BOOKLET ON CHATBOTS IN EDUCATION

MR.
WINSTON
The True English Bot

MR WINSTON, THE TRUE ENGLISH BOT
PROJECT OVERVIEW

'Mr Winston - The True English Bot' is an Erasmus + KA2 project that will develop **a chatbot** – a conversational robot operating over a messaging app – **to tutor English learners in Vocational Education and Training (VET).** The purpose of this project is to develop a chatbot that supports learners who study English at the **A2 and B1 levels** in following, understanding and remembering the lessons they were taught in class. This chatbot will be supported with open educational resources in the form of **corresponding language lessons** and a **chatbot design guide.**

We will develop the following new tools to create an appropriate tutoring chatbot that addresses teachers' and learners' needs:

- a **booklet gathering partners' research on chatbots in education,** to identify the best educative uses of a chatbot,
- a **free educational English tutoring chatbot** that supports the learner,
- free **teaching material** that will be integrated into the chatbot whose program will follow **CEFR levels A2 and B1,**
- a **pedagogical guide** to help educators understand how to make the most of using a chatbot as part of their teaching,
- a **chatbot creation guide** to help educators create their own chatbot for education purposes.

'Mr Winston - The True English Bot' is a project **co-funded by the Erasmus+ Programme** of the European Commission and is the result of a **collaborative work between 6 organizations:** Civiform (Italy), Eurospeak (United Kingdom), Learnmera Oy (Finland), Logopsycom (Belgium), Ljudska Universa Rogaska Slatina (Slovenia) and YuzuPulse (France). It started in December 2018 and will last for two years.

The purpose of this booklet is to share the results of the research conducted by the project partners on the possible uses of chatbots in education.

TABLE OF CONTENTS

INTRODUCTION TO CHATBOTS AND THEORETICAL EDUCATIONAL ADVANTAGES

The internet has become a totally integrated, and often invisible, part of our everyday lives. This is due to several factors. First of all, internet connections have become faster and cheaper. In addition, there has been a boom in the use of smartphones and other mobile devices: there are many models, but from the cheapest to the most expensive ones, all are able to connect to the web. Finally, the so-called "Web 2.0" phenomenon, born in the late 1990s, has introduced **collaborative and interactive aspects to information consumption for web users** in the form of wikis, video sharing websites, blogs and, especially social networks. These are accessible through both computers and mobile devices, letting people be in contact with each other 24h/day.

The "Z Generation" (also known as Centennials or Post-Millennials) which includes all students currently attending middle or high schools, that are considered part of this generation, **are born "with a smartphone in their hand".** This means that they are used to being constantly connected to the internet, in order to be in contact with other people, to look for something, to watch videos or listen to music, etc.

In recent years, **educational research has been even more focused on how to take advantage from this use of technology,** adapting educational strategies in order to include connected devices as tools for educational purposes. Further evolution of the internet (Web 3.0) has brought possibilities that may be of help in order to improve educational strategies or support in this sense.

The main features of the Web 3.0, indeed, are:

SEMANTIC WEB:
computers (and other devices) which have the ability to understand the meaning of words, rather than be based on keywords or numbers. Artificial Intelligence: computers (and other devices) which can understand information in a similar way to humans in order to provide faster and more relevant results. They become more and more "intelligent" to satisfy the specific needs of users.

ARTIFICIAL INTELLIGENCE IS CHANGING OUR WORLD:
from smartphones to chatbots, it is already ubiquitous in our digital lives. The field of the application of chatbots, in particular, is becoming more and more widespread every day and new features are constantly emerging. Education has always been a sector where innovation can be slow. But in recent years, there has been great hype about innovative technological tools that can improve teaching and learning methods.

CHATBOTS & THE PRINCIPLES OF MICROLEARNING

A chatbot is a computer program designed to simulate conversation with human users operating over a messaging app: it adapts to new needs and new behaviors related to the learning methods of new learners.

Using a chatbot for educational purposes allows adapting the content of the lessons to the speed at which each individual learns, so that each of them has the opportunity to follow at their own pace according to their potential, without being in competition with classmates. It is also possible to statistically predict which problem areas may occur, to create a study plan that will help each individual to deal with them.

Below we have summarized the main features which make chatbots a useful tool in the field of education and training. We are particularly focusing on **the use of chatbots for the study of a foreign language.**

1. Personalized experience: as chatbots make the learners the protagonist of the teaching action, in fact, it provides them with many opportunities to converse and receive advice in real time. For example, in order to help users identify their strengths and weaknesses, it is useful and possible thanks to AI to develop a strategy for each of them, with targeted tips and tricks to help them improve their daily performance.

2. Gamification and motivation: transforming the learning process into a game makes the chatbot fun and obviously, when learners have fun, the learning process is much more natural, and they are more motivated to move forward.

3. Continuous availability: chatbots are available at any time.

4. No judgment, no embarrassment: learners are more inclined to have a conversation and continue to practice.

5. Spacing effect: repeating and revising old notions when learners are about to forget them; this is an optimal learning method because the repetition of concepts and themes takes place in a delayed time frame and not all at once. There are chatbots that can measure when learners are more likely to forget the information they have acquired previously and remind them to review older lessons.

6. Evaluation of courses and teaching staff: the chatbot is able to gather opinions through a conversational interface with the same advantages that can be obtained from a 'real' interview but using fewer resources, so there is a reduction in cost.

7. Increase users' satisfaction: through sentiment analysis techniques, these systems are more able to recognize the attitude users have towards the chatbot and towards the information it provides them with,and then suggest the solutions or advice most relevant to the needs of each of user.

8. Open source code: development platforms and open source code make the design of chatbots increasingly easier and immediate. This increases their potential and diffusion, making them one of the most interesting technologies in which companies have invested highly in recent years.

Together with the theoretical advantages related to the use of chatbots, it is important to keep in mind the **principles of microlearning** in order to create content that can be effectively usable and effective. Microlearning is the supply of small amount of content to a given learner or student. Turning the courses into **training chunks,** according to the microlearning principles, presents obstacles that must be recognized and overcome: microlearning must really be of value to engage the learner or student.

In order to effectively deliver microlearning, it is necessary to have clear **micro-objectives** for each user and to elaborate on these objectives, to produce customized content for each learner. **Personalization** should also include an analysis of which media is able to provide the best and most necessary support: videos that answer specific questions, PDFs, infographics, digital guides, interactive diagnostics, etc.

Nowadays everyone checks their smartphone at least 9 times per hour and society's overall attention threshold is decreasing. Modern learners want to access content on smaller devices while they are on the move and when they have "3 to 5 minutes" available (on trains, at breakfast, before meetings...). **Microlearning needs to be accessible anytime and anywhere** (on computers, tablets, mobile phones...).

Using microlearning means offering a **"micro emotional experience"** rather than a simple training course. It is essential to design independent content through a clear microlearning strategy, in order to allow learners to work on their own personal improvement goals. Moreover, each "chunk" of information is presented in such a way that it represents a concluded individual unit, that can either be part of a broader programme, or not. This enables the learner to choose what they will learn and how fast he will progress. It gives them a sense of freedom and control over their own studying. Each segment is narrowly oriented and very focused, and represents the core knowledge of the lesson, which enables **quick access to the information needed, and the subsequent transfer of gained knowledge into practice.**

Because each segment represents an individual concluded unit, they can be used in different modules, which saves time. Finally, short segments can be updated much more easily than longer ones.

EXAMPLE OF A CHATBOT: MR WINSTON (UNDER DEVELOPMENT)

Below is a screenshots of the chatbot that the partners are developing for this project. Please note that this chatbot is under development at the time of publication.

The chatbot proposes options for the user to choose among, and proposes exercises accordingly. It supports the learner thanks to the use of images and a friendly tone along the way.

EXISTING EXPERIMENTS AND USES OF CHATBOTS IN EDUCATION

In the following section we are going to enumerate some of the existing apps and programs for education and language learning, paying particular attention to the chatbots which are dedicated to teaching or training.
Today, most chatbots are dedicated to the management of customer care in companies and also in public institutions.
Listed below the chatbots that in our opinion are more meaningful.

1. LANGUAGE LEARNING APPS AND CHATBOTS

- TutorBot
- Chatbot Lucy
- Kalle
- Duolingo
- Mondly
- Andy

2. GENERAL EDUCATIONAL APPS AND CHATBOTS

- Simbibot
- Co-teacher
- Divina Commedia
- AskMona

3. GENERAL INFORMATIONAL CHATBOTS

- Start Life
- Kamu
- Jane
- Costituzione Italiana bot

1. LANGUAGE LEARNING APPS AND CHATBOTS

TUTORBOT

The TutorBot application allows the user to learn English. Nevertheless, it focuses more on pronunciation than on common applications that are limited to vocabulary and grammar.

However, this tool seems to identify a function that could be very useful for language learning. The most commonly used applications today offer a pedagogical program that focuses only on grammar and/or vocabulary. Improving pronunciation is a very interesting point to deal with because it is often a source of fear of being ridiculed for speakers. In my opinion, improving pronunciation can help students to dare to discuss outside the program and thus indirectly improve vocabulary and grammar.

Source: https://www.facebook.com/tutorbot.english/
Authors/owners: Michael Ho
Start and end date: End of 2016 – end of 2017
Target group: General target

CHATBOT LUCY

They aimed at creating a chatbot to train English learners on different topics such as hotel booking, restaurant, small talk and travelling.

It is a good example of chatbot implementation in education but with the recent progress, it might be a little outdated.

Source: https://pdfs.semanticscholar.org/27fe/c8c6a5b0c9300baac663f82fff5bb50abd65.pdf
Country: Canada
Authors/owners: Yi Fei Wang and Stephen Petrina
Start and end date: 2013
Target group: EFL learners

DUOLINGO

Duolingo is a reliable and effective tool for those who are approaching a foreing language but is not the right tool if you already have a good

knowledge of the language and you want to improve it to a higher level.
There is a scoring system given to each user for the correct answers he gives

Source: https://www.duolingo.com/
Target group: General target

KALLE

A home psychologist service that can have basic conversations in Finnish.
You can also test Finnish natural language understanding in real life.
The chatbot seems to be able to do basic conversation and some basic
advice, but from my test questions, I did not see that it would be able to
provide very in-depth advice. Some of the conversation was also a bit
awkward. The project seems interesting if you would like to simulate a
conversation in modern finnish. It sounds good for thise trying to learn to
practive conversation.
It is still under development to better understand the context of
conversations.

Source: https://jannehansen.com/finnish-bots-kalle/
Country: Finland
Authors/owners: Janne Hansen
Start and end date: End of 2016 – end of 2017
Target group: For home assistance with psychological issues via casual
conversation with a chatbot in Finnish, also for practicing Finnish

MONDLY

It is a solution for learning English that exists both in the online version
(through their website) and in the form of an app. The program uses
chatbots with which you will communicate, either verbally or in writing,
through your computer / smartphone. You can study both British and
American English. This is a paid app. It is free for a short time only. Some
users complain because it is difficult to deactivate it.

Source: https://www.mondly.com/

2. GENERAL EDUCATIONAL APPS AND CHATBOTS

SIMBIBOT

SimbiBot is an intelligent and interactive learning assistant that helps students practice for UTME & PUTME and assists you in making career choices. The website shows the keywords for the user to type. It uses past exam questions to help students prepare for a variety of subjects. It offers multiple choice quizzes to help students test their knowledge, shows them where they went wrong, and even offers tips and advice based on how well the student is progressing.

I could test the chatbot. It does not always give direct feedback, only the right answer at the end if asked. It has a bullet point "explanation" but it's often empty. Very automatic speech "go on" "proceed" before each exercise. It has a direct and rather serious personality. It doesn't use emojis, GIFs, images...

Source: https://simbibot.com/
Country: Nigeria
Authors/owners: INTEGER
Start and end date: 2018
Target group: Unprivileged children

CO-TEACHER CHATBOT

Co-Teacher's chatbot offer instant access to relevant information related to studies. Available online, students can get information wherever and whenever they need it, without the restrictions of office hours. Easy access to information keeps students motivated, helps them graduate on time and leads to fewer drop-outs. Machine learning algorithms allow chatbot to adapt to the context of each school and interaction to provide personalized support to every student.

Co-Teacher works as a middle man between students and teachers by acting as a virtual teaching assistant and study tutor. The platform has various features, including a chatbot for quick information access and text analysis tools for evaluating and grading course assignments. Finally, Co-Teacher's time- and course management tools help each student create a learning plan that suits their needs.

Source: https://shouldersofgiants.fi/mission.html
Country: Finland
Authors/owners: Shoulder of giants, Pete Stockley
Target group: Educational institutions

DIVINA COMMEDIA BOT

Students always have the Divine Comedy with them. They can do semantic searches with a click. There are links to famous "cross-references" for each "terzine" and this innovates the didactics. Hyperlinks to paintings, serigraphs, sculptures, works of art depicting scenes from the Divine Comedy.
The Divine Comedy is the impenetrable and excellent text of the school with which people have to deal when they are students. The research mechanism on Telegram opens up a totally new and non-linear cross-sectional reading.
References and images to future worlds can be linked to key factors with respect to the Commedia. Dante is above all a word. And the bot returns the "word", pure, simple, naked. Who teaches the Comedy knows that he still has many things to say and he also knows that Wikipedia and Google are not so particularly functional.

Source: https://telegram.me/divinacommediabot
Country: Italy
Authors/owners: Francesco Piero Paolicelli (@piersoft) and a group of Students of a secondary school of Ostuni
Start and end date: created in 2016 is still active
Target group: Students

ASKMONA

AskMona aims at recommending cultural visits and events to youngsters depending on the criteria the user selects (time, budget, location, taste...). The team also works directly for cultural institutions and places in order to create chatbots that guide the visitors.
The chatbot introduces itself as a "21st century version of Mona Lisa". AskMona claims 48300 users reached and 2000 events identified.
It is interesting to see that although this is a commercial chatbot, the user does not feel like a consumer that is being sold things. The chatbot reaches its goals in the sense that it does help the user find cultural visits and events

events according to a series of needs and teaches about culture.

Source: https://www.facebook.com/messages/t/askmonaparis
Country: France
Authors/owners: Marion Carré
Start and end date: operational since 2017
Target group: Youngsters

3. GENERAL INFORMATIONAL CHATBOTS

START LIFE

To help millennials find their way through all the requirements of moving to a new place. They learn in a fun way what to pay attention to when looking for housing, how to organize themselves easily on the day of the move and how to manage the different energy suppliers.

Source: https://startlife.be/nl-BE
Country: Belgium
Authors/owners: Start Life by Ethias
Start and end date: 2016
Target group: Millennials starting adulthood

KAMU

Train the customer service staff of the Finnish Immigration Service.
The purpose of the register is to ensure that customers who use the chatbot and the customer service chat of the Finnish Immigration Service get correct answers and good quality service as well as to improve the performance of the tool. Chat conversations may also be used to train the customer service staff of the Finnish Immigration Service and when planning content for new instructions.

Source: https://migri.fi/en/chat1
Country: Finland
Authors/owners: Finnish Immigration Service
Start and end date: March 2018
Target group: Customer service staff of the Finnish Immigration Service

COSTITUZIONE ITALIANA BOT

Search for the articles of the Italian Constitution by keyword.
You can click on Articles to get the complete list.

Source: https://www.telegramitalia.it/costituzione-italiana-bot/
Country: Italy

Authors/owners: Francesco Piero Paolicelli @piersoft
Start and end date: 2016
Target group: General target

JANE

Answer questions and curiosity about the cannabis theme. It aims to sensitize youngster about the use of drugs.

For 5 months, during a project of alternating school work, the students of a secondary school in Bologna have tested the chatbot, changing its language and making it more suitable to their requests, to what a student of their age might want to know about it.

It can answer 1500 questions about drugs that anyone can put in a strictly anonymous form on the web.

Family instrument and easy access for the kids, chosen because it uses their language and tries to respond to their information needs.

Scientific approach. Precise language. In some cases technical language.

It can answer to the curiosities of younger children.

Source: https://www.cmsantagostino.it/jane
Country: Italy
Authors/owners: Centro Medico Santagostino in partnership with Heres
Start and end date: started in 2018
Target group: Teenagers

As we can see the time has come for chatbots and artificial intelligence to be applied also to the educational sector. Currently there are already specific application fields in this sector, but there are more potentialities to discover.

INTERVIEWS WITH CHATBOTS AND EDUCATION EXPERTS

Partners shared a framework related to topics to be investigated during the interviews; since the profiles to be involved in the interviews were various (ICT experts, ICT teachers, language teachers, chatbot experts, chatbot companies, learners), a set of topics that are common to all profiles was provided, with additional questions related only to each specific profile.

1. COMMON CONTENT AREAS

- Possible uses of chatbots in education
- Advantages of supporting learners that follow in-class language courses with a chatbot
- How to convince old-fashioned teachers to use tools like chatbots
- How effective this kind of tool can be with young learners and why
- Proposals about blended teaching methods (in-class lessons + chatbot)
- Possible advantages of using chatbots for language education
- Innovation in schools: a need, a nightmare?

2. CONTENT AREAS RELATED TO INTERVIEWEES' PROFILE

LEARNERS:

- Their use of chatbots in other contexts (also for leisure)
- What's motivating for their own learning process
- Chatbots' impact on them if used at least once
- Their teachers are open to innovative teaching methods?
- Other ICT tools used for learning purposes
- How they practice the use of a foreign language

ICT EXPERTS / TEACHERS:
- Impact of ICT tools on learners' motivation / learning process
- Knowledge about microlearning
- Used and/or known chatbot platforms

LANGUAGE TEACHERS:
- How the interaction with the chatbot may stimulate language learning
- What specific advantages they see in the use of chatbots in language learning

CHATBOT EXPERTS / COMPANY:
- How the "mood" (friendly, formal, etc) of the chatbot should be focused on the target
- Difficulties in implementing this kind of microlearning activities (to sum up contents, to foresee all possible questions, etc)
- Best chatbot platforms
- Interesting examples/ good practices

The expert interviews have been gathered in different ways (direct interview, online interview, phone interview, focus-group, etc.), by the partners who have then summed up the results. After comparing the collected materials, we have presented the main findings below.

INTERVIEWEES

LANGUAGE TEACHERS:
- Susanne Schneider - language teacher at Civiform
- Amanda Iob - language teacher at Civiform
- Cristiana Rodrigues - language teacher and professional in ICT at Coventry University
- Aljoša Vodopivec - language teacher at LURS

CHATBOTS EXPERTS:
- Rob Maagdenberg - global sales director at Chatbots.Expert (chatbot company)
- Geir Sand Nilsen - chief learning manager at EdTech Foundry (chatbot company)
- Janne Hansen - expert of chatbot company at Microsoft Oy, cloud solution architect and founder at Villikoodi
- Amina ESSELIMANI - expert of chatbot at SpeakUX! (company specialised in user experience focusing on conversational technologies)

STUDENTS:
- Students of Catering sector at Civiform - 16-17 y.o.

1. ADVANTAGES AND WEAKNESSES OF USING CHATBOTS

What emerges from our interviews is that **the use of chatbots is very promising in educational contexts.** All of our respondents agree that young learners have grown up in the digital era and expect their educational tools to be digital and to give instant responses. They are highly skilled in the use of ICT and love this type of learning. They consider it fun and dynamic. It also gives them increased **motivation for individual and independent learning at home.**
Young students are the ideal target audience for educational chatbots, due to the nature of social media being integrated into much of society today. They usually have expertise using platforms such as Google Dialogflow, Google Assistant, IBM Watson, Facebook Messenger, Microsoft LUIS (Language Understanding Intelligent Service) bot framework, Hubspot, Wit.ai, Converse.ai and their own platform, especially in some geographical areas in which the use of AI is more developed.
Using chatbots could be a way for students and teachers to "speak the same language" – meaning that they use the same tools, and adopt the same mentality to learning.

These are the main advantages of chatbots according to our respondents' replies.

1. CUSTOMIZATION
Using digital tools such as a chatbot in education allows the teacher to **overcome certain differences in the knowledge of the students.** It often happens that students are prepared differently and have different degrees of linguistic knowledge. To reduce these differences, chatbots can help the pedagogic process. Each student can reach a particular level based on their starting point.

The use of chatbots offers good opportunities for more educators, teachers and organizations to be able to develop their own teaching methods in a very **specific and strictly targeted way, to suit their students.** Teachers have limitless possibilities to adapt and integrate extracurricular activities, exercises and tasks into the students learning.

Personalizing learning also means letting the student feel their personal improvement without making comparisons with classmates. The focus shifts to personal success.

However, **it is important for chatbot creators to ensure that there are no negative consequences for making errors,** as many students tend to try to guess the answer even if they do not know it. Unfortunately, however, they tend not to do it in every situation - but life is not a video game: you do not have a second life!

Students cannot stand repetition, so there is the risk that they will only use the instrument the first few times out of curiosity, and then abandon it.
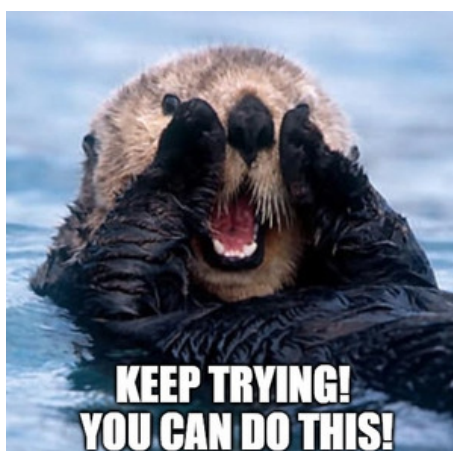
Even when students give wrong answers, it is important to encourage them! Memes and GIFs are a useful way to provide support.

2. MOTIVATION

It gives learners great motivation to work at home and do additional exercises, because **they can receive immediate feedback and feel less pressure from their teacher.** The information received is divided into smaller amounts, so that it can be remembered more easily. At the same time, they can access exercises and chatbots wherever they are.

Chatbots can be integrated into various, different platforms and therefore they can be very motivating, as they can become a part of the habitual norms of using a smartphone, computer, of a messaging programme.

Interviewees said that short bursts of supplementary and review material can motivate learners in the same way that extracurricular language learning activities can.

3. HOMEWORK

Chatbots are an ideal tool to **automate all kinds of routine tasks.** They just need to be able to build answers appropriate to the users' questions using

their knowledge base. According to the interviewees, the advantages are that it is essentially a **more interactive and motivating way to do homework** and carry out extracurricular tasks.

It was also decided that the partners would interview some students about what they know about chatbots and about their use of them. After having seen some examples of this kind of tool, it was easier for them to understand their use and advantages in business situations (in particular customer service) rather than in education the latter, they easily understand the benefits for improving their language skills and to test their knowledge about a specific topic before a formal test at school. The best use they can imagine is not in classroom but at home to study or to review lessons. They would be happy to do their homework directly on the chatbot and to be corrected in real time.

4. AVAILABILITY 24/7, EVERYWHERE AND FOR EVERYONE

Having a 24/7 service would be appreciated by chatbots users, especially if the bot's answers are instantaneous and consistent. The whole 'customer journey' can be optimized to improve users' experience and satisfaction. **Thanks to this tool, teachers will be able to offload repetitive tasks, in order to focus on more challenging and valorising work.**

Interviewees stated that chatbots' specific advantages are the low level of commitment, planning and materials that a student is required to have on hand (or purchase) to learn a language with a chatbot, that are usually required to attend a language course.

Some of the interviewees think that using chatbots is great because it is free or is cheap. Everyone has a mobile phone and if you use it for accessing a chatbot, it becomes a tool for acquiring knowledge.
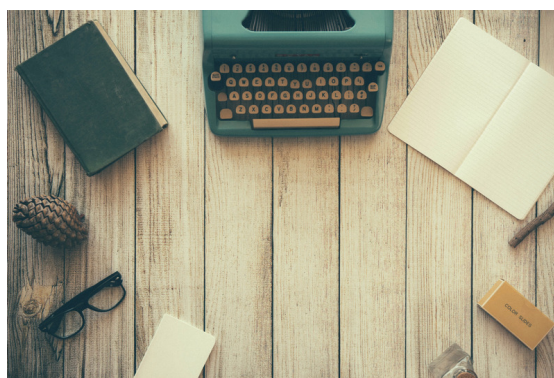
Conversational robots allow the learner to ask questions
online even when no one is available to type back.

5. INCREASED EXPOSURE TO THE LANGUAGE

Using chatbots allows teachers to **double the input and the exposure to the language** because students can also work outside lessons.
More than just a method, it is important for students to be in constant contact with the language. This is a great advantage of blended learning as it offers numerous possibilities and great flexibility.

6. PERFORMANCE ANXIETY

Using chatbots can solve the problems of students who feel anxious towards their course. The chatbot may support students and make their lives easier, a database can be filled with FAQs so that **the students are not embarrassed to ask their questions.** The chatbot can also help motivate the students and avoiding them dropping off the course.

Alongside the great advantages reported by the interviewees, there are also weaknesses in the chatbot systems. In fact, if on one side, using a chatbot for language learning is useful for fixing definite sentences in the memory of students, the setting of knowledge of the chatbot is, however, limited and for the more creative students this can be demotivating. It would be useful if this setting of knowledge could be continually renewed.

2. POSSIBLE APPLICATIONS OF CHATBOTS FOR TEACHING AND LEARNING LANGUAGES

Based on what emerged from the interviews with the experts, we tried to summarize the different items in two specific topics: suggestions on introducing the use of chatbot at school/in class and proposals/way of implementing chatbots in blended learning.

a. SUGGESTIONS ON INTRODUCING THIS TOOL AT SCHOOL/IN CLASS

Most of the interviewed experts and students agreed that the use of chatbots is more useful for **self-study at home.** It is important not to focus on the classroom implementation but more on how each student can use it. Students can improve on the knowledge gained in the classroom with individual work at home, and carry out additional homework and receive immediate feedback thanks to a virtual tutor.

The use of chatbots in the educational field could help students **find information and assistance** in the organization of their courses, the enrolment process, their performance, agenda, to be used as a mentor to motivate them or to evaluate the course.

It is important not to forget however, that the tool itself has little impact on the students' motivation but that it is the **built relationships** that provide the opportunity to learn. The chatbot should have a friendly and supportive behaviour and personality towards the students who use it: it can contact the learners at a scheduled time to achieve a certain task and will keep the students on track. If the chatbot is good, intelligent, human-like, context-aware, open dialog-based and AI-driven, that will make a huge difference. It is important to give the chatbot some **profile awareness** to recognize and adapt to each specific learner.

The bot's "tone" or personality is the bot's DNA that should be targeted at the user's profile. **Emotion detection** is also important to adapt the bot's reactions. **The language and attitude should be adapted according to**

the goal of the chatbot (i.e. to motivate the student). For this reason, it is important to have experts helping the development team to use relevant language and attitude.

It is also important to remember to have **realistic expectations as to what the bot can and cannot do** (with natural language, the bot is limited). When you work with bots, programming is only 20 % of the work: the rest is feeding text, checking and making changes, and entering more text or content, based on what users have said.

One of the ways suggested by the interviewees to introduce the use of chatbots in teaching is to **identify one or two teachers or classes** that would be more open to the adoption or testing of this kind of tools. This could allow them to pilot the tools and then to implement them through a series of professional development and training sessions, **integrating them into the staff development** programs of the organizations.

Not all teaching organisations have the same culture: it is good to first test the chatbot with teaching staff and and then to integrate it in their professional development.

It is also important not to fall in the trap of thinking that because we are talking about an IT tool, youngsters will **automatically adopt it.** Surveying their habits and needs before informing them of the development of the tool is an important step to make sure it will be adopted as a useful tool and not as a one-time gadget.

Other interviewed experts think that it could be effective if chatbots are used in the classroom during the lessons but supported by **tablets** and not by mobile phones. It is possible that students using their mobile phones

during lessons could use it for sending personal messages and not for using the chatbot.

In some schools, moreover, students are advised to not use their mobiles, because it might be distracting them from the subjects to learn. However, mobile phones are an excellent tool for communication, and the chosen tool for using social and chat tools. Some interviewees suggested using apps to restrict distractions or phone uses during class for students to focus on the chatbot.

It is also essential that the setting is suitable. If users need to give vocal input, there must be soundproofing.

There are also specific thematic areas that can be of interest to some types of students. For example, for those who attend a vocational training centre a new chatbot could be useful if it is possible to teach the **technical language of different sectors** (e.g. Catering, Food processing, Health and beauty, Graphic and Web design, Electrical systems, Car mechanic and so on).

b. PROPOSALS AND WAYS OF IMPLEMENTING CHATBOTS IN BLENDED LEARNING

Inverted learning or **flipped classroom** is a creative process and requires a different approach from the teacher. In fact, the teacher has to rethink how to work with the students: the theoretical part of the subject must be prepared for individual work at home and the homework is done in class. An excellent way to improve this experience, suggested by the interviewees, may be the use of the software Moodle - which is an application that allows the teacher to prepare digital lessons and students to access them at any time. In addition, the teacher can monitor the learning process, add content, exercises, structure the lesson by steps, etc. A first proposal could be to use chatbots in classroom based lessons for **covering basic grammar rules and vocabulary** and **encourage students to test their knowledge,** and then discuss the issues they had afterwards at school.

A second proposal could be: students use the chatbots at home to study independently and during the next lesson at school, the teacher repeats

the same scene/dialogue/situation with one or two students so that there is a **link between the lessons at home and the one in the classroom.** In any case, the use of chatbots in the classroom must be scheduled because if they are used every day it becomes boring for students.

Chatbots can encourage students to study independently, especially when their content is linked to their lessons and if the chatbot is supportive.

Finally, another piece of advice could be to give easy exercises and quizzes at first to ensure that students would associate **a positive feeling to the experience of using the chatbot.** In general, when users feel that they are failing, they will stop using the tool as they can feel "judged" by it. Even when students fail, it is important to encourage them to come back and to give them explanations to understand their mistakes so they feel empowered rather than judged.

CONCLUSION

The interviews summed up in the previous chapter reinforce what emerged from studies and articles: chatbots may have great positive impacts in education, depending on the way they are introduced and managed.

Referring to the Mr. Winston project, in particular, interviewees agree that the way it proposes to integrate classes and learning content through the chatbot is probably the most functional way of doing this. The project partners noticed the enthusiasm from the interviewees from different backgrounds. The project therefore seems to have great potential for development and use.

One of the key points, then, is to understand **how to introduce and manage a tool like a chatbot in a proper way,** meaning by this also considering the specific features of involved target, needed supporting materials, involved people (teachers, trainers, educators, etc) and the organizations they work for. For this reason, after having read the experts' opinions, the students' point of view and the results of the research on the use of chatbot in education, partners were asked to underline specific issues related to their own organization, being each partner different from one other.

The implementation activities, for example, should take into consideration **students' age.** Learning English starts early, in grammar schools, and it accompanies students until they start higher education studies and can continue even in working life. Partners who have as target group adult students, could prepare a set of different activities, based on the age of the students, and let them test the activities and see whether they find them useful and a good resource for self-study of English as well.

This kind of tool will bring **more flexibility for language teachers** to focus on more challenging work while students will have a fun learning experience with the drill exercises provided by the chatbot. It will greatly help the students who struggle by encouraging, motivating and providing

them with all the information they need to revise, at all times. The chatbot could be a tool teachers and students can depend on, as well as a means for the overall level of learners to **constantly improve and for students to become responsible for their learning process** at home.

As one of the partners is specialized in learning disorders, it is important to underline that **the chatbot can allow students who struggle with language learning to train in a less stressful environment,** with a patient and encouraging tutor who guides them through the material to revise. All the content should be designed with a special attention to the specific needs of children with learning disorders.

Finally, the chatbot and supporting guidance material would also help partners to work with VET centers locally.

APPENDIX

RESOURCES

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Erasmus+

MR. WINSTON
The True English Bot

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