaching approach, cf. Dörnyei, Scott 1997). Taking the *didactic domain*[3] (cf. Schmidt, Strasser 2018; Strasser, Pachler 2014) into consideration, social messaging services (equipped with the aforementioned methodological framework, cf. figures 3–7), support various skills within a robust collaborative context where productive and receptive skills are practised. In most of the presented scenarios, learners provide "topic-relevant written input" as in specific ELT-Educational-App scenarios (Strasser, Pachler 2014, p. 102). Since the learners are also asked to critically reflect on their peers' written input, the skills of reading and writing play an important role. Furthermore, in various tasks, learners have to consider "grammar (word order, use of correct tenses, etc.), vocabulary (use of topic-related words / phrases) and discursive strategies (e.g. coherently replying to one of their peers' statements)" (ibid.).

---

3   This domain is mainly dedicated to the *what* of foreign language teaching with new learning technologies. The didactic domain implies a rather general approach, with a focus on the skills of reading, writing, listening, monologic and dialogic speaking (Strasser, Pachler 2014, p. 97).

9   Conclusion

Social messaging services for language learning/teaching processes imply methodologically-versatile potentials with a strong focus on coherent turn-taking performances and production of lexically-coherent artefacts within a certain multi-sensory and ubiquitious context. Academic discourse (cf. Niegemann 1995) suggests the de-mystification of the dichotomy 'technologieorientiert vs. didaktikorientiert' ('technology focus vs. methodology orientation') and the rejection of the redundant discourse about the added value ("Mehrwert") of digital technologies (cf. Krommer 2018). Social messaging services as part of digital technologies are not an added value to language learning, but without digital technologies, language learning would not meet the societal demands nor the expectations especially of our younger learners, who often display an applicative immersion of digital technologies in their everyday lives. In comparison with solely analogue lessons, blended foreign language learning scenarios are ubiquitous where temporally and spatially de-limited L2-discourse takes place not only in the classroom but also in more informal settings, such as on the bus, at home, etc. It has never been the narrative of technology-enhanced language learning/teaching to replace the teacher (cf. Ladurner 2008; Tanzmeister 2008); the focus, by contrast, is on how technological/digital innovations can be methodologically exploited within an interactive and multi-sensory context. Digital tools and educational applications, such as social messaging services, support the "affective dimension" (Tanzmeister 2008, p. 17) of learning and teaching processes and meet the current zeitgeist. The integral use of digital media such as WhatsApp etc. may contribute to joy, fun and enthusiasm (cf. Kremnitz 2008, p. 62; Tanzmeister 2008, p. 17), where the teacher may act as an extrinsic motivator using digital technologies. Kremnitz (cf. 2008, p. 62) even postulates that motivation is an essential aspect of learning and teaching processes. When educational applications are put into a coherent methodological frame of language learning (even with micro-teaching scenarios as discussed in figures 1–5), they can be motivating for the learners, support learning successes and consequently increase the self-esteem of the learner (cf. Tanzmeister 2008, p. 17). "Technology is increasingly ubiquitous in the world around us, and if used in a principled [technologically digestible and methodologically exploited] manner, can support and enhance [...] language learning" (Hockly 2011, p. 111).

At the Vienna University College of Teacher Education, pre-service teachers and in-service teachers (in training seminars) get to know the curricular importance of technology-enhanced language learning (TELL) and mobile-assisted language learning (MALL). They are given the expertise and tools to design mobile language learning scenarios that meet the curricular demands of our society concerning

the curation of knowledge and the demands of our (young) learners who consider mobile learning as part of their zeitgeist. We see mobile (language) learning/teaching scenarios as our curricular duty rather than a technological hype to be implemented by all means just for the sake of being *en vogue*. We want to de-bunk the cliché that TELL/MALL is an arbitrary process of using fancy apps and technologies and also provide methodological expertise to create interactive mobile learning scenarios such as learning with social messaging tools on a micro-level. Therefore, the curricular development of contra-factual methodologies (cf. Arnold 2003, p. 54) emphasizes language learning goals, content, methods, and media in order to support ubiquitous, temporally and spatially de-limited explorative mobile learning processes that can be used by our pre-service teachers in the future.

Digital messaging services like WhatsApp can act as discursive forms of media within a particular methodological framework (cf. figures 3–9) when potential participants of a discursive thread are equally entitled to use communicative speech acts, so they can continuously open discourses which are perpetuated through speech, question and answer. Furthermore, all participants should have the possibility to use representative speech acts (cf. topically-specific and grammatically-correct use of lexical items within a discursive thread) and express attitudes (cf. describing museum artefacts: likes/dislikes, cf. figure 3), emotions (cf. talking about hobbies, cinema, etc., cf. figure 7) and intentions (talking about weekend plans; cf. Habermas 1984, p. 177). Chapter 6 shows examples of meaningful language use and strategies on how pre-service teacher can methodologically exploit digital messaging services (e.g. practice coherent turn-taking, lesson design ideas) . However, in the light of a certain technological determinism (Krommer 2018; Schmidt, Strasser 2018), digital collaborative environments in language learning sometimes "suffer from the lack of a real need to communicate, that is, if this exchange does not lead to the creation of something meaningful to students." (Buendgens-Kosten 2013, p. 282)

Besides the fact that microblogging and messaging apps do have a particular stigmatized role in specific societal and academic discursive threads (cf. mpfs 2017), the General Data Protection Regulation might pose a further challenge when implementing social messaging apps in the foreign language classroom. Following the latest discussion on data privacy and the limited use of messaging services in educational contexts (mainly primary and secondary level) due to the GDPR, a switch from WhatsApp to Telegram or Signal is recommended so that data is stored in safe places. However, it also needs a pedagogical/methodological change of paradigm, namely the recognition of the fact that students/learners follow a non-linear, ubiquitous language acquisition approach and that the

role of the teacher is more that of a facilitator focusing on accuracy and not exclusively on linguistic infelicities.

Based on Postman's (1992, p. 14–19) hypothesis that every technology supports a (critical) reflection and evaluation of the world including learning processes, it should also be emphasized that technologies like digital messaging services are not just a plain and gadget-like addendum or artificial artefact to language learning but a dynamic technology that can support productive and receptive L2-performance within a strong motivational context.

References

Adams, Douglas (1999). How to Stop Worrying and Learn to Love the Internet. In: The Sunday Times, 29.08.1999

Ahmad, Kurshid; Corbett, Grevill; Rogers, Margaret and Sussex, Roland (1985). Computers, Language Learning and Language Teaching. Cambridge: Cambridge University Press

Arnold, Rolf (2003). Konstruktivismus und Erwachsenenbildung. In: REPORT Literatur- und Forschungsreport Weiterbildung, 3, p. 51–61

Astleitner, Hermann (2006). Motivationsförderung im E-Learning: Stand der Forschung zum ARCS-Modell. In: Salzburger Beiträge zur Erziehungswissenschaft, 10 (2), p. 17–29

Astleitner, Hermann and Hufnagl, Manuela (2013). The Effects of Situation-Outcome-Expectancies and of ARCS-Strategies on Self-Regulated Learning with Web-Lectures. In: Journal of Educational Multimedia and Hypermedia, 12, p. 361–376

Bachmair, Ben and Pachler, Norbert (2014). A Cultural Ecological Frame for Mobility and Learning. In: Educational Media Ecologies, 24, p. 53–74

Barberi, Alessandro; Berger, Christian and Strasser, Thomas (eds.) (2016). Mediales Lernen/Lehren im Fremdsprachenunterricht/beim Spracherwerb. In: Medienimpulse, (3), p. 3–13

Bitner, Noel (2002). Integrating Technology into the Classroom: Eight Keys to Success. In: Journal of Technology and Teacher Education 10 (1), p. 95–100

Brandhofer, Gerhard (2019). Audience Response Systeme. In: Mostblog. https://www.brandhofer.cc/audience-response-systeme/ [24.04.2019]

Buchem, Ilona (2018). Veränderungen in der Didaktik durch Mobile Learning. In: C. Witt and C. Gloerfeld (eds.): Handbuch Mobile Learning. Wiesbaden: Springer

Buendgens-Kosten, Judith (2013). Authenticity in CALL: Three Domains of 'Realness.' In: ReCALL, 25 (2), p. 272–285

Chan, Tak-Wai; Roschelle, Jeremy; Hsi, Sherry; Sharples, Mike and Brown, Tom (2006). One-to-One Technology-Enhanced Learning: An Opportunity for Global Research Collaboration. In: Research and Practice in Technology Enhanced Learning, 1, p. 3–29

Collins, Allan and Halverson, Richard (2009). Rethinking Education in the Age of Technology: The Digital Revolution and Schooling in America. New York: Teachers College Press

Dörnyei, Zoltán and Scott, Mary Lee (1997). Communication Strategies in a Second Language: Definitions and Taxonomies. In: Language Learning, 47 (1), p. 173–210

Flynn, Ellie (2015). Smartphones Could Be Worse for Your Skin than the Sun. In: The Sun, 15.10.2015. https://www.thesun.co.uk/archives/news/256751/smartphones-could-be-worse-for-your-skin-than-the-sun/ [21.01.2020]

Habermas, Jürgen (1984). Vorstudien und Ergänzungen zur Theorie des kommunikativen Handelns. Frankfurt am Main: Suhrkamp

Hallet, Wolfgang and Königs, Frank G. (eds.) (2013). Handbuch Fremdsprachendidaktik. Seelze-Velber: Klett / Kallmeyer, 2nd edition

Heckmann, Verena and Strasser, Thomas (2012). Von der technischen Komplexität hin zur didaktischen Vielseitigkeit – '3-Clicks-Edu-Apps' zur Steigerung der Sprechkompetenz im fremdsprachlichen Unterricht. In: M. Kopp-Kavermann (eds.): E-Learning im Fremdsprachenerwerb. zeitschrift für elearning, lernkultur und bildungstechnologie, 12 (2) p. 34–46

Heil, Catherine Regina; Wu, Jason; Lee, Joey and Schmidt, Torben (2016). A Review of Mobile Language Learning Applications: Trends, Challenges and Opportunities. In: The EUROCALL Review, 24 (2), p. 32–50

Heinemann, Gerrit and Gaiser, Christian W. (2016). SoLoMo – Always-on im Handel: Die soziale, lokale und mobile Zukunft des Omnichannel-Shopping. Wiesbaden: Springer

Heinz, Susanne (2018). Mobile Learning und Fremdsprachenunterricht: Theoretische Verortung, Forschungsüberblick und Studie zum Englischunterricht in Tablet-Klassen an Sekundarschulen in Bayern. Bad Heilbrunn: Julius Klinkhardt

Himpsl-Gutermann, Klaus and Strasser, Thomas (2014). Hochschuldidaktik Reloaded: Ein nachhaltiges Weiterbildungsmodell zur LehrerInnenprofessionalisierung. In: W. Scharl (ed.): Tagungsband / Proceedings Symposium Weiterbildung. Wien: PH Wien, p. 7–12

Hirsh-Pasek, Kathy; Zosh, Jennifer M.; Michnick Golinkoff, Roberta; Gray, James H.; Robb, Michael B. and Kaufman, Jordy (2015). Putting Education in 'Educational' Apps: Lessons From the Science of Learning. In: Psychological Science in the Public Interest, 16 (1), p. 3–34

Hockly, Nicky and Waters, Alan (2012). Tweeting Is for the Birds – Not for Language Learning. IATEFL Debate. In: IATEFL 2011 Brighton Conference Selections. Canterbury: IATEFL Publications, p. 110–111

Hug, Theo (2005). Micro Learning and Narration. Exploring Possibilities of Utilization of Narrations and Storytelling for the Designing of 'Micro Units' and Didactical Microlearning Arrangements. In: Online Proceedings of the International Conference "Media in Transition 4: The Work of Stories" at the M. I. T. in Cambridge, MA, 06.–08.05.2005 http://hug-web.at/drupal/sites/default/files/2005_Microlearning-and-Narration_Hug.pdf [21.01.2020]

Jarvis, Jeff (2011). Public Parts: How Sharing in the Digital Age Improves the Way We Work and Live. New York: Simon & Schuster

Keller, John M. (2010). Motivational Design for Learning and Performance: The ARCS Model Approach. New York: Springer

Keller, John M. (2016). Motivation, Learning, and Technology: Applying the ARCS-V Motivation Model. In: Participatory Educational Research, 3 (2), p. 1–15

Kerres, Michael and Kalz, Marco (2003). Mediendidaktik in der Lehrerbildung. In: Beiträge zur Lehrerbildung, 21, p. 410–421

Kremnitz, Georg (2008). Didaktik: Möglichkeiten und Grenzen. Einige unmaßgebliche Einwendungen aus den hinteren Rängen. In: R. Tanzmeister (ed.): Lehren – Lernen – Motivation. Fachdidaktik für Romanistinnen und Romanisten. Vienna: Praesens, p. 53–62

Kress, Gunther and Pachler, Norbert (2007). Thinking about the 'M' in M-Learning. In: N. Pachler (ed.): Mobile Learning: Towards a Research Agenda. London: WLE, p. 6–31

Krommer, Axel (2018). Wider den Mehrwert! Oder: Argumente gegen einen überflüssigen Begriff. In: www.axelkrommer.com, 05.09.2018. https://axelkrommer.com/2018/09/05/wider-den-mehrwert-oder-argumente-gegen-einen-ueberfluessigen-begriff/ [11.11.2018]

Kulcke, Gesine (2015). Medienpädagogik und die Weiterentwicklung aktueller Curricula für die Primarstufenbildung. In: Medienimpulse – Beiträge zur Medienpädagogik, 4, p. 1–7

Ladurner, Erika (2008). Computereinsatz im Fremdsprachenunterricht. In: R. Tanzmeister (ed.): Lehren – Lernen – Motivation. Fachdidaktik für Romanistinnen und Romanisten. Vienna: Praesens, p. 559–575

Makoe, Mpine (2012). Teaching Digital Natives: Identifying Competencies for Mobile Learning Facilitators in Distance Education. In: South African Journal of Higher Education, 26 (1), p. 91–104

Margaryan, Anoush; Littlejohn, Allison and Vojt, Gabrielle (2011). Are Digital Natives a Myth or Reality? University Students' Use of Digital Technologies. In: Computers & Education, 56 (2), p. 429–440

Montag, Christian; Blaszkiewcz, Konrad; Sariyaska, Rayna; Lachmann, Bernd; Trendafilov, Boris and Markowetz, Alexander (2015). Smartphone Usage in the 21st Century: Who Is Active on WhatsApp? In: BMC Research Notes, 8 (1), p. 331–345

mpfs (Medienpädagogischer Forschungsverbund Südwest) (2017). JIM-Studie 2017. Jugend, Information, (Multi-)Media. Basisstudie zum Medienumgang 12- bis 19-Jähriger in Deutschland. Stuttgart: mpfs

Nicoguaro (2018). ARCS model components table. Wikimedia Commons, 03.07.2018 https://upload.wikimedia.org/wikipedia/commons/9/9e/ARCS_ model_components_table.svg [11.06.2020]

Niegemann, Helmut M. (1995). Computergestützte Instruktion in Schule, Aus- und Weiterbildung: Theoretische Grundlagen, empirische Befunde und Probleme der Entwicklung von Lehrprogrammen. Frankfurt am Main / New York: P. Lang

Ottenbreit-Leftwich, Anne T.; Glazewski, Krista D.; Newby, Timothy J. and Ertmer, Peggy A. (2010). Teacher Value Beliefs Associated with Using Technology: Addressing Professional and Student Needs. In: Computers & Education, 55 (3), p. 1321–1335

Pachler, Norbert (2007). Mobile Learning: Towards a Research Agenda. London: WLE

Pachler, Norbert and Turvey, Keith (2016). Problem Spaces: A Framework and Questions for Critical Engagement with Learning Technologies in Formal Educational Contexts. In: N. J. Rushby and D. W. Surry (eds.): The Wiley Handbook of Learning Technology. Sussex: Wiley-Blackwell

Park, Yeonjeong (2011). A Pedagogical Framework for Mobile Learning: Categorizing Educational Applications of Mobile Technologies into Four Types. In: The International Review of Research in Open and Distributed Learning, 12 (2), p. 1–12

Patel, Mitesh (2017). What Is the Next Big Thing in App Development? In: Business-2Community, 11.09.2017. https://www.business2community.com/mobile-apps/next-big-thing-app-development-01915791 [13.11.2018]

Postman, Neil (1992). Sieben Thesen zur Medientechnologie. In: W. D. Fröhlich; R. Zitzlsberger and B. Franzmann (eds.): Die verstellte Welt. Beiträge zur Medienökologie. Weinheim: Beltz, p. 9–22

Rienties, Bart; Brouwer, Natasa and Lygo-Baker, Simon (2013). The Effects of Online Professional Development on Higher Education Teachers' Beliefs and Intentions towards Learning Facilitation and Technology. In: Teaching and Teacher Education 29, p. 122–31

Rowsell, Jennifer and Walsh, Maureen (2011). Rethinking Literacy Education in New Times: Multimodality, Multiliteracies, & New Literacies, 21 (1), p. 53–62

Rushby, Nicholas John and Surry, Daniel W. (eds.) (2016). The Wiley Handbook of Learning Technology. Sussex: Wiley-Blackwell

Schade, Edzard (2004). Indikatoren für die Medialisierungsforschung: Konzepte von Wirklichkeitskonstruktion als Bausteine der Gesellschaft. In: K. Imhof (ed.): Mediengesellschaft: Strukturen, Merkmale, Entwicklungsdynamiken. Wiesbaden: Verlag für Sozialwissenschaften, p. 114–138

Schmidt, Torben and Strasser, Thomas (2016). Digital Classroom. In: T. Schmidt and T. Strasser (eds.): Der fremdsprachliche Unterricht Englisch, 50. Seelze: Friedrich, p. 2–7

Schmidt, Torben and Strasser, Thomas (2018). Media-Assisted Foreign Language Learning – Concepts and Functions. In: C. Surkamp and B. Viebrock (eds.): Teaching English as a Foreign Language. Stuttgart: Metzler, p. 211–231

Seipold, Judith (2011). Mobiles Lernen – Analyse des Wissenschaftsprozesses der britischen und deutschsprachigen medienpädagogischen und erziehungswissenschaftlichen Mobile-Learning-Diskussion. Universität Kassel. https://d-nb.info/1037455444/34 [20.02.2020]

Sharples, Mike; Taylor, Josie and Vavoula, Giasemi (2007). Theory of Learning for the Mobile Age. In: The SAGE Handbook of E-learning Research. London: SAGE, p. 221–247

Snijders, Jan (2013). Seamless Learning. In: Avans eLearning, 12.11.2013. http://avans-elearning.blogspot.com/2013/11/seamless-learning.html [21.01.2019]

Spitzer, Manfred (2016). Smart Sheriff gegen Smombies. In: Nervenheilkunde, 35 (3), p. 205–212

Strasser, Thomas (2011). Moodle + Regular Classroom Training = Blended Learning. The Learning-Optimised Symbiosis. In: M. Claypole (ed.): CALL Review. Learning Technologies SIG Newsletter, p. 13–16

Strasser, Thomas (2012). A Change of Paradigm with Web 2.0? Why Educational Apps Might Be Worth a Try. In: A. L. Exteberria (ed.): Global e-learning. Madrid: UDIMA, p. 135–144

Strasser, Thomas (2015). Internetgestütztes Sprachenlernen und -lehren. Wie der Fremdsprachenunterricht von digitalen Anwendungen profitieren kann. In: R. Tanzmeister (ed.): Quo vadis, Romania? Zeitschrift für eine aktuelle Romanistik, 44, p. 99–119

Strasser, Thomas and Greller, Wolfgang (2015). Towards Immersive Digital Language Learning. In: M. Ebner and K. Erenli (eds.): Immersive Education: 4th European Summit, EiED 2014 Vienna, Austria, Revised Selected Papers: Communications in Computer and Information Science. Heidelberg: Springer, p. 52–61

Strasser, Thomas and Himpsl-Gutermann, Klaus (2016). Langsam bewegt sich das trojanische Pferd. Oder: In kleinen Schritten den Einsatz digitaler Medien in der universitären Lehrerausbildung fördern. In: U. Klemm (ed.): Computer & Unterricht, Lehrerarbeit digital organisieren. Seelze: Friedrich Verlag, p. 44–46

Strasser, Thomas and Kemsies, Ronald (2014). Heavy Clouds, but No Rain: Cloud trifft Schulserver. In: D. Rellecke (ed.): L. A. Multimedia – Magazin für Didaktik und digitale Medien. Braunschweig: Westermann, p. 6–9

Strasser, Thomas and Knecht, Harald (2012). ePortfolios in School Practical Studies at Vienna University of Teacher Education – from Theoretical Considerations to Practical Implementation. In: EPIC2012. ePortfolio & Identity. conference proceedings. EPIC2012. London: ADIPOS, p. 38–47

Strasser, Thomas and Pachler, Norbert (2014). Digital Technologies in Modern Foreign Language Teaching and Learning. In: N. Pachler (ed.): Teaching Foreign Languages in the Secondary School – A Practical Guide. London: Routledge, p. 94–110

Szucsich, Petra; Schönbächler, Erich; Mauric, Ursula; Gatterer, Christian; Himpsl-Gutermann, Klaus and Dechant-Tucheslau, Evelyn (2018). Abschlussbericht: Begleitstudie zum Mobile-Learning-Projekt Wien 2017/18. Wien: Pädagogische Hochschule Wien

Tanzmeister, Robert (2008). Lehren – Lernen – Motivation. Zu Grundfragen der Fremdsprachendidaktik und Lehrerbildung. In: R. Tanzmeister (ed.): Lehren – Lernen – Motivation. Fachdidaktik für Romanistinnen und Romanisten. Vienna: Praesens, p. 15–52

Toh, Yancy; So, Hyo-Jeong; Seow, Peter; Chen, Wenli and Looi, Chee-Kit (2013). Seamless Learning in the Mobile Age: A Theoretical and Methodological Discussion on Using Cooperative Inquiry to Study Digital Kids On-the-Move. In: Learning, Media and Technology, 38 (3), p. 301–318

Traxler, John (2005). Defining Mobile Learning. In: IADIS International Conference on Mobile Learning, p. 261–266

Vandergriff, Ilona (2014). A Pragmatic Investigation of Emoticon Use in Non-native/Native Speaker Text Chat. In: Language@Internet, 11 (4). https://www.languageatinternet.org/articles/2014/vandergriff [03.02.2020]

Witt, Claudia de and Gloerfeld, Christina (eds.) (2018). Handbuch Mobile Learning. Wiesbaden: Springer VS

Zimmermann, Günther (1984). Erkundungen zur Praxis des Grammatikunterrichts. Frankfurt am Main: Diesterweg

Author

Prof. Dr. Thomas Strasser. Professor of Language Methodology and Technology-Enhanced Learning & Teaching at Vienna University College of Teacher Education. Research topics: MA(L)L, TE(L)L, AI/KI, didactical design, digital learning environments, and foreign language didactics
thomas.strasser@phwien.ac.at