Developing language skills through collaborative storytelling on iTEO

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Abstract

Mobile-assisted language learning and iPads in particular, offer opportunities for enhanced language learning. Many MALL studies including studying iPads have focused on collaboration but few on language learning as such. For collaboration to lead to learning, particular conditions need to be met, among these those relating to the task. A goal-oriented task such as collaborative storytelling, can language learning. Opportunities where children use exploratory talk similarly have been shown to stimulate learning. The present qualitative longitudinal study examines, first, the process of collaboration and learning of primary school children in Luxembourg who collaboratively produce oral texts on the iPad app iTEO, and second, the role and function of the tool within this process. Developed in trilingual Luxembourg to further language learning, iTEO allows users to record and edit oral texts. The automatic playback materialises the language and allows for reflection. The study's multi-method approach includes observations, video-recordings, interviews and the collection of audio and visual material. Findings show that the children's talk includes features of exploratory and instructional talk and that iTEO is used in a variety of functions. The findings contribute to our understanding of the ways in which children develop language skills in autonomous, collaborative and computer-assisted activities.

1. Introduction

The significance of Mobile-assisted language learning (MALL) increases as people try to keep up with the pace of technological change. Of particular importance in education are tools that are flexible in their use and that promote learner autonomy and collaboration [1]. The present paper explores the use of the language learning app iTEO which allows users to record and edit speech. Its development was prompted by the need for developing innovative teaching methods in order to manage the linguistic diversity in Luxembourg's trilingual schools. The app has been the subject of a 2-year study in nursery and primary schools (http://storying.bsce.uni.lu).

First findings have shown that teachers and children use iTEO in a range ways, for example for closed exercises and open-ended tasks such as storytelling and that children develop language and metalinguistic skills during the process of collaborative producing texts [2, 3, 4].

The present paper examines how 6- and 7- year olds in Luxembourg used the app iTEO during collaborative storytelling and discusses the role of the app in this process. It focuses on the process of collaboration and investigates the relationship between collaboration and learning. Research in the field of MALL has investigated the effect of technology on collaboration and learning. Regarding collaboration, the findings seem to be inconclusive [5, 6] which is understandable if one considers the complex nature of collaboration. In order for collaboration to lead to learning, a range of conditions has to be met that relate to the technology and the task but also to the group and the individual [7]. As for language learning, it is typically researched in other fields such as SLA. This may explain why the process of learning has more rarely been investigated in MALL studies including iPads [8]. The first part of the present paper presents two moment-to-moment analyses showing how children interact during the production of a digital text and how this interaction propels their learning. It draws on exploratory talk [9] and dialogic teaching [10] which have proven successful in developing thinking skills and in raising attainment. Drawing on 10 hours of video-recorded activities and on interviews, the second part of the paper presents the affordances of iTEO. The automatic playback and the opportunities to transform speech mean iTEO can take on a range of functions during the collaboration, some of them akin to those described in the literature. For example, mobile devices have shown to play the roles of assistants, coaches, recorders or speakers [1]. The findings of the paper have implications for the design of productive learning situations and for the professional development for teachers.

2. Collaborative and technology assisted language learning

The following section reviews relevant literature on language learning with iPads and on digital storytelling. It then focuses briefly on exploratory talk as this type of dialogue contributes to learning.

2.2. Language learning with iPads

Owing to their portability, multifunctionality,

connectivity and immediacy, iPads and other mobile devices have the potential for influencing cultural practices and to widen opportunities for interaction. Further, they can help teachers individualize learning and learners to take control of their learning environment [1, 6, 12]. Finally, they can bring together formal and informal learning. The perceived benefits of iPads are such that they have been considered "a must" for instruction.

To date, most MALL studies have investigated if and to what extent mobile devices enhance learning. Researchers tended to focus on smartphones and look at adult and intermediate level learners. As for the methodology, they frequently drew on experimental or interpretive studies or analysed the users' perceptions of their intentions, attitudes and use of the tools. Studies focusing on the development of language (in this case mostly on vocabulary acquisition and on listening and speaking skills) have indicated that ICT can improve language learning. Authors mention improved motivation and engagement owing to the entertainment of working with technology [11]. Few studies have examined the learning processes, learner strategies or learning styles. In general, MALL studies have been criticized for being small-scale and exploratory, too brief and inclined to focus on the same devices and the same age range. Few studies involve iPads and look at primary school children [11]. Scholars conclude that further evidence is required in order to demonstrate a clear relationship between the use of technology and the users' language learning [6].

Many MALL studies examine the effect of technology on collaboration. While scholars generally hold that mobile devices can promote and support collaboration, a review of research studies indicates that few eventually do [5]. Effective collaboration depends on a range of factors of which the technology (e.g. appropriateness) and the task (e.g. ideally goal-oriented task) are but two. As important are features relating to the group (e.g. positive relationship, history of joined activity, group processing), the individual (e.g. communication skills, assessment skills) and the type of talk [9, 12].

Scholars drawing on sociocultural learning theories [9, 13] hold that language learning is dynamic, active, social, dialogic and collective. Language learning occurs when children interact with more knowledgeable others in meaningful, activity-based and culturally specific activities. When they are responsibly, consciously, cognitively and emotionally involved, they can process the input and learn new structures through imitating, repeating and transforming language, analyzing utterances, testing hypotheses and reflecting on language use. As learning is always social in nature, the activity in which children collaboratively engage – or the task in formal education – is of utmost importance. Ellis [15] defines a task as a communicative and meaning-based activity that builds on the learners' prior knowledge, skills, needs and interests, and that attempts to represent real-life situations. Authentic situations are important as the language use is at times unpredictable. They encourage learners to interact and mobilize all their language resources to make meaning and get a message across. The use of iPads can create such meaningful and relevant situations of communication. Therefore, the educational value of an app depends on the users' opportunities for social interaction, on the open-ended language content and on opportunities for taking control over increasingly difficult language features [12, 14].

2.2. Digital storytelling

Goal-oriented collaborative tasks, such as digital storytelling, are promising for language learning [15]. Traditional storytelling fosters creativity, imagination, socialization, and engagement [16]. It gives people a "voice", contributes to the development of their identity and cultivates social and cultural understanding. At school, storytelling can become a leading activity as it activates and links cognitive, social and emotional processes. It capitalizes on the children's linguistic and cultural resources and contributes to the development of speaking, reading and writing skills as a first, as an additional and as a foreign language [3, 4].

Through digital storytelling pupils weave a fabric of images, videos, texts, music and narration (http://electronicportfolios.com/digistory/). The technology helps make the story more vivid. Sadik maintains that technology also helps learners to get involved in the learning process, to draw on a range of learner strategies, and to act as both author and editor [17]. As seen above, children must engage, interact and take control for learning to take place [13]. But not all commercial products make available authoring opportunities. Some developers and testers view children as listeners rather than authors and knowledge-builders, and limit the users' creativity, autonomy and opportunities for collaboration [16, 18].

Digital storytelling with older students has been well researched [16]. Less abundant are studies of primary school children. They focus, among others, on collaboration, engagement and the development of language skills. Di Blas & Paolini [18], for example, have demonstrated that the large-scale digital storytelling initiative PoliCultura in which students, teachers and a community collaboratively create a story, enabled the participants to improve communication and social skills and to develop their media literacy. The students also improved subject knowledge. A second example, that of Al-Mousawi and Alsumait [19] who introduced a storytelling app in order to improve the communication skills of 4 to

5-year-old Arab children, finds that the younger children were more creative, interactive and confident than the older ones with the app. However, little is known about the children's communication skills as such. In Canada, Pellerin [11] has researched how French immersion children used the iPod and apps to create and record puppet shows and other texts such as stories, music videos, dramatic play and instructions. She found that children in Grades 1 and 2 (6- to 7-year-olds) were highly motivated to produce texts and to improve their language skills. They reflected on the language used and made several recordings of a same activity. In Spain, Kucirkova et al. examined the engagement of 41 Spanish 4- to 5-year-olds who worked with different apps of which one was designed to create stories [14]. They identified one particular app leading to the highest engagement and found that children used exploratory talk in situations when they needed to collaboratively solve a problem. This type of productive and engaging talk has been shown to further learning [9].

2.3. Language learning, exploratory talk and dialogic teaching

Mercer [9] and Mercer and Littleton [7] draw on sociocultural theories [13] to explain how the use of language enables children to learn and to develop knowledge and understanding. Exploratory talk may emerge in situations where learners take decisions collaboratively, for example when solving problems. Learners listen attentively to each other and build on previous contributions. They extend utterances, challenge each other's ideas in an atmosphere of respect, and justify their reasoning. They ask further questions and share information in order to clarify meanings, to check their understanding and to construct new knowledge. In the "thinking together" studies, Mercer and Littleton [7] found that those learners who used more exploratory talk, were better at solving problems and achieved higher results in mathematics and science. They explained these findings in relation to appropriation, co-construction and transformation. First, the dialogue enabled the learners to appropriate problem-solving strategies and to construct knowledge. Second, the dialogue between the learners resulted in dialogue "within" each learner (e.g. inner speech).

Whilst exploratory talk focuses on the interaction between the learners, dialogic teaching focuses on the interaction between teachers and learners. In the present study, dialogic teaching refers to peer teaching. In dialogic teaching, talk is drawn upon to extend thinking and to develop understanding [10]. Rather than engaging children in routine practices of question-answer or listen-tell, teachers design supportive and purposeful situations of sustained dialogue where teachers and children together contribute to a task, share ideas, elaborate on previous answers, collaboratively explore conflicting ideas and justify their reasoning. Alexander identifies the following 5 characteristics of this type of teaching: it is collective, reciprocal, supportive, cumulative and purposeful. It has been shown that the authentic dialogue raised achievement in reading and literature. One could hypothesise that children familiar with dialogic teaching may internalize the key strategies and deploy them when collaborating with peers, thus, engaging in exploratory talk.

3. The use of iTEO in Luxembourg

Luxembourg is a trilingual country and the EU member state with the highest percentage of foreign residents. Currently, only 35.1% of the 4-year-olds speak Luxembourgish, the national language, when they enter nursery school (www.men.public.lu.) They become literate in German at the age of 6, in Year 1. They learn oral French from Year 2 and its written forms from Year 3. Although the education system is trilingual, a monoglossic perspective pervades the curriculum. Language learning is seen as linear and languages are taught in isolation from one another. This traditional linguistic stance clashes with a dynamic view of multilingualism that perceives all languages as part of one linguistic repertoire. While some children benefit from the trilingual education system in Luxembourg, school is particularly challenging for children of migrant background. Large-scale assessment studies have consistently reported a strong correlation between low achievement, social-economic status and ethnic minority background [2].

The iPad app iTEO has been developed to facilitate inclusive multilingual pedagogies [3]. It draws on sociocultural theories and on Bakhtin's theory of dialogism. The app allows users to record and edit oral language. As authors, users feel empowered. They are initially confronted with an empty frame which encourages an open-ended dialogue. A numbered box appears on the interface following each recording (a word, a sentence). The automatic play back generates reflection. Users can listen again to this or any other item by clicking on the particular box. The editing functions enable users to reorder the recordings or to delete them permitting an endless transformation of the text. The children can change the colour of the box, label it or replace it with a picture taken with the iPad's inbuilt camera. Finally, they can change the background image with one of their own pictures. The researchers encourage the use of collaborative storytelling in language classes.

Findings show that children in nursery and lower primary schools use iTEO for collaborative storytelling and for oral practice [2, 4]. In higher primary school classes, the tool is used to record

stories, discussions or presentations on a variety of subjects (http://storying.bsce.uni.lu). The collaborative production of texts and reflections on language contributed to the children's development of oral and metalinguistic skills [2, 3]. The present paper examines the process of learning and collaboration during the production of oral texts on iTEO, and the role of iTEO in these productions.

4. Methodology

The qualitative longitudinal study (2013 – 2016) investigates the use of the app iTEO in language learning activities in nursery and lower primary classrooms in Luxembourg. In particular, it examines the teachers' and the children's use of iTEO in language learning activities and changes in practice over two academic years. The study uses a multi-method approach including observations, video-recordings, interviews and the collection of audio and visual material. The project complies with the rules and regulations of the University of Luxembourg's ethics committee.

The data for the present paper were collected in a Year 1 class (lower primary school) over a two year period. This class totalled 18 children of which 13 were Luxembourgish citizens and 16 spoke Luxembourgish as one of their home languages. Mr. Mersch, was and experienced teacher. While the research focused on two children, researchers had opportunities to collect data on other children as well because they were all free to choose whom to work with when collaborating on iTEO. The present paper focuses on Aaron and Lina. Aaron speaks French and some Luxembourgish at home. His mother and older sister speak Twi (an African language) and his father French. Lina, a native-Spanish speaker, communicates in Luxembourgish and Spanish at home. Her grandmother, who she sees occasionally, lives in Wallonia, the French-speaking part of Belgium. This might explain her vested interest in learning French.

The present paper draws on 10 hours of video-recorded language activities on iTEO and on 3 interviews with children. The data analysis was both inductive and deductive and informed both by the concept of exploratory talk and the coding used by Nystrand et al. [20]. We coded according to the source (expert/ novice), the language used (Luxembourgish, French, German, Portuguese), the characteristics of talk (e.g. reciprocal, cumulative, supportive), the linguistic uptake (whether child uses linguistic features previously used) and the role and functions the children attributed to iTEO (e.g. a tool for recording, for structuring their thinking, for promoting learning).

5. Findings

The following section begins with two short excerpts of native-French speaker Aaron (A) and native-Spanish speaker Lina (L) recording French texts in Year 1 and Year 2. On both occasions, the children recorded their text outside the classroom in order to work autonomously and to limit background noise. They had finished the required tasks on their weekly work plan and were free to choose a further activity. In both cases Lina suggested recording a text in French. This testifies to her wish to learn French and to capitalise on Aaron's linguistic resources. Her wish to communicate with her grandmother in her native language was probably as great an incentive as the curriculum targets. She had only begun her formal learning of oral French in Year 2. In the following sections I will identify features of exploratory and instructional talk and examine the role of iTEO during the collaboration.

5.1. Two examples of iTEO productions

The first excerpt was recorded in March 2014. The Luxembourgish utterances, translated into English, have been coded in normal script. The French text is in italics and the playback of iTEO underlined.

1	L	Let's speak French.
2	A	*Moi, je m'appelle Aaron et toi tu t'appelles Lina.*
3	A	*Moi je m'appelle Aaron.*
4	L	*Moi se,* (hesitates, looks at A) *je m'appelle Lina.*
5	iTEO	<u>*Moi je m'appelle Aaron. Moi se, je m'appelle Lina.*</u> (A and L listen. L shakes her head.)
6	L	No, I cannot do it well. Let's throw it in the bin. (A and L delete the item together)
7	L	(looks at A) *Appelle Lina*
8	A	(looks at C) *Je*
9	L	(looks at A) *Moi*
10	A	(points to himself) *Je*
11	L	*Je*
12	A	*M'appelle*
13	L	*Je m'appelle*
14	A	*Lina.*
15	L	*Lina.*
16	A	Yes, right, good. Now you can do it. (The hands of both children are on the iPad)
17	A	*Je m'appelle Aaron.*
18	L	*Je, je* (A is ready to point to himself, moves closer, puts his hand in front

19	iTEO	of his mouth ready to whisper) *m'appelle Lina.*
19	iTEO	*Je m'appelle Aaron. Je m'appelle Lina.* (A and L listen, L smiles upon hearing her utterance.)

In May 2015, the children collaboratively narrated a story about Lilli's birthday party. At that point, Lina had been learning French at school for 3 months. Translations of the French text are bracketed.

1	L	What should we narrate, Aaron?
2	A	Go ahead.
3	L	(remains silent, looks at Aaron.)
4	A	*Aujourd'hui Lilli travaille* (Today, Lilli worked)
5	L	*Avec son ami Paolo* (With her friend Paolo.)
6	A	*Paolo.*
		(…) 9 minutes later into the story
7	L	*Lilli et sa copine Sarah, uh,* (Lilli and her friend Sarah) had a party wearing pyjamas, uh, *une party de pyjama* (a pyjamas party).
8	A	*Une fê…* (a feast)
9	L	*Une fête, une fête au pyjama* (a feast, a pyjamas feast)
10	A	You can also say *une boum* (a party)
11	L	*Une boum de pyjama* (pyjamas party).
12	L	Uh, how do you say in the house?
13	A	*Dans la maison* (In the house).
14	L	*Dans la maison avec ballon et chocolat et biscuits* (In the house with a balle, chocolate and biscuits.)
15	A	*Ballon?* (Ball?)
16	L	*Oui.* (Yes). To play with.
17	A	The ball?
18	A	(nods)
19	A	*Uh, un ballon pour jouer, une balle aussi, et des choses pour manger, une gâteau* (Uh, a ball to play with, a ball as well, and things to eat, a cake)
20	L	*Un gâteau* (a cake)
21	A	*Un gateau, des biscuits et des muffins* (a cake, biscuits and muffins).
22	L	*Et beaucoup de choses* (And lots of things).

The children continued briefly. They then listened to their story without making any changes and took a picture of themselves to use as a background frame before returning to the classroom.

5.2. Talking and learning

The two examples above are representative of the collaborative oral productions on iTEO. Children always shared a goal: the production of an oral text. They took group decisions relating to the language, the story and the procedures (e.g. turn-taking). They set up a learning environment that they jointly maintained, and worked in an atmosphere of trust. While brief, excerpt 1 testifies to the active engagement of the children and to their endeavour to produce an accurate text. Aaron, the expert, suggests a text (line 2) and teaches Lina. He breaks down the phrase *je m'appelle Lina* (lines 8, 10, 12, 14), substitutes the wrong pronoun *moi* (line 10), offers non-verbal help through pointing (lines 10, 18), observes Lina carefully, readies himself in case he should have to whisper (line 18) and, finally, evaluates and praises her (line 16). Lina, the motivated novice, has a go at producing the French phrases (lines 4, 7, 9). She repeats and imitates Aaron (lines 4, 11), combines words and phrases (lines 13, 18) and evaluates her utterances (lines 6, 19).

In Excerpt 2, Aaron and Lina listen to and build on each other's contributions as in the first excerpt. Lina decides on the plot but relies on Aaron's help when short of the French vocabulary. She asks for help non-verbally and verbally (lines 3, 12) and uses the following words and phrases suggested by Aaron: *fête*, *boum*, *dans la maison* and *choses* (lines 9, 11, 14, 22). With attention to accuracy, she identifies a mistake and points out Aaron's incorrect choice of article (line 20). Aaron, the expert, encourages Lina to talk (line 2), offers vocabulary (lines 8, 10, 14) and challenges her. In line 15 he asks Lina for a clarification supplied in line 16. She demonstrates knowledge of the word "ballon" but Aaron widens her understanding by offering a synonym (line 19). Throughout the text, the children build on each other's utterances, extending (lines 4, 5) or altering these (lines 14, 19, 22). Such transformations are evidence of their learning.

This analysis shows features of instructional and exploratory talk that eventually led to the uptake of authentic French phrases. In both these examples (and others collected over two academic years), the more knowledgeable pupils help their peers. But these roles are fluid and become symmetrical as seen in lines 20 and 21 of the second excerpt. Over the two years, Aaron and Lina were excellent teachers for their peers when collaboratively recording French and German texts respectively. Generally, the role of the expert consisted of encouraging talk, offering input (e.g. a translation, a synonym), checking understanding, giving explanations, assessing and correcting. Whenever the children identified a mistake, they corrected it and rephrased the sentence. At times, they made a point of emphasizing the

correct vowel, phoneme, morpheme, article or word depending on the type of mistake (e.g. pronunciation, lexis, grammar). Some children also referred to rules and provided explanations. Whilst one may relate this type of talk to instruction, other features are typical of exploratory talk. All children were good listeners and encouraged peers to participate in the open learning space. They respected and trusted each other and, therefore, also accepted if peers initially remained silent or hesitant. Children were soon prepared to take risks and to come up with words, phrases or texts in a new language. They continuously built on each other's utterances, and expanded and transformed these. They did not hesitate to challenge peers, asked for clarification and reasoned aloud. The children were aware that collaboration contributed to learning. In an interview they explained:

Ben: We recorded and we listened (to the iTEO recording) in order to see if it was correct.
Lina: And you have to record it again if it is incorrect. And if it is still incorrect you ask a partner or the teacher.
Flavio: With friends we worked like this. The one that is better helps the one that is not as good and then he will also be good. (…) Aaron helped me and then I could do it. (interview 18.6.2015)

5.3. The affordances of iTEO

The following section demonstrates that iTEO played an important role in the collaboration of the iTEO team which consisted of the children and iPAD with its in-built storytelling device. The app created a space and the time where children could repeatedly listen to and reflect on their production, get new input, structure the production process, and produce a text for a wider audience. These different functions will be discussed in turn.

Amongst the most valuable features of iTEO is the automatic playback which creates a space for reflection. Findings show that the children listened to iTEO and, at times, changed their recording owing to such reflections. For example, in Excerpt 1, Aaron and Lina listened to iTEO (lines 5 and 19) and subsequently evaluated their talk. They were initially dissatisfied with their conversation, deleted it, rehearsed and rerecorded the phrases. The replay of the second conversation was positively evaluated. Lina confirmed with a smile that she appreciated this now accurate production. Valuing one's own productions and self-evaluating one's learning are important features of the learning process.

iTEO encourages various kinds of collaborative endeavours for producing authentic and appropriate utterances in a target language. Language learning is a communicative collaborative activity, even in formal school settings where learning is stimulated through decontextualized activities. The videos confirm that all productions are dialogic in the sense that utterances follow on from previous ones and that the team co-constructs these. In excerpt 1, Aaron did not only teach Lina a phrase, but he was also active during the recording. He was ready to whisper but Lina did not need his help. In many other videos there are examples of children sub- or co-vocalizing and repeating phrases. For example, a more knowledgeable child practised with another (the "speaker") about to record, both spoke at the same time. When it came to the recording, some more knowledgeable children sub- or co-vocalized or even repeated the sentence. This type of co-production is uncommon in school-based language instruction. The app iTEO leaves tangible traces both of the intentional recordings of the speaker and of the sub- and co-vocalizations, repetitions of the team. Thus, speakers have the opportunity to hear their utterances co-voiced or repeated. The automatic replay can act as an amplifier and the repetition might strengthen memorization and recall. In addition, children become aware of the language they use and of possible transformations. On iTEO, their productions are never final; they can always be improved and perfected unlike the performances in language tests.

The app can replay parts or the whole text. In this case, iTEO takes on the function of an assistant when children feel lost. Our data show that the children opened a prior recording, either of their own or of others when needing help with pronunciation, grammar or lexis or when unsure about a word or a phrase. The app functioned as a sound or text bank, materialised language, and enabled children to mobilize resources outside of their immediate group. It allowed for input and repetition, which can lead to acquisition. At the text level, the children were at times so focused on the recording of separate utterances that they overlooked the meaning of the text as a whole. Thanks to the replay function they were able to step back and listen to the entire recording with detachment. It stimulated discussion and helped them re-create the storyline. On one occasion, on noticing background noise, a group questioned the recording procedure. They deleted the text and started afresh. On other occasions, the children listened to their final production and engaged in the same type of exploratory and instructional talk as described above. Besides vocabulary and grammar, they commented on text structure, coherence and meaning. During one listening session they noticed they had recorded 4 sentences each beginning with the conjunction "and". They had been taught to avoid repetitions as well as phrases starting with "and". They reflected on the reasons for their error. They discovered that their text was a list of sentences built to some extent on each other. While the conjunctions did indeed

connect the sentences, the text as a whole was meaningless.

The previous examples demonstrate that iTEO is a successful learning tool. The 6-year-olds were aware that iTEO promoted learning and mentioned this in conversations with their teacher and the researchers [2]. Aaron, for example, explained that iTEO made him focus on language, memorize, practise and improve his skills. The process of recording and listening to individual sentences slows down the production and creates space for reflection and for assessing and valuing a text. Hence, iTEO helps to structure and re-design the recording process. The children learned, for example, to record parts of sentences or single sentences in preference to a chunk of text. This allowed them to later make changes with ease. By contrast, it would be impossible to change a particular word if they had recorded the entire text in one go. A different means of structuring comes from the use of pictures. For example, two groups of children invented and acted out a story with toys and puppets. They took pictures of the different scenes, inserted them on the iTEO screen and recorded the relevant oral text. The finished document was an oral picture story: a click on the picture and the recording was launched.

A final function of iTEO extends communication beyond the process of recording and enables children to share the texts with the wider community. In Excerpt 2, Aaron and Lina used iTEO as a recorder rather than as an editing tool. They recorded the whole text in one go. One may wonder why Aaron and Lina had decided to record in this manner. Did the pleasure of co-constructing a meaningful text after 3 months of learning French mean they temporarily forgot the possibility of redrafting? Did they cut out iTEO's replay function because they felt it slowed them down? The interview with the children was inconclusive but it emphasised the communicative function of iTEO. The children were proud of their text which, they knew, the teacher and peers would listen to. In order to "sign" their story (e.g. to be identifiable as the authors) and to communicate with the audience at a different level, they added a background picture of themselves.

6. Discussion

The present paper has presented the use of the app iTEO in a class in Luxembourg. It focuses on the process of collaboration and the affordances of iTEO. The findings have shown that the task of collaborative storytelling engages the 6- to 7-year-olds, leads them to interact with peers and iTEO, promotes exploratory talk and instruction, and invites them to listen to and reflect on language, all of which promote uptake and learning. The engagement of children and their motivation to record oral texts did not decrease over the course of the two-year study.

This is in line with studies that have shown that iPads can encourage student engagement and collaboration [5, 11]. For example, Kucirkova et al. [14] and Pellerin [11] have shown that 4- to 5-year-olds and 6- to 8-year-olds respectively, who created stories on iPods or apps were engaged and collaborated well. Pellerin [11] explained the children's learning in relation to the tool and the actual communicative task which, in turn, is underpinned by particular learning theories. The tool, collaboration, learning and the task are all related. These points will be discussed further down.

Drawing on Vygotsky, Gretsch [3] holds that iTEO is a tool-*and*-result. The tool and result are in a dialectical relationship. Each recorded utterance encapsulates and anticipates the final result of the text. Similarly, each time the children collaboratively produce a story, they perform in their zones of potential development and this performance will lead them to competence. iTEO thereby structures the learning activity and promotes dialogue. The conversations about language propel the story and contribute to the development of language and metalinguistic skills. In other words, features associated with the result of a learning process are present all along and guide learning (e.g. prolepsis). The app iTEO puts the learner at the centre and provides opportunities to accommodate for their individual needs within a collaborative framework. It offers opportunities to control both the learning process and the open-ended language content. In addition, it promotes interaction and leads to reflection. In sum, iTEO promotes learning because learners can use it in different ways: to encourage reflection, to reinforce, to provide input, to structure, to record and to communicate. Some of these roles are similar to those highlighted in the literature. Kukulska-Hulme explains that mobile devices can function as a "tutor, coach, motivator, research assistant, translator, interpreter, entertainer, speech recorder, and even a speaker" [1].

The present paper has provided concrete examples of the uptake of phrases of individual children as a result of their collaboration with more knowledgeable peers. The findings can be explained in relation to sociocultural learning theories. The work with iTEO draws on the following key pillars of learning [11, 13]: children's resources, meaningful tasks, active engagement, autonomy, authorship, metacognition and interaction. As with the Canadian children studied by Pellerin [11] the Luxembourgish children drew on their linguistic resources, co-constructeded knowledge and self-regulated learning while producing stories. They engaged in many listening activities, reflected on their work and engaged in metacognition. The conscious and continuous analysis of the language used contributed to the development of oral competencies and metalinguistic skills. They took ownership of their

learning and became autonomous. Individuals often found themselves a partner whose language skills were more advanced than their own because they understood that the task was to enhance their own language competence through collaboration. Thus, iTEO enabled them to work in their zones of potential development.

In order to further explain language learning, this paper looked at exploratory talk and dialogic teaching. These have been shown to further learning [9, 10]. In this case, we focused on peer teaching rather than teacher-pupil interaction. The examples of the present study testify to the children's efforts and to their skills to develop language learning. The more knowledgeable children encouraged talk, provided input, promoted comprehension, set a context for meaningful repetition, offered feedback and identified mistakes. These interactions scaffolded learning and provided all children with opportunities to dialogue, repeat, imitate, analyse, transform and reflect on language. These findings are similar to interactions reported in other studies in the field of SLA where children also provided some scaffolding, for example, through identifying mistakes, providing input or giving explanations. It is important to see these findings in relation to both the tool which fosters collaboration and control and the task.

Seen from the perspective of task-based language learning [11, 15] digital storytelling has proven to be an effective goal-oriented task. The app iTEO allowed for authorship, participation and interaction [16, 18]. The blank frame of iTEO, the possibility of deleting recordings, thereafter irretrievable, and the opportunities to transform recordings empower the user. The learning activities were open-ended and dialogic. The teacher embedded the language task in the children's weekly work plan. At times, he left it open with the result that children produced stories in Luxembourgish, German or French. At others, he set closed exercises such as practising vocabulary. Given that the children worked autonomously outside the classroom, they always had an opportunity to negotiate the task and to personalize it. Their task had a clear purpose: the production of a text for an audience. The awareness that the teacher, the class and, from time to time, the parents would listen to and comment on the stories, motivated children to produce interesting and accurate texts, which, in turn, required them to evaluate their own work.

7. Conclusion

The findings of this paper have shown that iTEO affords opportunities for personalized, autonomous and open-ended learning within a dialogic context. Drawing on relevant literature, I argue that iTEO has a high educational value [1, 8, 11, 12, 14]. However,

this does not guarantee ease of implementation. Our findings have shown that the young children, unsurprisingly, have no difficulties in using iTEO. At times, they found new uses for the app, such as inserting pictures, and explained these to the teachers hitherto unaware of this. The challenges of implementing iTEO are not down to the technology but to the need to create learning environments where children develop language skills in autonomous, collaborative and computer-assisted activities. Storytelling is a leading activity as it builds on children's linguistic and cultural resources and involves children cognitively and emotionally. Children are strongly motivated to produce something meaningful, relevant and comprehensible to an audience. Storytelling has been shown to develop language skills, especially if assisted by mobile technology [4], but teachers are hesitant as they are not used to open, dynamic and, at times, unpredictable situations. Currently, the iTEO team is running a third professional development course on the use of iTEO in multilingual contexts. The focus lies on language learning theories and on the implementation of storytelling or, in general, open-ended activities that allow for active engagement, dialogue and reflection. We acknowledge the difficulties many teachers have in setting aside their often monolingual language ideologies, their practice of de-contextualised and undifferentiated language learning, and the incongruence of standardized assessment tests.

The importance of teacher training and professional development has been emphasised in the literature [1, 8]. In order to become competent ICT users and to use ICT efficiently, teachers need to improve their subject knowledge, their technological skills and, above all, their pedagogy. Further, it has been reported that a single professional development course will not suffice. Long-term coaching where teachers learn to be life-long learners and teacher researchers is more promising.

It is hoped that this article, though small-scale, encourages teachers and carers to use open-ended tasks such as storytelling and mobile resources such as the app iTEO in formal and non-formal education settings. Researchers may wish to develop a better understanding of the roles of the mobile devices and the users during the learning process. Actor Network Theory offers a good theoretical framework. Finally, there is a need to further develop specific MALL theories on the ways users learn when assisted by mobile devices.

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9. References

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