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“FOSSILBUSTING” - PERSONALISED, SELF-DIRECTED, REMOTE CORRECTION OF  
CONSCIOUS FOSSILISED ERRORS WITH THE MEDIATION OF MUSIC, MOVEMENT  
AND MNEMONICS

MA Thesis

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## **Abstract**

This thesis investigates the potential efficacy of a novel method of remotely correcting conscious fossilised errors in advanced speakers of English through the lived experience of its eight participants. Music, movement and mnemonics play the leading roles in the week-long intervention, which includes participatory design elements. The study can be classified as action research and adopts a mixed method approach to data collection. Results indicate that music can play an important supporting role in destabilising fossilised errors due to both its mnemonic value and the enjoyment it provides. Continued correction success was reported three months after the intervention in the majority of cases. This supports and adds to previous study on the importance of music in second language acquisition.

## **Table of Contents**

<b>1</b>	<b>Introduction 4</b>
<b>2</b>	<b>Theoretical Overview 6</b>
2.1	Fossilised Errors 6
2.2	CALL, MALL and Audiolingualism 8
2.3	Music 9
2.4	Movement 10
2.5	Mnemonics 11
2.6	Werner's Article on Music in the SLA Classroom 12
<b>3</b>	<b>Method 12</b>
3.1	Type of Research 13
3.2	The Role of Piloting in Design and Data Collection 13
3.3	Sampling 14
3.4	Design 15
3.5	Description of Fossilised Error and Song Personalisation Case by Case 17
3.6	Data Gathering 18
3.7	Data Analysis 19
<b>4</b>	<b>Results 20</b>
4.1	Opening Questionnaire 20
4.2	Initial Reaction 22
4.3.1	Daily Feedback 22

4.3.2 Additional Comments 25

4.4 Final Thoughts 25

4.5 Reflections After Three Months 27

## **5 Discussion 29**

5.1 RQ1: Did the “fossilbusting” design reduce negative feelings such as embarrassment and anxiety in participants and empower them to correct their fossilised errors? 29

5.2 RQ2: Which design components were the most/least helpful in the opinion of participants? 31

5.3 RQ3: Did any benefits gained remain three months after completion of the intervention? 33

5.4 Additional Observations - Personalisation and Repurposing Songs 34

5.5 Limitations and Significance 35

5.6 Future Action and Research 36

5.7 Conclusion 36

## **Acknowledgements 37**

## **Author’s Declaration 38**

## **References 39**

## **Appendices**

Appendix 1 - Song Lyrics and Links to YouTube Videos

Appendix 2 - Instruction Sheet Issued to Participants Prior to the Intervention Week

Appendix 3 - All Questions from the Five Surveys

Appendix 4 - Qualitative Survey Responses

## 1 Introduction

Despite the revolution occasioned by the arrival of *Google Translate* in 2006, followed by similar offerings (*Bing*, *DeepL*, etc.), machine translation is not yet fully reliable (Pham et al, 2022, Rescigno et al, 2020). As a result, much demand remains for humans who are able to communicate in more than one language and the education services that render this a possibility. According to Holon IQ (2021), it is believed a quarter of the world's population are currently engaged in learning another tongue, with the vast majority studying English. Online, offline and blended learning markets are all forecast to grow until at least 2025 (*\$60B D2C language learning market to double*, 2021).

Recent years have seen an increased adoption of first CALL (computer assisted language learning) and then MALL (mobile assisted language learning), which while being of benefit to language learners for the flexibility it allows, is not without its drawbacks and must be implemented with caution and care (Kacetyl & Klimova, 2019). The shift from traditional bricks-and-mortar language schools to a greater focus on digital alternatives (or a blended learning combination of the two) has been accelerated by the Covid-19 pandemic and the enforced switch to distance learning that it has entailed. Additionally, there has been an increase in scholarly interest in the field of language learning through social media (Barrot, 2021).

The starting point for using CALL and MALL offerings, which also include language learning applications, is often self-direction. In order to continue to benefit, however, a large degree of self-regulation is required (García Botero et al, 2019). It is all too easy to let daily study slip out of one's routine, particularly when there is no regular class to attend and no financial investment has been made. Other challenges also exist, one of which is the best way in which a language student can correct the errors they make, especially if no teacher is directly present.

There has been much interest of late in the psychological elements that underpin successful corrective feedback in second language acquisition (SLA), and a growth mindset has been identified as a key factor in students' openness to receiving it (Papi et al, 2021). Following on from this, it seems reasonable to posit that if somebody learning another language sees corrective feedback as a means to achieving a goal rather than a punitive measure, it is more likely to result in long-term success. If the corrective feedback process could be deemed fun, Foreign Language Enjoyment (FLE) becomes a more likely outcome

than Foreign Language Anxiety (FLA) and an improved effect could be reasonably expected (Zhang et al, 2020).

One type of error that may be closely linked to psychological factors is the fossilised error, identified by Selinker as a persistent error resulting from the interlanguage (IL) a student builds to bridge the gap between their native language (L1) and the language they are studying (L2) (Selinker, 1972). Although the theory has attracted criticism for making over-generalised or unprovable assertions (Al-Khresheh, 2015), the fact remains that even very advanced speakers make persistent errors in their L2, and that these errors often derive from their L1. Beyond traditional methods of written and oral corrective feedback, little research has been done investigating alternative approaches to how such errors may be eliminated.

The focus of this paper is therefore not to contest definitions, but to report on the implementation of a novel correction technique involving music, movement and mnemonics that directly addresses conscious fossilised errors (ones of which the speaker is aware) in advanced speakers. “Fossilbusting” involves the creation of personalised songs that feature repeated examples of correct usage in an attempt to “rewire” the brain. The close connection between music and language was most comprehensively established in “Music, Language, and the Brain” (Patel, 2007), and recent studies have demonstrated an improvement in memory after a short period of exercise (Perini et al 2016, Sng et al 2018). These components have been combined with an adapted audiolingual approach that involves participants in design customisation to create a unique intervention.

The study is an example of action research and contains both quantitative and qualitative data. Using the lived experiences of its participants as a gauge, it aims to both investigate the potential efficacy of the “fossilbusting” design and to analyse how and where improvements could be made that would allow the foundations of fossilbusting to be built upon in the future.

The paper has been divided into four parts. Firstly, it will refer to literature published in the subject area to provide the theoretical framework upon which the study is based. Secondly, the details of the method used during the intervention will be specified. Thirdly, the results of the study will be presented. Finally, there will be a discussion on what conclusions may be drawn from the results, the limitations of the study and what the future could hold for this type of language intervention.

### Research Questions

1. *Did the “fossilbusting” design reduce negative feelings such as embarrassment and anxiety in participants and empower them to correct their fossilised errors?*
2. *Which design components were the most/least helpful in the opinion of participants?*
3. *Did any benefits gained remain three months after completion of the intervention?*

## **2 Theoretical Overview**

This chapter will firstly define what constitutes a fossilised error in the understanding of the author, before describing proposals and attempts that have previously been made to destabilise them. Next, the background elements of CALL and MALL and their role in the implementation of the intervention, as well as the influence of the audiolingual movement, will be discussed. Thirdly, the core aspects of music, movement and mnemonics and the rationale behind their inclusion in fossilbusting will be elaborated upon. Finally, a key article (Werner, 2018) that makes arguments supporting many of the design decisions taken in this study will be summarised, and the similarities and differences between the actions taken by Werner in her classroom and the author in fossilbusting will be noted.

### 2.1 Fossilised Errors

As fossilised errors are both the target of this study’s correction method and the problem it seeks to resolve, a precise understanding of what they constitute is required. The term was coined in Larry Selinker’s seminal work of 1972, “Interlanguage” (Selinker, 1972). According to the author, interlanguage is a unique language that gradually develops between a speaker’s native language (L1) and the language they are studying (L2). In terms of analysis, it is the language that is produced spontaneously during L2 speech and does not include the speaker’s considered understanding of the L2’s grammar, a measurement strategy that his contemporary, Corder, believed was too narrow (Tarone, 2012).

As learning continues, interlanguage moves closer towards the L2. However, if elements of the L1 persist and do not conform to the L2, they can become “fossilised”.

Fossilised errors can also emerge from the learner themselves (due to a communication or learning strategy they adopt) or from the L2 (as a result of a training method employed by a teacher or an oversimplification of L2 rules) (Selinker, 1972). Selinker later defined fossilised errors more precisely as the result of a permanent cessation of learning (Selinker & Lamendella, 1978), but Long (2008) has convincingly countered that permanence as a concept is arbitrary in nature and difficult to define, questioning after precisely how long an error be considered as such. For Long, “stabilisation” (which Selinker viewed as a precursor to fossilisation (Selinker & Lakshmanan, 1992)) is a preferable term to use, particularly in light of the fact that few studies have been conducted over the two to five years thought to be necessary for the existence of fossilised errors to be proven. It also allows for the possibility of “destabilisation” (Long, 2008), which is the goal of the correction method under investigation.

How can destabilisation or “de-fossilisation” be achieved? A recent paper (Rahal, 2018) drew a comparison between two older studies (Graham, 1990 and Murphy, 1991), which both concluded that the success of such a process was dependent on the student themselves having the desire and commitment to address the issue. Another article from Long and colleagues (2021) underlined the importance of self-monitoring and self-evaluation in the correction of fossilised grammar errors and cited an interesting study on Hungarian students, which found that more advanced speakers were less likely to self-correct their errors than speakers at an earlier stage of development (Kormos, 2000). It thus seems reasonable to conclude that both self-direction (the learner making a conscious decision to tackle their problem) and self-regulation (the learner continuing in their efforts and not giving up) are required to destabilise a fossilised error.

Rather than trialling a specific approach with a group of students, Zheng (2010) proposed an interesting model with five components that could be used to overcome fossilisation, which is summarised below:

1. *A needs analysis to a) help the teacher select the correct material and adopt the correct strategies and (b) allow the student to establish their own clear goals.*
2. *Testing the level of the learner to be able to create appropriate targets.*
3. *Fostering a positive learning attitude in the learner to create an emotional state that is conducive to learning.*
4. *Cultivating learning strategies that learners can use (metacognitive,*

*cognitive, social/affective, communication, resources).*

*5. Continual learning including cultural information and appropriate L2 communicative strategies. (Zheng, 2010)*

In the case of fossilbusting, the student establishes their own goals (which error to correct), there is an attempt to create a positive emotional state (through exercise and music) and, as the method is used in a standalone manner and not part of a larger course of study, it could be viewed as a form of continual learning that can be undertaken at any stage in life.

Having discussed the nature of fossilised errors and noted the importance of self-direction and self-regulation in destabilising them, the background role of CALL, MALL and the audiolingual movement in the intervention will now be considered.

## 2.2 CALL, MALL and Audiolingualism

Computer Assisted Language Learning first began in the 1960s and has been defined as “the search for and study of applications of the computer in language teaching and learning” (Levy, 1997, 1). Its development and the scope of its capabilities has necessarily been linked to the development of the computer itself and has thus come a long way not only in terms of its potential, but also in terms of accessibility.

Mobile Assisted Language Learning is a branch of CALL connected to m-learning (mobile learning). Kukulsa-Hulme & Shield (2008) describe m-learning as “learning mediated via handheld devices” that are “potentially available anytime, anywhere”, stating that the learning involved could be either formal or informal in nature (Kukulka-Hulme & Shield, 2008, 274). Just as CALL has developed with the computer itself, MALL has both developed alongside and become increasingly dominated by the mobile phone and in particular the smartphone, with its increasing ubiquity and ever-expanding capabilities. A recent study conducted in Ukraine found positive attitudes and improved skills amongst university language students whose learning was supplemented by MALL (Krasulia & Saks, 2020).

As the intervention featured in this study was conducted on a global scale with nearly all contact between the researcher and participants occurring online (often asynchronously), the involvement of CALL was a prerequisite in order for it to be able to occur in the first place. MALL played a more nuanced role as a facilitator in increasing both the ease of communication between the researcher and participants and in providing participants with



access to the surveys they needed to complete and their individual musical track in an anytime, anywhere setting.

The use of CALL and MALL in the fossilbusting process to replace incorrect with correct forms harks back a little to the structural drilling of the oft-maligned audiolingual movement that emerged in the 1960s, which made extensive use of repetition in order to form good language habits in students. This behaviourist approach has enjoyed something of a renaissance of late (Mei, 2018; Carriel, 2019), with Carriel arguing that drilling in itself is not bad, but that it is more a matter of how it is conducted. Fossilbusting loosely follows this thinking by bringing repetition (both voluntary and involuntary) to life through the incorporation of song and participatory design elements that allow participants to “own” both what they are learning and, to some extent, how they accomplish it.

Moving on from the background factors, it is now time to turn the spotlight onto the key constituent elements of the novel corrective process under investigation in this study: music, movement and mnemonics.

### 2.3 Music

Anybody who has studied another language will almost definitely have been exposed to music sung in that language and in many cases can probably still remember at least some of it to this day. If the language being studied is English, this is practically a certainty, mainly as a result of the ubiquity of English-language music on the global music market. Educators have been advocating for the use of music in the language classroom since the 1960s (Engh, 2013), but on what basis?

Lake (2002) asserted the value of the use of music in both first and second language acquisition, citing its benefit in relation to three of Krashen’s hypotheses: affective filter considerations (it develops self-confidence and reduces anxiety in learners), the monitor model (it can create subconscious, intuitive learning), and the input hypothesis (songs often repeat a structure with minor variations before returning to a familiar chorus, meaning difficulty increases in gradual steps). He also made reference to a useful work that informed his own teaching that provided tips on the successful incorporation of music in the classroom, as well as a list of popular songs with the structure that they practised (Osman & Wellman, 1978), before making the point that musical jingles are a common feature of advertising due to their happy knack of sticking in the memory (Lake, 2002).

Engh (2013) summarised empirical studies supporting the use of music in SLA under the categories of recall and memory, din/involuntary mental rehearsal and language specific skills. Of particular interest in each of these categories (listed respectively) was a study that showed lexical patterns stored in long-term musical memory can be easily retrieved (Mora, 2000), the postulation of the song-stuck-in-my-head (SSIMH) phenomenon as a potential language acquisition device (LAD) activator (Murphey, 1990), and a list of studies providing supporting evidence that songs help to improve pronunciation and grammar (Engh, 2013).

Finally, in an overview of the relationship between language ability and musical intelligence (Fonseca Mora et al, 2011), attention was drawn to music's ability to simultaneously relax and stimulate the brain (Brewer & Campbell, 1991) and the ability of songs to bridge the brain's two hemispheres, which strengthens retention of new information (Guglielmino, 1986).

With so much evidence supporting the use of music in SLA and its positive impact on the learner, it seems self-evident that it should also be used in treating fossilised errors.

#### 2.4 Movement

Just as language is closely related to music, music is closely connected to movement. Abril (2011) describes the innate propensity of humans to move in response to music and cites various studies demonstrating the neurological link between the auditory and motor systems in the brain. He adds that movement instigated by music is often performed to create enjoyment (Abril, 2011), which in turn has a positive impact on learning outcomes.

To close the circle, SLA theory has also incorporated movement, most notably in Total Physical Response (TPR), an approach pioneered by James Asher wherein movements are performed that mimic the word being spoken (Asher, 1969). Although this is most often used with either young learners or beginners (due to the simplicity of the vocabulary being used), it shows that music, movement and language are all interlinked.

Movement is also a form of exercise and links between the function of the brain and overall body health date back to Juvenal's "mens sana in corpore sano". This message from antiquity has been backed up empirically by a recent study showing improved cognition and academic performance in those who regularly perform aerobic exercise (Hillman et al, 2008). An earlier work reached a similar conclusion, stating that exercise was unique in providing

both neuroprotective and neuroplasticity effects (Cotman et al, 2002). Finally, exercise has been shown to combat depression (Zhao et al, 2020), meaning a mind state more conducive to learning can be achieved through movement.

As far as the shorter-term effects of movement are concerned, it has been demonstrated that aerobic exercise promotes brain plasticity and increases functional connectivity for at least half an hour after its completion, thereby enhancing basic learning processes (Perini et al, 2016). As a result of these findings, movement prior to learning was incorporated into the method this study is investigating.

### 2.5 Mnemonics

It is highly likely that you can remember at least one mnemonic from school. The sequence of ROYGBIV or “Richard Of York Gave Battle In Vain”, used for remembering the sequence of the colours of the rainbow, is perhaps the most famous example. However, acronyms and acrostics are just two of the eight types of mnemonic device identified in a recent review of mnemonics in education (Putnam, 2015). The final category is that of “songs, stories and rhymes”, all three of which are used in “fossilbusting”.

In a related study based on the premise that songs aid recall in one’s native language (consider the alphabet song set to “Twinkle, Twinkle Little Star”), its effect on SLA was measured on Ecuadorian elementary school pupils, around half of whom received a spoken text in English and half a sung text (Good et al, 2015). Those given the sung text significantly outperformed those exposed to the spoken text on pronunciation, recall and translation in immediate testing. Pronunciation and recall remained at the same level in the sung group six months later, but translation scores dropped, suggesting only superficial knowledge remained.

Putnam (2015) suggested that although the benefits of mnemonics when preparing for one specific test are certain, their ability to enter the long-term memory remains open to question, concluding they worked best when used in collaboration with other techniques (Putnam, 2015). In the case of the Ecuador experiment, TPR does not seem to have been used, even though the lyrics of the song were suited to its inclusion. Perhaps this could have helped maintain the translation scores in the sung group over a longer period of time?

Music, movement and mnemonics were all brought together in a recent article by Werner, whose experiences in the SLA classroom and incorporation of song will form the basis of the final part of this chapter.

### 2.6 Werner's Article on Music in the SLA Classroom

An article that supports a large part of the methodology of “fossilbusting” was published by Werner (2018), who uses connections between music, movement and memory to justify the creation of songs as mnemonic aids in an SLA setting (Werner, 2018). In it, she cites previous studies that establish that music can benefit all skills associated with language learning (Arnold & Herrick, 2017), that singing works better than speaking on recall (Ludke et al, 2014), and that music and language processing occur in the same part of the brain (Levitin & Menon, 2003; Maess et al, 2001). She also argues convincingly for mimetic actions to be incorporated into songs as additional mnemonic aids.

After proposing three strategies for creating songs (writing an entirely new song, substituting individual words into existing songs, and fully rewriting the lyrics based on existing melodies), Werner explains her preference for the writing of an entirely new song where possible due to the creative freedom and large degree of personalisation that it affords. This is the approach adopted in the correction method of this study, in which each song is designed specifically for one individual.

Customisation for an individual rather than a class is not the only factor that distinguishes this study from Werner's previous usage of songs. Another is the fact that all communication took place online with working adults with an already high level of English and involved little teacher/researcher - student/participant interaction, very much in contrast to the regular contact of her school classroom in Côte d'Ivoire.

## **3 Method**

This chapter will first discuss the type of research undertaken and the role of piloting within it. Information will then be provided on the participants, the design of the fossilbusting process that they followed, the errors they chose to be corrected, and how their songs were personalised. Finally, the methods used to collect and analyse data will be described.

### 3.1 Type of Research

This study follows the principles of action research put forward by O'Brien (1998), who summarised it as "learning by doing". It "turns the people involved into researchers" and "aims to solve real problems" (O'Brien, 1998, 2).

Although only one iteration of the research was carried out, one of the participants was involved in a type of preparatory pilot phase. The use of a pilot phase is an approach strongly advocated by Gudmundsdottir & Brock-Utne (2010), who believe that it helps to "reduce mistakes in the main research design" and "increase the validity of research results" (Gudmundsdottir & Brock-Utne, 2010, 359).

A pilot phase was also used in a later action research study in the field of MALL that focused on the implementation of an app to support self-directed language learning (Lammons et al, 2015). Here, a limited number of students and learning advisors were asked for their feedback through surveys before a wider rollout was undertaken.

Surveys created and sent out using Google Forms constituted the main method of collecting data for this study, which included questions to participants that provided both quantitative and qualitative data, making it mixed method research. However, given the small sample size, the qualitative data gathered possesses greater significance than the quantitative.

### 3.2 The Role of Piloting in Design and Data Collection

Piloting played an important role both in modifying the design of the intervention and in improving the quality of data collected. These are the three main changes that were made as a result of this process:

- 1. Survey questions were added, altered to improve clarity, and, in some cases, removed.*
- 2. The instructions for the intervention week were sent out before the music files and not after to maximise the chances that they would be understood correctly.*
- 3. The decision on the action to perform during the song was left up to the participant to decide and not imposed by the author. This change was made*

*because it became clear during an initial trial at which both the pilot participant and researcher were present that the participant was thinking more about performing the “correct” movement with the song than the song itself and in turn the correction. This seemed to be counterproductive.*

### 3.3 Sampling

Eight adults (six female and two male), two aged in their 20s and six in their 30s, took part in the study. They were chosen using three different sampling methods: purposive, convenience and snowball.

The most important of these methods was purposive. Firstly, all participants had to have a high level of English (at least B2 on the Common European Framework), since an error at an earlier stage of learning would be difficult to classify as “fossilised”. They also had to be able to self-identify their error (making it a conscious fossilised error) and be motivated to attempt to destabilise it (making their participation truly self-directed). All participants were volunteers and gave their informed consent to publish the data they provided.

Once the purposive criteria were met, convenience sampling occurred. Two family members volunteered to take part, one of whom became the abovementioned “pilot participant”. Two further participants were enlisted from a private WhatsApp chat between students of the University of Tartu and another three responded to a Facebook post seeking volunteers. The final participant was recruited through snowball sampling, as she was a student of one of the students in the University of Tartu WhatsApp chat.

Part of the reason behind using this sampling method (which selected participants of seven different nationalities with diverse backgrounds) rather than simply selecting a group of students from a single class at a single school, was the fact that the fossilbusting technique is not designed to be used as a course in its own right with a traditional teacher-student relationship, but as a supplementary short-term exercise that can be carried out by anybody independently and remotely to fix a specific problem. Only one of the participants was actually studying English at the time of the intervention and only three were engaged in official academic study (not related to English).

Table 1 below provides information on the eight participants who volunteered and met the criteria to take part in the intervention. Pseudonyms have been assigned to each in the

interests of privacy. The key to the abbreviations in the table can be found underneath. Numerical answers on the right relate to answers made using a five-point Likert type scale, the parameters of which appear in parentheses.

*Table 1. Information on Participants.*

<b>Name</b>	<b>Gender</b>	<b>Age</b>	<b>L1</b>	<b>Other</b>	<b>Use</b>	<b>Level</b>	<b>S</b>	<b>L</b>	<b>R</b>	<b>W</b>	<b>C</b>
<b>Yulia</b>	F	20s	Rus	Fre, Spa	20	C2	5	5	5	5	5
<b>Sofia</b>	F	30s	Rus	Lat	20	C1	5	5	5	4	4
<b>Mario</b>	M	30s	Ita	Spa, Pol, Ger	19	C1	5	5	5	5	4
<b>Piotr</b>	M	30s	Pol	Fre, Rus, Ukr	23	C2	5	5	5	5	5
<b>Alina</b>	F	20s	Rus	Fre	12	C1	5	5	5	3	5
<b>Hina</b>	F	30s	Jap	N/A	8	B2	2	2	2	2	3
<b>Bora</b>	F	30s	Kor	Jap	5	B2	5	5	5	2	3
<b>Jing</b>	F	30s	Chi	N/A	16	C1	5	5	5	5	4

L1 = Mother tongue Other = Languages spoken apart from mother tongue and English

Use = How many years participant has actively used English

Level = Self-assessed level of English according to the Common European Framework

S = How often participant speaks English (1=Rarely, 5=Every Day) L = How often participant listens to English (1=Rarely 5=Every Day)

R = How often participant reads English (1=Rarely 5=Every Day) W = How often participant writes English (1=Rarely 5=Every Day)

C = How confident participant is about English communication ability (1=Not very confident, 5=Extremely confident)

*Languages (Rus=Russian, Ita=Italian, Pol=Polish, Ger=German, Fre=French, Ukr=Ukrainian, Jap=Japanese, Kor=Korean, Chi=Chinese)*

### 3.4 Design

Once participants had been selected to take part, they were sent an opening survey that asked them for their history of active English usage, whether they spoke a third language and how they rated their current English ability (see Table 1). The second section of this initial survey focused on the fossilised error that they wished to correct, their feelings about it and the strength of their motivation to correct it. Some were able to identify one immediately, but others decided after referring to a list of typical examples featured on a Miro board designed for the purpose, or in brief consultation with the author over one of the online communication channels that were used (Facebook Messenger, WhatsApp and Microsoft Teams).

The next step was to ask participants what genre of music they would like for their song, as they would be required to listen to it on a regular basis over the course of a week. If the participant had not liked the musical style, it could have limited the level of foreign language enjoyment they took from it and thus potentially decreased motivation. Some participants chose to specify genres that they did not want their song to be rather than indicating the ones they preferred.

All the songs were written using the iPad GarageBand application and vocals were recorded through the iPad speaker. No live instrumental tracks were used, meaning the only piece of equipment required in the music creation process was the iPad itself. Songs were personalised to fit each participant as far as possible in order to increase both relevance and motivation (details in Section 3.5). The duration of the songs was between one and two minutes, long enough to target the error, but short enough to reduce the risk of burnout. The completed music files were exported from GarageBand as MP4s and a free file conversion website was then used to convert the MP4s to MP3s to make the intervention equally friendly to users of Apple and Android devices.

Finally, the music files were added to Microsoft Video Editor, where videos with the song lyrics were created. This was to ensure that participants could fully understand and not misinterpret the lyrics of the songs. The videos were simple in nature, but the background colours complemented the lyrics where possible. For example, a video including lyrics on positive and negative charge (see “Cationic” in Appendix 1) featured alternating green (positive) and red (negative) backgrounds according to the type of charge that was being mentioned. The completed videos were uploaded to YouTube, from whence participants could easily access them.

Before the participant received the music files and YouTube link, however, a document containing the rules to follow over the intervention week was sent to participants (see Appendix 2). Only once participants had confirmed that they had read it and fully understood what they were required to do were they able to access the song and begin. This was to avoid a situation in which excitement at receiving the song proved a barrier to being able to fully concentrate on the list of detailed instructions.

Over the course of the intervention week, participants were asked to interact with either the audio file or video at least once a day, as well as to perform moderate exercise prior



to the interaction and an action during it. Information on the surveys used to collect data can be found in the section on data gathering (3.6).

### 3.5 Description of Fossilised Errors and Song Personalisation Case by Case

*(For full lyrics and links to YouTube videos, see Appendix 1)*

Yulia's fossilised error was using "clothes" as a singular rather than a plural noun. Her motivation for taking part was the fact it was "good to be correct" and that she "liked to work on her language abilities". The song focused heavily on repetition of both "clothes are" and the associated usage of "they". Both Russia (her home country) and Spain (she speaks Spanish) were also referenced in the lyrics.

Sofia's fossilised error was the mispronunciation of "cation" and "anion". Her motivation for taking part was the error "could be an obstacle to being understood as a teacher". The song anthropomorphised cations and anions to explain how they came into being and featured repeated usage of "cation", "anion", "cationic" and "anionic".

Mario's fossilised error was the omission of the aspirated "h" sound. His motivation for taking part was to be able to "hang out with natives without any possible language barrier" and to avoid feeling "stupid" or "ashamed". The song was a love story between two fictitious characters, Harry and Helen, in which the majority of words used began with the aspirated "h" sound.

Piotr's fossilised error was to use the plural form when referring to something he did with another person ("We had supper with him" instead of "I had supper with him"). He said the error "only crept in when tired" but that he would "like to fix it". The song listed various fictional things "done" with famous characters in exotic places, some of which he had visited or lived in.

Alina's fossilised error was a general confusion over phrasal verbs involving "put". Her motivation for taking part was that, as an English teacher, she was "not likely to be corrected" and to "get rid of as many mistakes as possible". The song featured four different "put" phrasal verbs ("put away", "put down", "put through" and "put out") chosen by the participant. Each one featured in a separate verse that told a story using four different meanings of the phrasal verb, one per line.

Hina's fossilised error was confusing the pronunciation of "walk" and "work". Her motivation for taking part was that it was difficult to recognise that she was making the mistake by herself. The song featured a story about her "work" in Japan, where she is from, and a "walk" in Ibiza, where she enjoys going on holiday.

Bora's fossilised error was mixing up the forms of "to have an effect on sth" and "to affect sth" as well as the pronunciation of "effect" and "affect". Her motivation for taking part was to "improve her English skills". The song described how yoga (one of her biggest hobbies) affects the body and how various natural things "have an effect on you".

Jing's fossilised error was confusion of "he/she" and "his/her". Her motivation for taking part was that it "would be nice to get rid of the bad habit". Jing was asked to list four people whom she admired and these people were then put into a musical "quiz" with regular use of "he/she" and "his/her". A backing vocal track of repeated "he" or "she", depending on if the subject of the quiz question was male or female, was also added.

### 3.6 Data Gathering

Google Forms was the main application used for collecting survey data throughout the intervention due to its anytime, anywhere availability to all participants and the ease with which data could be analysed afterwards. As surveys were conducted at many stages of the process, a full list of those used is included below for ease of understanding. All questions are listed in Appendix 3, while qualitative responses may be found in full in Appendix 4.

#### List of surveys

1. *Opening Questionnaire – Completed pre-intervention.  
(Part 1=English Usage Background. Part 2=Fossilised Error Description and Feelings)*
2. *Initial Reaction – Completed upon receiving the song.*
3. *Daily Feedback – Completed once a day for seven days over the intervention week.*
4. *Final Thoughts – Completed at the end of the intervention week.*
5. *Later Reflections – Completed 3 months after the intervention week.*

Once the "Opening Questionnaire" was completed, the songs were written, and acknowledgement was obtained from participants that they had understood the requirements

to be met during the intervention week (both in terms of action to be taken and data to be submitted), the YouTube links and audio files were sent out. Participants' first task upon receiving them was to complete the "Initial Reaction" survey describing their immediate feelings about the song, the exercise they intended to perform before listening to the track and the action they would perform while listening.

Over the course of the intervention week, "Daily Feedback" forms were then filled out. On these, participants were required to state how many times they had interacted with the song and what kind of exercise and action they had chosen. They were also asked to what extent the song was stuck in their head, if they sang/spoke along with the lyrics and if they felt the song was helping them with their error. Finally, there was a space where participants had the option to leave additional remarks. These forms served both the stated purpose of providing data on the participant's engagement and developing feelings towards the method during the intervention, but also the unstated purpose of getting participants into a daily routine that meant they would be able to better self-regulate and therefore be less likely to skip a day by mistake

After the intervention week was complete, participants provided their closing thoughts on the process in the "Final Thoughts" survey, which included questions on both their feelings concerning the potential efficacy of the fossilbusting technique, as well as suggestions on how it could be improved. In order to have a better idea of the longer-term effect of fossilbusting, impressions were once again collected in the "Later Reflections" survey three months after the intervention. Again, overall impressions and suggestions for improvements were solicited and obtained. Space was provided in both surveys for unprompted additional comments.

As similar questions featured across different surveys and each question in the "Daily Feedback" survey was answered seven times per participant, this could be seen as a way of increasing the validity of any assertions repeatedly made by the same person.

### 3.7 Data Analysis

As the sample of eight participants is small, quantitative data is unable to provide any hard conclusive evidence in this study. However, as many survey questions produced this type of data, overall trends and patterns within it will be noted and discussed.

Greater importance may be assigned to qualitative data. In order to analyse it, the author first became familiar with the participant responses from Google Forms in order to be able to inductively code them, sometimes by keyword (for example “fun”, “enjoy”, “aware(ness)”) and sometimes by theme (for example “praise”, “anxiety”, “gratitude”).

This coding was used as a means to organise the presentation of the qualitative responses in the results and discussion. Remarks that may not have fit into one particular category, but provide interesting or illuminating insights into the fossilbusting process as a whole are discussed as and when they add something of value to the analysis.

## **4 Results**

In this chapter, data gathered during the intervention will be presented chronologically by survey conducted. In each case, quantitative data will be presented before responses to questions of a qualitative nature. All qualitative survey responses from participants can be found in Appendix 4.

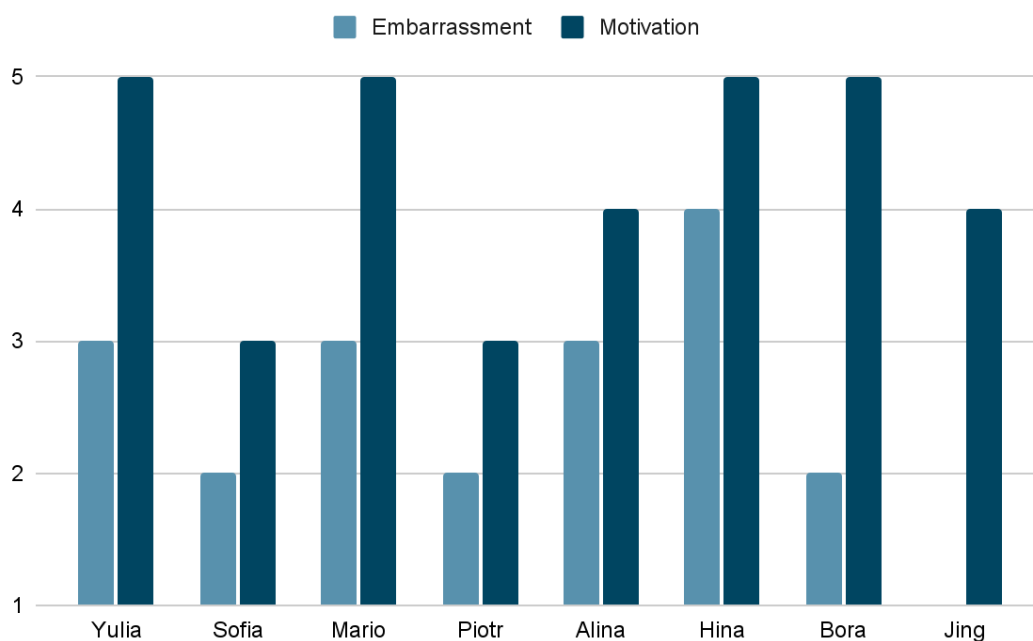
It must also be mentioned here that an oversight in the Opening Questionnaire led to misaligned scales in Figure 1. Despite this, as will be explained in the discussion of the first research question (5.1), the observation that initial participant motivation was higher than embarrassment still stands. However, the difference may have been even more pronounced than it appears in the chart.

### 4.1 Opening Questionnaire

As could be seen in Table 1, the average self-estimated level of the eight participants was C1 according to the Common European Framework (2 B2, 4 C1, 2 C2), signifying an advanced level of English. Six of the eight considered themselves able to speak at least one additional language (apart from their native language and English), although two of them stated that they could not speak it very well. Six spoke and listened to English on a daily basis, but this dropped to five for reading and four for writing. Three considered themselves “extremely confident” in their ability to communicate in English. Six participants were able to speak at least three languages with two of them able to speak five.

In terms of the fossilised error itself, seven placed blame for its emergence on their mother tongue, while three cited a lack of correction and two personal carelessness when learning. The mean score for embarrassment concerning the fossilised error was 2.5 (SD=0.93) on a Likert type scale ranging from 1 (not embarrassed at all) to 5 (very embarrassed), whilst the mean score for motivation to correct it was 4.25 (SD=0.89) on a scale from 1 (not very motivated) to 5 (extremely motivated). Individual circumstances are presented in Figure 1 below. In all cases, the motivation to correct was higher than the embarrassment created by the error.

*Figure 1. Initial Participant Embarrassment vs Motivation.*



Embarrassment Scale (1=Not embarrassed at all, 5=Very embarrassed)

Motivation Scale (1=Not very motivated, 5=Extremely motivated)

Concerning attitudes to correction, all eight participants expressed a desire to be corrected by others. Four wanted to be corrected “only once in a conversation”, two wanted to be corrected “whenever (I) make the mistake” and two wanted to be corrected “only by a teacher”. In terms of emotion, five felt “grateful” when corrected, three “annoyed”, and two “nervous”. “Ashamed”, “relieved”, “defensive” and “unconfident” feelings were also reported on an individual basis.

## 4.2 Initial Reaction

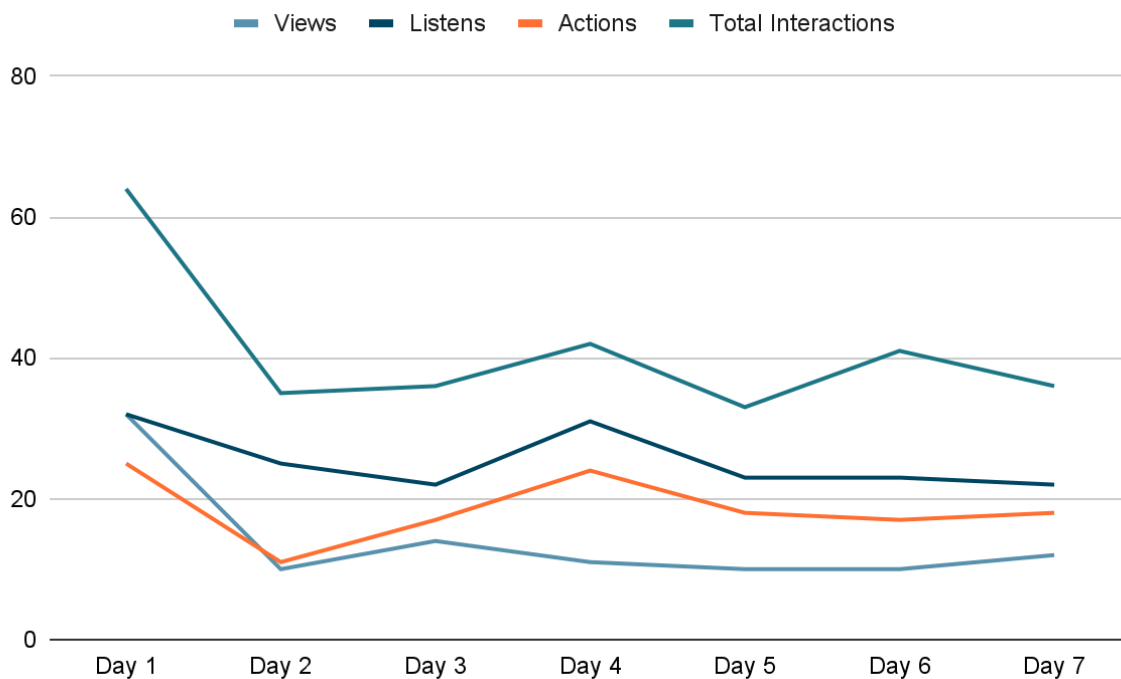
The reaction of the eight participants upon receiving their personalised song for the week was uniformly positive. Three mentioned the word “fun” in their comments, whilst two mentioned specific practical benefits (“it repeats many times the ‘h’ sound”, “easy to remember”). Two focused on the musical aspect (“it rocks”, “makes me wanna dance”), while one “enjoyed the slight irony (I hear) in the lyrics”, and another claimed the song “made (me) smile”.

The choice of moderate exercise to be conducted before listening to the track was interpreted rather loosely by participants, with initial ideas ranging from the anaerobic “High Intensity Interval Training” (HIIT) to the less active “practise the ‘h’ sound”. “Walking” was the most popular option, with half of the respondents mentioning it as a possibility.

The same variety was in evidence with the action to be performed while listening, with an “Indian style dance” and “playing a pretend guitar” the most active; the least were “saying ‘he’ and ‘she’” and “listen to it repeatedly”. “Tapping feet” was the most popular response.

### 4.3.1 Daily Feedback

Figure 2. Number of Interactions with the Song Across The Week (All Participants).

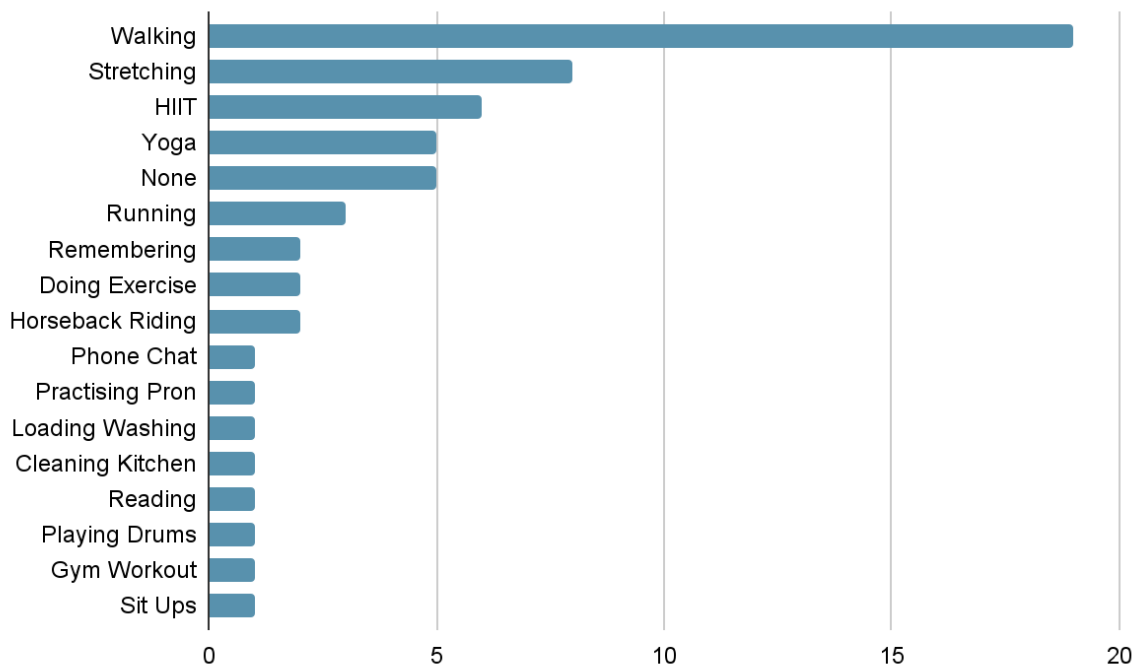


On Day 2 and Day 3, one participant did not interact at all with their song.

Participants interacted with their song on 54 days out of 56; one day was missed “due to travel” and the other because of forgetfulness. Direct interactions with the song (either watching the YouTube video or listening to the audio file) peaked on Day 1, which saw a total of 64 interactions, with a mean of 8 per participant ( $SD=3.42$ ). This figure dropped and levelled out from Day 2, as a mean of 4.95 interactions ( $SD=3.26$ ) per participant per day was recorded across the entire intervention week (see Figure 2 above).

Although watching the YouTube video and listening to the audio file was equally popular on Day 1 (32 interactions each), over the course of the whole week the audio option was chosen nearly twice as frequently (188 interactions) as the video (99). Of the 277 total interactions, just under half (130) were accompanied by the performance of an action with the music.

*Figure 3. Number of days each type of pre-intervention exercise was performed.*



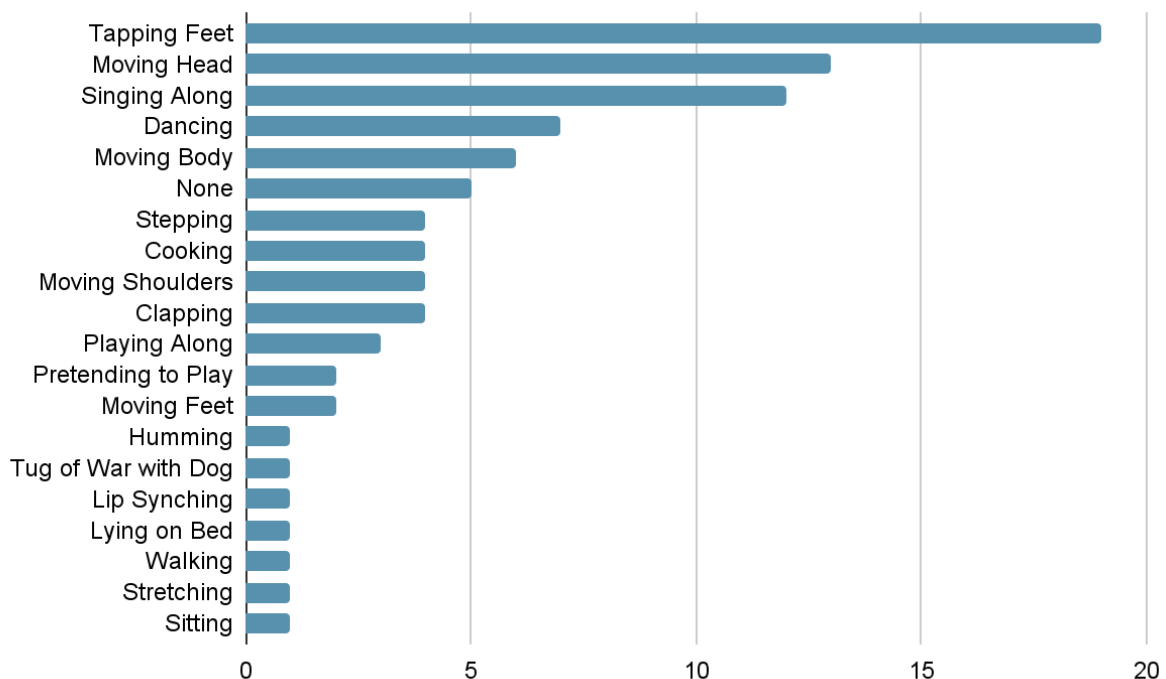
HIIT = High Intensity Interval Training      Pron = Pronunciation

A variety of pre-interaction exercises were chosen, as no participant performed exactly the same routine on every day of the intervention week. The most popular activities were walking (featured in 19 of 56 daily responses), followed by stretching (8), HIIT (6, all from

the same respondent) and yoga (5). Unusual responses included domestic chores such as loading the washing machine (1) and cleaning the kitchen (1). The length of time spent on these activities varied dramatically from as short as one minute to as long as two hours. No exercise was carried out on five days, two of which were days on which participants did not complete any interaction. For a full list of pre-interaction exercises see Figure 3 above.

Concerning the actions performed during the course of the song, foot tapping was the most popular (19), followed by movement of the head (13), singing along (12) and dancing (7). Other interesting responses included cooking (4, from the same respondent), playing along on another instrument (3, from the same respondent) and playing an imaginary instrument (2, from the same respondent). More than one action was often combined. For a full list of the actions performed during interactions, see Figure 4 below.

Figure 4. Frequency of accompanying action performed (days).



Pretending to Play = Pretending to play an instrument (e.g. air guitar)

A further question asked participants if they either spoke or sang along with the words during their interaction. The most popular reply on the daily responses was “sometimes” (33), ahead of “always” (16) and “never” (7).



On Day 1, four participants responded “yes” when asked if the song was stuck in their head, while three responded “to some extent” and one “no”. On Day 7, five responded “yes” and three “to some extent”. Interestingly, one participant changed her answer from “yes” on Day 1 to “to some extent” on Day 7.

Finally, participants were asked if they felt the song could be helping with their error. On Day 1, six responded “yes” and two “a little bit”. On Day 7, all eight responded “yes”.

#### 4.3.2 Additional Comments

The daily questionnaire included a space for additional comments to be added. This was filled in 25 times out of 56. On four of these, participants mentioned singing the song at random times during the day, while another four referred to the fact the song was stuck in their head.

Mario interacted with the lyrics in his song, both informally musing on the characters in the story (“Harry must be filthy rich to own a helicopter”) and using the lyrics to create his own comment on the process, saying he had “high high hopes” it would help him fix his error. He even tried to play along with the music. Piotr was moved to look up one character in his song, a football manager whom he mistook for a military general.

Yulia commented on difficulties posed by restricted movement when listening on public transport. Similarly, Mario expressed concern that others would hear him listening/singing, while Alina mentioned being caught out singing the tune by others.

As well as a running commentary of her lyric memorisation process, Alina twice expressed concern about meeting the daily exercise requirements, urging herself to “be more disciplined” and saying it was odd how hard it was to find time “just because it is a must”.

Hina used her comment section to solicit help as she was continuing to struggle to hear the difference between the two words she had confused. She later reported being proud of her pronunciation in a language class. Alina also provided a response regarding personal success at the end of the week, saying it was “hard to imagine” making the mistakes again.

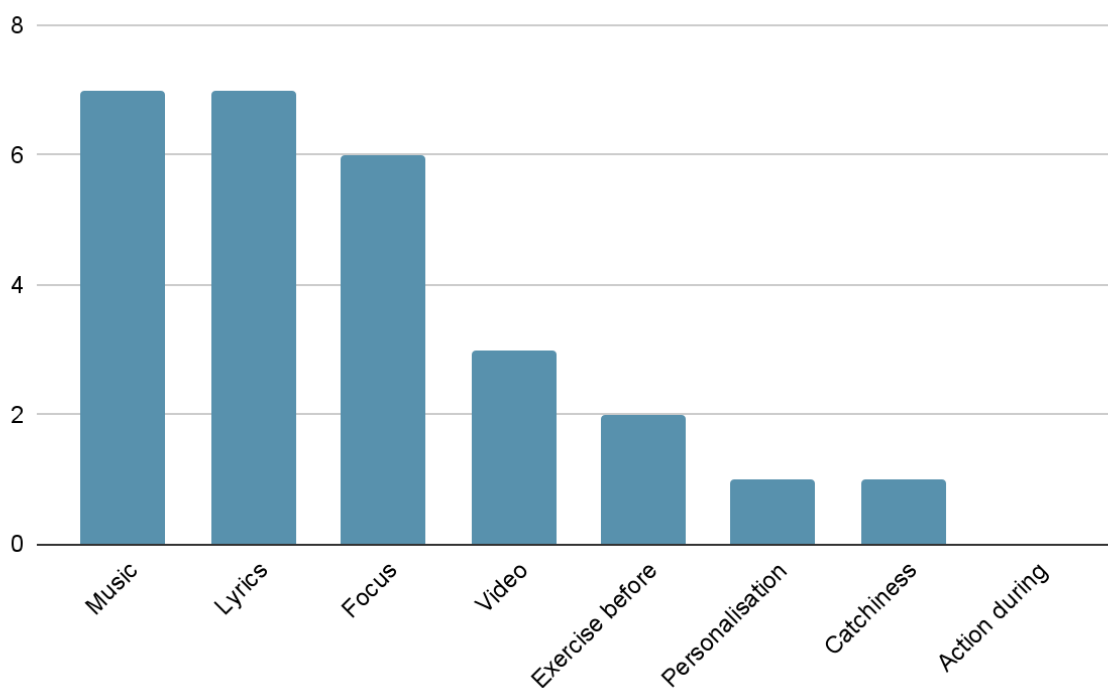
#### 4.4 Final Thoughts

All eight participants stated they were more confident of avoiding the error in future. When asked which elements of the process they found particularly beneficial, the music and the

lyrics placed joint highest (7 participants), with the focus on the error that the process provided just behind (6). The video (3) and exercise (2) pre-listen were less popular, while the action performed while watching/listening received no votes. Additional choices pertaining to “catchiness” and “personalisation” were added by participants. The relative popularity of all of these aspects is presented in Figure 5 below.

Half of the participants said they would “probably” listen to the song again with the other half saying “maybe sometimes”. Five replied “yes” when asked whether they would use the method for another error, with three responding “maybe”. Seven of the eight participants said they would recommend the method to a friend, with one responding “maybe”.

*Figure 5. Intervention aspects deemed “particularly beneficial” (number of participants).*



When asked to describe the overall experience, all participants responded in a positive manner. “Fun” was mentioned by three participants, but a further three expressed concern about completing the exercise aspect of the process sufficiently well. Specific praise for the songs also featured three times, while one participant felt “honoured” to have taken part.

Many interesting suggestions were made about improving the fossilbusting process. These included adding visuals to the videos, adding a counter to record exactly how many

views/listens per participant, creating tests to check progress, and including more relevant personalised sentences and/or grammatically correct alternatives. A feeling of being “overloaded” at the beginning was mentioned by one participant, and the reason for the need to exercise before listening was questioned.

In the space for additional comments, Piotr expressed greater confidence in using the “with” form he had been avoiding. Yulia mentioned she had focused more carefully than usual when she needed to use the word “clothes” with a plural form and indicated the song’s extra possible benefit of helping her students pronounce “clothes” correctly. Sofia also singled out the dual potential of her song in that it helped her remember both her chemistry and the pronunciation of “cation” and “anion”, saying it could be used to teach both in her classroom.

Other comments were more metacognitive in nature, as Alina noted how the process had influenced her perception of songs and how she would use them in her classroom in future. Hina commented on how good it is to be reminded of errors that she might otherwise miss and Mario went as far as considering the benefit for the author himself, as it created a situation in which the twin joys of helping students and writing music could be combined.

#### 4.5 Reflections After Three Months

Although half of the participants did not listen to the song after the intervention week (three responded they listened “a few times” and one “sometimes”), five replied “yes” when asked if they still remembered the song with the other three answering “mostly”. Concerning the lyrics, only two chose “yes” with the other six responding “mostly”.

Six participants felt that their error had been “corrected”, while two remained “not sure”. Two stated they could now automatically produce the correct form, while five heard the song in their head before choosing the correct form. The final participant said the word had been mentally “flagged”. All participants indicated they would use the method again for another error and that they would recommend it to a friend, an increase from five and seven respectively on the previous survey.

Six participants believed the fossilbusting method adopted the right level of prescriptiveness with two considering it a little overly prescriptive. Six also believed the duration of a week was correct, while two considered it a little short.

When prompted for general thoughts on the experience, four participants mentioned an increase in awareness of personal errors. Two mentioned increased awareness of fossilised errors in particular and one wrote about it in connection to the importance of music. “Fun”, “useful”, “effective” and “enjoy” all featured, with one participant comparing his song to one he used to learn German at school in terms of how it stuck in the memory. Another said the pattern from the song had “stuck”.

Concerning the success of the correction method, Sofia reported she was able to give six lectures referring to “cations” and “anions” two months after the intervention without any errors. Alina could “clearly remember at least several times recalling a line from the song and using the correct phrasal verb for the situation”. Jing said it had “kind of trained (my) brain”. Bora referred to a “break” she now takes when about to use her structure, meaning she consciously “tries to make the right sentences”. Mario used the question to lament the lack of correction he receives from both native English speakers and teachers, and people being used to “mediocre things” when he wants to strive for perfection.

When asked about the level of prescriptiveness, Yulia stated that “she needed to be attacked with the issue” to be able to concentrate on it. On the other side of the spectrum, Bora said the method “corrected without forcing” and was happy to have a “tool” she could use to fix her error. Mario praised the combination of music and repetition, while Piotr said it “helped instil the correct pattern in (my) mind”.

Concerning the length of the process, three participants felt they would have become tired if it had lasted longer than a week. Hina expressed surprise that it “took only a week” to have an effect. Yulia and Mario both suggested extending the experiment to ten days, but Mario acknowledged the difficulty of finding time for busy people. Yulia said “it should also depend on the kind of error and the type of memory in a student”.

In terms of suggested improvements, Yulia reiterated her desire to see images in the video to aid visualisation, Hina thought it best to keep things as simple as possible, and Bora thought it would be good to require participants to say sentences that use the target structure. Alina repeated her feeling of being overwhelmed at the beginning before reflecting on how hard it is for an individual to discover a fossilised error they do not know about and if a method could be created for that. Finally, Mario was once again concerned about the creator as he suggested combining mistakes into one song and/or using an existing song but changing the lyrics in order to save time.

In the final comments, Yulia believed fossilbusting songs should be used as “additional material” for both schools and individuals, while Hina pointed out she would be happy to use the method for other errors with the caveat that such songs do not actually exist. Along similar lines, Bora stated that having the skills to create such songs was not common among teachers and that others should potentially be trained to spread the word. Alina had already proceeded to do this to some extent by sharing songs created for the project with her own students in real life.

## 5 Discussion

The discussion will first use the results from Chapter 4 to investigate what has been discovered in relation to the research questions stated in the first chapter and how this contributes to existing knowledge in the subject area, before moving on to additional observations on personalisation and repurposing songs. Finally, the limitations and strengths of the study, as well as areas for future action and research will be identified.

### 5.1 RQ1: Did the “fossilbusting” design reduce negative feelings such as embarrassment and anxiety in participants and empower them to correct their fossilised errors?

In answering this question, it must first be acknowledged that an error of oversight was committed in the Opening Questionnaire, as the two Likert type scales that measured embarrassment and motivation were not properly aligned. The embarrassment scale ran from 1 (not embarrassed at all) to 5 (very embarrassed), whereas the motivation scale ran from 1 (not very motivated) to 5 (extremely motivated), making the direct comparison in Figure 1 problematic. However, this miscalibration only serves to strengthen the observation that the initial embarrassment of the participants was relatively low (a mean of 2.5) when compared to the motivation to correct, which was relatively high (a mean of 4.25). Had the scales been equal, the difference between the two averages could have been expected to either increase or remain the same. Considered as a whole, this means that conditions were very suitable for foreign language enjoyment to play more of a role than foreign language anxiety, a set of circumstances deemed conducive to success by Zhang and colleagues (Zhang et al, 2020). It would therefore seem the participants mostly volunteered to take part out of a desire to improve their language rather than to avoid embarrassment.

However, the words “defensive”, “unconfident”, “annoyed” and “nervous” all featured in initial responses to how participants felt when corrected, with Mario stating he did not want to feel “stupid” or “ashamed” in the company of native speakers. In addition, anxiety of another kind was actually created by the fossilbusting process. Alina felt “overloaded” by the amount of instructions given before beginning the intervention week and then worried about fitting in her daily views/listens even though she liked the song, “because it was a must”. This underlines how important self-direction was to her, as it was the obligation not the task itself that made it challenging for her to complete. Another kind of anxiety also presented itself in a desire not to be overheard (Mario) and not being able to move freely on public transport (Yulia). Sofia was worried if her actions and listening were sufficient and also when her exercise conducted before listening was short.

Nevertheless, Alina overcame her initial anxiety about the requirements, and “fun” was the descriptive adjective that appeared most frequently across all surveys (9 times), indicating that foreign language enjoyment did indeed play a significant role. Different forms of “enjoy” combined were also popular, featuring six times. Further reinforcement is provided by the fact that praise was regularly given to both the songs and the process. Participants expressed thanks both for the personalised nature of the songs written for them and being selected to take part. Alina felt “honoured” to be involved and Sofia mentioned she felt motivated because she liked the idea behind the intervention. Had the length of the intervention been extended, however, three separate participants mentioned they would have become tired of the routine, so one week would seem to be the ideal duration for the fossilbusting process from a motivational point of view (supported by six out of eight participants in the final survey).

Most importantly, all eight participants stated that they felt more confident about avoiding their error in future directly after the intervention, indicating participation in the fossilbusting process itself may have led directly to a decrease in individual levels of anxiety concerning it. Additionally, as interaction with the researcher was minimal once the songs had been written and instructions sent out, participants had to take personal responsibility for completing the daily requirements in the intervention week. They did so quite impressively, with only two of a total of 56 days missed, despite two participants saying sickness had made it hard for them to do so. The songs may thus have empowered participants to correct their errors, but it was the participants’ personal actions that resulted in the success they reported. This supports both the assertion that self-regulation plays an important role in deriving the

maximum benefit from CALL and MALL (García Botero et al, 2019) and suggests that it may also be key in combination with self-direction in destabilising fossilised errors.

5.2 RQ2: Which design components were the most/least helpful in the opinion of participants?

The starting point for answering this question must necessarily be the response to the question from the fourth survey, completed directly after the intervention, asking which elements of the process were the most beneficial. As might have been expected, “the music” and “the lyrics” were the frontrunners, chosen by seven of the eight participants. Two alternative responses added by participants reinforced this message. Yulia noted that the “catchiness” of the song made her sing a lot more during the day than she was expecting and Hina wrote that she was motivated by the “personalised lyrics and beats”.

The key role that participants attributed to music in the fossilbusting process supports the many works cited in Chapter 2 that argue for the importance of music in SLA (Lake, 2002; Engh 2013; Werner, 2018), and suggests that findings made in those cases may also be applicable in the case of destabilising fossilised errors. In most cases, the music quickly achieved the targeted song-stuck-in-my-head status (Murphey, 1990), which then manifested itself as spontaneous singing, meaning more practice (“involuntary rehearsal”) was conducted by the participants than merely the direct interactions they had with the recordings. The music provided the vehicle for the lyrics, which contained good examples of L2 usage, to become “ingrained”, a state that Piotr made reference to in his comments when talking about the particular structure he was practising. The frequent use of rhyme and stories within the lyrics may also have created a situation in which the songs’ mnemonic effect was likely to be more potent.

With six selections from eight, the “focus on the error” was the next most popular answer to the question. As conscious fossilised errors may easily be seen as an annoyance with no tried-and-tested method to eliminate them, advanced speakers often choose to ignore them, deeming their time better spent on something else while avoiding any damage to either their pride or confidence. This intervention gave participants the opportunity to focus on their error for a short period of time with no fear of judgement by others. In the survey conducted three months after the experiment, the most common theme from the general responses was that of heightened awareness. As Mario stated, it can be hard to receive good correction once a certain degree of “mediocrity” is achieved in English, even from teachers.

The video was deemed beneficial by only three of the eight participants, with Yulia critical of the lack of images included. The fact that the audio option proved nearly twice as popular as the video over the week could be testament to this. However, it could also show that the video had fulfilled its main role once participants had fully understood the lyrics. Once this was achieved, the audio option only required half the attention (aural but not visual) of the video and could naturally be expected to become the preferred option. For visual learners in particular, however, engaging visuals could enhance the experience, and it could also help in encouraging more members of the general public to trial the method for their own errors if they came across a fossilbusting song on YouTube or other forms of social media.

Exercise pre-listen was deemed helpful by just two participants. Yulia and Mario provided the probable answer as to why, as they both questioned why it was necessary in their responses. This was a flaw in the design, as participants were asked to do the exercise but not explicitly given the reason for it. Had they been given information about how it would help them think more clearly and take on information, they would probably have been more willing to do it, and unsatisfactory examples of completion such as “talked to a friend on the phone” or “tried to remember the words of the song” could have been avoided. In addition, not explicitly stating the reason for exercise could have meant it was less likely to be chosen on the survey question, as participants would not have been consciously checking for the potential benefit of clarity of thought that the exercise was supposed to provide. Nevertheless, the vast majority of exercise activities were satisfactory and it was pleasing to see how it was often combined with everyday activities (“walking the dog”, “playing the drums”, “cleaning the kitchen”). Exercise may well have had a subconscious positive effect on more than the two who said they found it “particularly beneficial”, but due to the way in which this aspect was implemented, it is impossible to prove.

Finally, the action performed during the song did not receive any votes, which in retrospect can also be attributed to a design flaw. With the pilot participant clearly being distracted by an action she was asked to perform, the author took the decision to allow the participants to choose which action they did, encouraging it to be kept as simple as possible. However, the actions that were both suggested on the instruction sheet and chosen did not have any real mnemonic value. Although leaving the choice up to the participant allowed the level of distraction to be minimised, this feature should not have been included in the way it was. If it is to be kept on in future, much more thought will have to go into the actions, either with the aid of a choreographer or via a discussion between the choreographer and the



participant, which would allow it to retain its participatory design element. The relative success of the musical side of fossilbusting compared to the action could be indicative of the fact the author is a musician, but not a dancer.

In fact, it seems the participants may have reached the conclusion that there was something amiss with this final aspect on their own, as actions were performed during less than 50% of the interactions. This is likely to have helped reduce any negative impact that this instruction may have generated.

### 5.3 RQ3: Did any benefits gained remain three months after completion of the intervention?

Upon completion of the intervention, Yulia was the only participant to express hesitation in recommending the fossilbusting method to a friend, writing that she was worried “that after one intense week it may seem like I’m cured but a month later I would be right back with my old habits”. It was for precisely this reason that the fifth and final survey was carried out.

All eight participants had said they felt more confident about avoiding their error in future in the fourth survey, but only five had replied with a definite yes when asked if they would use the fossilbusting method for another error. Three months later, all participants said they would both use the method again and recommend it to a friend, with six feeling the error had been “corrected” (two were still “not sure”). This implies that the fossilbusting effect was not of a highly short-term nature, but continued to be present a quarter of a year later. This supports Putnam’s (2015) assertion that the effect of mnemonics can be extended when used in collaboration with other elements (Putnam, 2015).

Perhaps the clearest example of longer-term success was in the case of Sofia, who was able to put her pronunciation to the test in a specific real life situation. She was able to deliver six lectures that required usage of the words she had mispronounced two months after the intervention. Sofia stated she could now automatically say the terms correctly and that she had been able to deliver her lectures without stumbling over the words once. The fact that she needed the terms for a specific purpose may not only have provided her with more focus, but also meant that she had a clear opportunity to put her newly acquired ability into active and meaningful usage, which will probably have reinforced the correct pronunciation.

Hina also stated that correct pronunciation had become automatic for her in her final survey, but five others still needed to hear the song in their head before choosing the correct

form, while Yulia described her error as having been “flagged”. The act of using the song as a mnemonic reference suggests destabilisation has been achieved, and could be considered a kind of intermediary stage in the correction process, akin to those who mentally sing “the alphabet song” when organising words alphabetically. It also agrees with Mora (2000), who found that lexical patterns stored in long-term musical memory can be easily retrieved (Mora, 2000). Only time will tell whether in each individual case the error remains in this phase, moves into the “automatic” correction stage, or is once again forgotten about. Pleasingly, nobody chose the “I try to avoid or reformulate the sentence to avoid the error” option on this question, meaning that everybody had the confidence to confront their personal issue rather than choosing to put it to one side.

Bora described being in this intermediary stage as having a new “tool” that she could use to find the correct form when speaking. Alina expressed the same idea more practically by saying she could “clearly remember at least several times recalling a line from the song and using the correct phrasal verb for the situation”. Naturally, however, for this “tool” to remain “available” to the participant, the song must be sufficiently memorable. The fact that participants sang or spoke along with the lyrics on 49 out of the 56 intervention days, as well as the responses regarding whether the song (3 yes, 5 mostly) and lyrics (2 yes, 6 mostly) were still in the participants’ heads three months later show that this seems to have a good chance of being the case with the songs recorded in this particular intervention.

#### 5.4 Additional Observations - Personalisation and Repurposing Existing Songs

In her response to what she found most beneficial in the intervention, Hina chose to add her own answer of personalisation, which in retrospect perhaps should have been included in the survey from the outset. The issue of personalisation was a question that the author struggled with in the preliminary stages of fossilbusting design. Whilst fossilised errors are often collective in nature in that they are shared by people with the same native language or those speaking languages from the same language family, they are rarely universal. For example, “gloves” is generally mispronounced in a different manner by Polish native speakers than it is by Japanese or Korean native speakers.

Having abandoned the quest for a “universal” solution to each error, the author sought to provide highly personalised solutions over the course of the study. While this seems to have been welcomed by the participants, it does somewhat limit the potential benefit of the songs

on a wider scale, an aim that will be discussed below. In this context, Jing's song would be an example of "over-personalisation", in that the lyrics consist of a "Who is it?" quiz with the answers being four celebrities whom she personally likes. While misuse of/confusion between "he" and "she" is very common, knowledge of all four celebrities in the song is not. As a result, this song would not be as effective on anywhere near as wide a scale as it could be.

Another interesting complication arose when uploading Alina's song to YouTube. The melody originally employed was a commonly used one, which led to it being flagged for copyright issues. It was therefore necessary for the author to create an entirely different melody in order to be able to put it on the platform. This means that two of Werner's proposals (substituting individual words into existing songs and fully rewriting the lyrics based on existing melodies) (Werner, 2018), if done without permission from the composer, may be suitable for isolated usage in a classroom, but may not be acceptable for mass proliferation on social media platforms.

### 5.5 Limitations and Significance

Apart from the two design flaws of not explicitly stating the purpose of the pre-interaction exercise to participants and the need for greater thought over accompanying actions, the two clearest limitations of the study were the small size of the sample and its relatively short duration. The small sample size can be attributed to both the nature of highly personalised song composition and the difficulty of finding advanced English speakers willing to volunteer a week of their time to both address their fossilised errors and report on their experience. The fact that the length of the effect could only be measured as long as three months after the intervention was dictated by the duration of the course the author was studying.

Although these factors mean that this study is unable to provide any conclusive evidence of the efficacy of fossilbusting, the overwhelmingly positive reaction to both the songs and the intervention process itself, the individual successes achieved and its close association with fun, enjoyment, improvement in confidence and heightened awareness supports further investigation of the potential of not only fossilbusting, but more generally the usage of music in dealing with the particularly sensitive area of fossilised errors. On a broader scale, the additional use of the song in teaching chemistry discovered by Sofia also supports the incorporation of music into other educational fields. Indeed, the author now has a firm grasp of what cations and anions are thanks to the necessity of creating a song on the topic.

### 5.6 Future Action and Research

A further iteration of the fossilbusting process that addresses the two design flaws stated above would serve to both support findings from this study and to gather more accurate information on the potential benefit of both exercise conducted pre-interaction and mnemonic actions performed while interacting with the music. A larger sample size with multiple participants making use of the same, not over-personalised songs would also better indicate fossilbusting's potential for being used on a larger scale to help more people, for example as supplementary material in schools, as Yulia suggested. For it to be adopted proactively by members of the general public via social media, an online marketing campaign may be necessary, perhaps with governmental or non-governmental support.

Excellent suggestions to improve the fossilbusting process were made by the study's participants, which could also be incorporated into the method in the future. As stated previously, Yulia's suggestion of adding more visual content to the videos would both help to engage visual learners and attract more attention from potential future users on social media. If a teacher wanted to check the video/audio was being used by their students, Mario's idea of adding a counter could prove useful, while Piotr and Hina's idea of adding more varied sentences featuring the target structure seems reasonable, although doing so is somewhat challenging in the context of a song that is under two minutes.

Finally, Sofia wondered if there could be some kind of test "to check the progress of the correction process". This is a very good idea, especially in the area of pronunciation, which was the category of fossilised error with which she was dealing. A voice to text app could be one way of achieving this, but they cannot be considered totally reliable, especially when dealing with strong accents. One solution may be to ask the participant to send a voice recording for the researcher to check each day, with the researcher then providing extra assistance as and when required. However, it must also be acknowledged that the introduction of tests into the process could limit enjoyment and increase anxiety among participants. It would therefore have to be implemented in a sensitive and perhaps optional manner.

### 5.7 Conclusion

In conclusion, although issues with the precise implementation of the fossilbusting method were present in this study, it should be remembered that it is the role of action research to

learn from what has been done, not only to avoid the same pitfalls in future but also to fine-tune both the tools used to measure the experience and the experience itself.

In this particular intervention, the participants were able to both confront persistent errors in their English and largely enjoy the journey. While the fossilised errors may not have all been eradicated entirely, they do appear to have at least become destabilised, with participants now more aware of their error and in possession of a mnemonic tool that they can use as a mental guide in future.

By participating and sharing their observations, the participants have also added to the body of academic work that supports the use of music in SLA and in education in general, while demonstrating that it may also apply to the area of fossilised errors. Furthermore, it suggests that foreign language enjoyment plays an important role in language learning, even if contact with the “teacher” occurs remotely and asynchronously.

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## Author's Declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.



Ian Jenkins  
3rd June 2022



Prof. Emanuele Bardone  
3rd June 2022

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## Appendices

### Appendix 1 - Song Lyrics and Links to YouTube Videos

#### **Yulia - “Clothes are everywhere”**

YouTube link: <https://www.youtube.com/watch?v=WryVfswQsVE>

*Clothes are everywhere (x2)*

*Clothes are on your body*

*Clothes are on the floor*

*Clothes are in the wardrobe*

*Clothes are on your door*

*Clothes are everywhere (x2)*

*Warm clothes. They're good for a Russian winter.*

*Normal clothes. They're good when the weather's fair.*

*Light clothes. They're good for a Spanish summer.*

*The Emperor's clothes. Well they're not there.*

*Clothes are everywhere (x2)*

#### **Sofia - “Cationic”**

YouTube link: <https://www.youtube.com/watch?v=R5VqYOIpvZY>

*I am a cation*

*I lost an electron to another atom*

*Now that atom's an anion*

*And I am a cation*

*But I'm positive*

*And it's negative*

*Be cationic!*

*Don't be anionic! (x2)*

*I am a cation*

*I lost an electron to another atom*

*Now that atom's an anion*

*And I am a cation*

*Be positive!*

*Don't be negative!*

*Be cationic!*

*Don't be cationic! (x2)*

### **Mario - "Harry and Helen"**

YouTube link: [https://www.youtube.com/watch?v=9XeQbo5S\\_mY](https://www.youtube.com/watch?v=9XeQbo5S_mY)

*This is a story about Harry and Helen, a helicopter and high, high hopes*

*Harry Harry Harry has high high hopes*

*Helen has high hopes too*

*Harry hopes Helen has feelings for him*

*Helen hopes her feelings are true*

*Harry Harry Harry has a helicopter*

*Helen wants to fly*

*Helen Helen Helen has a happy nature*

*She's happy when she's high*

*So Harry takes Helen on his helicopter*

*He flies as high as heaven*

*But Helen has a heavy heart as she tells him*

*She has to be home by half seven*

*But Harry Harry Harry still has high high hopes*

*And Helen has high hopes too*

*Harry still hopes Helen has feelings for him*

*Now Helen knows her feelings are true*

*And they lived happily ever after*

### **Piotr - "What have you done?"**

YouTube link: <https://www.youtube.com/watch?v=f9j-NQMwJEE>

*What have you done? (x3)*

*And who have you done it with?*

*I've ridden horses with Genghis Khan in Kazakhstan*

*I've had coffee with Ho Chi Minh in Vietnam*

*I've sipped sake with Miyazaki in Japan*

*Not bad (x3)*

*Anything else?*

*I've thrown spears with Alexander in Macedonia*

*I've danced the tango with Evita in Patagonia*

*I've talked tactics with Guardiola in Catalonia*

*Not bad (x3)*

*Anything else?*

### **Alina - "4 Puts"**

YouTube link: <https://www.youtube.com/watch?v=UndmIzEXfg>

*I had put away some money for an "all you can eat"*

*Where I put away five pizzas and a lot of sweets*

*I ought to put away my smartphone I've been on it all day*

*If I'm on it any more they'll have to put me away*

*We need to put down some money for a brand new house*

*So my dad won't put us down when we're out and about*

*We need to put down how much we'll have to pay every year*

*So please put down your beer, dear, and come over here*

*It's amazing all the things our kids have put us through*

*But we'll still put them through Uni, cos' that's what we do*

*They should put through a new bill to make it free*

*So please put me through directly to my MP*

*I should put out the candles, 'cos it's getting late*

*But first I'll lay the breakfast table, put out the plates*

*If it doesn't put you out, you could help me, dear  
'Cos I've put out my shoulder and my head feels queer*

**Hina - "I walk to work"**

YouTube link: <https://www.youtube.com/watch?v=jW0m3vQOI8A>

*Walk (x4)*

*Work (x4)*

*I work all day*

*I work all night*

*I work too hard*

*I work for a flight (x2)*

*To Ibiza*

*(Where)*

*I walk to the sea*

*I walk to the pub*

*I walk to the beach*

*I walk to the club (x2)*

*(So now)*

*I walk to work (x4)*

**Bora - "This song will have an effect on you"**

YouTube link: <https://www.youtube.com/watch?v=P3Ft9iFFqx0>

*This song will have an effect on you*

*This song will affect you (x4)*

*Affect, affect, effect, effect (x2)*

*Sunshine has an effect on you*

*Rain has an effect on you*

*Love has an effect on you*

*Pain has an effect on you*

*Yoga affects your body*

*Yoga affects your mind (x2)*

*This song will have an effect on you*

*This song will affect you (x2)*

### **Jing - "He and She"**

YouTube link: <https://www.youtube.com/watch?v=G5Y-j9KhVmA>

*She started off as a bank typist*

*Before becoming a journalist*

*Her books are romantic of course*

*She has a big dog and a horse*

*Who is she?*

*She's Jojo Moyes*

*He likes to swim far out at sea*

*He raises money for charity*

*His biggest hit was "Little Britain"*

*But it's not the only thing he's written*

*Who is he?*

*He's David Walliams*

*She studied English at Newnham College*

*She has a lot of acting knowledge*

*She's a big advocate of human rights*

*To save our planet she will fight*

*Who is she?*

*She's Emma Thompson*

*He comes from Basel and he's Swiss*

*He often battles Djokovic*

*His favourite tournament's Wimbledon*

*He has two daughters and two sons*

*Who is he?*

*He's Roger Federer*

Appendix 2 - Instruction Sheet Issued to Participants Prior to the Intervention Week

Dear Participants,

Thank you very much for completing the initial survey and agreeing to take part in my fossilised error experiment.

Please watch the video/listen to the track as many times as you like before completing the Initial Reaction form here (hyperlink).

Each day, please make a note of how many times you watched the video, listened to the audio file and how many times you performed actions with the song for the Daily Feedback form found here (hyperlink). You can fill this out at the end of each day for the first seven days.

If you do actions while watching the video/listening to the audio file, that would count as one in both rows. You can keep track with a small card like this:

Watch IIIIIIII

Listen IIII

Action IIIIII

Please listen to or watch the track at least once a day for the first week. I would also like to ask you to do a minimum of 5 minutes of some kind of moderate exercise immediately before one of your daily listens. This could be anything from walking, dancing, stretching, yoga, jogging, skipping to using a hula hoop.

I have not specified actions for you to do with the track as I feel they should come from you, so they will feel natural rather than forced. Try to keep things simple so the actions are complementary not a distraction (they can be as simple as walking in time with the music or tapping your feet). You are welcome to try out different actions as the week progresses or stick to the same ones you started with.

Thank you again for agreeing to take part and please get in touch if you have any questions.

Ian



Appendix 3 - All Questions from the Five Surveys

**Survey 1 - Opening Questionnaire**

*Part 1*

Name:

Gender:

Age: ("Under 20", "20-29", "30-39", "40-49", "50-59", "60-69", "Over 70")

What is your mother tongue?

Can you speak another language apart from English? ("Yes", "Yes, but not very well", "No")

If yes, what is/are that/those languages?

How long have you been using English?

What do you consider your level to be? ("A1", "A2", "B1", "B2", "C1", "C2")

How often do you speak English? 1-5 (1=Rarely, 5=Every Day)

How often do you listen to English? 1-5 (1=Rarely, 5=Every Day)

How often do you read English? 1-5 (1=Rarely, 5=Every Day)

How often do you write English? 1-5 (1=Rarely 5=Every Day)

*Part 2*

How confident are you in your ability to communicate in English? 1-5 (1=Not very confident, 5=Extremely Confident)

Please specify the fossilised error that you would like to fix:

Where do you think this error stems from? (You may tick more than one)

("My mother tongue", "Inadequate teaching", "Initial difficulty in understanding the concept", "Lack of correction", "Personal carelessness when learning", "Other")

How embarrassed do you feel about your error? 1-5 (1=Not very embarrassed, 5=Extremely embarrassed")

How do you feel about this error being corrected? ("I would like people to correct me whenever I make this mistake", "I would like people to correct me, but only once in a conversation", "I would only like a teacher to correct me", "I don't want to be corrected")

How do you feel when corrected? ("Angry", "Ashamed", "Nervous", "Annoyed", "Grateful", "Relieved", "Other")

How motivated are you to fix your fossilised error? 1-5 (1=Not very motivated, 5=Extremely motivated)

Please explain why you feel this way:

## **Survey 2 - Initial Reaction**

Name:

What are your initial feelings toward the song?

What exercise do you think you will do before watching/listening and for how long? (You may change it at any time)

What kind of action do you think you might do with the song? (You may change it at any time)

On which date are you beginning the experiment?

## **Survey 3 - Daily Feedback**

Name:

Which day is this for? (“Day 1”, “Day 2”, “Day 3”, “Day 4”, “Day 5”, “Day 6”, “Day 7”)

What kind of exercise did you do pre-listen and for how long?

How many times did you watch the video?

How many times did you listen to the song?

How many times did you do actions with the song?

What kind of actions did you do?

Did you speak/sing along with the words? (“Always”, “Sometimes”, “Never”)

Would you say the song is stuck in your head? (“Yes”, “To some extent”, “No”)

Do you feel like the song could be helping with your error? (“Yes”, “A little bit”, “Perhaps/Not Sure”, “Probably not”, “Definitely not”)

Any other comments:

## **Survey 4 - Final Thoughts**

Name:

How would you describe the overall experience?

Do you feel more confident about avoiding the error in future? (“Yes”, “A little”, “Not sure”, “Not really”, “No”)

Which aspects of the experiment did you find particularly beneficial? (“The music”, “The lyrics”, “The video”, “The exercise before”, “The action during”, “The focus on the error”, “Other”)

Any suggestions about improving the correction process?

Do you think you will listen to the song again now the main part of the experiment is done? (“Probably”, “Maybe sometimes”, “Probably not”)

Would you use this method for another error? (“Yes”, “Maybe”, “No”)

Would you recommend this method to a friend? (“Yes”, “Maybe”, “No”)

Any final thoughts you would like to add?

### **Survey 5 - Later Reflections**

Name:

What are your general thoughts on the experiment 3 months after its completion?

How much did you listen to the song after the experiment? (“Regularly”, “Sometimes”, “A few times”, “Not at all”)

Can you still remember the song? (“Yes”, “Mostly”, “A little”, “Not at all”)

How about the lyrics? (“Yes”, “Mostly”, “A little”, “Not at all”)

Do you feel that the error has been corrected? (“Yes”, “Not sure”, “No”)

Please explain why you feel this way:

Which of these processes happens in your head when you need to use a sentence involving the error? (“I use the correct form automatically”, “I hear the song in my head then choose the correct form”, “I try to avoid or reformulate the sentence to avoid the error”, “Other”)

How do you feel about how prescriptive the method was? 3 indicates the balance was right. 1-5 (1=Not prescriptive enough, 5=Overly prescriptive)

Please explain why you feel this way:

How do you feel about the one week duration of the experiment? 3 indicates the length was right. (1=Too short, 5=Too long)

Please explain why you feel this way:

Any other suggestions to improve the method?

Would you use this method for another error? (“Yes”, “Maybe”, “No”)

Would you recommend this method to a friend? (“Yes”, “Maybe”, “No”)

Please share any other relevant comments you may have, both positive and negative:

### *Appendix 4: Qualitative Survey Responses*

#### **Explaining motivation to correct fossilised error**

Yulia: “I generally like to work on my language abilities and while it is funny to pick pretend fights with my husband over it, it's good to be correct.”

Sofia: “I feel neutral for the moment, I haven't been thinking about an option to fix errors long enough! Probably until now I was fine with having some errors even though they could be

embarrassing in some circumstances. Using three languages simultaneously, I am aware none of them is perfect. So it won't harm to have some unique errors in my mixture. Understanding each other during a conversation would be more important. I chose to fix anions because this error can be an obstacle for understanding me as a teacher.”

Mario: “Because I want to be 100% myself even when I speak English, and I want to hang out with natives without any possible language barrier. To say the truth, living in an environment when others speak their native tongue and I don't makes me always feel a bit more stupid and ashamed.”

Piotr: “This is an error which only creeps in when I'm tired. I would like to fix it, but it does not affect my ability to communicate in English.”

Alina: “As a teacher, I lack improvement of my own language and I'm not very likely to be corrected. It's essential that I get rid of as many mistakes as I can.”

Hina: “It is difficult to recognize mistakes by myself. I don't think my way of speaking is correct but I just push myself to speak with a hunch.”

Bora: “I want to improve my English skills.”

Jing: “It would be nice to get rid of the bad habit.”

### **Initial feelings towards the song**

Yulia: “It rocks!”

Sofia: “Very positive!”

Mario: “It is good as it repeats many time the H sound.”

Piotr: “It's fun to listen to and easy to remember.”

Alina: “Real fun! I enjoyed the slight irony I hear in the lyrics. And the rhythm makes me wanna dance.”

Hina: “Fun! It made me smile.”

Bora: “Little different to what I expected but I like it.”

Jing: “Beautiful.”

### **Additional comments during the intervention week**

Yulia - Day 1: "I am not sure what the strategy behind it is but I thought the video could use some visuals in addition to lyrics".

Yulia - Day 3: "I was a bit restricted in my movement today as I was watching videos on a train on the way home."

Yulia - Day 4: "Started mixing up words and singing that warm clothes are good for a Russian summer and light clothes are good for a Spanish winter. Which I guess is not totally inaccurate anyway."

Yulia - Day 5: "I would like to point out that I am now singing this song to myself at random times during the day."

Sofia - Day 4: "I also sang the song during the day without listening to the track."

Mario - Day 2: "It's slowly becoming my Ohrwurm. Good job ;) Next time you create such a hit you should include an "eeee Macarena" at the end to add a stronger flavor of annoyance :D"

Mario - Day 2 (Action response): "Tap my feet, look around in order to make sure that nobody sees or hears what I'm listening to, and quietly sing along (mostly to cover your out-of-tune voice :) - I know, the pot calling the kettle black)"

Mario - Day 3: "Sorry, it just slipped my mind for a day."

Mario - Day 4: "I think that Helen may be smoking pot because "she is happy when she's high". Yep, I have a brain of a 15-year old kid ;)"

Mario - Day 4 (Action response): "Sing along loudly (I'm home alone), clapping, tapping my feet. Later I'll try to see if I can play it by ear on the piano and maybe on my guitar, too (even if I am a terrible guitar player - don't tell me the chords, it's a challenge)"

Mario - Day 5: "Harry must be filthy rich to own a helicopter!"

Mario - Day 6: "Luckily, tomorrow it's the last day I have to listen to it (I suppose)! Even though I fear I won't ever be able to get this song out of my head, if I'm happy and have high hopes that it will help me avoid this fossilised error. Good job."

Mario - Day 7: "I can finally live happily ever after without Harry, Helen, and their helicopter."

Piotr - Day 2: "I missed a day due to travel."

Piotr - Day 3: "I've memorised the lyrics now (and looked up who Guardiola was - I had thought he was a military leader on par with Genghis Khan). Tried harmonising."

Alina - Day 1: "I love the lyrics! I'm still laughing =D"

Alina - Day 2: "I'm trying to be more disciplined to fulfil all the prescriptions thoroughly! Tomorrow I'll do my best =)"

Alina - Day 3: "Starting to sing it in my head spontaneously."

Alina - Day 4: "It seems funny how hard it might be to find several minutes in a day for such a nice song - just because it is a must. I enjoy the song thing but I tend to delay the start."

Alina - Day 5: "Since the song gets deep in my head, I have to listen to it again and again when it appears in my mind. People start catching me singing it out."

Alina - Day 6: "Now I think I can sing it as karaoke. I've started singing out full verses of it randomly."

Alina - Day 7: "I feel I'm done with these errors, hard to imagine me making them again. I think I can now sing the song from the beginning to the end with no mistakes =)"

Hina - Day 1: "After I listened to the song, I tried to make some own sentences and said it with normal speed, but I still pronounced wrongly and I was still confused."

Hina - Day 2: "Advice was very helpful."

Hina - Day 3: "I start realizing when I make errors more often."

Hina - Day 6: "Yesterday I read a writing I pronounced "work" correctly much smoother than before."

Bora - Day 1: "Thank you."

**How would you describe the overall experience? (immediately after the intervention)**

Yulia: "It was fun! Honestly the most challenging part was making sure I do some physical activity, one of the days I was really not feeling it as I was a bit sick."

Sofia: "I liked the experiment idea a lot, which was motivating me to participate. It required doing some action every day, which was a new ritual for me. I tried to follow, hope my actions and listening frequency were sufficient. On some days I was motivated to listen to the song a lot, on some other days I was busy with other things and did the minimum. I felt worried when my pre-exercises were short."

Mario: "I am happy that I took part in it, I knew you were a good teacher but this "experiment" is really top-notch. Please do continue with those projects and feel free to involve me anytime!"

Piotr: "It was a fun experiment - I enjoyed the song and felt that it helped ingrain the correct grammatical structure in my mind."

Alina: "I was excited from the beginning and feel really honoured to partake. There was a problem for me to start doing the required exercise every day, so I started taking it easy. I loved the song and guess I will not forget it now."

Hina: "Fun."

Bora: "It was fun and helpful."

Jing: "It's been great. I've enjoyed listening to the song."

### **Suggestions about improving the correction process (immediately after the intervention)**

Yulia: "I guess the video can contain a bit more than lyrics: some additional visuals."

Sofia: "Could there be some test to check the progress of the correction process?"

Mario: "Not sure about the whole exercise thing before listening to the song, maybe I did not understand it correctly... In my opinion, the youtube video with lyrics it's the best option - you should just add a sort of counter to know how many times someone watched the video: basically, if students don't do their homework, they won't correct their mistake, and you wasted time creating songs and surveys and so on."

Piotr: "I'm not sure. Perhaps the lyrics could incorporate other grammatically correct alternatives for articulating the same message."

Alina: “It's just my perception, but I felt a bit overloaded with the instruction in the beginning. Later on I found it amusing, anyway!”

Hina: “I found that I think the reminder is really important. The lyrics would be better if it contained more sentences that I usually use e.g I don't want to go to work, but I have to work for a living. I want to work from home. Also, the suggestion that (the author) gave me: “I walk to a coffee shop” “ I like her works” They might as well be included in the lyrics.”

### **Any final thoughts? (immediately after the intervention)**

Yulia: “I think I would be more equipped to answer the previous two questions after a week or two. I am worried that after one intense week it may seem like I'm cured but a month later I would be right back with my old habits. I did think actively back to the song talking to my husband the night before and telling him about packing, so when I got to the word it caught my attention and I controlled the grammar of the sentence. But thank you so much for that experiment! I want to continue partly because I don't want to part with the song and partly because I think listening to the song at least once a week over the next month or so may be beneficial too. Also, many of my students mispronounce the word "clothes" [klo-zes], I don't know where this mistake started but it's very prominent, so the song may be useful for that too! Two birds one stone.)”

Sofia: “The song method helped me not only fixing pronunciation but also memorizing useful definitions about chemistry!”

Mario: “Bravo! You should continue with this project, it is a very good approach plus you have the possibility to compose music, which is something you like! It's a win-win! Cheers!

Piotr: “Because I was aware of this error, I overcorrected and avoided the 'with' form altogether (I would say: 'Genghis Khan and I have ridden horses in Kazakhstan', rather than 'I've ridden horses with Genghis Khan in Kazakhstan'). I think the song made me more confident about using the 'with' form.”

Alina: “Thanks a lot for getting me involved! I think now I know more about how songs help us remember things and even correcting fossilised errors. I think I'll try to apply this to my language learning process or try it to help my students in some way.”



Hina: “I will watch the other videos in my free time :) I think a reminder is really important and I’d really appreciate if people around me told me whenever I make a mistake, because I don’t realize my errors or I don’t know the correct one.”

### **General thoughts (3 months after the intervention)**

Yulia: “It was a fun experience and I do pay attention to my mistake now.”

Sofia: “I am glad I took part in the experiment, because it raised my awareness of fossilised errors. Not only the ones that have been fixed in the experiment, but also other possible errors.”

Mario: “I still remember your song, as I remember the silly "Eins, zwei, drei, vier, Dracula" that the German teacher made us sing in middle school.”

Piotr: “I enjoyed taking part and the patterns I learnt have stuck.”

Alina: “As a language teacher, I have become much more aware of the effect that a song can have on language learning. This has affected well on my usage of songs. I could find out how helpful this can be. I've also offered some of the 'fossilised songs' to my students which helped them, too! I hope, I could do this =)”

Hina: “It was effective.”

Bora: “It was useful.”

Jing: “The experiment has made me aware of the mistakes I make when I speak.”

### **Do you feel the error has been corrected? (3 months after the intervention)**

Yulia: Yes - “Because though I do not refer to the song itself, I do pay attention to the construction when I need to say it and I correct myself before I say something out loud.”

Sofia: Yes - “My error was not so evident in daily life, but it appeared when I gave lectures on one specific topic, regularly twice a year. Two months after the experiment I managed 6 lectures without mispronunciation errors. So, the method worked for me.”

Mario: Not sure - “Basically, the main problem for me is that native speakers do not correct my mistakes in English (and in any other language, too) because, basically, nobody cares -

only some teachers do it - and, as a consequence, I don't care too much either. I suppose my spoken English is OK and that I usually pronounce the H at the beginning of the words, even though I know I could improve that and many other aspects. Unfortunately, time is my main problem, because if you want to be good at anything you need to practice it constantly... Moreover, people are used to mediocre things and that does not help - I mean, as long as you can communicate well enough to hold a conversation, people are happy, and I would feel 100% this way, too, if I hadn't tendencies to perfectionism, knew that I make loads of mistakes, and were more focused to improve my pronunciation. That's life - but I really appreciate your experiment ;)"

Piotr - Yes - "The song does spring to mind when I use this particular expression."

Alina: Yes - "I can clearly remember at least several times recalling a line from the song and using the correct phrasal verb for the situation. This makes me much more confident about what I'm doing!"

Hina: Yes - "I noticed that I pronounce correctly after I say a sentence including "work"."

Bora: Not sure - "Because when I say these sentences, I still have to consciously think. But at least, I have 'a break' which means I try to make the right sentences rather than making mistakes without realising it."

Jing: Yes - "It has kind of trained my brain to use the right word."

### **Thoughts about how prescriptive fossilbusting was (3 months after the intervention)**

Yulia: "I think I needed to be "attacked" with the issue in order to really concentrate on it. But I still don't know why we had to do physical exercise before singing."

Sofia: "Not sure, I feel neutral."

Mario: "I think you found the perfect way to help people correct their mistakes. Music and repetitiveness are a good way to learn languages."

Piotr: "I am not sure I fully understand the question. I thought the method helped instil the correct pattern in my mind."

Alina: "I must admit that before I started I felt too nervous about doing smth wrong. The instruction was totally clear but I felt there were many recommendations for smth I should do

regularly. Only cutting it down in my head to smth easier helped me start it, and then everything went alright. I don't feel I've missed smth important, though.”

Hina: “It was simple.”

Bora: “This method corrected my fossilised error without forcing. I still can't make the sentences naturally but I notice before I make a mistake. I think this is amazing. In my opinion, fossilised errors are similar to an old habit. When you change your old habit, usually it takes a long time and you need a lot of effort. But with this method, I could understand my error clearly and got a tool I could use to fix my error myself in a short time. It's a bonus to get pleasure from singing.”

Jing: “I feel it's the right balance because it's easy to practice and it's effective.”

### **Thoughts about the duration of fossilbusting (3 months after the intervention)**

Yulia: “I feel like doing it for 10 days could have been a little better (or at least more on the 'safe side') but I guess it should also depend on the kind of error and the type of memory in a student.”

Sofia: “I was doing the exercise less frequently by the end of the experiment.”

Mario: “I suppose that the longer, the better. I know that people are busy, but maybe 10 days or 2 weeks would be even better.”

Piotr: “It was sufficient to allow me to memorise the pattern. I would have got tired of the exercise had it gone on for much longer.”

Alina: “Think it was exactly enough to totally remember the song and get used to it, but not to get tired of the routine.”

Hina: “I had thought that correcting fossil error would take a longer time period , but it took only a week. This is wonderful.”

Bora: “I didn't get tired of the song but also I can still remember the lyrics, so I think one week was just right.”

Jing: “The length was right because I was practising at least twice a day.”

### **Any other suggestions to improve the method? (3 months after the intervention)**

Yulia: "I would add images to songs so that we heard lyrics, saw lyrics and visualised them."

Mario: "Maybe you can group more mistakes in a song, and change a song already recorded instead of making up new ones every time. This way, the melody is already in people's head and you avoid wasting too much time."

Alina: "To someone like me, it would be better if I could take it a little bit easy, without feeling the instruction seems quite overwhelming. Also, I felt it hard to do exercise before listening. I also had a thought about how hard it might be to find the fossilised mistake in my own language. So this might probably be improved by a way to recognise the mistake to work with. In all of the other ways, I totally enjoyed my experience and its effect!"

Hina: "I suppose that keeping the method as simple as possible is the most important."

Bora: "If the student had the chance to say a sentence with the fossilised error during the correction process, maybe it would help the student to improve their speaking accuracy."

### **Any other comments? (3 months after the intervention)**

Yulia: "I think it's a really cool experiment and it should be made into an additional materials service for schools and individuals."

Alina: "FOSSIL BUSTED =D. Thanks a lot for the opportunity!"

Hina: "I would use this method, but there should be songs which match my error to be corrected."

Bora: "This method is really good. but writing a song and lyrics are not common skills for teachers. So if you can make some program to help teachers first you can help more students who have fossilised errors."

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